



**SO(AMI-I)MISC/2022  
GOVERNMENT OF THE PUNJAB  
SPECIALIZED HEALTHCARE & MEDICAL  
EDUCATION DEPARTMENT**

Dated Lahore, the 28<sup>th</sup> December, 2022

To,

- i. **All the Vice Chancellors of Medical Universities**
- ii. **All the Principals of Medical Colleges**
- iii. **All the Medical Superintendents of Teaching Hospitals**

Subject: **PHC GUIDELINES FOR EMERGENCY DEPARTMENTS AND  
THE REPORT SUBMITTED BY THE CEO OF PUNJAB  
HEALTHCARE COMMISSION (PHC) IN THE LAST COURT  
HEARING DATED 16-12-2022**

Reference to the subject cited above, recently notified PHC Guidelines for Emergency Departments and the Report submitted by the CEO of Punjab Healthcare Commission (PHC) regarding hospitals in the last Court hearing dated 16-12-2022 have been uploaded on the specialized healthcare and medical education department's official website <https://health.punjab.gov.pk>. The two important documents must be downloaded from the said website for record. Soft copy of the said Guidelines as well as Report have already been shared on official whatsapp groups i.e. VCs, Principals and MS's groups.

2. All Vice Chancellors, Principals and Medical Superintendents must read the Guideline as well as the Report carefully and necessary action may be taken accordingly. Compliance report thereupon shall be submitted on fortnightly basis.

  
(HAROON AKHTER, PMS)  
SECTION OFFICER (AMI-I)



# Guidelines for Emergency Departments of Hospitals



**Punjab Healthcare Commission**

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## Table of Contents

Sr. No.	Content	Page No.
1	Table of Contents	2
2	List of Acronyms and Abbreviations	5
3	Preamble	10
4	National Scenario	11
5	Provincial Scenario: year 2000 onwards	13
6	PHC Regulatory Framework: Minimum Service Delivery Standards	17
7	State of Emergency Departments in Pakistan	21
8	Levels of Care for Injured / Emergency, Patient	24
9	Golden Hour Management	25
10	Planning of Emergency Services	31
11	Major Functional Areas in the Hospital Emergency	34
11.1.	Triage: Concept and Application	46
11.2	Triage Scale (TS)	49
11.3	The Triage Tool	50
11.4.	Discriminator List	51
11.5	Interventions to be carried out at Triage	52
11.7	Categorization of patients according to Seriousness of the Problems	55
11.8	Levels of Hospital Emergency Departments	56
12	Physical Setting Requirements	57
13	Continuous Professional Development	60
14	Admission Policy for the Emergency Department	61
15	Disposition of Patients from the Emergency Department	62
16	Code Blue	64
17	Power Failure in Hospital Emergencies	67
18	Policy Recommendations of Emergency Experts Consultation	69
19	Emergency Department Check list	71
20	Hospital Emergency Departments Operational Model	76
20.1	Department of Emergency	76
20.2	Training	80
20.3	Transfer of Patient to other Hospital	83
20.4	SOPs –Infection Prevention and Control in Emergency	87
20.5	Anaphylactic and drug reactions, asphyxia, electric shock and drowning	88
20.6	Management of Cardiopulmonary Arrest	89
21	<b>Annexures</b>	
	Annex-I: Triage Sheet	91
	Annex-II: Code Blue Feedback Form	92
	Annex-III: Resuscitation Form	93
	Annex IV: Equipment & Supplies	94
	Annex-V: Essential Medicines list	96
	Annex-VI: The CTG discriminator list (adult version)	97
	Annex-VII: Children Triage Score (3-12years, 96 -150cm) TEWS	98
	Annex-VIII: Infant Triage Score (<3 years, < 95 cm) TEWS	99
	Annex-IX: Examples of triage systems internationally in vogue	100



	Annex-X: PHC Guidelines for Referral	105
	Annex-XI: power Failure and SOPs to ensure patient safety in the wake of power failure	111
	Annex-XII: List of Emergency Experts Consulted	114
22	References and Bibliography	115

#### Figures and Flow Charts:

Sr. No	Title	Page
Fig 1	Level of Emergency Facilities	16
Fig 2	Algorithm of activities in Accident and Emergency	20
Fig 3	Glasgow Coma Scale	27
Fig 4	Sample Outlay of Small Emergency Unit: minimum 5 to 10 treatment beds	37
Fig 5	Sample Outlay of medium size Emergency Unit: minimum 11 to 30 treatment beds	38
Fig 6	Sample Outlay of Large size Emergency Unit: minimum 31 or 100 or more treatment beds	39
Flow chart	Interventions to be carried out at Triage	52
Flow chart	Flow Chart of the Care process at the Emergency Departments	54

## ACRONYMS and ABBREVIATIONS

A&E	Accident and Emergency
AAC	Access, Assessment, and Continuity of Care
ABG	Arterial Blood Gas (test)
ACR	Annual Confidential Report
ACLS	Advanced Cardiac Life Support
ADL	Activities of Daily Living
ADR	Adverse Drug Reaction
AGPR	Accountant General of Pakistan Revenues
AIN	Asset Identification Number
ANC	Ante- Natal Care
APPM	Accounting Policies and Procedures Manual
AST	Aspartate Amino Transferase
ATLS	Advanced Trauma Life Support
AWP	Annual Work Plan
BCF	Bromo Chloride Fluoromethane
BHU	Basic Health Unit
BoM	Board of Management
BTS	Blood Transfusion Service
BLS	Basic Life Support
C&W	Communication and Works Department
CABG	Coronary-Artery Bypass Grafting
CCBs	Citizen Community Boards
CDC	Centers for Disease Control and Prevention (US government)
C-EmOC	Comprehensive Emergency Obstetric Care
CFAO	Chief Finance and Accounts Officer
CFO	Chief Financial Officer
CIs	Confidence Intervals
CMC	Complaint Management Committee
CMO	Causality Medical Officer
CME	Continued Medical Education
CNIC	Computerized National Identity Card
CoA	Chart of Accounts
COMS	Clinical Outcomes Measurement System
CPOE	Computerized Prescriber Order Entry
CQI	Continuous Quality Improvement

CRP	C-Reactive Protein
CSOs	Civil Society Organization
CSSD	Central Sterilization Services Department
CT	Computerized Tomography
DDO	Drawing and Disbursing Officer
DG	Diesel Generator
DGHS	Directorate General of Health Services
DHIS	District Health Information System
DHMT	District Health Management Team
DHQH	District Headquarter Hospital
DoB	Date of Birth
DoH	Department of Health
DRA	Drug Regulatory Authority
DVT	Deep Venous (Vein) Thrombosis
ECG	Electrocardiography
ED	Emergency Department
EDL	Essential Drug List
EMO	Emergency Medical Officer
EMR	Electronic Medical Record
EMS	Emergency Medical Services
ENC	Essential Newborn Care/ Emergency Neonatal Care
EmOC	Emergency Obstetric Care
EmONC	Emergency Obstetric and Neonatal Care
EQA	External Quality Assessment
FAR	Fixed Asset Register
FFP	Fresh Frozen Plasma
FGI	Facility Guideline Institute
FHT	Family Health Team
FMS	Facility Management and Safety
FP	Family Planning
GAAP	Generally Accepted Accounting Principles
GATHER	Greet, Ask, Tell, Help, Explain, Return
HAOP	Hospital Annual Operational Plan
HCE	Health Care Establishment
HCP	Health Care Provider
HEPA	High Efficiency Particulate Air
HIC	Hospital Infection Control



HID	Health Institute Database
HMIS	Health Management Information System
HOD	Head of Department
HRD	Human Resource Development
HRM	Human Resource Management
HTC	Hospital Transfusion Committee
HVAC	Heating, Ventilation, And Air Conditioning (System)
IBC	International Building Code
IC	Infection Control
ICC	Infection Control Committee
ICD	International Classification of Diseases
ICN	Infection Control Nurse
ICO	Infection Control Officer
ICP	Infection Control Practitioner
ICT	Information and Communication Technology
ICT	Infection Control Team
ICU	Intensive Care Unit
IEC	Information, Education and Communication
IFRS	International Financial Reporting Standards
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
IMPAC	Integrated Management of Pregnancy and Childbirth
IMS	Information Management Systems
IPD	Inpatient Department
IPM	Integrated Pest Management
ISMP	Institution for Safe Medication Practices
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JD	Job Description
KCl	Potassium Chloride
KPIs	Key Performance Indicators
LAMA	Left/Leaving Against Medical Advice
LASA	Look-Alike, Sound-Alike
LDH	Lactate Dehydrogenase
LHV	Lady Health Visitor
LHW	Lady Health Worker
LSC	Liquid Scintillation Counting
MAR	Medication Administration Record
MCH	Maternal and Child Health

MD	Medical Director
MDR	Multiple Drug Resistance
MIS	Management Information System
MLC	Medico-Legal Cases
MLR	Medico-Legal Report
MOM	Management of Medication
MRI	Magnetic Resonance Imaging
MRSA	Methicillin Resistant Staph Aureus
MS	Medical Superintendent
MSDS	Minimum Service Delivery Standards
N.B.	Nota Bene (Note well)
NFPA	National Fire Protection Agency
NGO	Non-Government Organization
NICU	Neonatal Intensive Care Unit
NMNCHP	National Maternal Newborn and Child Health Promotion
OEM	Original Equipment Manufacturer
OPD	Outpatient Department
OR	Operating Room
OSHA	Occupational Safety and Health Administration
OT	Operation Theater
OTA	Operation Theatre Assistant
OTMC	Operation Theatre Management Committee
PACS	Picture Archiving and Communication System
PACU	Post Anaesthesia Care Unit
PALS	Paediatrics Advanced Life Support
PAR	Post Anaesthesia Recovery
PEPP	Payment Error Prevention Program
PGD	Patient Group Direction
PHC	Punjab Healthcare Commission
PIP	Patient Identification Procedure
PMDC	Pakistan Medical & Dental Council
PNC	Pakistan Nursing Council
PNC	Post - Natal Care
PNRA	Pakistan Nuclear Regulatory Authority
PO	Purchase Order
POD	Patients Own Drugs
PPE	Personal Protective Equipment

PPRA	Punjab Procurement Regulatory Authority
PRE	Patient Rights and Education
PTBA	Punjab Blood Transfusion Authority
QA	Quality Assurance
QC	Quality Control
QI	Quality Improvement
RBS	Random Blood Sugar
RDL	Role Delineation Level
RHC	Rural Health Centre
RIS	Radiology Information System
ROM	Responsibilities of Management
RTAT	Radiology Turn Around Time
RTI	Reproductive Tract Infection
SAM	Self-Administration of Medicine
SMPs	Standard Management Protocols
SOPs	Standard Operating Procedure
SPSS	Statistical Package of Social Sciences
SSI	Surgical Site Infection
SSIR	Surgical Site Infection Rate
SSIS	Surgical Site Infection Surveillance
STI	Sexually Transmitted Infections
SVD	Spontaneous Vaginal Delivery
SWOT	Strengths, Weaknesses, Opportunities, Threats
TAC	Technical Advisory Committee
THQH	Tehsil Headquarter Hospital
TNCC	Trauma Nursing Care Course
V/Q	Ventilation/Perfusion
WHO	World Health Organization
WM	Waste Management
WMO	Woman Medical Officer
WMT	Waste Management Team
ZBB	Zero-Based Budgeting



## Preamble

The Emergency Departments of healthcare establishment has pivotal role in providing access to emergency medical care, and backup support to the primary health care facilities including BHU, RHCs, smaller hospitals settings and clinics of family physicians in the private sector. The Emergency Department is also an important interface for a variety of indoor and outdoor services operating in the healthcare establishment, as a large proportion of total admissions to inpatient wards are via Emergency Departments.

These guidelines are only intended to provide an outline towards integration of clinical requirements, functional needs and practical logistic and space requirements for an Emergency Department of a typical hospital. The document is not intended to provide an exhaustive guide or a prescriptive list of medical equipment and other requirements, as such information is essentially dynamic and can become outdated quickly. Rather these guidelines are aimed to highlight critical aspects, mode of care, and optimal patient pathways leading to smooth flow of patients and eliminating the chances of mismanagement or poor or un-intended outcome.

No matter how much diligence is observed in planning a hospital emergency department, models of care may rapidly change in the real case scenario, as a result of change in government policy, new initiatives, change in staffing of the Emergency Department in view of change in patients' needs and demographics, technology, physical and social environment related factors. In the private sector, the Emergency Department and Emergency Care is influenced by a number of factors including the business model, etc. The Emergency Physicians, nurses, allied health staff actually working in the Emergency Departments being the key stakeholders can provide valuable inputs during designing phase<sup>1</sup> of the hospital emergency services.

As per the JCI Survey Process<sup>2</sup>, Hospitals providing services that are available 365 days a year, and ensures that all direct patient care as well as ancillary and support services as needed for emergent, urgent, and/or emergency needs of patients, such as diagnostic testing, laboratory, and operating theatre, as appropriate to the type of acute care hospital are operational 24 /7 basis are eligible to apply for JCI accreditation.

Emergency Department of the hospital is often the gateway to healthcare system and point of first contact for many patients coming with acute illnesses or are suffering from some imminent complication of chronic health problem. Commonly presenting emergencies include obstetric cases, complications during pregnancy and post-partum, non-communicable diseases e.g. asthma, heart attacks, strokes, surgical issues, road traffic accident, environmental and man-made disasters exacerbations of acute life threatening infections e.g. sepsis, Covid-19, dengue, Congo Hemorrhagic Fever, and psychiatric illnesses etc.

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<sup>1</sup> Emergency Department Design Guidelines by Australian College for Emergency Medicine, 2014

<sup>2</sup> JCI Survey Process Guide (7<sup>th</sup> Edition, 2021),

These Guidelines are intended to supplement the requirements mandated under the Minimum Service Delivery Standards prescribed by the Punjab Healthcare Commission (PHC) and notified by the Government of the Punjab, to improve quality of health services delivery in the hospitals and to ensure patient and provider safety. The Health Facilities will be required to give effect to the provisions of the guidelines as applicable within their declared scope of work, and in terms of the provisions of the License granted by the Punjab Healthcare Commission.

## National Scenario

Whenever an injured person is brought to a hospital, it is mandatory to provide medical aid without delay on priority basis. This medical aid will be provided irrespective of any other consideration including medico legal formalities and no police officer shall interfere during the period an injured person is under treatment in a hospital<sup>3</sup>. The Injured Persons (Medical Aid) Act, 2004 further explains "injured person" as a person injured due to traffic accident, assault or *any other cause who is in need of an immediate treatment*. The Act in terms of Section 6 also *provides that* an injured person shall not be shifted from a hospital until he is stabilized or the requisite treatment is not available in such hospital and while shifting to another hospital, the doctor concerned shall complete the relevant documents with regard to the clinical conditions of the patient and hand over such documents to the concerned doctor of the receiving hospital.

In order to provide for early transport of the injured or ill person in a life threatening situation, section 5 of the Punjab Emergency Service Act, 2006<sup>4</sup> empowers Rescue Service to arrange transport (transport vehicle or ambulance) where necessary for carrying persons requiring emergency medical treatment to the nearest hospital emergency or healthcare unit having such arrangements. Section 17 of the said Act also enables the Emergency Officer or the Rescuer to administer such life safety procedures as are consistent with their training and competence.

National Reference Manual on Planning and Infrastructure Standards<sup>5</sup> formulated by the Government of Pakistan provided long term goal of 5 hospital beds per thousand population, whereas the sixth five year plan envisaged a target of 0.63 beds per 1000 population. As a general guide, Standards for Health Facilities envisaged a Tehsil hospital of 60 beds having three basic specialties and dentistry service, whereas every district should have one 100 to 250 bedded referral hospital with all medical facilities including 6 to 10 specialties. In larger cities, in addition to one district hospital, one general hospital of 100 to 250 beds with all medical facilities and 5 to 10 specialties was also envisaged.

On provincial and regional basis, the standards provided for teaching hospital having all specialties in a 500 to 1000 bedded facility, whereas in metropolitan cities and hill stations, specialized hospitals e.g. Mental hospitals, T.B Sanatoriums were envisaged. The standards also considered the scope of

<sup>3</sup> Injured Persons Medical Aid Act, 2004

<sup>4</sup> Punjab Emergency Service Act, 2006

<sup>5</sup> National Reference Manual on Planning and Infrastructure Standards, Ministry of Housing and Works, Environment and Urban Affairs, Government of Pakistan 1986

private clinics to take some load in larger urban centres and in upper income communities thus reducing the need for public provision.

The National Reference Manual also provided that coordination with other emergency services was crucial for a comprehensive efficient service and thus required that a hospital should at least be in communication with police, ambulance and fire services, and the ambulance service should be focused on district/general hospital upwards in the hierarchy. The Guidelines provided that there should be adequate parking near emergency wards/cardiology units, and access should be separate for ambulances from the main public entrance.

The Reference Manual also provides Elements and Covered areas of health facilities that require 10,576 square meters covered area for a 250 bedded district hospital, and 10% beds to be in single rooms for intensive care with space requirement per bed: 16.5 sq meters for adults and 18.5 Sq meters per bed for children ward. The Manual requires 464 Sq meter space for Accident & Emergency Department of such a secondary referral hospital and 30 to 35% of the net area to be allocated as circulation space and facilities for the ward.

In order to review the prevailing situation and to make recommendations for improvement, a working group comprising of the local emergency care experts was constituted by the Ministry of National Health Services and Coordination, Islamabad to undertake assessment of Emergency System in Pakistan in collaboration with the WHO. After detailed review and inputs from the key informants, the report submitted by the working group<sup>6</sup>, inter-alia, made the following recommendations:

- I) Implement use of system-wide standardized clinical forms /SOPs in Emergency Units
- II) Establish minimum standard guidance / standardized clinical forms for use in emergency based on WHO standards
- III) Establish an emergency registry platform in the Ministry to provide guidance on emergency care and for pre-hospital care; and a coordination mechanism at national and provincial level for collecting, analyzing and utilization of emergency care data at policy level
- IV) Standardize criteria and process for designation of trauma centres
- V) Set standards for first aid kit, and provide standardized training
- VI) Establish single national universal access number for emergency healthcare; and implementation of accreditation mechanism and oversight for ambulances (public and private)
- VII) Establish national level minimum service guidance on clinical care and communication protocols for inter-facility emergency transfer
- VIII) Implement formal emergency unit triage process at every district hospital and tertiary care level in line with WHO tools
- IX) Implement dedicated training in basic emergency care for front line emergency care providers

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<sup>6</sup> Assessment of Emergency System in Pakistan, 2014



- X) Establish core or dedicated (non-rotating personnel) clinical response teams at emergency units of all levels
- XI) Establish minimum standards & guidelines for emergency Units regarding level of services, processes (triage, length of stay, handover or discharge), infrastructure, staffing, equipment, supplies at national level
- XII) Integrate emergency care training in undergraduate medical and nursing curricula, and to initiate additional medical emergency specialty training programmes
- XIII) The federal regulatory council to make it mandatory for ongoing practice a basic emergency care training for healthcare professionals providing services in emergency units
- XIV) Provide a mechanism for enforcement of accreditation standards in the emergency care elements in public and private hospitals
- XV) Develop pre-hospital and in-facility security plans at all levels of service delivery to protect staff, patients and infrastructure from violence
- XVI) Conduct regular assessment of the capacity of emergency care system to mobilize resources in case of disasters, outbreaks and large scale emergencies, and to strengthen such capacity by prior planning and coordination at national and provincial level.

## Provincial Scenario: year 2000 onwards

In Punjab province, the mainstay of emergency services rests with the public sector hospitals, which provide round the clock free medical cover for all incoming patients, while no patient is denied emergency care. Emergency Departments of the Teaching and tertiary care hospitals provide basic and specialized medical cover round the clock, while most of the district and tehsil hospitals provide 24/7 hour basic medical and surgical cover in the emergency departments, including medico legal services. Similarly, the rural health centers are open for 24/7-hour basic medical cover, and medico-legal services.

Since late 1990' and early 2000, the Cardiology Institutes and Pediatric hospitals provide specialized coronary and pediatric care in cities like Lahore, Multan, Faisalabad and Rawalpindi. However, these facilities draw their strength and backup from the regular set ups provided in the neighboring public sector tertiary care hospitals for other specialties' services. In 2002-2003, a major initiative was undertaken by the government when emergency departments of seven major teaching hospitals were planned for upgradation. In order to optimize operation of the upgraded emergency facilities, a Manual of Standard Operating Procedures (SOP)<sup>7</sup> was framed by the Health Department, Government of the Punjab in October, 2003. The Manual inter-alai, contained the following important recommendations:

- (i). Establishment of Ambulance Stations on highways /major intersections and provide linkage with ambulances and the referral hospitals, with a target time of 20 minutes to reach at accident site
- (ii). Purchase, equip and staff the ambulances with basic life support facilities
- (iii). Improve the DHQ hospitals by commissioning intensive care of at least 4 beds capacity with equipment and trained staff
- (iv). Increasing the number of general surgeons, orthopedic and neurosurgeon in each DHQ hospital, and ensure 24 hours availability of operation theaters
- (v). An additional medial superintendent as in-charge of emergency in DHQ hospital

The Manual also provided the job descriptions of key staff members including CMO, Nursing staff, and documented procedures for reception, registration, and management /transfer of patients in the emergency department. It also included 50% extra pay for regular emergency staff and provisions and procedures for emergency lab, radiology and blood bank facilities. The Manual also provided a summary of existing capacities in RHCs, THQ Hospitals, DHQ and Teaching hospitals, and the desired performance levels /capacity to be achieved as a result of the government initiative. The manual also provided a monitoring instrument / check list as per WHO guidelines.

In 2016, the Primary and Secondary Healthcare Department undertook baseline assessment of 25 district headquarter hospitals and 15 tehsil headquarter hospitals towards getting these hospitals

<sup>7</sup> Standard Operating Procedures (S.O.P) Manual for Emergency Medical Services in Teaching Hospitals of the Punjab; Department of Health, Government of the Punjab, October 2003

licensed with the Punjab Healthcare Commission. As a result, a substantial transformation programme was undertaken with focus on upgrading the following:

- i). Medical infrastructure
- ii). Hospital infrastructure
- iii). Human resource
- iv). technology / EMR
  - v). Outsourcing of non-clinical services
  - vi). Implementation of best practices /SOPs

Following hospitals were included in the transformation programme

DHQ Hospitals		THQ Hospitals
1. DHQ Attock	2. DHQ Muzzafargarh	1. THQ Hazro
3. DHQ Bahawalnagar	4. DHQ Nankana Sahib	2. THQ Chistian
5. DHQ Bhakkar	6. DHQ Narowal	3. THQ Ahmedpur East
7. DHQ Chakwal	8. Additional DHQ Okara	4. THQ Taunsa Sharif
9. DHQ Chiniot	10. DHQ Okara	5. THQ kamoke
11. DHQ Hafizabad	12. DHQ Pakpattan	6. THQ Mian Channu
13. DHQ Jhang	14. DHQ Rajanpur	7. THQ Noorpur Thal
15. DHQ Jhelum	16. DHQ Sheikupora	8. THQ Esa Khel
17. DHQ Kasur	18. DHQ TT Singh	9. THQ Shuja Abad
19. DHQ Khanewal	20. DHQ Vehari	10. THQ Kot Addu
21. DHQ Khushab	22. DHQ Mandi Bahauddin	11. THQ Arifwala
23. DHQ Layyah	24. DHQ Mianwali	12. THQ Chichawatni
25. DHQ Lodhran		13. THQ Daska
		14. THQ Gojra
		15. THQ Burewala

In 2021-22, the Government of the Punjab envisaged to develop 250 bedded new emergency and trauma centre in Jinnah hospital Lahore, and a new hospital near Arfa Kareem tower in Lahore with an estimated bed strength of 1000, and having 250 bedded emergency department as per the following suggested breakup:

Departments	Proposed Bed Count
General Surgery	36+36 beds
General Medicine	60 beds
Orthopedic/Spinal surgery	24 beds
Modular Surgical ICU/Modular Medical ICU	14 beds
High Dependency Unit	21 beds
Emergency Dialysis Room	06 beds
Triage Accidents & emergency	48 beds
Code Blue Room	06 beds



Total Beds	251 beds
Modular OT Suites	06 beds
Minor OT	03 Tables

The above schemes are in the scrutiny process before approval under the Annual Development Programme (ADP), and once approved, will be setting new standards for emergency care in Punjab. *On the contrary, dedicated emergency set ups in private hospitals are comparatively less developed, barring a few. It is primarily due to the fact that private hospitals are never sure that all clients in emergency ..could be affording to pay all expenses.*

As per the **need assessment of Trauma Centres** undertaken in the Punjab<sup>8</sup>, there were 20 dedicated trauma centres in Punjab, out of which 8 were non-functional, while accident and emergency departments of teaching hospitals in Punjab were providing round the clock access to trauma care. The study observed that while there was no level-I specialized state of the art trauma care facility in Punjab as per WHO guidelines, the DHQ hospitals in Punjab were providing services equivalent to level-III trauma centres, whereas services at independent trauma centres were of level-IV.

The study revealed that there were no neurosurgeons in the trauma centres, while only 25% trauma centers had anesthetists. Only 17% of the DHQ hospitals and 63% of the teaching hospitals had neurosurgeons. Only 17% DHQ hospitals had the CT scan facility. Due to such shortages, there were frequent referrals to the higher level health facilities. In addition to the budgetary constraints, the independent trauma centres at Phool-nagar, Bhakkar, Layyah, Bahawalpur and Shuja abad had no specialized trauma team. Only 60% of the independent trauma centres had access to blood bank services. Only 25% of trauma centers were providing acute surgical care.

The study concluded that establishing new trauma centres was not a viable option, till the shortages in the existing facilities were met. It was emphasized that management of trauma patients requires a multidisciplinary approach, and specialized trauma care teams. It was recommended that formal education and specialized training in trauma care be introduced, and be made mandatory for personnel involved; PM&DC may introduce special courses of trauma care, and regular capacity building sessions be arranged for trauma care service providers, and be made essential for dealing with emergencies. The study also recommended to develop and update trauma protocols, regular trauma team training sessions.

The study concluded that if at all the trauma centres were to be established, these must be done in the existing DHQ Hospitals, which are more accessible for road accident victims, and where basic infrastructure and backup support is already available. The study also recommended to lay emphasis on proper stabilization of the road accident cases at nearest level 4 trauma facilities located around the main roads in Punjab, before referral for definitive management.

<sup>8</sup> Need Assessment of Trauma Centres in Punjab, 2018 by Punjab Economic Research Institute (PERI)

**Level 1**

Level 1 facilities provide the highest level of trauma care for patients. These facilities have a full range of all types of specialists and equipment available 24 hours a day. These facilities also offer teaching and research-components.

**Level II**

Level II facilities provide the same services as Level I facility without the research component or a surgical residency programme. Level II facilities may not have specialist on-hand 24/7, but they have them on call.

**LEVEL III**

Level III facilities do not have the full availability of specialists as Level I & Level II centres do, but they do have resources for emergency surgery and intensive care. In some cases, the facility might have to transfer patients.

**Level IV**

Level IV facilities provide initial evaluation, stabilization and diagnostic capability but will likely have to transfer the patient to a trauma care centre with a higher designation.



**Fig-1: Levels of Emergency Facilities** <sup>9</sup>

<sup>9</sup> Need Assessment of Trauma Centres in Punjab, 2018 P: 24

## PHC Regulatory Framework: Minimum Service Delivery Standards

The Punjab Healthcare Commission (PHC), established through promulgation of the Punjab Healthcare Commission Act, 2010 framed the first Minimum Service Delivery Standards (MSDS) for hospitals in 2012. Based on a comprehensive, internationally accepted framework, the MSDS encompass all aspects of service delivery and focus on inculcating a culture of Clinical Governance, integral to the healthcare systems based on the principles of responsibility and accountability. While standards are broadly categorized as pertaining to 'clinical care' or 'operational management', the procedures and practices prescribed within are interdependent and when implemented together, they deliver a patient centered system of care that prevents avoidable errors and protect the patients from harm.

The MSDS prescribed by the PHC lay due emphasis on provision of emergency services in accordance with law, with the objective to ensure patient safety and better treatment outcome. The Standard 3, under the functional area titled 'Care of Patients (COP)', require the healthcare establishments (HCEs) to develop Policies, Procedures and SOPs for provision of the Emergency Services. The standards further require to ensure that services are guided by and provided in accordance with Policies, Procedures, SOPs, the Applicable law and Regulations. As such, the hospitals need to have an Emergency Care Policy and plan, covering all the aspects including, the administration of the emergency area, triage, waiting times, admission/registration, legal reporting requirements, discharge and patient transfer etc.

The guidelines provided in the Reference Manual<sup>10</sup>, explain further the standards that require the HCEs to have well thought out and documented policies and procedures for emergency care, in line with statutory requirements. These policies and procedures, developed in the light of applicable laws, shall guide and encourage patient safety as the overall principle for providing healthcare services to patients.

These policy documents should include SOPs/Protocols to provide both, general emergency care as well as management of specific conditions, e.g. myocardial infarction, acute abdomen, poisoning etc. and shall address both adult and pediatric patients. The procedure shall incorporate at least identification of patients, assessment and provision of care. The HCE policy should spell out and ensure availability of all the necessary equipment in the Emergency Department (ED) in working order and functional round the clock (24/7) without interruption of its services and in accordance with the international standards.

As per the reference manual, the Emergency Department should be appropriately staffed and must have one to two Emergency Medical Officers (EMOs)/ CMOs depending upon the patient load of the HCE in each shift of 8-1/2 hours, with a half hour overlap of duties for handing/taking over of charge. Instead of night duty of 12 hours i.e. from 8PM to 8AM, a uniform duty of 8-1/2 hour must be enforced. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and

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<sup>10</sup> Minimum Service Delivery Standards Reference Manual, 2013

Surgery/Allied specialties and preferably training in advance basic life support (ABLS), advance trauma life support (ATLS) and advance cardiac life support (ACLS) for the appointment of CMO/EMO.

As per the guidelines provided in the Reference Manual with the MSDS for hospitals, the Hospital should make policies and develop SOPs/SMPs, on at least the following topics:

1. Triage	2. Admission of patient for definitive care
3. Patient assessment and care	4. Return of admitted patients to the Emergency Department
5. Emergency Department design	6. Length of stay in the Emergency Department beyond 8 hours (as prescribed)
7. Initial screening exam	8. Injury prevention of unconscious, confused or irritable patients
9. Staffing of emergency services	10. Social works services consultation
11. Emergency medical services (EMS)	12. Release of information to media
13. Continuing education	14. Poisonings / Pesticide poisoning
15. Disaster plan	16. Patient discharge
17. Medications	18. Infection control
19. Equipment and supplies	20. Blood borne pathogen exposure in patients presenting to the Emergency Department
21. Electrical safety and Power failure	22. Visitors/ attendants
23. Fire plan	24. Medical records
25. Security/traffic control	26. Elective sedation and analgesia
27. Inter-hospital transfers	28. Patients pronounced dead in the Emergency Department
29. Laboratory down time procedure	30. Tetanus prophylaxis
31. Consent	32. Rabies prophylaxis
33. Confidentiality of patient information	34. Major adult trauma
35. Shock-trauma area	36. Major paediatric trauma
37. Patients' belongings and valuables	38. Adult Medical Resuscitations
39. Standing orders	40. Paediatric Medical Resuscitations
41. Integration of diagnostic radiology with Emergency Department	42. Paediatric Medication Administration
43. Integration of operating room with Emergency Department	44. Emergency Department Control Register (ED log)
45. Integration of special care units with Emergency Department	46. Quality Control

47. Reporting of criminal injury/ medico legal cases	48. Follow-Up programme - Call Back
49. Invasive procedures	50. Patient Follow-Up procedure
51. General anaesthesia	52. Continuous Quality Improvement (CQI)
53. Special procedures	54. Admission of patient for definitive care
55. Patient transport for radiological procedures	56. Return of admitted patients to the Emergency Department

As per the Indicator 16 provided under the above said standard, the hospital policy shall be in line with legal requirements with reference to documentation and intimation to the police. Medico Legal Cases/ Medico Legal Reports (MLC/MLR) will be defined by the HCE in the light of the statutory rules. MLC/MLR must be handled by the medical officers of the Forensic Department where it is available, as in teaching hospitals; vis-a-vis where a Forensic Department is not available then CMOs must be given capacity building training. Female victims of medico-legal cases must be dealt by female doctors. If not available in the Emergency Department, then a female doctor from the Gynaecology Department must be appointed in the emergency department, with her name and telephone number noted. An approved Government Policy/Procedure is to be followed while handling and reporting Medico Legal Cases. Details are provided in the SOPs<sup>11</sup> developed by the Project Management Unit, Primary & Secondary Healthcare Department, Government of the Punjab.

The Indicator 17 would require that the hospital staff receives awareness and training regarding the emergency policies and procedures. Similarly, Indicator 18 requires that the hospital policies and procedures guide the triage of patients for initiation of appropriate care. The Guidelines provided by the Punjab Healthcare Commission with the above said standards provide that for efficient management of patient workload, the following points need to be spelled out by the administration in consultation with Head of the Emergency Department:

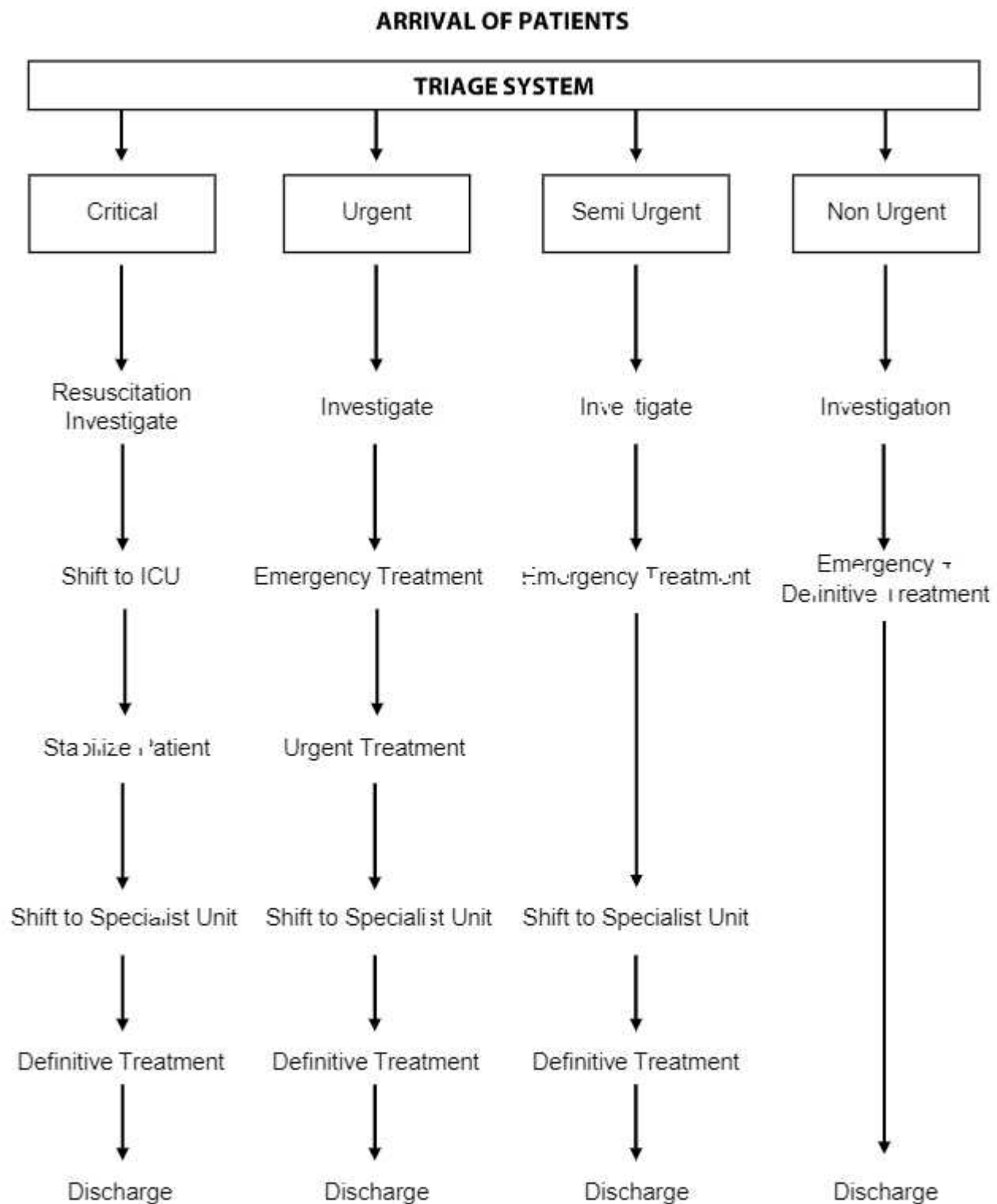
- Criteria for identification of "non-emergency case" presenting to the ED and requiring little or no clinical care and not needing assessment by a consultant at the ED. The criteria should enlist inclusions and exclusions and specified clinical lines for management
- Policy/procedure to sort and manage non-emergency patients
- Assessment criteria should include evaluation of vital signs, age, mobility and absence of co-morbidities
- Ensure that SOPs regarding Triage and Treatment are well defined and understood by all staff
- The SOPs should include management protocols for each category of patient viz cardiac, road traffic accident and poisoning etc
- Ensure clearly defined roles and responsibilities

<sup>11</sup> Section 14, 37, 38 & 42 of the A&E Department SOPs, 2019



The Reference Manual provided with the MSDS for hospitals further explains that the patients are **TRIAGED** on the **Basis of the Urgency** with which they need medical attention. The Triage Nurse allocates a **Triage Category** to a patient based on the statement and/or the condition of the patient as evaluated by the Emergency Medical Officer. The guidelines under indicator 19 and 20 also elaborate that the hospital staff is made aware of, and trained on providing emergency care, while all admissions and discharge / referrals are documented.

## ALGORITHM OF ACTIVITIES IN ACCIDENT AND EMERGENCY



**Fig-2: Algorithm of Activities in A&E Deptt: how does Triage System work?**

## State of Emergency Departments in Pakistan

Health systems in all countries evolve within the prevailing social norms, cultural value system, and sustain within the bounds of economic

and social development. While it is an established norm that the healthcare services in private sector are only accessible to those who can afford to pay, emergency services in public sector hospitals are considered to be free to all, and accessible to every walk-in customer, and must be attended at the earliest without regard to the number of medics available on duty, number and seriousness of patients already in the emergency, and available bed-strength.

In our public sector teaching and tertiary care hospitals, emergency departments are purpose built facilities, where full time medical, nursing and allied staff is appointed in shifts, to attend the emergencies. The specialist services like surgery, medicine, obstetrics, pediatrics, neurosurgery, orthopedics, are provided by the visiting / consulting staff on rotation basis, usually through pre-determined rosters as to which unit will be on emergency duty on a specific week-day. Dedicated pharmacy, blood bank, radiology and Lab services for emergency cases are available round the clock in such hospitals. In smaller private and public sector (first referral or secondary referral) hospitals, usually there is one medical officer on emergency duty with paramedical staff, during off hours on shift basis. However, there are many concerns regarding quality of care in the emergency departments.

**Table 1: Presenting characteristics and emergency Services of patients in the Pakistan National Emergency Department Surveillance Study.**

Characteristics	N (%)
<b>Sex (n % 66,961)</b>	
Male	47,070 (70.3)
Female	19,891 (29.7)
<b>Age (n % 64,951)</b>	
0-9 years	4308 (6.6)
10-19 years	12,472 (19.3)
20-29 years	21,942 (32.9)
30-39 years	11,891 (18.3)
40-49 years	8585 (13.2)
50-59 years	3813 (5.9)
60+ years	2540 (3.9)
<b>Hospital (n % 68,390)</b>	
Lady Reading, Peshawar (public hospital)	23,567 (34.5)
Benazir Bhutto, Rawalpindi (public hospital)	14,538 (21.3)
Shifa, Islamabad (private hospital)	2540 (3.7)
Mayo, Lahore (public hospital)	8186 (12.0)
Sandeman Provincial, Quetta (public hospital)	5015 (7.3)
Jinnah Medical Center, Karachi (public hospital)	12,820 (18.7)
Aga Khan, Karachi (private hospital)	1724 (2.5)
<b>Mode of arrival to the ED (n % 64,686)</b>	
On foot	27,292 (42.2)
Public or private transport	32,061 (49.6)
Ambulance	5333 (8.2)
<b>Features of the index visit (n % 62,434)</b>	
First visit to ED for this incident	60,194 (96.4)
<b>Follow-up 2240 (3.6)</b>	
<b>Received any treatment for index injury in last 72 h (n % 64,466)</b>	
No	59,882 (92.9)
Yes	4584 (7.1)
<b>Discharged from any hospital in last 7 days (n % 59,957)</b>	
No	58,401 (97.4)
Yes	1556 (2.6)
<b>Number of ED visits for any reason in last 1 year excluding index visit (n % 48,022)</b>	
0 visits	27,918 (58.1)
One visit	13,875 (28.9)
Two or more visits	6229 (13.0)
<b>Services received</b>	
<b>Triage (n % 59,302)</b>	
Done	10,920 (18.4)
Not done	48,382 (81.6)
<b>Vitals noted (n % 15,789)<sup>b</sup></b>	
Blood pressure (at least systolic or diastolic)	11,632 (73.8)
Pulse	9055 (57.4)
Temperature	8802 (55.8)
Respiratory rate	7091 (44.9)
Glasgow Coma Scale (GCS)	1287 (8.2)
Physical examination performed	57,231 (89.7)
Imaging performed (X-ray, CT, other)	34,225 (55.2)
Laboratory investigation performed	4989 (7.9)
<b>Outcome of the ED visit (n % 55,520)</b>	
Discharged	26,020 (46.9)
Outpatient follow-up	17,202 (31.0)
Detained for observation/admitted	9443 (17.0)
Referred to other facility	1978 (3.6)
Expired	679 (1.2)
Left ED	198 (0.4)

CT, computed tomography; ED, emergency department.

a. For 'Service received' and 'Outcome of ED visit' characteristics, percentages were calculated using total sample size (68,390) as denominator, while all other percentages used available sample size for each characteristic as denominator.

b. One patient could have more than one vital sign recorded.

Results of a multicenter large scale emergency room surveillance<sup>12</sup> of trauma cases entertained in the year 2010-11 in seven tertiary care hospitals of Pakistan are depicted in Table 1 here. The study results reveal that most patients (70.7%) were not triaged. Only 23.1% had any vital sign noted; while 50% of patients had some form of physical examination performed. All the hospitals included in the study had formal emergency departments operational 24 hours a day, with heavy patient load exceeding 75,000 patients annually, and a daily patient to physician ratio of over 25:1. These hospitals included two private and five public sector tertiary care hospitals.

According to the statistics provided in 2019<sup>13</sup> the number of emergency cases entertained by the 18 public sector teaching hospital of Punjab rose from 8,449,334 patients attended in 2015 to 11,043,824 patients in the year 2019. The DHQ hospitals in Punjab attended 6,556,530 emergency cases in 2019 while the THQ hospitals managed 7,741,555 emergency cases in year 2019. Bed occupancy in teaching hospitals of Punjab remained 94%, and in the DHQ hospitals 91% during 2019. Given this amount of workload, it is no wonder that parameters for quality of care would have suffered.

A number of pilot studies conducted in local hospitals have documented introduction of triage system, e.g., implementation of South African Triage Scale in the Emergency Department of Fatima Memorial Hospital Lahore in 2017<sup>14</sup>; establishing triage desk in AKUH-ED in year 2000<sup>15</sup>; implementation of a triage score system in an emergency room in Timergara, Pakistan in June, 2011<sup>16</sup> have demonstrated an improvement in safe disposal of patients and better patient satisfaction. However, need for making adequate provisions of staff trained in emergency procedures has also been established.

Mr. R. Rehmani from the Aga Khan University Karachi<sup>17</sup> in his Editorial published in the Journal of Pakistan Medical Association in May 2004, highlighted the need to initiate residency training programs in emergency medicine. The College of Physicians and Surgeons Pakistan approved FCPS training programme in Emergency Medicine in 2010. The program started at Aga Khan University Hospital Karachi and Shifa International Hospital. Presently, 13 institutions in Pakistan have been approved by the College of Physicians and Surgeons Pakistan (CPSP) for such training. However, public sector institutions in Punjab are lagging behind in taking up emergency medicine fellowship training programme. Lately, one year Certification Programme in Emergency Medicine (CPEM) was also started by Indus Hospital in 2018<sup>18</sup>, in collaboration with Brigham & Women Hospital (a teaching affiliate of Harvard Medical School Boston).

Taking an account of what is the current status of emergency care in hospitals of Punjab compared to the working of hospital emergency departments in Australia, Dr. Naveed Aziz (a Pakistani doctor settled in Australia)<sup>19</sup> stated that an emergency department cannot work successfully without the

<sup>12</sup> Hyder A.A., He. S., & Zafar W. et al "The Royal Society of Public Health". 2017

<sup>13</sup> Annual Report 2019, District Health Information System, DGHS Punjab.

<sup>14</sup> Muhammad L.A. et al PJ.MHS Vol. 54, No. 4 Oct-Dec 2018

<sup>15</sup> Munassar K. et al J Ayub Med Coll Abbotabad 21:15-27(3)

<sup>16</sup> M.K. Dalwai et al PHA 2013, 3(1) 3-45

<sup>17</sup> R. Rehmani JMPA Vol. 54, No 5 May 2004

<sup>18</sup> Syed G Saleem et al, Vest J Emerg Med 2020 Mar 21(2)

<sup>19</sup> Email by Dr. Naveed Aziz dated 28<sup>th</sup> Feb, 2022

whole hospital behind it supporting its performance and backing it up. While declaring the current hospital emergency departments' model operational in Pakistan as an obsolete version fraught with danger, as young doctors are put in emergency with no formal training or supervision in managing emergency, resulting in low level of care.

Dr. Naveed stated that in the first hour "the golden hour" you need senior and experienced clinicians who can manage critical emergencies in an organized and methodical manner. He concluded that the emergency departments should be managed by doctors trained in emergency medicine who should provide leadership and ownership of the department. Dr. Naveed also recommended to inculcate triage practice, based on urgency (and not essentially on severity of disease); and advised to implement the triage practice fairly, with an attempt to distribute available resources equally and equitably. Dr. Naveed suggested to organize hospital emergency departments with these major functional sub-divisions internally:

<b>Reception</b>
Easy access, close to public transport, and adequately sign posted
<b>Triage</b>
Triage should be done by specially trained nurses
<b>Resuscitation Rooms</b>
With 2-3 beds with oxygen ports, suction outlets, airway, breathing and circulation resuscitation equipment, Nursing ratio 1:1
<b>Acute beds</b>
With monitoring equipment Nursing ratio 1:3
<b>Sub-acute beds</b>
Intermittent monitoring (to assess deterioration or escalation periodically) Nursing ratio 1:5
<b>Consultation Rooms</b>
<b>Procedure Rooms</b>
<ul style="list-style-type: none"> <li>— Suturing</li> <li>— Plaster application</li> <li>— Procedures under Minor anesthesia</li> </ul>
<b>Allied Facilities</b> like staff room, conference / education room, offices for Nursing, medical and admin staff, distressed relatives room, security, stores and toilets



## LEVELS OF CARE - INJURED/EMERGENCY PATIENT

Following are the progressive stages of care for the patients falling in an emergency situation. Preparedness and ability of those in attendance to respond appropriately can greatly reduce the extent of damage that is possible as a final outcome of trauma or emergency situation.

### a) Pre-hospital care

1. Detection/Notification/Announcement
2. Early intervention
3. Transportation

### b) Hospital care

1. Emergency care
2. Critical care
3. Definitive Treatment

### c) Rehabilitation

Countries and communities where the populations have developed good understanding and foresight into possible causes and events leading to the emergency situation, and have developed understanding amongst the people to identify the early signs, and to act smartly towards seeking help; and have social structures capable of being helpful (e.g., calling 15 or 1122 for ambulance service, rescue service, fire service, civil defense, etc.) can minimize the risks of fatality or help to reduce morbidity. Equally important is education and capacity building of volunteers and general public about "what to do" in an emergency scenario, before the medics can take over the care of patient.

Availability of good emergency services in hospitals is a cost and resource intensive activity and it takes years of sustained input and efforts to develop high tech and efficient surgical or medical teams and systems to meet the challenge. The medical doctors, nurses and allied health professionals, all need to be trained on life saving skills, and use of technology in time, to be effective.

Finally, once the emergency situation is over, the victim may very often need rehabilitation services to become fully functional. Such services are obligatory to the institutional care of serious trauma patients like spine injuries, head injury, burns, stroke, etc. Even though such services fall outside the scope of emergency services, these services, coupled with social support networks, are extremely important to harvest maximum benefit from the life-saving efforts of emergency services.

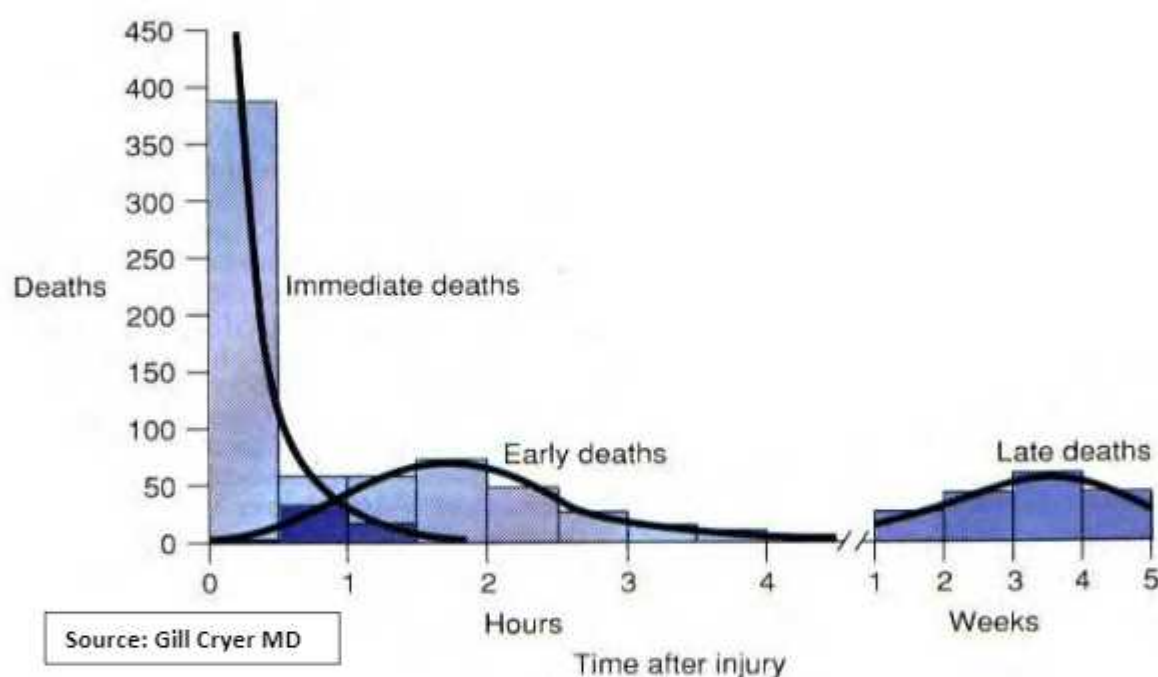
Public Policy owners, therefore have the responsibility to design and build the whole systems in a way that is comprehensive, and is able to deliver best possible outcome while working in work in tandem and harmony to achieve 'health' status for the population. In this regard, importance of life saving measures to be undertaken during first hour after trauma or injury cannot be over emphasized.

## Golden Hour Management

Golden Hour is the critical period of one hour after an injury, accident or trauma, as the mortality would considerably increase if efficient care was not provided within sixty minutes after the trauma<sup>20</sup>. Trauma in many countries is the leading cause of death during the first four decades of life<sup>21</sup>. In cases where death occurs within seconds to minutes due to laceration of brain stem, heart or large vessels, it is difficult to save such lives.

In the second common mode, death may occur within minutes to hours later, as a result of diverse injuries like haemo-pneumothorax, rupture of spleen, subdural hematoma or long bone fractures leading to massive blood loss. Here an aggressive and appropriate timely management can save many lives. The concept of Golden Hour has come out of this scenario.

Tri-modal Distribution of Death from Trauma



The concept of Golden Hour lays emphasis on time, promptness and provision of life saving services at the earliest, during the first hour of injury or trauma. This is only possible if well trained medics and paramedics are available on call, 24 hours a day at various locations in the urban locations. The system would require availability of well-equipped ambulances with necessary logistics and staff deployed throughout the year. The quality of emergency care during golden hour would also depend upon the stringent training protocols and drills. In this regard, availability of 1122 rescue service in Punjab is a substantial input towards saving lives during golden hour.

<sup>20</sup> Adonis N et al, 2020

<sup>21</sup> Kundavaram P. A & A. Sivanandam. 2020

Third common mode of deaths would occur days or weeks after the initial injury and would be most commonly the result of sepsis, or multiple organ failure. Such deaths may sometimes be inevitable due to subsequent complications of trauma, poor definitive or follow up or as a result of pre-existing medical conditions predisposing to poor survival. The very basic principles in early management of trauma are as under:

- i). treat the greatest threat to the life first;
- ii). lack of a definitive diagnosis should never stop from starting an indicated treatment;
- iii). a detailed history is not a pre-requisite to begin the evaluation of an acutely injured patient

Following are the order of priority for management of trauma in the Golden Hour:

- A: Airway
- B: Breathing
- C: Circulation




The primary assessment of the trauma patient is undertaken in a sequential manner to identify life and limb-threatening injuries. The primary assessment and resuscitation is often undertaken together, in the following manner:

- o Assess patency of airway first; clear speech in a conscious patient is a good indicator
- o Noisy breathing is an indication of airway obstruction – suction of mouth with a chin lift or jaw thrust maneuver will prevent the airway from obstruction in most cases
- o Oro-pharyngeal airway will be helpful to maintain airway in in comatose patient
- o Endotracheal intubation may be considered in severe cases (for expert hands only)
- o In patients where endotracheal intubation is not possible, surgical airway may have to be established without delay, in case such patients appear to have lost airway protective reflexes and have risk of gastric aspiration
- o Measures to establish airway should also include protection of the cervical spine
- o In a case with altered level of consciousness having blunt injury above the clavicle, or a patient with multisystem trauma, always assume that the patient has a cervical spine injury
- o Undertake manual in-line stabilization of the neck ( by an assistant) in such cases to prevent un-intentional movement of the cervical spine during oro-tracheal intubation
- o Once the airway is established, oxygen may be administered; followed by inspection, palpation, and auscultation of the patient's chest
- o No chest wall movement with abdominal breathing may indicate a cervical cord lesion
- o Observe for chest excursions and symmetry of breathing: paradoxical chest wall motion may indicate the presence of a flail chest injury
- o Massive hemothorax, tension pneumothorax and open pneumothorax need to be treated immediately (consider needle thoracotomy as emergency measure)

Once the airway has been taken care of, assess pulse, blood pressure and neurological status

- Rapid and thread pulse is early sign of hypovolemia
- A restless or an unusually cooperative patient is usually because of decreased cerebral perfusion
- Immediately secure IV line with two large bore branula for infusing fluids rapidly in case it is needed.
- Apply pressure to obvious external bleed
- In case of hypotension, bolus of one to two one liter of Ringers Lactate may be life-saving.
- In case the hypotension persists, look for a continuing bleed – Hemorrhage must be controlled before proceeding with rest of the primary assessment
- Be cautious: Raising blood pressure to normal in the presence of an ongoing bleed may cause more damage

A rapid neurological evaluation should be performed during primary assessment; Glasgow Coma Scale (GCS) can help to assess consciousness level

GLASGOW COMA SCALE	
<b>EYE OPENING RESPONSE</b> 	Spontaneous ——— 4 To sound ——— 3 To pressure ——— 2 None ——— 1
<b>VERBAL RESPONSE</b> 	Orientated ——— 5 Confused ——— 4 Words ——— 3 Sounds ——— 2 None ——— 1
<b>MOTOR RESPONSE</b> 	Obey commands — 6 Localising ——— 5 Normal flexion — 4 Abnormal flexion — 3 Extension ——— 2 None ——— 1
GLASGOW COMA SCALE	

Mild  
13-15

Moderate  
9-12

Severe  
3-8


MEDIC  TESTS #1 EMT & PARAMEDIC EXAM PREP

Fig 3. Glasgow Coma Scale Illustration



- Complete disrobing of the patient is mandatory if occult injuries are to be identified; undergarments may be retained after the physical examination, if there is socio-cultural sensitivity
- Examination of the external genitalia and rectal examination is part of the secondary assessment

Resuscitation should follow the ABC pattern of primary assessment, and should be performed simultaneously.

- If the airway is compromised, primary assessment should be suspended till the airway is secured
- Compromised breathing may require decompression if there is a tension pneumothorax, or a massive hemothorax.
- Endotracheal intubation and mechanical ventilation may be required if not breathing adequately
- During resuscitation of circulation, if there is indication of blood loss, blood sample for cross-match, serum electrolytes and hemoglobin assessment may be needed.
- ECG monitoring is essential for all trauma patients, so that volume loss (indicated by increasing heart rate) and arrhythmias (due to blunt injury to the chest) can be identified
- The pulseless electrical activity evident from ECG trace without a palpable pulse can be due to tension pneumothorax or cardiac tamponade
- Monitoring by Pulse oximetry is an indirect means of measuring the adequacy of ventilation

Following are the goals of **primary assessment and resuscitation**:

- Airway established and maintained
- Supplemental oxygen initiated
- Cervical spine immobilized
- Two large-bore intravenous lines started
- Blood drawn for baseline investigations and cross-match
- External hemorrhage control achieved
- Electrocardiography (ECG), blood pressure, and SaO<sub>2</sub> monitoring
- Brief neurological examination completed
- Full exposure and environmental control done.

The **secondary assessment** should be performed after the completion of the primary assessment. It is a head-to-toe systematic and comprehensive evaluation of all organ systems. Patient's detailed history can be obtained during this phase. This would include screening for

- Allergies

- Medications (especially anticoagulants, insulin, and cardiovascular medications)
- Previous medical/surgical history
- Last meal (time)
- Events (recall of) leading to injury or bio-mechanism of injury.
- Examination of the head and face

Immobilize the neck with a hard cervical collar until the cervical spine X-ray is done and cleared. With an assistant immobilizing the head, remove the cervical collar and examine the neck for any lacerations, tenderness, bogginess, or step deformities indicating the possibility of a cervical spine injury

- Scalp lacerations tend to bleed profusely because of abundant vascular supply. Apply direct pressure to control any bleeding.
- Check the continuity of the cranium with a gloved hand, palpating gently with the fingertips. Beware of small puncture wounds of the scalp, which may indicate penetrating injury of the brain
- Assess the GCS
- Examine the nose and ears for bleeding and leakage of cerebrospinal fluid
- Inspect the mouth for lacerations, broken teeth, or vomitus since they could jeopardize the airway.

#### **Examination of the thorax**

Although assessed during the primary assessment, the thorax should again be reviewed for injuries. Check SpO<sub>2</sub> to assess peripheral oxygen saturation.

**Examination of the abdomen;** abdominal assessment includes inspection for contusions, abrasions, and distension. Discoloration of the flanks may indicate retroperitoneal bleeding. Any wound above the umbilicus may have penetrated the thorax

- Femoral pulse should be simultaneously palpated bilaterally and assessed for equality
- The integrity of the pelvis should be evaluated by pushing on the wings of the iliac bone to determine if this action elicits pain
- Examine the urinary meatus for the presence of blood, which may indicate ruptured urethra
- Perform a digital pelvic examination in females to look for the presence of vaginal bleeding
- The patient should be logrolled with the head aligned to the body and the spine evaluated for asymmetry and the presence of tenderness
- During the logroll, perform a rectal examination to evaluate the sphincter tone and presence of blood.

**Examination of the extremities**

- Palpate the extremities for tenderness, crepitus, and deformities
- Evaluate for quality and integrity of pulses. Diminished pulses suggest disrupted blood vessels. Traction generally restores blood flow
- If the patient is conscious, assess sensory and motor functions
- Suspected fractures and dislocations should be splinted for further radiographic and diagnostic evaluation.

**Adjuncts to secondary assessment**

- A urinary catheter is a vital adjunct for poly-trauma management. The urine output is an excellent way of assessing perfusion in patients with an intact renal function. Moreover, blood in the urine may indicate renal trauma.
- The urinary catheter should be inserted only after ensuring that there are no pelvic fractures that could have injured the urethra.
- Blood in the meatus, perianal hematoma, or a high-riding prostate on rectal examination should raise suspicion of urethral injury.
- Under these circumstances, urinary catheterization should only be attempted after an ascending urethrogram
- The nasogastric tube needs to be inserted to avoid stomach distension and to reduce the risk of aspiration.
- When a base of skull fracture is suspected, the gastric tube should be inserted orally to prevent the intracranial passage
- If available, obtain an ABG to assess the Haematocrit, PaO<sub>2</sub>, and the degree of acidosis.
- Mandatory radiology in trauma evaluation for all high-velocity accidents includes the chest, lateral cervical spine, and pelvis.
- Focused assessment with sonography for trauma (FAST) is indicated if an intra-abdominal injury is suspected.

Pre-hospital care plays a vital role in the early resuscitation of trauma victims. There is an urgent need to train paramedics in trauma management, and to put resources in deploying the trained medics in resuscitation, at locations from where they can reach to the accident site, and evacuate the injured persons to hospital emergency departments / trauma centres for definitive treatment. The system would require connectivity of well-equipped ambulances with adequate logistics, so as to improve mortality and morbidity associated with trauma, and to optimize the care of injured during the Golden Hour, to save maximum number of lives.

The system would also require geographically accessible hospitals that are well equipped, well prepared, with available bed capacity and trained and qualified human resource ready to take up the trauma cases, operational for 24 hours a day and seven days a week.

## Planning of Emergency Services

Planning for making provision of Emergency Services is based not merely on a piece of land and a fancy design, rather on the following pragmatic considerations:

**Demand** of Services, as evident from statistical data comprising inflow of patients, number of emergency patients visiting in the area hospitals, their average length of stay and the type and nature of emergencies being received, or referred. The demand is calculated for a period of time into the future (Time Horizon over the base year data). The planning of facility includes recommendations for the following parameters:

- a. Number of beds for a variety of types (acute beds, recovery beds, etc)
- b. Number of operating rooms,
- c. Number of Labor rooms,
- d. Consultation/examination rooms
- e. Emergency treatment beds /areas
- f. Diagnostic facilities (Labs, Radiology, Angiography, etc)

Similarly, **planning for emergency services** would also take into account the **supply** side, i.e., current supply of health facilities and the range of services they cater for; and identifying potential gaps for making provisions accordingly. This process would include needs analysis, feasibility and devising appropriate business model.

The **hospital emergency building design** should cater for natural light, privacy (including acoustic privacy in areas of confidential conversation), noise reduction, and ergonomic factors for occupational safety of employees. Services should include telephone lines, IT/Communication facilities including data connections, and facilities for teleconferencing, etc. The planning should also take into account the **local building design**, and safety regulations<sup>22</sup>. A lot will depend upon local customs and traditions, for example, providing access to recovery area for family and relatives, separation of male and female treatment areas, recovery areas, and waiting areas; prayer rooms, and independent male and female inpatient units for accommodating patients in a culturally appropriate mode.

**Clear access ways and designated parking lots** need to be demarcated clearly. For service vehicles like delivery and waste management vehicles, loading docks should be designed compatible with the type of vehicles (clean versus dirty). In rush hours, traffic control arrangements may be needed for segregation of vehicles according to priority of use, and patient access is not interfered with emergency and service vehicle access. Similarly, parking facility should also cater for ease of access for the disabled, and those with special needs. Such parking areas should have a firm, plane surface and a continuous accessible path of travel should be provided between each parking space to an accessible entrance or the lift, identified with the international symbol of access for people with disabilities

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<sup>22</sup> Indian Health facility Guide ines, July 2014

The **International Health Facility Guidelines, 2017** provide sample layout designs as per the following requirements:

a)	Small Emergency Units	Minimum 5 to 10 treatment spaces
b)	Medium	Minimum 11 to 30 treatment spaces
c)	Large	Minimum 31 to 100 or more treatment spaces

Calculation of the areas should take into account the space required for departmental corridors, Plant rooms, fire hose reels, Fire stairs, Lift shafts, Service Cupboards and ramps. The location of parking areas require proximity to staff, patients and other users, location of main waiting area. For private and emergency vehicles, the car park or drop off areas should be in accordance with the local building authority guidelines. For ambulances, designated ambulance drop-off and parking is essential.

An electronic **Emergency Information system** may be installed to support clinical management, patient tracking and departmental administration. Sufficient number of terminals, peripheral devices, keyboards, drives and printers should be provided to support functioning of the emergency departments. An intercom and public address system that can reach all areas of the emergency department would be greatly helpful. All patient spaces and clinical areas including beds, patients toilets and bathrooms, treatment areas and lounges should have access to the emergency call facility, so that help can be called through a central module situated adjacent to the staff station.

The following IT/ Communications systems shall be provided within the Emergency Department:

- Voice and data points for telephones and computers/ internet
- Data provision for electronic medical records and patient management systems as required
- Access to a Picture Archival Communications System (PACS) in clinical areas
- Queue management system.
- Nurse and emergency call systems should be installed in all clinical areas including patient lounge areas and patient toilets to assist staff and patients
- A duress alarm system should be designed into Reception, Interview rooms and Cashier positions.

Entry points, doors and openings to the Admission and Discharge area should be a minimum of 1200 mm wide, unobstructed, and doors used for bed transfers should be a minimum of 1400mm wide, unobstructed<sup>23</sup>. Doors must provide acoustic privacy, and door openings must allow risk free passage of patients, staff and maneuvering space for equipment, wheelchairs and trolleys where necessary.

The Emergency Department should be at ground floor for ease of access, and accessible by **two separate entrances**; one for ambulance patients and the other for ambulant patients<sup>24</sup>. Each entrance

<sup>23</sup> International Health Facility Guidelines, Part B; Oct 2016

<sup>24</sup> International Health facility Guidelines, Version 5, 2017



area should have a separate foyer that can be sealed remotely by activating the security doors, and both entrances should direct the patient flow to the reception / triage area. It is recommended that a decontamination area is provided near the ambulance bay, and provided with shower hose spray, and floor drain.

**The Entrance** to the Emergency Department must be at grade-level (same ground level), well-marked, illuminated and covered. A ramp should be provided for pedestrian and wheelchair access. At the Emergency Entrance, waiting area should provide sufficient space for waiting patients as well as relatives, and have adequate seating capacity. The area should be open and easily observed from triage and reception areas. Space should be allowed for wheelchairs, prams and walking aids. Children play area, television, health literature and access to drinking water is desirable. Fittings must not provide the opportunity for self-harm or harm to staff. Waiting area should have access to triage and reception, toilets, light refreshments, and telephone.

**The Triage** facility should be co-located with the reception desk and ambulance entry. In a smaller facility, the triage nurse may interview the patients, perform observations and provide first-aid in relative privacy in the triage area (bed-bay or cubicle). Another senior nurse may manage the patients in the waiting area after triage, and awaiting treatment. After the triage and registration, patient may be transferred into a separate clinical area called “early treatment zone” where patients are to be managed for a short time before they are moved to the appropriate area (acute care or waiting-for-discharge area)

Some health facilities dedicate a separate “**fast-track or Urgent Primary care**” after the triage point, usually on the model of extended late hour GP service. Patients who are ambulant with non-complex conditions such as contagious diseases, minor injuries, and pediatric illnesses are mostly managed here. The facility includes a consultation / examination area, basic resuscitation, stabilization and minor procedures taken care by senior GPs and Registered Nurses. The patients who may need more specialized care are transferred to the main emergency department.

In larger tertiary care hospital settings patients may be managed in different areas according to the specialty of service they require, i.e., **grouping of patients by specialty**. The examples include separate bay for Chest pain paediatrics, obstetrics, or acute treatment with complex investigation and discharge pathway. Patients may be triaged from a central arrival point, or from separate ambulance entry points. Such a model would require separate staffing for each area, and separate workspaces for staff.

Another functional model provides **grouping by patient acuity** or urgency, where patients of similar intensity are treated in the same zone. Such facility may have separate areas for resuscitation, acute monitoring beds, acute non-monitoring beds and ambulatory treatment bays allocated separately. The facility may have separate entry points or triage points for different areas, with separate staff allocation. **Short stay wards / emergency medical unit or observation bays** may be incorporated into one emergency unit, thus allowing sharing of staff and support facilities.

A significant proportion of patients attending Emergency Departments can also be managed in general practice easily<sup>25</sup>. In England, policies require such patients attending the Emergency Departments to be directed or 'streamed' to General Practitioners working in or parallel to the Emergency Departments.

## Major Functional Areas in the Hospital Emergency

### A: ENTRANCE / RECEPTION / TRIAGE:

- Receiving of patients and visitors and administration
- Assessment for patients
- Designated area at the entrance for holding wheel-chairs and patient trolleys along with porters ready to receive the patient and shifting the patient to appropriate treatment area after triage

### B: PATIENT TREATMENT AREAS:

Assessment and treatment areas including Resuscitation, Acute Treatment bays/ rooms, Seclusion Room and Decontamination Facility, Paediatric patient areas, Procedure Rooms Short-Stay Ward/ Emergency Medicine Unit/ Observation Unit;

- Primary Care Area - for patients with low acuity conditions;
- Stepdown Area - for patients awaiting test results, considered safe, but requiring observation prior to admission or discharge.

### C: STAFF AND SUPPORT AREAS

- Clean and Dirty Utility Rooms
- Store rooms
- Linen
- Waste Holding/ Cleaners rooms
- Staff amenities, administrative and teaching functions;
- Ambulance facilities.

The main aggregation of clinical staff will be at the Staff Station in the Acute Treatment/ Resuscitation Area. This should be the focus around which the other clinical areas are grouped. The Entrance/Reception Area is the focus of initial presentation.

### D: ADDITIONAL DESIGNATED AREAS

In addition to standard treatment areas, some departments may require additional, specifically designed areas to fulfil special roles, such as:

- Management of paediatric patients
- Management of major trauma patients
- Management of psychiatric patients

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<sup>25</sup> Anderson H et al, 2021

- Management of patients following sexual assault
- Extended observation and management of patients
- Undergraduate and postgraduate teaching
- Transport and retrieval services
- Tele-medical referral/ consultation service

#### **E. ENTRANCE AREA**

The entrance to the Emergency Unit must be at grade-level, well-marked, illuminated, and covered. It shall provide direct access from public roads for ambulance and vehicle traffic, with the entrance and driveway clearly marked. A ramp shall be provided for pedestrian and wheelchair access. The entrance to the Emergency Unit shall be paved to allow discharge of patients from cars and ambulances. Temporary parking should be provided close to the entrance.

#### **F: WAITING AREA**

Waiting Area should provide space for patients in waiting, as well as relatives/ escorts. The area should be open and easily observed from the Triage and Reception areas. Seating should be comfortable and adequate. Space should be available for wheelchairs, prams, walking aids and for patients being assisted. There should be an area where children can play.

#### **G: SUPPORT FACILITIES**

Support facilities, such as a television should be available. Fittings must not provide the opportunity for self-harm or harm towards staff. Waiting Areas shall be negatively pressured.

From the Waiting Area there must be access to:

- Triage and Reception Areas
- Toilets; Baby Change Room
- Light refreshment facilities which may include automatic beverage dispensing machines
- Telephone and change machines; Health literature

It is desirable to have separate waiting areas particularly for children. Child play areas may also provide equipment suitable for safe play activities, including a television. It shall be separated for sound from the general Waiting Rooms and must be visible to the Triage Nurse. The area should be monitored to safeguard security and to ensure patient's wellbeing.

#### **H. RECEPTION / CLERICAL AREAS**

The Reception Area should accommodate for:

- Reception of patients and visitors
- Registration interviews of patients
- Collation of clinical records
- Printing of identification labels.

The counter should provide seating and be partitioned for privacy at the interview area. There should be direct communication with the Reception / Triage area and the Staff Station in the Acute Treatment / Observation Area. The Reception/Clerical Area should be designed with due consideration for the safety of staff. This area requires a duress alarm.

#### **I. RECEPTION / TRIAGE**

The Reception / Triage and Staff Station shall be located where staff can observe and control access to treatment areas, pedestrian and ambulance entrances, and public waiting areas. This area requires a duress alarm. The Emergency Unit should be accessible by **two separate entrances**: one for ambulance patients and the other for ambulant or walk-in patients. It is recommended that each entrance area contains a separate foyer that can be sealed by remotely activating the security doors. Access to Treatment Areas should also be restricted by the use of security doors. The Ambulance Entrance should be screened as much as possible for sight and sound from the ambulant patient entrance. Both entrances should direct patient flow towards the Reception/Triage Area.

The Reception / Triage area should have clear a vision to the Waiting Room, the children's play area (if provided) and the ambulance entrance. The Reception / Triage Area may perform observations and provide first aid in relative privacy.

#### **INTERNAL LINKAGES**

The Hospital Emergency Department would require ready access to the following key functional areas:

- Medical Imaging Unit
- Operating Unit - rapid access is highly desirable for surgical emergencies
- Coronary Care Unit
- Pathology / Blood Bank Unit
- Clinical Records Unit
- Inpatient Accommodation Unit
- Pharmacy Unit - proximity is required
- Outpatients (if an outpatient service is provided adjacent to the Emergency Unit)
- Mortuary

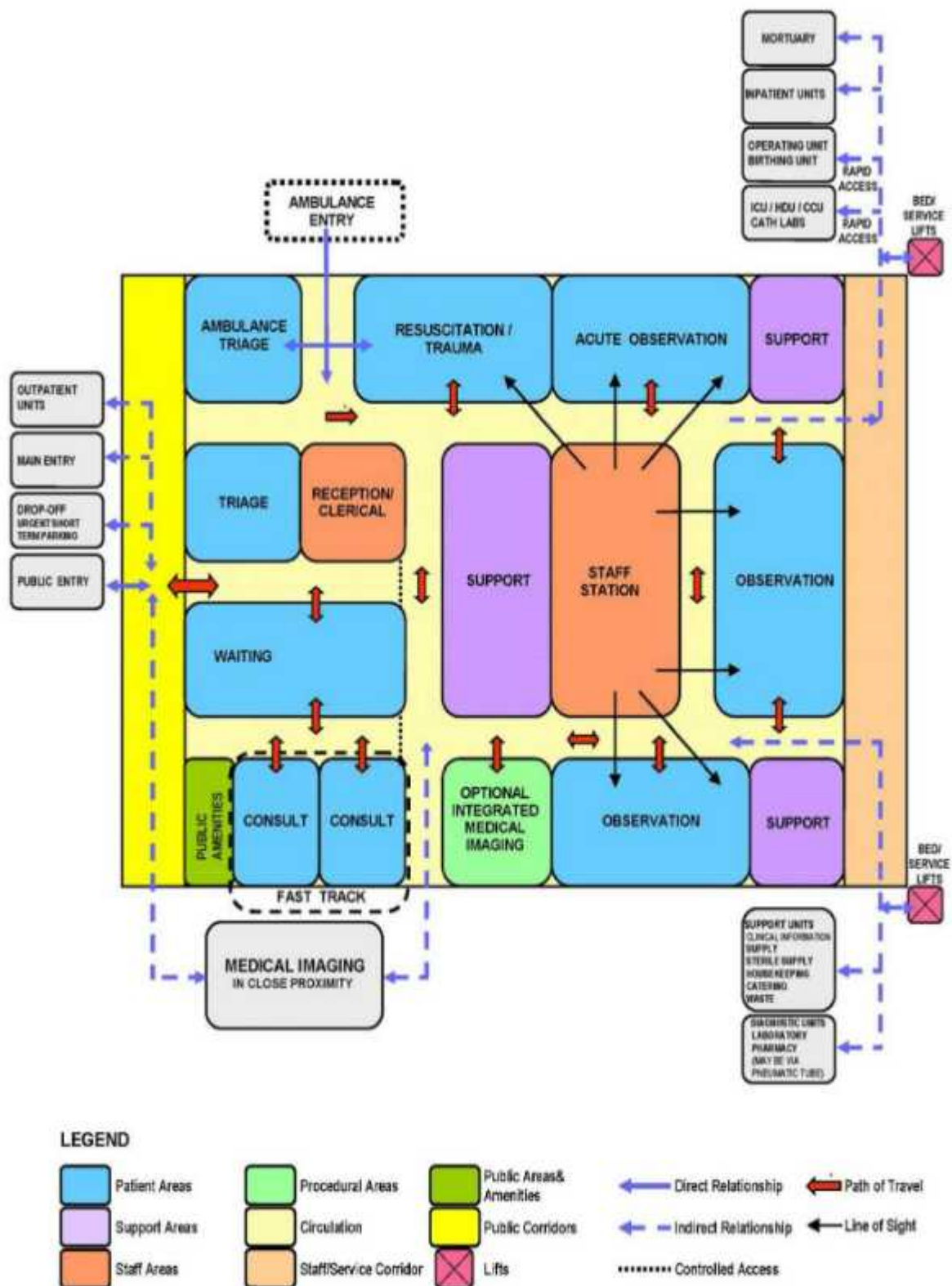


Fig.4 Sample Outlay of Small Emergency Unit: minimum 5 to 10 treatment beds



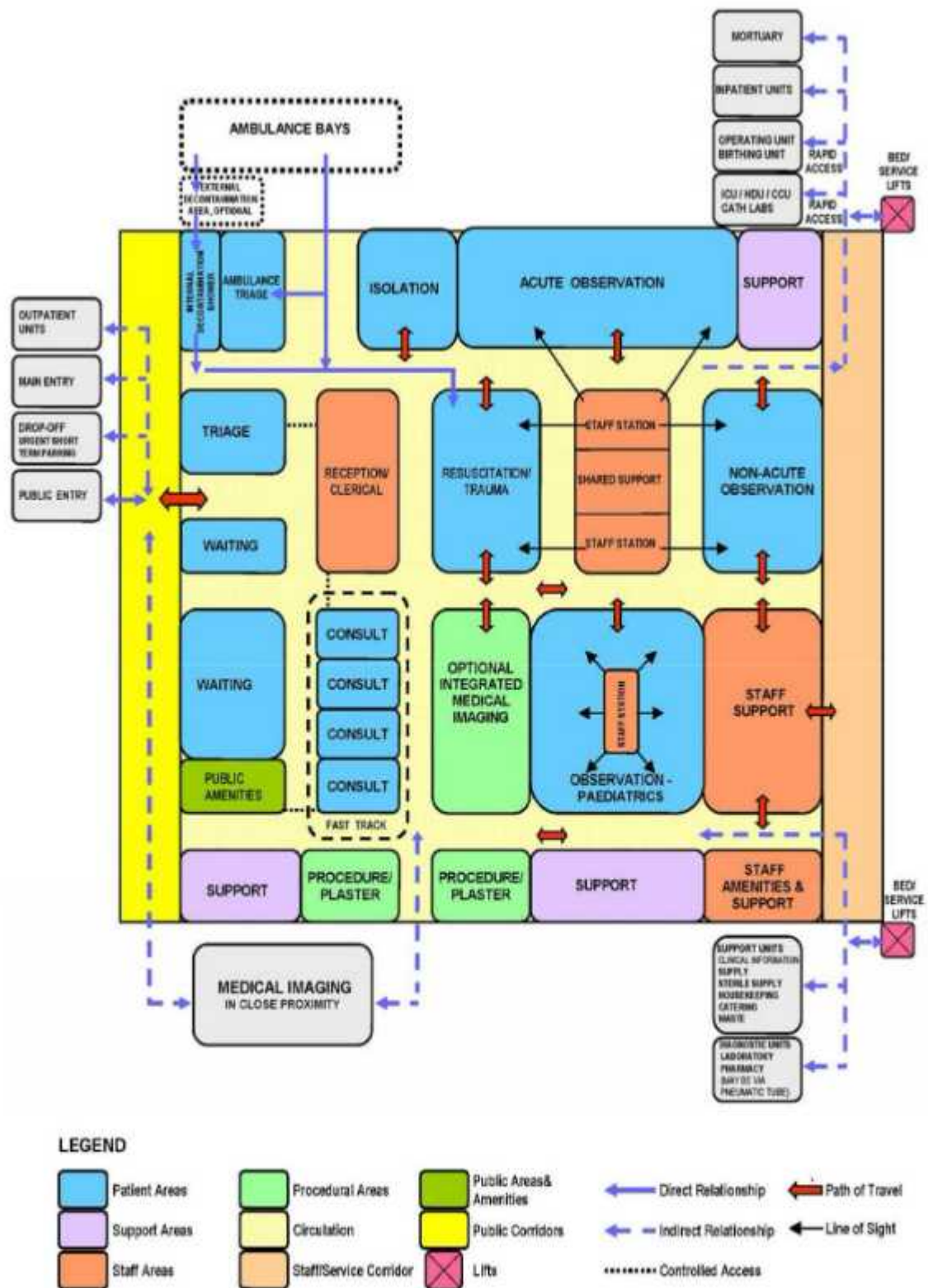


Fig.5 Sample Outlay of medium size Emergency Unit: minimum 11 to 30 treatment beds

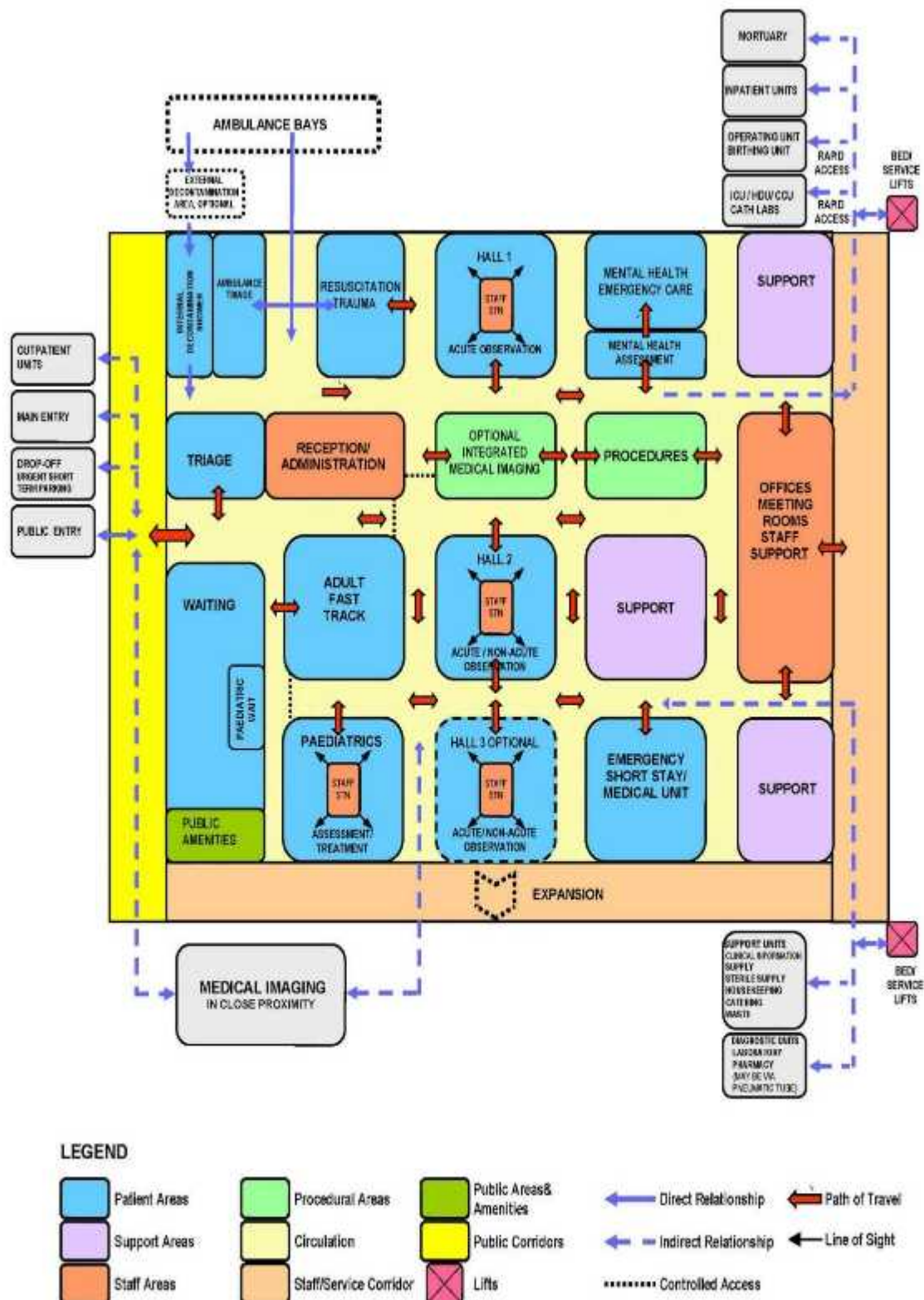


Fig.6 Sample Outlay of Large size Emergency Unit: minimum 31 or 100 or more treatment beds

There should be a **separate negatively pressured waiting area** for use by patients presenting with **suspected pandemic infections**. Otherwise, the emergency department should have appropriate air conditioning that allows control of temperature and humidity within each functional area. For the purpose of **Infection control**, hand-basins should be located in close proximity to each treatment bays and must be included in each enclosed bay or treatment room. All hand-basins in clinical areas should be of surgical type-A with hands free activation. Dispensers for non-sterile latex gloves should be available in the vicinity of each hand-basin and each treatment area.

The **resuscitation Room or bay** requires adequate space for resuscitation bed, enough to provide 360 degree access to all parts of the patient for un-interrupted procedures, and circulation space to allow movement of staff and equipment around the work area. The resuscitation area should care for maximum visual and auditory privacy for the occupants, other patients and relatives. This area should be close to ambulance entrance and separate from the patient circulation area, with easy access to the staff station of the acute treatment /observation area. The facility should include full range of **physiological monitoring** and resuscitation equipment. In case partitions are required form other areas, these should be solid. Each resuscitation bay should be equipped with physiological monitors with facility for ECG, Non-invasive blood pressure monitoring (NIBP), SpO<sub>2</sub> monitoring, temperature probe, CO<sub>2</sub> monitor, a procedure light, equipment to hang IV fluids and to attach infusion pumps. The resuscitation area should have a **resuscitation patient trolley**, and clinical scrub basin with paper towel and soap fittings. The imaging facilities should include overhead X-ray or mobile digital x-ray, X-ray screening (lead lining) of walls and partitions between beds, and patient resuscitation bed, with X-ray capability.

Once the patient has been triaged and resuscitated, he or she is moved to **Acute or Non Acute Treatment Areas**, depending upon the condition. **Acute Treatment Areas** are meant for management of acutely ill patients, whereas the patients who are not critical but require observation or investigation prior to discharge are managed in **non-acute treatment area**. Essential requirements are bed bays to fit a standard mobile bed, storage space for essential equipment and supplies to be used at the bed side, and space to allow for monitoring equipment.

Wall mounted **air/vacuum Suction points**, or **mobile Sucker machines**; and **Medical gases** may be provided within selected recliner/ bed bays as required by the facility's operational policy. **All treatment bays** in the hospital emergency department including triage are, would require the following facilities:

- a. Service panel with medical gases, power and data
- b. Examination light, focused with a power output of 30,000 lux to illuminate field size of at least 150 mm
- c. Wall mounted sphygmomanometer
- d. Waste bins and sharp containers
- e. Emergency call facilities (e.g., 15 or 1122)

The Acute and non-acute patient areas must provide the patient toilet / Ensuite facilities as under:

No. of beds / treatment bays	Number of Toilets /Ensuites
Up to eight treatment bays	two patient toilets / Ensuite facility for; one each for male and female patients
Between 9 and 20 treatment bays	Four patient toilets / Ensuites (2 male, 2 for female)
Between 21 to 40 treatment bays	Six patient toilets (three each for male / female)
More than 40 treatment bays	Eight patient toilets (four each for male/female)

At least two of the above toilets /Ensuites should be accessible to wheelchair; one for male and one for female.

Design and dimensions of **counters and workstations** should ensure privacy and security for patients, visitors and the staff. Same counter heights should be made for both patients/ visitors and staff to enhance communication and to minimize aggressive behaviour. Seating in the waiting areas should be provided at a range of heights to cater for the different mobility levels of patients. The following security issues shall be addressed when designing the Emergency Departments:

- Counters should be designed so as to enable unobstructed vision to waiting areas<sup>26</sup>
- Duress alarm and access to egress points must be provided at reception counters
- Waiting areas shall have no visibility to the staff and/or cashier area behind the counter
- Controlled after-hours access to prevent un-authorized entry and theft
- Provision of CCTV to monitor movement and behaviour within the Unit
- Provide training to staff on procedures to follow during an armed hold-up
- Design should maximize observation of waiting area by the staff

Colors should be chosen for **Internal finishes** of the emergency department, especially where patient observation is critical, in such a way that these do not alter the observer's perception of skin color. Acoustic properties, durability, ease of cleaning, infection control, fire safety and ease of movement of equipment are key features in selection of materials. The floor finishers in patient care areas, and corridors should be non-slip, impermeable to water, and body fluids, durable, easy to clean and of such acoustic properties that reduce sound transmission, and help to absorb shock to optimize staff comfort, but facilitate bed movement. All wall surfaces that come into contact with mobile equipment or beds should be reinforced and protected with buffer rails. Windows should be durable and easy to clean, and may use double glazing with integral blinds, tinted glass, reflective glass, exterior overhangs or louvers to control the level of lighting.

The Hospital Emergency Departments receive a large number of patients and their relatives /visitor, many of whom may be distressed agitated, intoxicated or have tendency towards violence. The

<sup>26</sup> International Health Facility Guidelines, September, 2017



hospital management has a **duty of care to provide for the safety** and security of employees, patients and visitors. Hence, policies should be in place to minimize injury, psychological trauma and damage or loss to property after undertaking a detailed security risk assessment. The security office should preferably be located near the entrance, allowing clear view of the waiting room, triage and reception area, while allowing remote monitoring of other areas by CCTV and immediate response to staff duress alarm.

Height of the counter should be at 850 mm ( $\pm$  20 mm) to allow for standing interactions, and reduced to 720 mm if a seated position is required. Depth of the counter should not be more than 1400 mm. Usually the standard hospital bed (97 cm or 36 inch wide) is enough<sup>27</sup>. However, for patients having Body Mass Index of more than 45 kg/m<sup>2</sup> should be put on larger bariatric beds.

A minimum of 1400 mm clear opening is recommended for doors requiring bed/trolley access. Treatment bed area should be at least 2.4 meters of clear floor space between the centres of each bed and a minimum of 900 mm clear space at the sides and foot of each bed. Hospital corridors should allow the passage of two hospital beds without difficulty.

The **Emergency Medical Ward** is typically a short stay facility. Patients requiring observation, diagnostic services, therapy or follow up that may take up to 24 hours. Mostly such patients would be discharged home or admitted to an in-patient unit, in case their condition does not allow them discharge to home.

A number of hospitals have separate areas or blocks allocated for pediatric emergencies, In case there is no such allocation, a separate zone with restricted access should be designated for pediatric assessment and treatment. Such unit should have beds/cot bays and chair bays for nebulizer therapy, and pediatric consultant rooms.

For patients coming up with mental health issues, or behavioral problems, the emergency department should have adequate facilities for reception, assessment, stabilization and initial treatment. Such facility would not be meant for prolonged observation of uncontrolled patients, but rather to provide a safe and appropriate space to interview and stabilize the patient. Environment of a busy medial emergency department may not be conducive to the care of patients with acute mental health crises, whereas such patients have the potential to disrupt the normal operations of the emergency department. The **acute mental health and behavioral assessment area** should be separate enough from adjacent patient care areas to allow privacy for the mental health patient and protection of other patients from potential disturbance or violence. Following are the recommended settings for such facility:

#### **Interview Room (Mental Health) with**

- Two exit doors, swinging outward and lockable from outside, to allow for the escape of staff members when one exit is blocked; one door should be large enough to allow a patient to be carried through it; consideration should be given to solid core doors with safety viewing glass
- Design that permits observation of the patient by staff outside the room at all times; this may be backed up with closed circuit television for the safety of staff

<sup>27</sup> Neal Wiggermann et al, 2017



- Acoustic shielding from external noise
- Soft furnishings with no hard edges
- No patient access to air vents or hanging points
- Smoke detectors fitted
- Duress alarm at each exit.

**Treatment room (Mental Health)** with the following features:

- The room should be immediately adjacent to the Interview room and should contain adequate facilities for physical examination of the patient; however, the inclusion of unnecessary and easily dislodged equipment should be avoided; a lockable retractable door or panel to services is recommended.
- If operational policy dictates that intravenous sedation is to occur in this area, the room should include appropriate facilities and monitoring equipment, mounted out of reach of a potentially violent patient. The room should contain the minimum of additional fittings or hard furnishings that could be used to harm an uncontrolled patient. It should be of sufficient size to allow a restraint team of five people to surround a patient on a standard Emergency Unit bed and should be at least 14 m<sup>2</sup> in floor area.

Patient flow should be separated and a separate secure entrance for use by community emergency mental health team and police may be required. Patient should be under continuous observation directly or through CCTV, and assistance when required, should be readily available. The area should not have the objects that can be thrown at staff. The area should be free of heavy or breakable furniture, sharp or hard surfaces which could injure an uncontrolled patient, and should incorporate tamper resistant electrical fittings. There should be two separate exit doors opening outwards, and should be lockable from outside. The window drapes or blinds should be operable from outside. All areas should have easy access to duress alarms.

Additional facilities in the Hospital Emergency Department may include **vital signs room** having weighing scale, stadiometer for height measurement, and vital signs monitoring equipment, **holding room** for the storage of bodies of the deceased patients.

In-house radiology facility and easy linkages with main radiology department of the hospital should exist, for detailed investigation where necessary.

The in-house facility of **blood bank** and provision of blood preparations, or an appropriate linkage with the main blood bank facility of the hospital should be available.

Similarly, **basic pathology** testing through an in-house lab facility, including point of care services, or a connected set up with the main hospital laboratory (through a shoot or duct) should be operational, ensuring safety of samples, time saving and efficiency.

### **Triage System**

Triage is a French word meaning to sort or to choose. Triage is therefore a process whereby each patient is prioritized amongst the randomly approaching patients in the Accident & Emergency

Department/rescue area for emergency care. Sorting of patients into priority categories is often performed by an experienced doctor/surgeon or a senior health professional/nurse.

The triage nurse/health professional shall quickly assess the patient's condition, interpret the clinical features and then exercise interventions in the early phase to prevent deterioration and death. The objective of the triage is to defer a patient who can wait, while give priority to those who are in imminent danger, and whose life can be saved by a timely intervention.

### **How Does Triage Work**

The triage system is meant to be implemented in all Accident & Emergency Departments (A&EDs) so as to help and determine the relative priority of individual patient needs. Emergency patients are to be given immediate treatment, while those with non-acute symptoms may have to wait longer. Assessment process during the triage need to be balanced with the extent of patient flow, as expanding the assessment process during triage may slow down the patient flow and may lead to delay in emergency service provision<sup>28</sup>.

Upon arrival at the A & E department, the patients will first be assessed by a health professional like an experienced doctor/triage nurse, according to the severity and nature of their medical conditions, and priority will be given to urgent cases. The Patients are divided into the following four categories according to their medical condition:

- **Critical**
- **Urgent**
- **Semi urge**
- **Non urgent**

Critical patients, who are in life threatening condition, are accorded top priority and attended immediately by medical and nursing staff without delay. The non-urgent cases will be treated in the order of their arrival and should expect a longer waiting time.

### **Objectives of the Triage.**

- Ensure early recognition and assessment of patient's condition and prioritize the treatment according to severity of the condition
- Reduce unnecessary delay of treatment
- Give brief first aid advice
- Initiate immediate diagnosis test intervention and nursing treatment
- Allow effective utilization of staff and resources by allocating patients to appropriate treatment according to their condition
- Improve patient staff relationship and departmental image through greeting and communication during process of triage
- Promote public relationship by immediate interview with patients
- Enable direct communication with pre-hospital care providers
- Provide staff training and decision making

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<sup>28</sup> Ajani K., JPMA 2012

In order to understand the proportion of resources a health facility can commit for the Emergency Department, capacity of the hospital in terms of the following parameters need to be understood.

**Hospital Treatment Capacity (HTC):** the number of casualties that can be treated in the hospital in an hour and is usually calculated as 3% of total number of beds.

**Hospital Surgical Capacity (HSC):** the number of seriously injured patients that can be operated upon within a 12 hour period, i.e.  $HSC = \text{Number of operation rooms} \times 0.25 \text{ operations / 12 hours}$ .

**Surge Capacity:** The ability of a health service to expand beyond normal capacity to meet increased demand for clinical care. It is an important factor of hospital disaster response and should be addressed early in planning process. Following factors are critical to augment surge capacity of a hospital:

- i. Total number of beds available
- ii. Human resource
- iii. Essential equipment, logistics and supplies
- iv. Adaptability of available facility space for critical care
- v. Estimating the increased demand on hospital resources
- vi. Options or available methods of expanding hospital inpatient capacity, considering available physical space, staff, supplies and processes
- vii. Designating areas for care in case of patient overflow, e.g. auditorium, lobby
- viii. Outsourcing the care of non-critical patients to appropriate alternative treatment facilities
- ix. Assigning home care for non-critical patients and chronic care facilities for long term patients
- x. Availability of vehicles for transportation of patients, contingency plan to transfer patients in case the traditional methods of transportation fail
- xi. Identify potential gaps and address the gaps, especially in critical care in coordination with hospital networks/neighborhoods
- xii. Identify additional sites for converting onto patient care units e.g. convalescent homes, hotels, schools, community centres, gyms, etc.
- xiii. Prioritize or cancel non-essential services e.g., elective surgery, adapt hospital admission and discharge criteria and prioritize clinical interventions according to available treatment capacity and demand
- xiv. Designate an area for use as a temporary morgue and ensure availability of adequate number of body bags, and formulate a contingency plan for post-mortem care with appropriate partners.

Emergency situation can be classified keeping in view, either the total number of similarly disposed patients received in the Emergency Department in a given time, or based on type of casualties being received.

## **Triage: Concept and Application**

Internationally, there are a number of triage concepts. Simple triage is used at accident scene where patients are sorted to identify those who need critical attention and immediate transport to the hospital. During this process, each patient is labelled with identity and triage tags if available, or with marker pen, with display of assessment findings, and assigned priority for medical treatment. Triage should be a continuous process, as successful initial management may help to re-categorize such patients to a lower priority in the short term. Hence, the priority or category once assigned, should be checked regularly/periodically to ensure that the priority remains correct, unless there is change in patient's condition.

In advanced triage, usually in case of mass scale disasters, like earthquakes, storms, terrorist attacks, bomb blasts etc., the specially trained doctors, nurses and paramedics may decide to defer advanced care for some very seriously injured people that are unlikely to survive. This ensures that scarce resources are not exhausted on patients having little chance of survival that can rather be preserved for others with higher likelihood to survive. Such patients having poor prognosis may be offered palliative care only, set aside the hopeless victims and avoid trying to save one life at the expense of several others.

In a real case scenario, it is acceptable to over-triage /over-estimating the severity of illness up to 50% and assigning higher priority for care rather than under-triage /under-estimating the urgency of care for patients that actually need immediate care as first priority which should not be more than 5%. Reverse triage is used to discharge a number of admitted patients who may not need immediate care in the wake of a major wave of new patients arriving in the hospital upon occurrence of a natural disaster, so as to make hospital beds available for new critical patients.

Secondary triage is done when the patients arrive at hospital emergency, by the emergency nurses or skilled paramedic. Based on the availability of immediate care, a person with amputation injury may be assigned "red" or immediate category as surgical re-attachment would only be possible if offered within minutes, while patient may not be at the risk of dying without a thumb or a hand.

### **Ethical Dilemma in Triage**

How the VIPs and celebrities should be cared for in the emergency department, is a big question. Giving special considerations or deviating from the standard medical protocol for VIPs or celebrities at the cost of suffering of others is unethical. However, it may be morally justifiable as long as their treatment does not hinder the needs of others after assessing overall fairness, quality of care, privacy, and other ethical implications. Keeping in view the ethical dilemma involved in the triage process, individuals involved in triage must take a comprehensive view of the process to ensure that values of fidelity, veracity, justice, autonomy, and beneficence are safeguarded.

It is advised for emergency departments to preemptively plan strategies so as to mitigate the emotional burden on the triage responders. However, while doing so, standards of care must be maintained and safety of both patients and providers be kept as the foremost consideration.

There are different Scoring Systems for assigning priority for treatment and /or evacuation of the injured / affected persons in a disaster situation, during rescue and subsequently in the hospitals, for the purpose of prioritizing them for providing medical care. Different countries and teaching / training institutions use different triage schemes and techniques. Country wise selected examples of Triage Scoring Systems internationally in vogue are summarized at **Annex-IX**:

Sarah R et al, 2014<sup>29</sup> have observed that the triage scales and the triage tools widely used in the developed countries were not applicable as such in the hospitals in developing countries having much lower number of nurses and doctors. The South African Triage Scale (SATS) was thus developed for such setting with the objective to have an accurate measure of urgency based on physiological parameters and clinical discriminators that can be easily adopted in the low resource settings. Experience with Nurse-led triage, apart from saving waiting time for patients in emergency, has shown high level of sensitivity and specificity in such settings.

Triage Early Warning Score (**TEWS**) helps to measure physiological aspects of triage on a scale of 0 to 3 based on temperature, heart rate, respiration and systolic blood pressure, while also taking into account conscious level, mobility and exposure to trauma. This scoring requires only a blood pressure cuff, a thermometer, and a scoring card for accurate and uniform assessment of both medical and trauma patients.

When patients arrive to the Emergency, the triage nurse interviews the patient to assess for presenting complaint, mobility and AVPU score (A = alert, V = responds to voice, P = responds to pain, U = unresponsive). Pulse rate, blood pressure, respiratory rate and temperature are measured and recorded. The Triage Early Warning Scale (**TEWS**) score is then matched to a **SATS** discriminator list, and an appropriate triage color is assigned. Further patient management is undertaken as per assigned priority based on such information.

In the international literature, two research articles have documented use of triage system in Pakistan. Firstly, the Aga Khan University Hospital Karachi has been reported to have implemented the concept of triage for the first time in year 2000 (Munawar K. et al, 2015) <sup>15</sup>, as there was no triage system in place at local or national level and patients are being catered on first come first basis. The Aga Khan University Hospital Karachi, a 550 bedded tertiary care private hospital, with nearly 48,000 patients visiting annually started with a single room emergency in 1983. The Emergency Department of the AKU now became a 51 bedded dedicated emergency facility with resuscitation area, adult critical care area, adult non critical care area, and a well designated 10 bedded pediatric care area.

Initially, the physicians and nurse both were assigned to triage desk for sorting out the patients according to presenting complaints, on a manual recording system, and in accordance with the locally developed triage priorities. The AKU experts' team observed that the triage protocols like Emergency Severity Index (**ESI**), Canadian Triage and Acuity Scale (**CTAS**), Australian Triage Scale (**ATS**) had limited applicability in developing countries. The AKU experts came up with four level priority (P1-life threatening, P2-Emergency, P3-Urgency and P4-stable walk-in) for triage.

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<sup>29</sup> Sarah R et al, AFJEM, 2014



In 2008 the triage system at AKU hospital was expanded and responsibility of triage was shifted to the nursing staff. Specific triage protocols were developed for guidance of the staff; and to ensure uniformity of care. The triage data was computerized by using a software platform. Thus it became possible to monitor the triage process by using quality care indicators like total number of patients triaged, triage category, lag time reports and 'left without being seen by physicians'.

The AKU Hospital triage data analysis also documented that around 12.73% "left without been seen" were those patient who upon arrival were triaged by the nurse, but while waiting to be taken inside emergency department and seen by physician for evaluation, they left. This Indicator is considered very important in modern emergency for measuring overcrowding and call for better management of patient flow. This data led the AKU Emergency Department to establish a dedicated Emergency Clinic in afternoon for follow up and for walk-stable category of patients when the flow of patients was at peak.

Subsequently, in June 2011, The South African Triage Scale (SATS) system was pilot tested in the Emergency Department of Timergara district headquarter hospital, lower Dir, Khyber Pakhtunkhwa province<sup>16</sup>. The emergency department of Timergara DHQ hospital consisted of 18 beds, with a monthly caseload of about 4,000 patients. The results concluded with 86% triage forms filled without error, and in 3% cases the patients were under triaged, and in 1% cases the patients were over triaged. The study concluded that the SATS can be implemented successfully and used accurately by the nurses in the Emergency Departments in Pakistan.

The adopted version of the South African Triage Scale (SATS), has been described in the subsequent sections in detail.

Lately, in Brazil Portugal and many other European countries, the Manchester Triage System (MTS) has been wide disseminated<sup>30</sup>. The MTS establishes five categories or clinical priorities for the purpose of risk stratification, depicted as under:

Sr. No.	Color code	Level of urgency	Max waiting time
1	Red	Emergent	Immediate service
2	Orange	Very urgent	10 minutes
3	Yellow	Urgent	60 minutes
4	Green	Not urgent	120 minutes
5	Blue	Not urgent	240 minutes
6	White* category used in Brazil & Portugal to identify patients using Emergency Service as gateway for elective or scheduled procedures		

<sup>30</sup> APS Jesus et al, 2021

## Triage Scale (TS)

### Introduction

The Triage Scale (TS) is a scale for rating clinical urgency and is designed for use in hospital-based emergency services<sup>31</sup>. Although, primarily a clinical tool for ensuring that patients are seen in a timely manner, commensurate with their clinical urgency, the TS is also a useful case-mix measure. The scale directly relates triage code/colour with a range of outcome measures e.g. inpatient length of stay, ICU admission, mortality rate and resource consumption (staff time, cost). It provides an opportunity for analysis of a number of performance indicators in the A & E (operational efficiency, utilization review, outcome effectiveness and cost).

### What is Hospital Emergency Triage?

A method of ranking sick or injured people according to the severity of their sickness or injury in order to ensure that medical and nursing staff and facilities are used most efficiently; assessment of injury intensity and the immediacy or urgency for medical attention.

### Benefits of Triage:

- i. To expedite the delivery of time-critical treatment for patients with life-threatening conditions
- ii. To ensure that all people requiring emergency care are appropriately categorized according to their clinical condition
- iii. To improve patient flow
- iv. To improve patient satisfaction
- v. To decrease the patients' overall length of stay
- vi. To facilitate streaming of less urgent patients
- vii. To be user-friendly for all levels of health care professionals

### Application of Triage Scale

#### Procedure

All patients presenting to an A & E should be triaged on arrival by a specifically trained and experienced registered nurse. The triage assessment and TS code/colour allocated must be recorded. The triage nurse should ensure continuous reassessment of patients who remain waiting, and, if the clinical features change, re-triage the patient accordingly. The triage nurse may also initiate appropriate investigations or initial management according to organizational guidelines. The triage nurse applies a TS category in response to the question: *"This patient should wait for medical assessment and treatment no longer than...."*

### Environmental and Equipment Requirements

<sup>31</sup> The MOH Ghana A&E Services Policy & Guidelines, 2011

The triage area must be immediately accessible and clearly sign-posted. Its size and design must allow for patient examination, privacy and visual access to the entrance and waiting areas, as well as for staff security. The area should be equipped with emergency equipment, facilities for standard precautions (hand hygiene facilities, gloves), security measures (duress alarms or ready access to security assistance), adequate communications devices (telephone and/or intercom etc.) and facilities for recording triage information.

## The Triage Tool

### Three versions of the Triage Score<sup>22</sup>

There are three versions of the Triage Score (TS), depending on whether the patient is an adult or not. The children have different values of heart rate, respiratory rate and blood pressure. The adults have their own version while there are two pediatric versions, one for **infants** (50cm to 95cm – one week to almost 3 years), and one for **children** (96cm to 150cm – 3 years to around 12 years). Neonates aged one month or younger should be seen immediately by a doctor.

### The Two Parts of the Triage Tool

The TS consists of 2 parts: The Triage Early Warning Score (**TEWS**) and the Discriminator List as placed at (**Annex-VI, VII & VIII**). The discriminator list follows after the TEWS and the provider needs to calculate the TEWS before moving on to the discriminator list.

### Triage Early Warning Score (TEWS)<sup>21</sup>

In order to generate a total score, the provider has to observe the basic vital signs of the patient. Each vital sign monitors a different physiological system:

- **Blood pressure** and **Heart rate** monitor the **cardiovascular** system (heart and blood flow). As the provider are interested in the **systolic** value only, that is the top value of the blood pressure (BP=120/80, systolic BP or SBP=120)
- **Respiratory rate** monitors the **respiratory** system (lungs)
- **Temperature** monitors **thermoregulatory** system (infections, hypothermia)
- **Alertness, Verbal response, Reaction to pain and Unresponsiveness (AVPU)** monitors the **central nervous system** (brain)
- **Mobility** monitors the **musculoskeletal** system (bones and muscles)
- **Trauma** refers to the presence of any injury (bump, bruise, cut etc.)

By comparing the observed basic vitals of the patient with a parameter on the **TEWS** calculator (horizontally) a score can be read off (vertically) adding together the scores gives the provider the total TEWS.

## Discriminator List

The second part of the discriminator list is the part that generates the actual triage colour (red, orange, yellow, green, blue) which will determine urgency level and also when the patient will be attended to essentially. As with the TEWS, there are separate versions of this for infants, children and adults respectively.

The TEWS will only identify and classify a patient into an appropriate triage code if the physiology of the patient is altered from normal. The TEWS will be effective for most of the cases presenting to the triage provider.

There are however, some **discriminators** that require **special attention**. It has been found that physiology alone does not pick up and classify patients with these discriminators safely and effectively. These discriminators therefore, serve as a **safety net** for those patients with severe pathology to be seen more urgently, but for anyone whose physiology did not respond to the insult and therefore, did not generate an urgency appropriate **TEWS**, they are reclassified after the TEWS has been calculated.

### The Stepwise Approach

The **Stepwise flowchart poster** shows how simple it is to calculate the triage code for a patient by simply following the stepwise approach. This approach allows the triage provider to code patients both effectively and safely in the minimum time period. Triage providers should always use this approach unless directed otherwise by the senior health care professionals.

### Triage Interventions and Management Aids

Management of the patient starts with the triage provider's analysis. It is therefore, critical that this management continues after the triage process has been completed. The table below indicates appropriate management of different triage categories by the triage provider:

COLOUR	ACTION
RED	Refer to the resuscitation room for <b>emergency</b> management
ORANGE	Refer to the patient waiting area for <b>urgent</b> management
YELLOW	Refer to the patient waiting area for management
GREEN	Patient for potential <b>streaming</b>
BLUE	Refer to doctor for certification

It is also possible for the triage provider to commence management when treatment is readily available and the provider's qualification allows the intervention. Appropriate interventions directed at observed abnormalities during triage decreases the patient's morbidity and increases patient satisfaction.

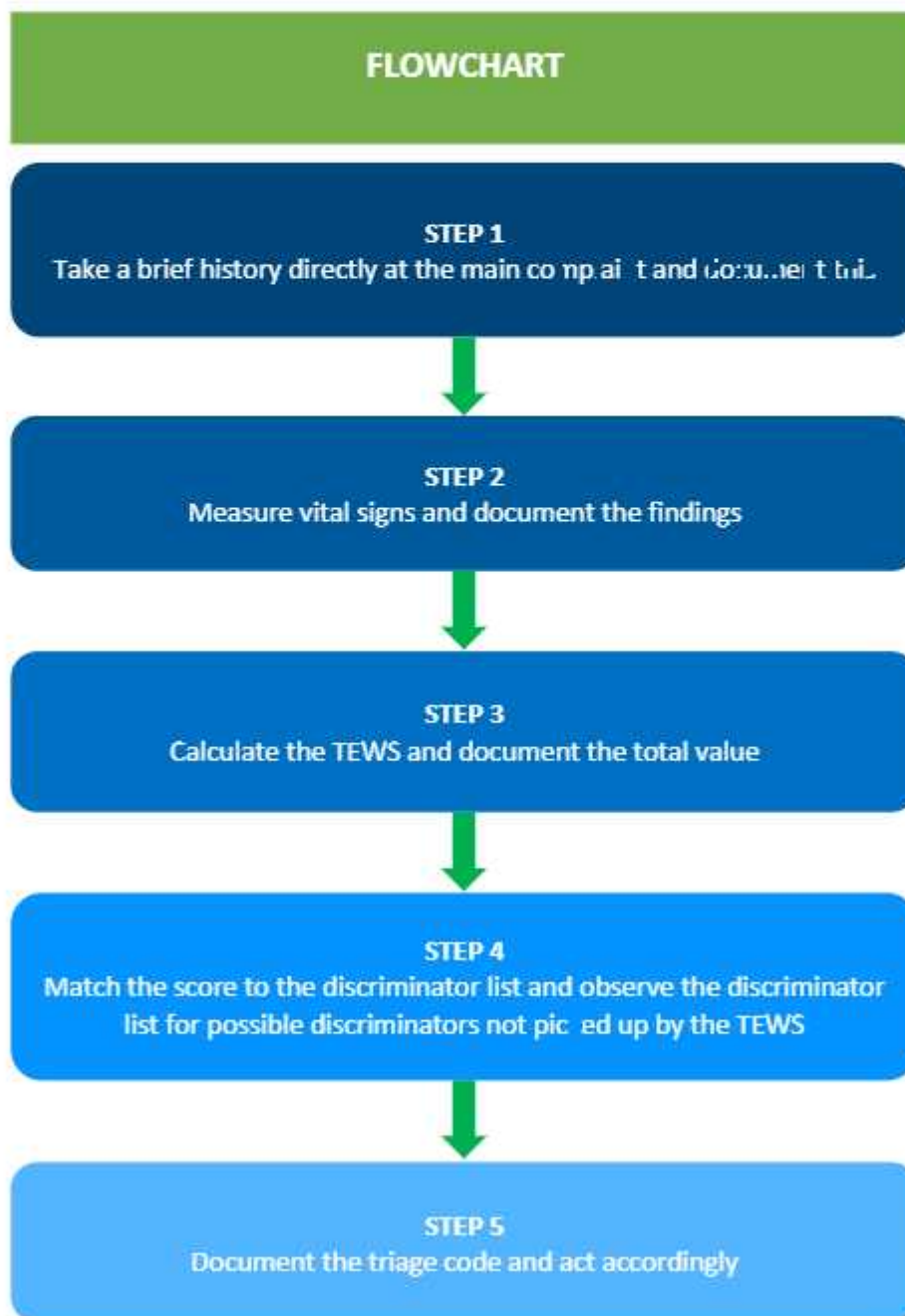
A triage provider may also, use triage aids to enhance the triage sensitivity if the time so permits. Triage aids will assist the senior health care professional later, after the patient has been referred



according to the above set criteria. Triage aids (**compulsory**) should be performed, whenever available if the time permits but is not essential for the triage itself. **The triage interventions and management aids poster** indicates appropriate interventions that must be commenced by the triage provider as well as triage aids that can be used to enhance the triage process.

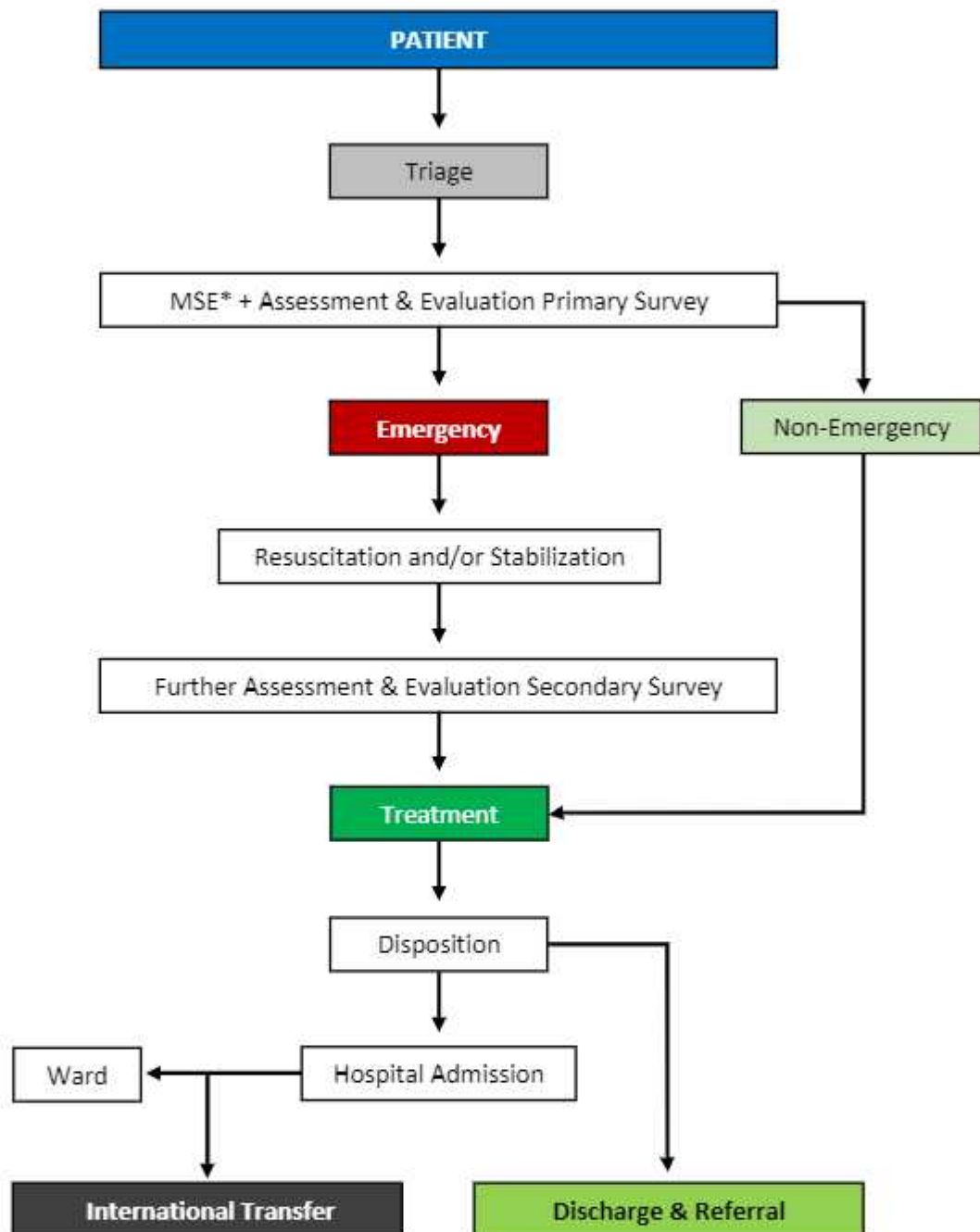
Tools for help in undertaking triage process are placed at Annex-I, Annex-Vi, Vii & VIII

## INTERVENTIONS TO BE CARRIED OUT AT TRIAGE





Problem	Compulsory	Optional
Respiratory rate scores 1 point or more	<ol style="list-style-type: none"> <li>1. Pulse oximetry (saturation)</li> <li>2. Finger prick gluco-test if patient is disable</li> <li>3. Refer to anteroom and give oxygen</li> </ol>	
Temperature 38.5° or more	<ol style="list-style-type: none"> <li>1. Paracetamol 1g orally stat (document in the notes) (children-discuss with sister or doctor)</li> </ol>	
Temperature 35° or less	<ol style="list-style-type: none"> <li>1. Blankets</li> </ol>	
Altered level of consciousness (AVPU score other than A)	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> </ol>	
Unable to sit up/ need to lie down	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> </ol>	
Chest pain	<ol style="list-style-type: none"> <li>1. Immediate ECG and present to senior health care professional</li> </ol>	
Active bleeding	<ol style="list-style-type: none"> <li>1. Apply pressure to site of trauma with a dry dressing and take to anteroom</li> <li>2. HB to obtain baseline</li> </ol>	
Active seizure/ fitting	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> <li>3. IV access (NO intramuscular)</li> </ol>	
History of diabetes	<ol style="list-style-type: none"> <li>1. Finger prick glucotest</li> </ol>	
Diabetes and Hyperglycaemia (glucotest 11 or more)	<ol style="list-style-type: none"> <li>1. Urine dipsticks to check for ketones</li> </ol>	
Hyperglycaemia (glucotest 3 or less)	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> </ol>	<ol style="list-style-type: none"> <li>2. If the patient is alert, give food or drink orally</li> </ol>
History of bleeding		<ol style="list-style-type: none"> <li>1. Finger prick hemoglobin</li> </ol>
Bleeding PR, PO or from a site of trauma		<ol style="list-style-type: none"> <li>1. Finger prick hemoglobin</li> </ol>
Abdominal pain or backache: male		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> </ol>
Abdominal pain or backache: female		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> <li>2. Urine pregnancy test</li> </ol>
PV Bleeding		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> <li>2. Urine pregnancy test</li> <li>3. Finger prick hemoglobin</li> </ol>

**Flowchart of the Care Process at the Emergency Departments**

## Categorization of Patients according to Seriousness of the Problems

### 1. Mild: (Non-urgent)

These patients have blunt injuries, small cuts, abrasions etc. and need reassurance and first aid treatment, and are straight away discharged.

### 2. Moderate: (Semi-urgent)

These patients have injuries that require treatment which can be provided in Accident and Emergency Department of any hospital i.e. simple fractures dislocations, small wounds etc. These patients are discharged from the Emergency Department.

### 3. Serious: (Urgent)

These patients after emergency treatment need admission in the hospital for definitive treatment and / or observations. After definitive treatment these patients are discharged.

### 4. Critically Serious: (Critical)

These patients have risk to life if active intensive critical care is delayed or is not proper. These patients are resuscitated, provided basic life support in A & E Department and are straight away shifted to intensive care unit.

After stabilization of the patient's condition, patient is shifted to specialist ward for definitive treatment, from where patient is discharged after treatment.

### Pre-Hospital Triage Categories: An example

PATIENT TRIAGE GUIDELINES	
<b>Red</b>	Needs immediate help and/or evacuation within 30 minutes, unstable patient, mechanically ventilated (outside of OR environment), or requiring significant cardiac or pulmonary resuscitation
<b>Yellow</b>	Can wait 30 min-2 hr for evacuation, relatively stable patient but requiring ongoing supportive care or continuation of procedure beyond 30 min
<b>Green</b>	Can abort or finish procedure within 30 min... OR...can wait > 2 hr for evacuation, patient otherwise stable
<b>Blue</b>	Can be discharged home within 30 min, stable patient
<b>Black</b>	Deceased



## LEVELS OF HOSPITAL EMERGENCY DEPARTMENTS

The designated Emergency Department of the hospital is distinguished by the immediate availability of specialist staff inter-alia including, surgeons, anesthetists, physicians, nurses and resuscitation and life support equipment on a twenty-four hour and seven days a week basis. Three levels of accident and emergency services are defined on the basis of capability from lower to higher levels<sup>32</sup>.

### LEVEL I

Level I Accident and Emergency (A&E) Department performs all functions as level II but has Anesthetist, physicians and Surgeons on site 24 hours, and include specialized facilities like burn units and spinal cord injury units. These centers are also involved in Education and research activities. Level I Accident and Emergency Departments are located in all the teaching hospitals and must maintain their expertise by treating at least 1000 patients per hospital every year (83 per month).

### LEVEL II

Level II Accident and Emergency Department can resuscitate the patients, perform emergency procedures including surgery, treat the patient in intensive care unit, and provide rehabilitation. These hospitals have anesthetists, physicians and surgeons not on duty in the emergency department but on call. Level II Emergency facilities are available at most of the Tehsil (THQ) and District Headquarters Hospitals. Keeping in view the available resource, such facilities must be able to treat at least 600 patients a year (50 per month).

### LEVEL III

Such Emergency Department can receive, resuscitate, and stabilize a patient while arranging for transfer of patient to a hospital that can provide definitive surgical/medical care. Level III Emergency facilities are available at BHUs, RHCs, and such other health facilities with no specialist cover, and limited indoor capacity.

The International Health Facility Guidelines, 2017 now classify the Health Facilities according to Role Delineation Level (RDL) on an ascending scale. For example, a major metropolitan hospital having Teaching and Research facility status providing intensive care services will be at RDL 6. The same service provided at small general hospital without teaching and research facilities will be at RDL 4. At higher RDLs, the service provision will require access to higher levels of skill and additional complementary services. Thus surgery at RDL 5 will require intensive care services plus many supporting services. The number, type and size of rooms for an ICU service at RDL 6 will thus be different to one at RDL 4. Similarly, schedule of accommodation in a birthing unit (obstetric facility), the International Health Facility Guidelines depict the following number of rooms for the ascending RDL.

RDL :	RDL 2	RDL 3	RDL 4	RDL 5/6
Entry /reception	2 rooms	4 rooms	8 rooms	12 rooms
Birthing Suite (patient area)	2 rooms	4 rooms	8 rooms	12 rooms

<sup>32</sup> Emergency Medical Services in Teaching Hospitals of Punjab, DOH Oct, 2003

For the purpose of this work, the scheme of Level 1, Level 2 and Level 3 as contained in the Government of the Punjab Health Department SOPs for Emergency Medical Services as prescribed in 2003 has been retained.

## PHYSICAL SETTING REQUIREMENTS

Accident and Emergency Department should be located in such a way that it is easily accessible for the public. It should be close to parking area and preferably have a separate entrance. Accident and Emergency Department should always be on ground floor with easy access to indoor facilities and the OPD, and should be adjacent to diagnostic facilities like laboratory and Radiology Department. Both stairs and ramps, clearly designed for patient arrival and departure, should ensure smooth access to the facility. The pathways should facilitate free movement of patient's trolley, stretcher etc. Adequate space for wheelchairs and patient trolleys should be ensured with the availability of porter service. The Emergency Department must be able to accommodate transportation of large number of patients in case of a disaster. Effective and standard signage for the guidance of patients should be ensured. Accident and Emergency Department must have an easy connections to the following units:

- i. Blood bank
- ii. Main Pharmacy
- iii. Technical support services especially Biomedical Department.
- iv. Clinical Laboratory
- v. Imaging services

### The Functional Areas of Hospital Emergency Department

A standard Hospital Emergency Department (Level-I) should have the following facilities:

i. Ramp and stairs	ii. Area for porters
iii. Area for stretchers, trolleys and wheelchairs	iv. Sufficient space for parking of ambulance and unloading of patients
v. Triage area	vi. Security office
vii. Emergency Department reception/patient registration counter	viii. Resuscitation Room
ix. Nursing station	x. Minor Operation Theatre
xi. Patient care area (Medical/Surgical/Pediatric)	xii. Procedure Room
xiii. Lab counter with LCD display of tests	xiv. Major Operation Theatre
xv. X-Ray /USG	xvi. Doctor's office
xvii. Facilitation Counter	xviii. Nurses office
xix. Pharmacy Services	xx. Administration office



Depending upon the available workload at some of the smaller, Level-II Emergency set ups, and on the basis of available / committed resources, some of the above facilities may be regarded as optional, or made available on shared basis with the main health facility. Following segregated structural requirements are essential for the Emergency Unit:

- i. Triage area
- ii. A functional resuscitation area for patient stabilization
- iii. A transient area for patient observation for not more than 24 hours
- iv. Procedure room for minor cases/Theatre
- v. Waiting area
- vi. Ambulance bay

**Minimum / Mandatory Requirements to be Met by all Hospitals (public and private)**

- i. At least 10% of the total bed strength to be allocated in the Hospital Emergency Department
- ii. In the Emergency Departments of multi-specialty Tertiary care / Teaching hospitals and Secondary referral (DHQ level+) facilities with 24-hour availability of specialist cover, the following services should be made available in the Emergency Departments:
  - a. Primary care of burn patients in Emergency
  - b. Paediatric Surgery / primary trauma care for children
  - c. Integrated Diagnostic (Lab & Radiology) services to be accessible to the emergency patients
  - d. Maintaining Electronic Medical Records
  - e. Appointment of dedicated staff including doctors having post-graduate qualification in Emergency Care (FCPS Emergency Medicine or equivalent)
  - f. Incentivized pay package and career structure for the staff in the emergency department
  - g. Similar incentivized service structure for nurses having post-graduate qualification and training in ICU, CCU & Accident & Emergency nursing, etc., and working in such areas
- iii. Location of the Emergency Department should be easily accessible from Entry Point without any physical barriers / obstructions; and movement of the patient through trolley/stretchers/hospital bed or wheelchair should be without obstacles
- iv. The facilities in the Emergency Department should be integrated with diagnostic and support services of the hospital, to provide ease of access for staff and the patients
- v. There should be dedicated staff (Doctors, Nurses & allied) allocated for emergency department, and must be trained in life saving skills as applicable (ACLS/ATLS/ALSO/BLS); and the list of staff for each shift must be displayed in the emergency office

- vi. Duty Roster of Medical, Nursing & Allied staff to be on duty in the Emergency should be displayed, providing for adequate overlap in time for smooth handing over and taking over, which must be documented, and verifiable.
- vii. Minimum set of dedicated equipment as per the declared scope of service by the hospital administration should be available in the Emergency Department
- viii. Physical Environment and infrastructure should be so designed and so provided, to allow for smooth and un-obstructed, safe movement of patient for the purpose of shifting, referral or discharge, or for the purpose of diagnostic tests or procedures
- ix. The Emergency Department should have easy access to public utility area, i.e., waiting room, toilets, etc.
- x. The physical environment should provide segregated utility area with sufficient privacy, to the medical and nursing staff for refreshment / changeover, with permitted bathroom break period (e.g., 20 minutes each during six hours duty; with allowance for conditions like pregnancy, or other medical conditions posing limitations) .

### **Equipment and Supplies**

Time is an essential factor in emergency treatment, therefore, Accident and Emergency Department typically must have their own diagnostic equipment to avoid waiting for equipment installed elsewhere in the hospital. Ideally, the Level-I Emergency facility shall have a dedicated Laboratory for basic laboratory tests or the Emergency may be supported by uninterrupted 24-hour service from the hospital's main laboratory.

### **Standards for Management of Equipment**

Facilities and services at the Emergency Department should comply with national / prescribed standards with respect to all the equipment installed and used in the Emergency Department in terms of number and specifications. The preventive periodic maintenance programme should be documented and implemented. All equipment must conform to the relevant safety standards and be regularly calibrated. All staff must be appropriately trained, competent and familiar with the use of equipment.

Type and number of equipment and quantity of consumables will vary with the Level, size and function of the department and must be appropriate to the workload of the unit as judged by the contemporary standards. The sample list of basic equipment and supplies needed for effective operations at Level II Emergency Department is attached in **Annex-IV**:

### **Selection of equipment**

Criteria for the selection, purchasing, storage, servicing, sterilization, and replacement of durable equipment should be predefined by the hospital management committee including senior consultants, nurses, and biomedical engineers. A continuously updated selection policy in respect of durable equipment is recommended. Medical and nursing staff should review available equipment by assessing it in use, with a view to eventual purchase also considering its compatibility with existing equipment.

Technical advice on performance and service of the equipment should be sought from the hospital electronic/medical engineers. Methods of sterilization must be compatible with existing hospital facilities, and there should be documented contracts with manufacturers/vendors supplying such items to provide all requisite technical support / information and training of the staff handling these equipment. Other equipment supplies not listed in the above Annexure may be supplied from the hospital store and pharmacy as and when needed.

### **Procurement**

The users should agree with the manufacturer/vendor which items e.g. in a modular system will actually be required. The list should include all recommended spares, extra copies of instruction books and a stock of consumables/disposables if needed. The order, which will normally be handled by a supplies officer, should define clearly which items are to be supplied, any commissioning or installation work required, acceptance procedure, delivery date and other conditions of supply.

### **Medicines**

The inventory of essential medicines for the Emergency Department should be based on the anticipated workload, and case-mix usually presenting in the hospital emergency department. A tentative list of essential medicines needed for effective running of the level I Emergency Department is placed at **Annexure-V**. The medicines and supplies not listed in the above Annexure may be supplied from the hospital pharmacy as and when needed.

### **Human Resource**

The Emergency Department should be appropriately staffed and must have one to two emergency / casualty medical officers (EMOs /CMOs) depending upon the patient load of the Healthcare Establishment in each shift of 8-1/2 hours, with a half hour overlap of duties for handing/taking over of charge.

Night duty of 12 hours i.e. from 8PM to 8AM, currently in vogue for the hospital interns in the Emergency Departments hampers the quality of service by increasing the chances of human error, due to fatigue. Therefore, in a high turnover facility, a uniform duty of 8-1/2 hour should be preferred. Alternatively, four hourly rotating shifts (with few hours break in between the successive shifts) can be scheduled, provided there is sufficient provision of rest area in the facility. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and Surgery/Allied specialties along with special training in ABLS, ACLS and ATLS for the appointment of CMO/EMO.

### **Training**

- i There should be arrangement, preferably a national pool of resource persons available to train accident and emergency teams.
- ii This training will first be geared towards hospital Emergency teams
- iii All doctors and nurses shall be trained in basic and advanced life support
- iv All other health professionals shall be trained in basic life support by accredited trainers

- v For uniformity and standardization all training shall be done in selected centers of excellence and by accredited trainers
- vi Re-certification shall be done every three years

## Continuous Professional Development

### Core Staff

The core staff working at the Emergency Department should be re-certified every 3 years by accredited training teams and institutions. All institutions must ensure strict adherence to this provision. Hospital Management should ensure that all those working in the Emergency Department have training in emergency care. Core Team members (e.g. doctors, physician assistants and nurses) should at least be trained in:

- Basic Life Support
- Advance Cardiac Life support
- AED (automated external defibrillator)
- Advance Trauma Life Support
- Pediatric Advance Life Support
- Triaging
- Recognition and Management of the critically ill

### Training of other (Non-Core) Staff

- Enrolled Nurses (Health Assistants) should undergo at least BLS + AED (automated external defibrillator)
- Healthcare Assistance: At least BLS + AED (automated external defibrillator)
- Orderlies & Porters: BLS and Patient transport

### Accident and Emergency Team(s)

1. An emergency core team, physically present at all times should comprise the emergency physician/doctors, physician assistants, Emergency Nurses, Critical Care Nurse, triage personnel, porters and cleaners. The Expanded Team should comprise the following:

- i. Surgeons, Trauma/Orthopedic Surgeon, Neurosurgeons,
- ii. Radiologist, Anesthetist, Intensivist,
- iii. Pharmacist and others as required.

2. The Unit shall be headed by an Emergency Physician (EP) and in the absence of the EP a Medical Officer with requisite skills in emergency care shall be the head.

3. The head of the unit in collaboration with the Emergency Department Head Nurse shall see to the day-to-day running of the unit.

4. It is desirable that the staff should have had qualification/ training in Quality Assurance/Customer Care.

5. Staff job descriptions should be clearly stipulated, discussed and written copies given to them.

### Periodic Review Meetings/reviews

There shall be at least the following review meetings:

- i. Monthly Clinical updates organized by the Emergency Department
- ii. Bi-monthly mortality meeting.
- iii. Quarterly inter-departmental or inter-unit meeting/reviews

### Ethics for Emergency Staff

All citizens have the right to emergency medical care and in order to fulfil this right, emergency care providers shall:

- Abide by institutional code of ethics and patient's charter.
- Respond promptly and expertly, without prejudice or partiality, to the need for emergency medical care.
- Respect the rights and strive to protect the best interests of their patients, particularly the most vulnerable and those unable to make treatment choices due to diminished decision-making capacity.
- Communicate truthfully with patients and secure their informed consent for treatment, unless the urgency of the patient's condition demands an immediate response.
- Respect patient privacy and disclose confidential information only with consent of the patient/guardian or when required by an overriding duty such as the duty to protect others or to obey the law.
- Deal fairly and honestly with colleagues and take appropriate action to protect patients from healthcare providers who are impaired or incompetent, or who engage in fraud or deception.
- Work cooperatively with other stakeholders in the care of emergency patients.
- Engage in continuing medical education to maintain the knowledge and skills necessary to provide high quality care for emergency patients.
- Act as responsible stewards of the healthcare resources entrusted to them.
- Support societal efforts to improve public health and safety, reduce the effects of injury and illness, and secure access to emergency and other basic healthcare for all.

### Admission Policy for the Emergency Department

Only patients whose assessment during triage as per Triage Guidelines falls under **Red, Orange** and **Yellow** may be admitted to the Emergency Department for further management. It is the responsibility of the triage officer/nurse to refer all patients whose triage assessment falls under **Green** to the general outpatient or an appropriate health facility for further management. Patients that are at the end stage of a severe disease will be placed in categories green or blue, and will "only" receive palliative measures that accompany the dying process.



**Internal Consultations and Referrals to other Hospitals**

The emergency doctor on duty may request consultation with another specialist for a patient in the Emergency Department. The request shall follow established internal arrangements such as the use of SMS, phone calls, etc. and shall be attended to immediately. All consultation requests should be written in the patient's medical notes indicating time, date, and signature.

**Referral to other Hospitals**

The procedure for referral should follow the HCE Policy Guidelines. Only the emergency physician/specialist or senior doctor on duty has the authority to refer patients to other hospitals. The emergency doctor on duty should provide a written consultation regarding his recommendation for treatment and disposition on the emergency record.

**Disposition of Patients from the Emergency Department****Transfers**

Transfer of patients into and out of the Emergency Department shall be in compliance with the health facility transfer policy. The attending doctor must personally evaluate a patient in the Emergency unit prior to transfer to another ward. All safety measures and appropriate care shall be provided during the transfer of patients. The transferring doctor is responsible for completing the appropriate documentation who should also ensure that a mutual decision with the receiving department/unit has been reached.

**Discharge Home**

Patients not requiring hospital admission should be given written and verbal instructions regarding follow-up care. The doctor at the time of discharge is responsible for providing the patient with verbal or written instructions as necessary.

**Leave against Medical Advice /Refuse treatment**

Patients refusing further management should be requested to complete and sign the Leave -Against-Medical-Advice (LAMA) Form that should be attached to the patient's Emergency folder. This Form records the doctor's explanation of the consequences of the patient's action.

Refusal to sign the LAMA form should be documented on the form and witnessed and placed in the Emergency folder. A patient who leaves the unit prior to treatment should have such information noted on the folder along with the reason of leaving if known, and should be timed and signed.

**Deaths in the Emergency Department and those brought dead**

Death of the patients do happen in the emergency departments of the hospitals, very often due to the pathology or the cause responsible to bringing the patient in. However, in certain un-expected or un-explained cases, the family of the deceased may get agitated and resort to violence against the hospital staff.

Patient must be examined before declared brought-in-dead and the EMO/ CMO should be responsible to initiate lawful procedure. There should be a team of senior hospital staff including nursing, allied and administration etc. to take the charge of situation, isolate the body of the deceased person from common area, and to counsel the family of the deceased. Such a role demands extra restrain, somnolence, and exhibiting regard and respect to the emotions of the family in a passionate manner. The family should be assisted in documentation, clearance and disposal of the formalities in an expeditious manner.

in case of complaints, the complaint redress mechanism should be adopted up to the satisfaction of the complainant as far as his/her genuine grievance are concerned, and with due empathy, by reassuring of a fair process of hearing, and disposal as per rules.

Collaboration/Links with other departments and hospitals (within and without)

The Emergency Department should have links with other departments/units of the hospital. The facility management on the occasion should also have links with pre-hospital Emergency services and all relevant emergency services providers within the catchment area.

### **Emergency Records**

The medical records of patients in Emergency Departments is to be maintained, and secured in the manner similar to that being prescribed and implemented under the Functional area, Information Management System 'IMS' provided in the Minimum Service Delivery Standards (MSDS) and subject to review and quality control, as prescribed in the MSDS, for continuous quality improvement.

The emergency files / folder should include all pertinent bio-medical data on standard format as per policy pertaining to the Medical Records of the hospital. The medical record of medico-legal cases need to be specially secured and held confidential, with restricted access.

The patients or the families also have a right to obtain a copy, or summary of medical record accordingly, and there should be systems in place to make it possible when so required.

### **Emergency Preparedness Plan**

All hospitals shall have an emergency preparedness plan for meeting un-foreseen incidents, disasters, violence, or unnatural events, like earthquake, disruption of supplies, or services like power failure, failure of transport, water or sanitation services.

## Code blue

### Purpose

- To provide immediate life saving measures in case of life threatening emergencies
- Saving lives at the moment notice.
- To provide a plan for response to medical emergencies.
- The purpose of the Code Blue team is to assure prompt and skilled cardiovascular and cerebral resuscitation of persons who suffer a cardiopulmonary arrest.

### Definition

- It is an event of utmost emergency, a mode of alerting all medic, nursing, paramedic, and security staff.
- Code blue is a term hospital and medical professional use to describe a situation where a patient will need to be resuscitated.
- Code blue is announced when a patient is unresponsive, meaning him or her not breathing or heart stop beating.
- Medical Emergency is an event requiring the rapid assessment and intervention of trained medical personnel which may include but is not limited to serious injury, unconsciousness, serious respiratory symptoms, symptoms of cardiac crisis.

### Equipment/Material

- Cardiac monitor with pulse-oximeter
- Defibrillator
- Ambu bag
- Air way/s
- Air way maintaining equipment (air way, LMA, ETT, etc.)
- Oxygen flow meter with humidifier
- Suction regulator with suction bottle and suction catheter
- Emergency crash cart with all medical supplies and Emergency Drugs
- For documentation (Patient files, Resuscitation form, Code blue monitoring form)

### Staff Responsibility

- Employees who witness or are first on the site of a medical emergency will take immediate action, including CPR and basic First Aid if trained to do so, summon medical assistance and assist as directed.
- "Code Blue" announcement will be made by Charge Nurse or the doctor who discover patient irresponsive. Announcement includes department, bed number, gender, and floor/Area.
- RN will take the Emergency Med Cart or medicine tray and ensure that emergency equipment is transported to Code site.
- RN will ensure that the Code event is recorded and that equipment is ready for use. Emergency medications and equipment will be inventoried and Re-stocked on a weekly basis and following a Code.

- Shift Supervisor will ensure emergency medications and equipment are inventoried and restocked on a weekly basis and following a Code.
- Or an emergency Kit may be ready in ICU after announcement of code blue team member from ICU will reach at location with emergency KIT.
- Code Blue must be announced for the following Departments:
  1. Emergency
  2. OPD
  3. MSW
  4. FSW
  5. FMW
  6. MMW
  7. Cardiology
  8. Nephrology
  9. Paediatrics
  10. OTs/Anesthesia offices
  11. ICUs duty rooms
  12. Gynecology
  13. Oto-Laryngo-rhinology (ENT)
  14. Physiotherapy Dept.
  15. Radiology Department.
  16. Admn Deptt
  17. Pharmacy
  18. Cafeteria

#### **Team Members**

- The team who are responsible to run the code blue includes:
  - i. ICU specialist ( ACLS certified )
  - ii. ICU Nurse (Assigned for Code team BLS or ACLS certified)
  - iii. Department on call MO
  - iv. Primary Consultant (if on duty during code)
  - v. H/N or Registered Nurse on duty from Department
  - vi. Nurse supervisor
  - vii. Security
  - viii. Pharmacy staff (if available for medicine preparation)
  - ix. Lab technician (to take urgent samples for ABGs etc.)
  - x. Support staff (Ward Boy, Ward Helper etc.)
- Respond to the Code site is to assist with assessment of the patient/victim, determination of severity of the emergency, and provision of emergency care and treatment.
- Medical Superintendent/ Medical Director, and Nursing In charge will ensure review of each Code to identify opportunities for improvement.

#### **Policy**

- Hospital will follow its policy/procedure in providing for the emergency medical needs of patients, staff and visitors.

**Procedure**

- The first person on site recognizing an emergency medical situation will follow the basic guidelines for assessing the situation, summoning assistance and starting Cardiopulmonary Resuscitation (CPR) as appropriate and/or rendering First Aid.
- A nurse at the site will assess the situation and determine the severity of the emergency.
  - i. Stay with the patient/victim if the situation is life-threatening and requires direct emergency care
  - ii. Call or delegate a staff member to call on a given number to instruct the staff to announce a "Code Blue" for the specific Department, Bed no, gender, and Floor or Area) and intimated by pager
  - iii. This announcement is to be made regardless of the time of day
  - iv. Assure all member of code blue team are present as soon as code is called
  - v. Take the Emergency cart and equipment required to the site,
  - vi. Upon arrival ICU Nurse will assist Code leader for intubation and medication administration
  - vii. Follow ACLS guidelines to administer medicines and other treatment as per patient condition
  - viii. To continue Code depends on the patient response to the treatment at least 30 –45 minutes
  - ix. If patient revive shift to ICU after making necessary arrangement in ICU e.g availability of bed, Ventilator, etc.
  - x. Nurse supervisor will record, or delegate RN, to record the event on the Emergency Response Sheet. The Emergency Response sheet will be placed in the patient record and copy forwarded to Quality Assurance Department
  - xi. Following the use of the cart, replace all used items and notify the pharmacy to arrange for the timely restocking of medications to be ready for next use
  - xii. Convey information and/or seek assistance regarding the Code situation with the Nurse Supervisor
  - xiii. Attach cardiac monitor and defibrillator for recharging
  - xiv. Refilling of portable oxygen cylinder



## Power Failure in Hospital Emergencies

Electrical power to the Accident & Emergency Department can fail, either as an isolated event (e.g., tripped circuit breaker or blown fuses), or as a part of larger event, like regional power shutdown, or as an outcome of a natural disaster. In countries like Pakistan, where imbalances in demand and supply of electric power, coupled with fuel shortages or poor cost recovery mechanisms leading to accumulation of circular debt, thus causing un-planned load shedding. Hospitals therefore, need to have emergency plan<sup>33</sup> to cope with such power outages so as to sustain smooth operation of the facility, and to avoid risk to lives of the patients undergoing procedures or recovering through mechanical assistance/ventilation support. Hospitals need to define Standard Operating Procedures appropriate for each kind of power failure scenario, and the hospital staff should be well prepared to act accordingly in case of such emergency as per plan<sup>34</sup>.

Most hospitals have two lines connected to the power grid; while larger hospitals in Pakistan may have electric supply from two different power grids. If one goes down, the facility can still run at least on half capacity. Hospitals also have backup generators to help bridge the gap, especially for the high priority areas, like operation theatres, intensive care units, etc. Following are the hazards<sup>35</sup> in smooth operation of the hospitals in case of power failure:

- Loss of respiratory devices and other critical equipment for patients in intensive care, neonatal, or cardiac units.
- Loss of lighting for high-risk surgical procedures and potential black out of rooms with no emergency lighting.
- Loss of pressure in water distribution systems.
- Potential loss of access to other hospitals and healthcare facilities if they are also affected.
- Inability to access electronic patient medical records and other hospital data.
- Loss of patient signaling system for assistance by medical and hospital staff.
- Potential loss of access to medication, vaccines, and other medical supplies requiring keyless entry.

Following is a checklist for the hospital management to assess their capability and capacity to overcome the challenges involved in case of extended power failure situation:

- What is the electric utility's contact information in the event of a power outage?
- Where is the facility located on the electricity distribution network? What other hospital facilities are located on the same circuit?
- How reliable is the electricity distribution network where this facility is located?

<sup>33</sup> SOPs for Labs Electrical Power Failure; Purdue University Indiana

<sup>34</sup> KHSC Emergency procedures SOP-EP-01; Dec 2017

<sup>35</sup> Healthcare Facilities and Power Outages, August 2019

- Have you discussed with your utility if they consider your hospital facility to be a priority when responding to a power outage or shortage of electricity supply?
- Have you considered participating with your utility when they conduct drills or exercises to respond to a loss of power?
- Do you have partnerships in place with other local healthcare facilities in case of an extended power outage?
- Have you determined your energy usage under normal operating conditions?
- Have you identified your essential functions and minimum electricity needs and sized your backup generators appropriately?
- Do you have procedures to prioritize emergency power allocation to key resources (i.e. HVAC systems, ventilators, patient monitors)?
- How often is your emergency generator system tested to assure reliable startup and sustained operation?
- How long will your supply of emergency generator fuel last, and how can you be assured of continued fuel delivery in the event of an extended power outage

Following table provides general guidance to the hospital staff to identify the type of equipment which have good battery backup; and the type of equipment which usually do not have much power backup

**Table 1. Vulnerability of operating room equipment and hospital services to power failure**

This table is intended as an overview, as actual equipment performance may vary based on institution and make and model of device. Devices with limited or no battery back-up should operate if plugged into an emergency circuit ("red outlet") and generators are working.

<b>Substantial battery back-up, or not dependent on electrical power</b>	
Anesthesia machine/ventilator	Portable ultrasound machines
Non-desflurane vaporizers	Intra-aortic balloon pump
Portable patient monitors	Laptop computers
Portable infusion pumps	Medical gases (e.g., pipeline oxygen)
Portable suction	
<b>Limited or no battery back-up</b>	
Room lights	Patient warming devices
End-tidal gas analyzer	Transesophageal echocardiography machines
Automated medication dispensing devices (e.g., Cerner's RxStation®)	Wall suction and scavenging systems
Desflurane vaporizer	Da Vinci® Surgical System*
Patient monitors without battery back-up	Video towers
Electrosurgical units	Cardiopulmonary bypass machine
Fluoroscopy/portable X-ray units	Desktop computers without battery
Fluid warmers/rapid infusion devices	Cell salvage machine
<b>Depends on institution</b>	
WiFi/Internet access	Badge-activated door locks
Paging systems	Electronic medical record
Telephones	

\*Battery allows undocking of patient from robot.

Anesthesia patient Safety Foundation, Circulation 122,210 - Volume 30, No. 3 • February 2016

## Policy Recommendations for Improving the Emergency Services

In order to optimize the quality of emergency services, following measures are hereby recommended to be initially undertaken by the Health Departments /hospital owners / management:

- I. Improvement in the infrastructure of the emergency department in terms of number of beds, accessibility, waiting area etc
- II. Provision of trained / qualified, special cadre staff i.e. Doctors, Nurses and allied staff in the hospital emergency department round the clock
- III. on site presence of senior level consultant (minimum Assistant Professor) within the premises of public sector teaching hospitals;
- IV. Ensure availability of essential equipment and lifesaving medicine;
- V. Ensure availability of Integrated Diagnostic services (Lab and Radiology) and pharmacy
- VI. Ensure maintenance of Electronic Medical Record of the patients.

### Infrastructure

- I. At least 10% of the total bed strength to be allocated to the Emergency Departments in all the Hospitals;
- II. Establish dedicated chest pain clinics in the emergency departments;
- III. 24-hour availability of specialist cover, along with the following facilities to be available in Emergency Departments of multi-specialty Tertiary care / Teaching hospitals and Secondary referral (DHQ level+):
  - (a) Primary care of burn patients in Emergency
  - (b) Paediatric Surgery / primary trauma care for children
  - (c) Integrated Diagnostic (Lab & Radiology) services
  - (d) Doctors having post-graduate qualification in Emergency Care (FCPS Emergency care or equivalent)
  - (e) Initiate diploma courses in Emergency medicine for doctors and nurses
- IV. Improve physical ambience in the emergency departments to enhance their efficiency and ensure smooth flow of patients;
- V. Provision of fast track/ urgent primary care through extended / late hour OPD clinics for the bulk of patients presenting with ambulant non-complex conditions;
- VI. Location of the Emergency Department to be easily accessible from Entry Point without any physical barriers / obstructions for hassle free movement of the patients through trolley/stretchers/hospital bed or wheelchair;
- VII. The facilities in the Emergency Department should be integrated with diagnostic and support services of the hospital, including the laboratory, radiology, operation theaters, pharmacy,

blood transfusion (*if not provided separately in the Hospital Emergency Department*); for easy access to the staff and the patients;

- VIII. The functioning of the Emergency Departments and care provision must be monitored through CCTV cameras;
- IX. Physical Environment and infrastructure should be so designed, so provided, to allow for smooth and un-obstructed, safe movement of patients for the purpose of shifting, referral or discharge, or for the purpose of diagnostic tests or procedures;
- X. The Emergency Department should have easy access to public utility area, i.e., waiting room, toilets, etc.
- XI. Provide segregated utility areas with sufficient privacy to the medical and nursing staff for refreshment / changeover, with permitted break period (e.g., 20 minutes each during six hours' duty etc.);

#### **HR Requirements**

- I. Incentivized pay package and career structure for the doctors, working in the Emergency Departments
- II. Incentivized service structure for nurses having post-graduate qualification and training in ICU, CCU & Accident & Emergency nursing, etc.
- III. Doctors having post-graduate qualification in Emergency Care (FCPS Emergency care or equivalent) be appointed as on-site consultants/shift in-charges
- IV. Increase induction of medical graduates in the postgraduate Programme: FCPS in Emergency Medicine as approved by the College of Physicians and Surgeons Pakistan (CPSP);
- V. There should be dedicated staff (Doctors, Nurses & allied) allocated for emergency departments and those must be trained in life saving skills as applicable (ACLS/ATLS/ALSO /BLS);
- VI. Duty Roster of Medical, Nursing & Allied staff on duty in the Emergency should be displayed, preferably on LCD;
- VII. Duty roster should provide for adequate overlap in time for smooth handing over and taking over of patients, which must be documented, and verifiable;

#### **Trainings**

- I. Initiate diploma courses in Emergency Medicine for doctors and nurses
- II. Imparting formal hands-on training skills to the hospital emergency staff on life-saving skills and various emergency procedures;
- III. As a first step, initiate three weeks hands-on training to head nurses as "Triage Nurse" for placing them in public sector hospitals' emergency departments on pilot basis.



**Equipment and Supplies**

- I. Minimum set of dedicated lifesaving equipment, inter-alia, including the cardiac monitors, defibrillator, ventilators, as per the declared scope of service should be available in the Emergency Department;
- II. There should be adequate arrangement of medical gases, preferably through central supply and central suction with back up;
- III. Generator set for backup in case of electricity failures should be ensured;

## Emergency Department Check list

Sr	Criteria	Applicability for Emergency Department (tick ✓, No or Not Applicable (NA))		
		Level I	Level II	Level III
1.	<b>Hospital Emergency Plan</b> — developed — displayed / available — and in operation	Mandatory	Mandatory	Recommended
2.	<b>Hospital Emergency Building Map / Layout</b> — available & displayed — directions displayed for smooth patient flow	Mandatory	Mandatory	Recommended
3.	<b>Dedicated Entry for ambulances &amp; patient transport vehicles</b> — available — sufficient space available for ambulance parking and to unload patients	Mandatory	Mandatory	Recommended
4.	<b>Parking facility available for</b> — ambulances, — patients — staff cars	Mandatory	Mandatory	Recommended
5.	<b>Ramps &amp; clear way</b> for movement of patients available for all service area	Mandatory	Mandatory	Recommended
6.	<b>Area for Stretchers &amp; wheel chairs</b> — wheel chairs — stretchers	Mandatory	Mandatory	Recommended
7.	<b>Stretcher boys/Porters</b> — available	Mandatory	Mandatory	Recommended
8.	<b>Triage area available and identifiable</b> — direction signs displayed	Mandatory	Recommended	NA
9.	<b>Hospital staff available at</b> — reception/registration — help desk — dengue counter (in season) — COVID desk (in season)	Mandatory	Recommended	Desirable
10.	<b>Triage SOPs</b> — notified — triage physician / triage nurse / experienced paramedic notified and	Mandatory	Recommended (in smaller private hospitals trained triage)	NA

	available		nurse may be sufficient)	
11.	<b>Triage system in practice</b> <ul style="list-style-type: none"> <li>— Triage sheet available with patient registration slip /treatment chart duly filled as per protocol</li> <li>— Triage category /code assigned</li> </ul>	Mandatory	Recommended	NA
12.	<b>Resuscitation Room / area designated for resuscitation of critically ill patients has wall mounted or stand by</b> <ul style="list-style-type: none"> <li>— Suction units,</li> <li>— Oxygen supply,</li> <li>— Monitors</li> <li>— ECG</li> <li>— BP apparatus,</li> <li>— Defibrillator</li> </ul>	Mandatory	Mandatory	Desirable
13.	<b>Acute care area / beds allocated for major emergency cases has</b> <ul style="list-style-type: none"> <li>— Suction units</li> <li>— Oxygen supply</li> <li>— ECG</li> <li>— monitors</li> <li>— BP apparatus</li> </ul>	Mandatory	Mandatory	NA
14.	<b>HDU / ICU facility</b> (for seriously ill patients like DHF, dengue shock Syndrome, etc.)	Mandatory	Mandatory	NA
15.	<b>Isolation facility</b> (suspected infectious conditions like covid-19 / H1N1, etc.)	Mandatory	Mandatory	NA
16.	<b>Beds / area allocated for management of burn patients</b> <ul style="list-style-type: none"> <li>— air condition room with stainless steel bath and mechanical hoist</li> <li>— plenum-ventilation of dressing room with an exhaust ventilated air lock</li> </ul>	Mandatory	Mandatory	NA
17.	<b>Step down area</b> for patients already managed and awaiting test results and requiring observation prior to admission or discharge	Mandatory	Recommended	NA
18.	<b>Special treatment rooms (preferable) for</b> <ul style="list-style-type: none"> <li>— pediatric patients</li> <li>— obstetric patients</li> </ul>	Mandatory	Recommended	Desirable

	<ul style="list-style-type: none"> <li>— major psychiatric disorders</li> <li>— Eye /ENT &amp; dental rooms</li> </ul>			
19.	<b>Hand wash facility in all areas</b>	Mandatory	Mandatory	Desirable
20.	<b>Decontamination area</b> (preferable)	Recommended	desirable	NA
21.	<b>Primary care facility</b> <ul style="list-style-type: none"> <li>— for management of the low acuity conditions</li> <li>— suture room / minor OT</li> </ul>	Mandatory	Recommended	Desirable
22.	<b>Nursing Station</b> <ul style="list-style-type: none"> <li>— ease of monitoring patients</li> <li>— limited privacy</li> </ul>	Recommended	Recommended	Desirable
23.	<b>Observation area</b> /patient beds designated (for short stay after evaluation)	Recommended	Recommended	NA
24.	<b>Holding area /waiting area for non-injured / patients relatives</b> <ul style="list-style-type: none"> <li>— open and easily observed from the triage &amp; reception area</li> <li>— negatively pressured</li> <li>— Counsellor/Social worker/ volunteer for re-assuring relatives/family of seriously ill</li> <li>— TV / information display</li> <li>— visitors toilets</li> </ul>	Mandatory	Recommended	Desirable
25.	<b>Staff &amp; support area</b> <ul style="list-style-type: none"> <li>— staff room &amp; utility rooms</li> <li>— Staff change room with <ul style="list-style-type: none"> <li>▪ lockers</li> <li>▪ pantry &amp; retiring area</li> <li>▪ shower &amp; lavatories,</li> <li>▪ storage of soiled linen</li> </ul> </li> <li>— store rooms for hospital equipment &amp; linen</li> <li>— waste holding &amp; cleaners room</li> </ul>	Mandatory	Recommended	Desirable

26.	<b>Doctors office</b> <b>Nurses office</b> <b>Administration office</b> <b>Security office</b>	Mandatory	Recommended	Desirable
27.	<b>Director Emergency</b> — notified — available on duty	Mandatory	Recommended	NA
28.	<b>Authorization for medico-legal work available</b> — necessary support staff and logistics available for medico legal work — Authorized Lady Doctor available for female patients medico-legal work — (MLC register) — Mortuary — Mortuary Assistant — Post-mortem kit — preservation jars, bottles and preservative liquids available	Mandatory in Public sector General Hospitals	Mandatory in Public sector General Hospitals  (only if authorized by Government)	NA in private sector  (only at RHCs or such public sector HCEs duly authorized for the given type of medicolegal work)
29.	<b>EMO/ CMO available</b> — Emergency Shift In-charge available	Mandatory	(Recommended in Pvt, mandatory in Public sector) (as per declared scope)	NA
30.	<b>Duty Rosters available / displayed for</b> — Doctors on duty — Nurses on duty — Pharmacy, Radiology, Laboratory, Blood Bank, Engineering support staff (for lifts and equipment, electricity & supplies, etc.)	All Mandatory	Recommended (as per declared scope)	Desirable



31.	<b>Roster for on-call staff is available / displayed</b> <ul style="list-style-type: none"> <li>— Physician on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Surgeon on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Anesthetist on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Obstetrician on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Pediatrician on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Neurosurgeon on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Orthopedic Surgeon on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> <li>— Cardiologist on call           <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after – hours)</li> <li>▪ (respective PGR/MO on call in after – hours)</li> </ul> </li> </ul>	All Mandatory	Recommended (as per declared scope)	Medical Officer & Registered Nurse trained in emergency service provision recommended  Specialist cover Not recommended
32.	<b>Roster for paramedic &amp; support staff available</b> <ul style="list-style-type: none"> <li>— Electrician</li> <li>— lift operator</li> <li>— Dispensers</li> <li>— Ward master</li> <li>— Ward boys</li> <li>— Cleaners</li> </ul>	All Mandatory	Mandatory  Mandatory Mandatory	Recommended
33.	<b>Diagnostic Services available as per declared scope</b> <ul style="list-style-type: none"> <li>— Radiology &amp; imaging           <ul style="list-style-type: none"> <li>▪ X-ray</li> <li>▪ Ultrasound / Doppler</li> <li>▪ CT scan</li> </ul> </li> <li>— Pathology Laboratory</li> <li>— Blood bank services</li> </ul>	Mandatory  Mandatory Mandatory	Mandatory  Recommended Recommended Recommended	Recommended (regional x-ray facility)
34.	<b>Pharmacy services available</b>	All Mandatory	Mandatory	Recommended

	<p>— Essential life saving &amp; emergency use medicines and supplies as per standard list finalized by the hospital committee</p> <ul style="list-style-type: none"> <li>▪ Emergency tray</li> <li>▪ Resuscitation trolley</li> <li>▪ Anti-snake venom</li> <li>▪ Morphine antidote</li> <li>▪ Anti-rabies vaccine</li> <li>▪ Anti-rabies immunoglobulin</li> <li>▪ Immunoglobulin for tetanus</li> <li>▪ Inj Streptokinase</li> </ul>		<p>Mandatory</p> <p>Recommended</p> <p>Recommended</p> <p>Recommended</p> <p>Recommended</p>	<p>d (basic emergency life saving medicines)</p>
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# Hospital Emergency Department:

## Operational Model for Public and Private Sector (first referral facilities)

### Hospital Emergency Departments Operational Model

The Project Management Unit, Primary and Secondary Healthcare Department, Government of Punjab in 2019, has developed a comprehensive set of Manual on Standing Operating Procedures for the Emergency Departments of the public sector District and Tehsil Headquarter hospitals. The Manual not only provides guidelines regarding essential components of hospital emergency and related provisions but also provides guidelines for conduct of patients emergency management, medico-legal work and job descriptions of hospital emergency staff.

The Director General Health Services, Dhaka in Bangladesh, has developed a training manual for healthcare service providers on Standard Hospital Emergency Management Guideline. The Bangladesh Society of Emergency Medicine has contributed significantly towards development of this manual. The manual provides guidelines on management of common medical and surgical emergencies, and emergency equipment and drugs checklist templates.

Indian Health Facility Guidelines, March 2014 also provide an excellent account of minimum requirements for design of health facilities and setting physical benchmarks of quality. The guidelines have incorporated Indian Public Health Standards. There are separate volumes of guidelines for community health centres, the primary health facilities, the Sub-divisional level hospitals having 31 to 100 beds and district hospitals from 200 to 500 beds.

The Australian College for Emergency Medicine has also developed Emergency Department Design Guidelines in October, 2014. These Guidelines cover in detail, the clinical requirements of an emergency department, and integrate these requirements with functional need and practical size requirements of the emergency department. These guidelines also explain the important relationships of the emergency department with other departments of the hospital.

An Operational Model of a Hospital Emergency Department is added, as a template that can be adopted for a 100 + bedded private hospital for providing 24 hour emergency cover for basic medical, surgical and allied health facilities.

### Department of Emergency

While the physical dimensions, and the quantum of resources deployed for the Emergency Department of a hospital may vary depending upon the population mix being served, financial outlay and the range of health services offered and availability of suitable human resource, the emergency department is the single most important entity in the hierarchy of hospital departments. As such, emergency department is the face of hospital and its operational strength is dominant factor in shaping up the image and profile of the hospital. The role of Emergency Department becomes critical during after-hours when regular OPD services are closed, and workload of the hospital shifts to the emergency department. Emergency department is functionally divided into following major divisions:

Reception / registration & Triage	Medico-legal section
Main Emergency	Medical Emergency
	Surgical Emergency
Chest Pain Center*	Pediatric Emergency*

\* (subject to requisite patient flow and availability of relevant specially trained staff)



# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

The Main Emergency and Pediatric Emergency at the hospital should be adequately equipped to manage common medical emergencies and should be able to provide resuscitation and initial management of all surgical emergencies. A detention ward or Resuscitation Room should be provided in its detention ward. Minor surgical procedures/operations are carried out in its minor operation theatre. For major surgical emergencies patients are admitted / evacuated to the hospital after life-saving/necessary resuscitation at the Emergency Department.

The Chest pain centre / unit would comprise of an acute pain management area, evaluation (Triage) area and an observation area combined with patient education programme. The Chest Pain Centre should be linked with community education programme of Early Heart Attack Care (EHAC) under supervision of the Department of clinical / interventional cardiology of the main hospital.

### SOPs for Reception and Patients Management

- i. Patient comes to the Emergency Department
- ii. If patient is critically ill, he/she is shifted on trolley or wheelchair, by the ward boy deputed for this purpose, on the main gate and reception
- iii. At the reception, the patient/relative will be asked to get his patient name registered, whereupon an Emergency Room slip will be issued along with a clinical notes sheet/Emergency Room admission slip. The reception clerk will make entries of the patient's credentials in the computer as well as the register and send the patient to the MER
- iv. In-charge Nursing in the Emergency will assess the patient to assign due priority as per the TRIAGE guidelines/SOPs
- v. In case the patient needs resuscitation the CMO will announce the CODE BLUE.

### Emergency flow /process for disposal of patients

The emergency department will be oriented towards patient management. Emergency / Casualty Medical Officers (EMOs/CMOs) and other staff at the Emergency Department should not only possess clinical knowledge but they will also apply it with promptness, precision and empathy towards patients.

The EMOs/ CMOs and the Emergency staff will be familiar with the hospital policies procedures, service rules and regulations and every day matters of Law as applicable. The hospital management shall ensure proper orientation of the Emergency staff (clinical and support staff) with the clinical knowledge, expertise and understanding so that their performance in the Emergency Room is optimum. Such expertise will enable the Emergency staff to avoid involvement in unenviable entanglements un-necessarily, while not indulging in patient neglect, or lose their mannerism, and shall remain polite towards the patients and their families

The EMO/ CMO and other clinical / nursing and allied/support staff in Emergency Department will not leave the Emergency Department even if his/her duty hours are over, till the arrival of the reliever. Changeover of duties between the Emergency /Casualty Medical Officers will take place punctually. Moreover, both handing/taking over of patients and important administrative matters and their pending disposal if any, between these medical officers will take place physically and in a methodical way every day, and on every change of shift. This will include an OK report to be given in person by the medical officer handing over to the medical officer taking over. Emphasis is laid on this change over of duties with a view to obviate patient neglect and/or any embarrassment to the management, on both counts of which no pretext can be acceptable.

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

Change over time on work days and closed Holidays <sup>36</sup>

Change Over Time	Days / Shifts
07:30 hrs	Between the night EMO/ CMO/Registrar and the morning EMO/ CMO/ Registrar
13:30 hrs	Between the morning EMO /CMO / Registrar and the Evening EMO /CMO /Registrar
19:30 hrs	Between the day evening EMO /CMO/ Registrar and the night EMO /CMO /Registrar
17:00 till 23:00 hrs	Evening 2 <sup>nd</sup> EMO /CMO (Additional) will work along

### Typical Duty Roster of Medical Staff in Emergency Shifts

From 07:30 hrs till 14:00 hrs		Nos.
Director Emergency	In-charge Medical Emergency / Registrar	1
	Emergency /Causality Medical Officers	3
On Call Staff:	Medical Officer/PGR (Medical ward)	1
	Medical Officer/PGR (Surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO /PGR (Gynecology/ Obstetrics)	1

From 14:00 hrs till 20:00 hrs		Nos.
	In-charge Medical Emergency / Registrar	1
	Emergency/Causality Medical Officers	3
On Call Staff:	Medical Officer/PGR (medical ward)	1
	Medical Officer/PGR (surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO/PGR (Gynecology/Obstetrics)	1

From 19:00 till 23:00	Additional Causality Medical Officer	1
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From 20:00 hrs till 07:30 hrs		Nos.
On Call Staff:	Night EMO /CMO (Emergency /Causality Medical Officer)	3
	Medical Officer/PGR (Medical ward)	1
	Medical Officer/PGR (Surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO /PGR (Gynecology /Obstetrics)	1

### Typical Duty Roster of Nursing & Allied Staff in Emergency Shifts

From 07:30 hrs till 14:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (On week days she will remain available till 15:30 hrs)	1
	Charge Nurses (numbers depending on workload)	7*
	Nurse Aids	2
	Male Nurse	1
Paramedics	ECG Tech	1
	Ward Helpers	4
	Cleaner / sweeper	1+1

<sup>36</sup> Ittefaq Hospital Trust SOPs for Department of Emergency



# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

	Stretcher boys / wheel chair helpers (main gate to emergency)	3
--	---	---

From 14:00 hrs till 20:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (She will remain available from 13:00 till 20:00 hrs on week-days)	1
	Charge Nurses (numbers depending on workload)	7
	Nurse Aids	2
	Male Nurse	1
Paramedics	ECG Tech	1
	Ward Helpers	4
	Cleaner / sweeper	1+1
	Stretcher boys / wheel chair helpers (main gate to emergency)	3

From 20:00 hrs till 08:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (She will remain available from 19:00 till 08:30 hrs on week-days)	1
	Charge Nurses (numbers depending on workload)	7
	Nurse Aids	2
	Male Nurse	1
Paramedics	ECG Tech	1
	Ward Helpers	4
	Cleaner / sweeper	1+1
	Stretcher boys / wheel chair helpers (main gate to emergency)	3

### BASIC FACILITIES

While the obstetric emergencies shall be directly routed to the Labor Room and the infants shall be sent directly to the Pediatric Ward for management, the remaining bulk of patients reporting to the Emergency will be assessed and managed for the imminent care in the main Emergency Department. The Hospital Emergency Department will provide the following basic facilities to the patients reporting in the emergency:

- First Aid and emergency management including resuscitation
- Necessary diagnostic facilities /investigations
- Detention for short periods (to a maximum of 4 hours) of cases requiring observation, I/V therapy, nebulization, relief of pain etc., or pending disposal by specialists on call
- Facilities of minor surgical operations/procedures will be provided by the minor operation theatre functioning in the Emergency Department. These include dressing, stitching, incision and drainage, application of Plaster of Paris (POP) etc. All outdoor and indoor patients requiring the same will be attended here
- Administration of Intravenous infusion/injections etc.

The EMO/CMO will examine the patient and if the patient is suffering from minor ailment then will advise treatment on clinical note sheet as well as ER admission slip and send the patient to Charge Nurse for injection (if needed), after which patient is sent home and the clinical note sheet will be taken by the Charge Nurse. If the patient needs admission, he/she will be referred to the concerned Medical/Surgical unit for admission in ward/ICU. The referred patient will be attended by the MO/PGR of the concerned specialty (Medical/Surgical). The House Officer of the concerned unit will follow and

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

carry out the instructions of the MO/PGR. The MO/PGR/SR of the concerned unit will write down the treatment plan on the clinical note sheet and sign it.

No treatment plan will be written on the E.R. slip which is to be kept with the patient for final disposal. The investigations will be ordered by the CMO/MO/PGR/SR and House Officer is responsible to send these investigations to the Lab/Radiology department. If the patient is admitted in the ward, both E.R. slip and clinical note sheet will be attached with the admission documents. The patients will be managed in the emergency as per the following SOPs:

- i. In case of serious patients, the treatment plan should be discussed with the consultant on call
- ii. If the patient is discharged/expired after treatment the clinical note sheet will be kept as record in the Emergency Room and the Head Nurse/Charge Nurse of Emergency Room is responsible to keep this record
- iii. In case of expiry of the patient EMO/CMO/PGR will prepare the death certificate and sign it and will also write down the death summary in the death register of Emergency Department
- iv. The treatment of discharged patients should be written on the Emergency Room slip, duly signed by the EMO/CMO and handed over to the patient for follow up
- v. No House Officer is allowed to discharge the patient without the knowledge of SR/PGR after approval of primary consultant
- vi. Dispenser on duty in the Emergency Room is responsible for the entry of these patients in the Master / duty sister Register

## TRAINING

The Director Emergency /Registrar In-charge Emergency Department will ensure continuous training of the emergency staff on improving their professional skills, proper handling of the patients, patients safety, infection prevention and control. The trainings should also cover management of stress/anxiety, and improving their communication skills. The ward master will ensure that the staff deputed in the Emergency Department is physically fit, efficient and energetic. This staff will not be changed without the concurrence of the Director Emergency / Registrar In-charge Emergency. The training of the staff in the Emergency Department will essentially include the following:

- i. Cardio-Pulmonary Resuscitation (CPR)
- ii. The management of Acute Emergencies
- iii. Admission documentation procedures
- iv. Medico-Legal Policy
- v. Quality Standards and indicators

The ward master will ensure that all ward helpers available in the hospital are once rotated for duty to the Emergency Department so as to be properly trained on stretcher bearer duties.



# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

### Basic Equipment

The I/C Nursing staff will ensure that all life supporting emergency equipment at least the following in the number commensurate to the number of beds/ workload is available and in working order:

Sr	List of Equipment	Tentative Quantity / Nos.
i.	ECG Machine	5
ii.	Defibrillator	1
iii.	Nebulizer	2
iv.	Oxygen Cylinder (11 litres with key, gauge and flowmeter)	2
v.	BP apparatus	10
vi.	Sucker Machine Manual	10
vii.	Sucker Machine Electric	2
viii.	Peak flow meter	2
ix.	Weighing machine	2
x.	IV stands	12
xi.	Stretchers	4
xii.	Wheel chairs	10
xiii.	Cardiac Monitors	4
xiv.	Sheller Monitor	1
xv.	Pulse Oximeter	4
xvi.	Electricity Generator (stand by)	1

### Power Failure

Ideally, in case of power failure, the power generator should automatically switch on so as to maintain un-interrupted power supply to the sophisticated medical devices, like ventilators, anesthesia machines, etc. In case otherwise, the electric generator will be switched on promptly.

### Code Blue

In case of any emergency, the concerned Ward Nurse will press CODE Blue **NO. 0000**

On intimation from the concerned area nurse, the telephone operator will announce "code blue" three times, loudly and clearly. When "Code Blue" is announced all physicians in that building will respond. However, 2 medical officers i.e. MO medicine of the area and MO anesthesia will stay at site. Any other responding physician will leave once these two people are present.

First physician (any department, any level) arriving will conduct the CPR till the MO Medicine of the area, Registrar Medicine, or the Consultant in Medicine arrives, in which case most senior of the three will be supervising and conducting the CPR. This person will be responsible for giving all orders, others can suggest but would not give direct orders. Following SOPs will be observed:

- To avoid overcrowding it is recommended that people not in CPR team unless directly involved in patient care, should leave the area.
- ECG technician will stay till end of CPR.
- Cardiac massage, breathing and defibrillator etc. will be the responsibility of only following person once they arrive:
  - MO Medicine of the area

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

- b. MO Anesthesia
  - c. Nurse Incharge of the area
  - d. Assistant Nurse of the area
- A.** Supply of medicine, oxygen supply, suction apparatus, CVP Line, intubation equipment etc., will be the responsibility of Nursing Supervisor. The nursing team will think forward and will ensure continuous supply and replenishment of medicine and supplies if running out of stock.
- B.** IF after 15 minutes of efforts the CPR result is poor and the patient does not respond even after 20-30 minutes, the CPR shall be discontinued and the telephone operator will declare "Code Blue Over" on microphone as advised by the CPR team leader.

### Code Blue Team

- i. MO Anesthesia
- ii. MO Medicine
- iii. MO cardiology
- iv. Nursing Supervisor
- v. ECG Technician
- vi. Bio-Medical Technician
- vii. Ward Master
- viii. Security In-charge

### Triage Categories

As soon as the patient is rushed into the Emergency Department of the hospital, the Head Nurse or a senior charge nurse assigned as "Triage Nurse" for the shift shall immediately assess the patient empirically in line with standard Triage protocol.

#### a. Immediate Resuscitation

Patients who need treatment immediately or within two minutes are categorized as having a life-threatening condition. Most of them would have arrived in the Emergency Department by ambulance and would probably be suffering from a critical medical condition, serious injuries or may have sustained a cardiac arrhythmia / cardiac arrest.

#### b. Emergency

Patients who need to be treated within 10 minutes are categorized as having an imminently life-threatening condition. This group of patients includes those suffering from a critical illness or are very severe pain e.g. chest pain, difficulty in breathing and fractures etc.

#### c. Urgent

This group of patients requires treatment within 30 minutes and is categorized as having a potentially life-threatening condition. These include patients suffering from severe illnesses, bleeding heavily from cuts/wounds, have major fractures, or are dehydrated.

#### d. Semi-Urgent

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

Patients in this group are having a potentially serious condition with less severe symptoms or injuries, such as a foreign body in the eye, sprained ankle, migraine or earache etc. and need to be treated within one hour.

### e. Non-Urgent

This category includes patients who have a less urgent condition and need to have treatment within two hours. This includes those having minor illnesses or symptoms which may have been present for more than a week such as rashes or minor aches and pains.

### Notes and Evaluation

- EMOs /CMOs are primarily responsible for managing patients in Emergency.
- Referred patients should be seen within 10 minutes of referral by CMO.
- The Charge Nurse will immediately check vitals before digging through old record, lab results and old discharge.
- Summary and old charts.
- Proper documentation of symptoms.
- Management and diagnosis will be done for every patient. Serious patients should be immediately seen and resuscitated. Procedure of referral and consultation will proceed side by side. Monitoring notes should be properly maintained including fluids given and output of patient.

### Admissions from the Emergency Department

- Duty registrar should decide all admission through ER.
- After assessment and patient's examinations complete admission orders including drug Prescription should be written clearly and immediately.
- Duty registrar will inform nursing staff for stat labs immediately or carry out by himself.
- Notes on history and examination file should be completed before shifting to In-Patient.
- Complete shifting notes shall be recorded before shifting the patient to the ward.
- Paramedic staff should accompany every admitted patient during shifting to the ward.
- In case of serious patient, concerned MO of the department should accompany the patient.
- Before shifting, inform the ward staff on call.
- If beds are not available in wards, retain patients in ER till arrangement are made, If required discuss with consultant on call or Registrar ER.

### Discharge from the Emergency Department

- No patient should be discharged without being evaluated by the duty registrar.
- Keep in mind pending labs issued; and results awaited.
- Communicate with all involved parties for smooth discharge.
- Give clear instructions regarding medicines schedule/side effects/precautions
- Clear instruction regarding Restrictions on activities/travel/diet in Urdu/local language make sure by repetition that Patient can repeat/recall your instructions. Write discharge diagnosis clearly.



# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

- Notes should include chief complaints and history of present illness, hospital stay, course, name of examining doctor, Hospital Medical Record Number /provisional and secondary diagnosis and Procedures. The discharge certificate should also mention follow-up plan/condition on discharge and attach diet chart if required.

## Transfer of Patient to other Hospital

### Patient Transfer to Other Facilities

- Once decision is made to transfer the patient to the other hospital for management, contact the concerned doctor/staff there first on telephone and discuss the case in detail and request to make sure the bed is available for the patient.
- Note down the contact person's name and designation.
- Provide detailed notes on the referral slip.
- Provide ambulance preferably by the hospital through coordination with DMS/CMO, and if patient is serious, a doctor allied staff should accompany while transportation.
- Ambulance should be equipped with resuscitation equipment.

### Death / Expirations/Receive Dead

- On being called to pronounce death the doctor must perform certain steps.
- On arrival to bed site observe for respirations, auscultate for heart sound, palpate for carotid pulse, and check pupil and corneal reflex.
- Complete death notes on progress sheet and fill death certificate as early as possible.

### SOP for Medico-Legal Cases

The private or trust hospitals do not deal with medico legal cases per se. However, in the circumstances where a patient presents with life threatening condition and delaying and/or referral to any other hospital will endanger the life or result in the death of the patient, the hospital ER will provide care to the patient that is essential for continuity of life. However, once the treatment is no more required for continuity of life and patient is stable, he may be referred to other Government health services for medico legal formalities.

With immediate effect, no Medico-Legal case will be admitted in the hospital without Medico Legal Certificate (MLC).

### Medico legal cases:

- i Poison
- ii Fire arm injury
- iii Burn cases
- iv RTA
- v Physical Assault
- vi Rape
- vii Sexual Assault
- viii Fight

### Occupational Risks

Standard barrier nursing and isolation techniques should be employed in cases of patients with infectious communicable diseases. These measures include:

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

- Gloves
- Masks
- Careful needle/sharp object handling
- Prophylaxis in cases of exposure if indicated (e.g. Meningococemia).
- In case of mishap/exposure, event should be reported to consultant on call, immediately.

### Accountability

In case of an incident, a committee comprising of consultants will review the entire case in detail and decide about warning/penalty as the case may be.

### Ethical Issues

Best interest of the patient should be watched, in case of conflict or confusion, issues should be discussed with consultant on call.

### Confidentiality of Patient's Data

Patient's record and data should be kept confidential to watch his/her interests and diagnosis/prognosis should not be discussed with attendants without permission of patient/close attendant.

### Senior Consultation

On call consultant/senior registrar should be contacted on phone if required by the registrar on call. If he/she may request to see the patient, then on call consultant should try to attend the patient personally at the earliest or within 1 hour of the request.

### Consultations from Other Departments / Urgent Scans

Consultants and scans should be decided by the duty registrar and call to the respective department should be written with clear indications, exact questions to be observed and urgency of the consultation.

### Record Keeping

- ER register shall be filled properly with composite diagnosis or relevant differential for every patient.
- Duty registrar will sign register at the end of duty, and to be counter-signed by covering consultant for that day before morning meeting.
- Record of consultations provided to other department should be kept in the registrar.
- Death notes for patients who expired in ER should be written in the ER register immediately after the event.

### Drugs and Investigations

List of drugs and lab profile available in hospital for ER patients should be available to each shift of ER staff.

### BLS/ACLS Training

House officers and registrar should be trained in BLS/ ACLS before performing duties in E.R.

### Dress Code

Dress should be conservative and modest and no informal clothing (jeans and T-shirts for males), party wears or excessive jewelry (for females) should be allowed, during duty hours.

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

Every doctor should wear neat and clean overall, with properly displayed ID card or name plate.

### Medicines

- a. Sufficient stock of life saving medicines will be kept in the medicine trolley of the ER.
- b. Stock utilized will be recouped immediately and on regular basis.
- c. Controlled medicines will be demanded on a daily basis so as to recoup the stock utilized in the previous 24 hours.

### Transport

- a. The following will be available at MER and will move under orders of the EMO/ CMO I/C MER:
  - i. Ambulances for transporting the patients.
  - ii. The drivers employed on 8 hourly shifts.
- b. When moving to collect the specialist the driver will be issued a duty slip bearing his/her residential address and telephone number.
- c. On return to the hospital this duty slip with the mileage covered will be put up to Manager Administration.

### Patient Kit and Belongings

In case there is no attendant with the patient at the time of his admission then an inventory of his personal belongings will be made and the belongings will be kept in the hospital pack store and a receipt will be issued to the patient. In the event that the patient is unconscious, delirious or of unsound mind and there is no attendant with him the Nursing Supervisor will make an inventory of his personal belongings in the presence of a medical officer.

### Paediatric Emergency

Paediatric emergency is divided into three portions

- a. Reception and waiting area
- b. Screening and examination area
- c. Causality area/Short stay

It should preferably be covered by two doctors in each shift i.e. Medical Officer/FCPS/MCPS Trainee. One doctor covering the screening clinic and the other one taking care of patient for admission/short stay and for procedures.

- **Wearing of white coat** with hospital I.D card is mandatory.
- **Medical Officer/FCPS/MCPS Trainee** must reach well in time in emergency ward to take proper over of short stay/Causality area cases.
- **Consultants** coverage time is from 8.00 am to 8.00 am.
- **Patients arrival** time must be mentioned on the ER card.
- **Short stay/ Causality area** cases should remain admitted for not more than or up to 3 hours. Patient needing prolonged stay should be advised admission by the ER doctor.
- **Doctor must carry** a red marker, pocket book, stamp, and stethoscope.
- **All Trainees** (FCPS/MCPS), Medical officer are supposed to be in in emergency department during their duty hours in emergency.

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

- **ER doctors** is supposed to run the screening clinic, complete the admission procedure, including detail history and physical examination of the child, blood sampling and initial management plan.
- **Before deciding** to admit the patient, doctor should be able to assess the socioeconomic status, reminding parents about hospital charges.
- **In case of any help** needed from the seniors (Consultants, Sr. Registrar, Registrar) all are available physically or by telephonic to help in diagnosing and managing the patient)
- **Critically** sick patients are always on priority.
- **Medical Officer/FCPS/MCPS** Trainee must inform every critical situation and seriousness of patient to the Sr. Registrar/Registrar on call.
- **Critically** sick patients must be escorted by the doctor, staff nurse and ward helper to avoid the mishaps occurring on the way.





## **Hospital Emergency Departments**

### **Operational Model for Public and Private Sector (first referral facilities)**

#### **Anaphylactic and drug reactions, asphyxia, electric shock and drowning**

Following catastrophic situations demand immediate and proper systematic interventions / treatment:

- a. Complete cerebral anoxia over 4 minutes will cause permanent damage and beyond 6-8 minutes will cause death.
- b. Cessation of normal circulation causes rapid cyclic deterioration which is characterized by hypoxia, lactic acidosis and hypercarbia. Pre-existing heart disease, electrolyte imbalance, medication or anesthetics may precipitate the collapse.
- c. The reflex vagus-induced arrests secondary to stimulation of the esophagus and tracheobronchial tree and similar arrest may occur during rectal and proctoscopic examination.
- d. Pre-anesthetic doses of atropine may have worn off by the end of a long (4 hour) operation and may make the patient more susceptible to the complication
- e. Electrolyte imbalance, mainly hyperkalemia either from endogenous or exogenous sources, is critical. The ration of ionized serum calcium to potassium and their antagonistic actions on the myocardium are important during massive transfusion of banked blood as it is high in potassium as well as calcium-binding citrate.
- f. Other causes of cardiac arrest include; pulmonary emboli, electrocution or any cause of hypoxia.
- g. Primary ventilatory failure is caused by hypoxia, central nervous system or spinal cord trauma and respiratory depression from narcotics.

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

### Management of Cardiopulmonary Arrest

#### a. Emergency Measures (A for Airway)

- i. Begin treatment if there is no obtainable blood pressure or pulse for 10 seconds
- ii. Place patient in supine position on a hard surface (metal or plastic tray under the chest)
- iii. Establish a clear airway
  - a. Clean out mouth and pharynx (manually or by suction)
  - b. Tilt head back and pull chin forward.
  - c. Insert an oropharyngeal airway or endotracheal tube, if necessary.

#### b. Establish Ventilation (B for Breathing)

- i. Mouth-to-mouth: A handkerchief may be interposed between the operator's mouth and patient.
- ii. Use "Ambu" bag and mask.
- iii. Provide an adequate tidal volume in accordance with the optimal chest excursion rate as under:
  - a. Adult-12 times per minute.
  - b. Children-20 times per minute.
  - c. Infants-30 times per minute.
  - d. Ventilate adults until chest expands to beyond normal size.
  - e. Children require less force, approximately that needed to inflate an ordinary toy balloon.
  - f. Infants are given only short puffs.

#### c. Closed Chest Cardiac Compression (C for Circulation)

##### i. Anatomic Considerations:

Pressure on the sternum compresses the heart and reduces the sizes of the thoracic cavity. This forces blood out of the ventricles and expels air from lungs. On release, blood flows into the large veins of the chest and into the atria and air enters the lungs.

##### ii. Method

- a. Patient remains in a supine position on a hard surface such as a tray or the floor, if necessary.
- b. The heel of the right hand with the heel of the left on top is placed on the lower third of the sternum just above the xiphoid.
- c. Firm pressure is applied downward and body weight brought forward to secure sufficient pressure. The sternum should move 4-6 cm, toward the vertebral column in adults. The force is transmitted directly to the heart behind the sternum. DO NOT exert pressure on rib cage or epigastrium.
- d. Hands should be quickly removed after each placement of pressure to allow intrathoracic venous fillings and the lungs to expand.

# Hospital Emergency Departments

## Operational Model for Public and Private Sector (first referral facilities)

- e. Rate of pressure application should be 80 times per minute, slightly faster in children and infants. Also, the force applied must be moderated to fit the elastic properties of the thoracic cage. All that is needed is simple first and middle finger compression in the newborn infant.
- f. Observations for the signs of restoration of flow include a full carotid or femoral pulse, constricted pupils, return of skin color, spontaneous ventilation and movements.
- g. A systolic blood pressure of 60-80 mm Hg can be obtained if cardiac compression is correctly performed.
- h. The ratio of lung inflation (mouth-to-mouth breathing) to cardiac compression should be 1:5 when there is an assistant, and 2:15 (lung to heart) before help arrives.

### d. Ventricular Fibrillation

- i. Immediately upon recognition of ventricular tachycardia or fibrillation, a sharp precordial thump with the closed fist is delivered as this important first maneuver is sometimes effective by depolarizing the myocardium and allows for a normal rhythm to develop
- ii. If ineffective, electrical defibrillation is performed in which after applying conductive jelly the defibrillation paddles are firmly placed on the chest, one over the upper sternum and the other to the right of the lower sternum (cardiac apex)
- iii. Only capacitor discharge (DC) defibrillators should be used, AC defibrillation is hazardous and may cause serious burns
- iv. The meter is set at about 400 watt-seconds (joules), all attendants are instructed to stand clear of the bed or supporting structures, the ECG machine must be turned off if it is not internally grounded during counter-shock
- v. Considerably less voltage is applied to children or to the exposed heart
- vi. Secure an electrocardiographic tracing as soon as possible and continue specific therapy as indicated by the tracing
- vii. Give epinephrine or isoproterenol and sodium bicarbonate as these drugs strengthen the contractions and permit easier defibrillation

**Annex-I****Triage Sheet**

Patient Name:.....

Age.....Gender: M      F

Chief complaints:.....

Date.....Time of Arrival.....

**Part 1: Triage Early Warning Score (TEWS)**

Triage Parameter	Measured Value	TEWS Score
Mobility		
Respiratory Rate		
Heart Rate		
Blood Pressure		
Temperature		
AVPU		
Trauma		

TEWS Score:.....

Initial Triage Colour: RED      ORANGE      YELLOW      GREEN      BLUE

**Part 2: The Discriminator List**

- Does the patient need to be triaged to a higher colour based on the discriminator list?  
Yes      NO

- What was the discriminator?.....

**Part 3: Final Triage Colour:**

RED      ORANGE      YELLOW      GREEN      BLUE

## Annex-II

## Code Blue Feed Back Form

Patient Name: \_\_\_\_\_ IIR#: \_\_\_\_\_ Date: \_\_\_\_\_

Age/Sex: \_\_\_\_\_ Department: \_\_\_\_\_

Time \_\_\_\_\_

- |                                  |     |    |
|----------------------------------|-----|----|
| 1. Code blue announced at (Time) |     |    |
| 2. Code blue announced twice     |     |    |
| 3. Code blue announced thrice    |     |    |
| 4. Code blue team arrival times  |     |    |
| 5. ICU on duty MO /SR            |     |    |
| 6. ICU on duty Nurse             |     |    |
| 7. Dept. on duty Doctor          |     |    |
| 8. Dept. on duty H/N, S/N        |     |    |
| 9. Shift supervisor              |     |    |
| 10. Security                     |     |    |
| 11. Ward boy/Ward helper         |     |    |
| 12. Cleaner                      |     |    |
| 13. Cardiac board placed         |     |    |
| 14. Resuscitation initiated ☹    |     |    |
| 15. CPR Done                     |     |    |
| 16. Oxygen attached              |     |    |
| 17. Intubated                    |     |    |
| 18. Medicines given              | Yes | No |
| 19. Total Resuscitation time     |     |    |
| 20. Code ended @                 |     |    |
| 21. Patients response            |     |    |
| 22. Code Blue team Leader        |     |    |

## REMARKS

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Shift supervisor Name:



**Annex-III****Resuscitation Form**

Patient name: \_\_\_\_\_ Age/Sex: \_\_\_\_\_ MR NO \_\_\_\_\_

Diagnosis: \_\_\_\_\_ Department: \_\_\_\_\_ Bed: \_\_\_\_\_

No: \_\_\_\_\_

Attending consultant: \_\_\_\_\_

Time of arrest: \_\_\_\_\_ Date of arrest: \_\_\_\_\_ Time resuscitation start: \_\_\_\_\_

Time resuscitation end: \_\_\_\_\_ Resuscitated by (Dr/Nurse Name) \_\_\_\_\_

Total Duration of resuscitation: \_\_\_\_\_ Type of Arrest: \_\_\_\_\_

Drugs / IV fluids	Time	Route	Sign	Remarks
Others: DC shocks Intubation				
Ventilation				

Result patient: Revived: Yes / No Expired: \_\_\_\_\_ Disposal to: ICU / Morgue

1. Attending Doctor Name (ICU) \_\_\_\_\_ Signature: \_\_\_\_\_

2. Attending Doctor Name (MO/SR from Deptt) \_\_\_\_\_ Signature: \_\_\_\_\_

## Annex-IV

### Equipment and Supplies

This is not an exhaustive list and is rather, a tentative list based on common, minimal needs of 1st or 2nd referral hospital. The Essential list of basic equipment and supplies needed for effective running of such an Accident & Emergency Department are listed below:

Capital Outlays
Resuscitator bag valve and mask (adult)
Resuscitator bag valve and mask (paediatric)
Oxygen source (cylinder or concentrator)
Mask and Tubings to connect to oxygen supply
Light source to ensure visibility (lamp and flash light)
Stethoscope
Suction pump (manual or electric)
Blood pressure measuring equipment
Thermometer
Scalpel # 3 handle with #10,11,15 blade
Scalpel # 4 handle with # 22 blade
Scissors straight 12 cm
Scissors blunt 14 cm
Oropharyngeal airway (adult size)
Oropharyngeal airway (pediatric size)
Forceps Kocher no teeth 12-14 cm
Forceps, artery
Kidney dish stainless steel appx. 26x14 cm
Tourniquet
Needle holder
Towel cloth
Waste disposal container with plastic bag
Sterilizer
Nail brush, scrubbing surgeon's
Vaginal speculum
Bucket, plastic
Drum for compresses with lateral clips
Examination table
Wash basin
Renewable Items
Suction catheter sizes 16 FG
Tongue depressor wooden disposable
Nasogastric tubes 10 to 16 FG
Batteries for flash light (size C)
Intravenous fluid infusion set
Intravenous cannula # 18, 22, 24
Scalp vein infusion set # 21, 25
Syringes 2ml
Syringes 10 ml
Disposable needles # 25, 21, 19
Sharps disposal container

<b>Capital Outlays</b>
Capped bottle, alcohol based solutions
Sterile gauze dressing
Bandages sterile
Adhesive Tape
Needles, cutting and round bodied
Suture synthetic absorbable
Splints for arm, leg
Urinary catheter Foleys disposable #12, 14, 18 with bag
Absorbent cotton wool
Sheeting, plastic PVC clear 90 x 180 cm
Gloves (sterile) sizes 6 to 8
Gloves (examination) sizes small, medium, large
Face masks
Eye protection
Apron, utility plastic reusable
Soap
Inventory list of equipment and supplies
Best practice guidelines for emergency care
<b>Supplementary equipment for use by skilled health professionals</b>
Laryngoscope handle
Laryngoscope Macintosh blades (adult)
Laryngoscope Macintosh blades (paediatric)
IV infuser bag
Magills Forceps (adult)
Magills Forceps (paediatric)
Stylet for Intubation
Spare bulbs and batteries for laryngoscope
Endo-tracheal tubes cuffed (# 5.5 to 9)
Endo-tracheal tubes un-cuffed (# 3.0 to 5.0)
Chest tubes insertion equipment
Crico-thyroidectomy

## Annex-V

### Essential Medicines

A tentative list of essential medicines based on common, minimal needs of 1<sup>st</sup> or 2<sup>nd</sup> referral Hospital needed for effective running of such an Accident & Emergency Department are listed below:

1. 50% Dextrose	2. Hydrocortisone
3. Adrenaline	4. IM Glucagon
5. Nor-adrenaline	6. Insulin
7. Anti snake venom serum	8. IV calcium Gluconate
9. Aspirin	10. IV Dopamine
11. Atropine	12. IV Fluid - all type
13. Anti Tetanus Serum	14. IV Frusemide
15. Dextran/ voluven	16. IV KCl
17. Diazepam	18. IV Vit K
19. Dobutamine	20. Labetalol
21. Etomidate	22. Lignocaine
23. Fresh Frozen Plasma	24. 10% xylocaine spray
25. Gelofusin	26. Magnesium Sulphate
27. Group O neg whole blood	28. Mannitol
29. Heparin	30. Midazolam
31. Hydralazine	32. Morphine
33. Naloxone	34. Phenylephrine
35. Nitroglycerine	36. Propofol
37. Oral Rehydration Salt (ORS)	38. Salbutamol
39. Oxygen supply	40. Sodium bicarbonate
41. Pethidine	42. Suxamethonium

## Annex-VI

## The CTG discriminator list (adult version)

*(Cape Triage Score)*

Colour	Red	Orange	Yellow	Green	
TEWS	7 or more	5 - 6	3 - 4	0 - 2	
Target time to treat	Immediate	Less than 10 min	Less than 60 min	Less than 240 min	
Mechanism of injury		High energy transfer			
Presentation		Shortness of breath – acute	Haemorrhage – controlled	All other patients	
		Coughing blood			
		Chest pain			
		Haemorrhage – uncontrolled			
	Seizure – current	Seizure – post ictal			
		Focal neurology – acute			
		Level of consciousness reduced			
		Psychosis/aggression			
		Threatened limb			
		Dislocation – other joint	Dislocation – finger or toe		
		Fracture – compound	Fracture – closed		
		Burn – face / inhalation	Burn over 20%		Burn – other
			Burn – electrical		
	Burn – circumferential				
	Burn – chemical				
	Poisoning / overdose	Abdominal pain			
Hypoglycaemia - glucose less than 3	Diabetic – glucose over 11 & ketonuria	Diabetic – glucose over 17 (no ketonuria)			
	Vomiting – fresh blood	Vomiting – persistent			
	Pregnancy and abdominal trauma or pain	Pregnancy and trauma			
		Pregnancy and PV bleed			
Pain		Severe	Moderate	Mild	
	Senior health care professional's discretion				

ADULT TRIAGE SCORE							
	3	2	1	0	1	2	3
Mobility				Walking	With help	Stretcher/ immobile	
RR		Less than 9		9 - 14	15 - 20	21 - 29	More than 29
HR		Less than 41	41 - 50	51 - 100	101 - 110	111 - 129	More than 129
SBP	Less than 71	71 - 80	81 - 100	101 - 199		More than 199	
Temp.		Less than 35		35 - 38.4		38.5 or more	
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive
Trauma				No	Yes		
Over 12 years/taller than 150 cm							



## Annex-VII

## Children Triage Score (3-12 Years, 96-150CM) TEWS

	3	2	1	0	1	2	3	
Mobility				Walking	With Help	Stretcher/limb in cast		Mobility
RR	Less than 15	15-16		17-21	22-26	27 or more		RR
HR	Less than 60	60-79		80-99	100-129	130 or more		HR
Temp		Cold or Under 35		35-38.4		Hot or Over 38.4		Temp
AVPU		Confused		Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
3 to 12 years old/96 to 150 cm tall								

## Children (3-12 Years, 96-150CM, Discriminatory List

COLOR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	Less than 10 mins	Less than 60 mins	Less than 240 mins	
Mechanism of injury		High energy transfer			
Presentation		Shortness of breath			
	Drooling	Stridor			
		Wheeze			
		Hemorrhage-Uncontrolled	Hemorrhage-Uncontrolled		
	Seizure – Current	Seizure – Postictal			
		Focal neurology-acute			
		Level of consciousness reduced			
		Exhaustion			
		Purpura			
		Dislocation - other joint	Dislocation - finger of toe		
		Fracture – compound	Fracture - closed		
		Burn over 10%			
	Burn – face / inhalation	Burn – electrical	Burn - other		
		Burn – circumferential			
		Burn - Chemical			
Pain		Poisoning / Overdose	Abdominal pain		
	Hypoglycemia – glucose less than 3	Diabetic – glucose over 11 & ketonuria	Diabetic – glucose over 17 (no Ketonuria)		
		Dehydration	Inappropriate history		
		PR bleeding	Inappropriate history		
		Severe	Moderate	Mild	
	Senior Healthcare Professional's Discretion				DEAD

## Annex-VIII

## Infant Triage Score (&lt;3yrs, &lt;95CM) TEWS

















	3	2	1	0	1	2	3	
Mobility				Normal for Age		Stretcher/Im mobile		Mobility
RR	Less than 20	20-25		26-39		40-49	50 or more	RR
HR	Less than 70	70-79		80-130		131-159	160 or more	HR
Temp		Cold or Under 35		35-38.4		Hot OR Over 38.4		Temp
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
Younger than 3 years / smaller than 95 cm								

## Infant (&lt;3yrs, &lt;95CM) Discriminatory List




















COLOUR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	Less than 10 mins	Less than 60 mins	Less than 240 mins	
Mechanism of injury		High energy transfer			
Presentation	Drooling	Shortness of breath		ALL OTHER PATIENTS	DEAD
	Stridor	Wheeze			
		Hemorrhage-Uncontrolled	Hemorrhage-Uncontrolled		
	Seizure – Current	Seizure – Postictal			
		Focal neurology-acute			
		Level of consciousness reduced			
		Floppy infant			
		Purpura			
		Dislocation - other joint	Dislocation - finger of toe		
		Fracture – compound	Fracture - closed		
			Unable to weight bear		
		Burn over 10%			
	Burn – face / inhalation	Burn – electrical	Burn - other		
		Burn – circumferential			
		Burn - Chemical			
	Hypoglycemia – glucose less than 3	Poisoning / Overdose	Abdominal pain		
Pain				Mild	
		Dehydration	Vomiting - persistent		
			Not feeding		
			Not urinating		
		PR bleeding	Inappropriate history		
			Prolonged or uninterrupted crying		
		Severe	Moderate		
	Senior Healthcare Professional's Discretion				

## Annex-IX

### Examples of Triage systems and Triage Scoring Systems internationally in vogue

Scoring System	Countries /regions								
<p><b>The “Triage Revised Trauma Score or TRTS”</b> ,</p>	Western Europe								
<p><b>The Injury Severity Score (ISS)</b></p> <p>Score based on severity of injury to the human body from 0 to 75 is assigned into the following categories:</p> <p>A: Face / neck / head B: thorax / abdomen C: extremities / external / skin</p> <p>Each category is scored from 0 to 5, using the abbreviated injury scale (from un-injured to the critically injured) which is then squared and summed to create the ISS. A score of 6 for un-survivable can also be used for any of the three categories and automatically set the score to 75 regardless of other scores</p>	Developed in Maryland, USA and internationally used to determine severity of trauma and probability of mortality								
<p><b>United Kingdom</b></p> <p>In the UK, Smart Incident Command System is the commonly used triage system, where casualties are graded from Priority 1 (needs immediate treatment) to Priority 3 (can wait for delayed treatment), with an additional Priority 4 (expectant, where patients are likely to die even with treatment). However, only senior medical authority can assign and pronounce such category.</p> <ul style="list-style-type: none"> <li>  <b>Dead</b> – patients with trauma score 0 to 2 &amp; are beyond help         </li> <li>  <b>Priority 1</b> – patients who have a trauma score of 3 to 10 (RTS) and need immediate attention         </li> <li>  <b>Priority 2</b> – patients with trauma score of 10 or 11, can wait for transport to definitive medical attention         </li> <li>  <b>Priority 3</b> – patients who have a trauma score of 12 (maximum score) and can be delayed before transport from the scene         </li> </ul>	United Kingdom								
<p><b>Finland:</b></p> <p>Triage is performed by a paramedic or an emergency physician using the four level scale given as under:</p> <table border="1"> <tr> <td></td><td>Can wait</td></tr> <tr> <td></td><td>Has to wait</td></tr> <tr> <td></td><td>Cannot wait</td></tr> <tr> <td></td><td>Lost</td></tr> </table>		Can wait		Has to wait		Cannot wait		Lost	Finland
	Can wait								
	Has to wait								
	Cannot wait								
	Lost								



<p><b>France</b></p> <p>The Pre-hospital triage is undertaken in France by using the following four level scale</p> <table><tr><td>DCD</td><td>Deceased</td></tr><tr><td>UA</td><td>Urgence absolute</td></tr><tr><td>UR</td><td>Urgence relative</td></tr><tr><td>UMP</td><td>Medical – psychological urgency (lightly wounded or just psychologically shocked)</td></tr></table>	DCD	Deceased	UA	Urgence absolute	UR	Urgence relative	UMP	Medical – psychological urgency (lightly wounded or just psychologically shocked)	France							
DCD	Deceased															
UA	Urgence absolute															
UR	Urgence relative															
UMP	Medical – psychological urgency (lightly wounded or just psychologically shocked)															
<p><b>Germany</b></p> <p>The Preliminary assessment is done by the first ambulance crew on scene, and then by the first doctor arriving the scene. At the treatment facility, a 90 second full body assessment is done followed by triage as per following classification:</p> <table><tr><td>T 1</td><td></td><td>Acute danger for life : immediate transport and immediate treatment</td></tr><tr><td>T2</td><td></td><td>Severe Injury (constant observation, early transport and rapid treatment)</td></tr><tr><td>T3</td><td></td><td>Minor or no injury : treatment when practical</td></tr><tr><td>T4</td><td></td><td>No or small chance of survival: observation &amp; Analgesia</td></tr><tr><td></td><td></td><td>Deceased : (injuries not compatible with life) - identification</td></tr></table>	T 1		Acute danger for life : immediate transport and immediate treatment	T2		Severe Injury (constant observation, early transport and rapid treatment)	T3		Minor or no injury : treatment when practical	T4		No or small chance of survival: observation & Analgesia			Deceased : (injuries not compatible with life) - identification	Germany
T 1		Acute danger for life : immediate transport and immediate treatment														
T2		Severe Injury (constant observation, early transport and rapid treatment)														
T3		Minor or no injury : treatment when practical														
T4		No or small chance of survival: observation & Analgesia														
		Deceased : (injuries not compatible with life) - identification														
<p><b>United States of America</b></p> <p>First responders could be police, fire rescue, paramedics, or community individuals with disaster training, trained to perform first aid, by using basic lifesaving and rescue techniques.</p> <ul style="list-style-type: none"><li> <b>Immediate:</b> The casualty requires immediate medical attention and will not survive if not treated soon. Any compromise to the casualty's respiration, hemorrhage control, or shock control could be fatal.</li><li> <b>Delayed:</b> The casualty requires medical attention within 6 hours. Injuries are potentially life-threatening, but can wait until the immediate casualties are stabilized and evacuated.</li><li> <b>Minimal:</b> "Walking wounded," the casualty requires medical attention when all higher priority patients have been evacuated, and may not require stabilization or monitoring.</li><li> <b>Expectant:</b> The casualty is not expected to reach higher medical support alive without compromising the treatment of higher priority patients. However, care should not be abandoned, as they would deserve time and resources available after Immediate and delayed patients have been treated.</li></ul>	United States of America															

<p><b>Canada</b></p> <p>(Started as triage by Primary Care level paramedics, in Victoria General Hospital, Nova Scotia, Canada )</p> <p><b>Canadian Triage and Acuity Scale (CTAS)</b></p> <p>This model is being used by paramedics and emergency room nurses for routine emergencies, and allows for pre-arrival notifications, too. This model contemplates categorization of all incoming patients by using both injury and physiological findings, and ranks by severity from 1 (highest) to 5 (lowest). The system is not being used for mass casualties.</p> <table><tr><th>Level</th><th>Description</th><th>Should be seen within:</th></tr><tr><td>1</td><td>Resuscitation</td><td>0 minutes</td></tr><tr><td>2</td><td>Emergency</td><td>15 minutes</td></tr><tr><td>3</td><td>Urgent</td><td>30 minutes</td></tr><tr><td>4</td><td>Less urgent</td><td>60 minutes</td></tr><tr><td>5</td><td>Non-urgent</td><td>120 minutes</td></tr></table>	Level	Description	Should be seen within:	1	Resuscitation	0 minutes	2	Emergency	15 minutes	3	Urgent	30 minutes	4	Less urgent	60 minutes	5	Non-urgent	120 minutes	<p>Canada</p>
Level	Description	Should be seen within:																	
1	Resuscitation	0 minutes																	
2	Emergency	15 minutes																	
3	Urgent	30 minutes																	
4	Less urgent	60 minutes																	
5	Non-urgent	120 minutes																	
<p><b>The Australian Triage Scale (ATS) formerly National Triage Scale</b></p> <p>The scale ranges from level 1 (most critical) to level 5 (least critical or non-urgent, with assigned priorities as under:</p> <table><tr><th>Level</th><th>Description</th><th>Should be seen within:</th></tr><tr><td>1</td><td>Resuscitation</td><td>0 minutes</td></tr><tr><td>2</td><td>Emergency</td><td>10 minutes</td></tr><tr><td>3</td><td>Urgent</td><td>30 minutes</td></tr><tr><td>4</td><td>Semi-urgent</td><td>60 minutes</td></tr><tr><td>5</td><td>Non-urgent</td><td>120 minutes</td></tr></table>	Level	Description	Should be seen within:	1	Resuscitation	0 minutes	2	Emergency	10 minutes	3	Urgent	30 minutes	4	Semi-urgent	60 minutes	5	Non-urgent	120 minutes	<p>Australia and New Zealand</p>
Level	Description	Should be seen within:																	
1	Resuscitation	0 minutes																	
2	Emergency	10 minutes																	
3	Urgent	30 minutes																	
4	Semi-urgent	60 minutes																	
5	Non-urgent	120 minutes																	
<p><b>Simple Triage And Rapid Treatment (S.T.A.R.T)</b></p> <p>Being very simple, even the emergency personnel with little training can use.</p> <p>Triage separates the injured into four groups:</p> <ul style="list-style-type: none"><li>• The <i>expectant</i> who are beyond help</li><li>• The injured who can be helped by immediate transport</li><li>• The injured whose transport can be <i>delayed</i></li><li>• Those with <i>minor</i> injuries who need help less urgently</li></ul> <p>Triage also sets priorities for evacuation and transport as follows:</p> <p><i>Deceased</i> are left where they fell. These include those who aren't breathing and repositioning their airway efforts were unsuccessful.</p> <ul style="list-style-type: none"><li>• <b>Immediate or Priority 1 (red)</b> evacuation by Airlift if available or <u>ambulance</u> as they need advanced medical care at once or within 1 hour. These people are in critical condition and would die without immediate assistance.</li><li>• <b>Delayed or Priority 2 (yellow)</b> can have their medical evacuation delayed until all immediate people have been transported.</li></ul>	<p>California Emergency Workers in earthquakes (community emergency response teams)</p>																		



<p>These people are in stable condition but require medical assistance.</p> <ul style="list-style-type: none"> <li>• <b>Minor or Priority 3 (green)</b> are not evacuated until all immediate and delayed persons have been evacuated. These will not need advanced medical care for at least several hours.</li> </ul> <p>Continue to re-triage in case their condition worsens. These people are able to walk and may only need bandages and anti-septic.</p>	
<p><b>Jump Start (pediatric) Triage</b></p> <p>This Mass Casualty Incidents (MCI) triage tool is a variation of the S.T.A.R.T model, designed for triaging children from infancy to eight years of age.</p>	
<p><b>Hospital (in-patients) Triage Systems</b></p> <p>On arrival of the patient in the Emergency, as a first step, the hospital triage nurse would assess the patient, so as to determine priority for admission in the emergency and for treatment.</p> <p>In every larger, tertiary care hospital having a significant patient flow into the Emergency Department, there should be a well-defined process of decision making regarding admission and discharge/referral (internal and /or external) in the Emergency Department. There should be a process owner body or team to manage available bed strength that may include Head Nurse of the floor, and the senior internal medicine specialist (full time Emergency Physician). The team should have a defined process and a well-considered operational plan, so as to facilitate the emergency room physicians and nurses towards deciding which patients have been stabilized and can be transferred, and simultaneously which / how many requests for new admissions can be accommodated.</p> <p>Decision regarding admission or referral is made by the Emergency Room Physician, by also considering available bed space and hospital's capacity. Similar decision making is done by the surgical, orthopedic and neurosurgical (if available) teams in the Emergency Department.</p>	
<p><b>Conventional Classification of the Triage process</b></p> <ul style="list-style-type: none"> <li>• <b>Black/ Expectant:</b> These are the patients so severely injured that they will die of their injuries in hours or days. Examples include large area burns, lethal radiation dose, severe trauma to head or chest, or in life threatening medical crisis, that are unlikely to survive (cardiac arrest, septic shock etc.)</li> <li>• <b>Red/Immediate:</b> Such patients cannot wait, and require immediate surgery or other life-saving intervention, and have first priority for</li> </ul>	

<p>treatment, or transport to the advanced facility level. Such patients are likely to survive with immediate treatment.</p> <ul style="list-style-type: none"><li>• <b>Yellow / Observation:</b> Such patients are stable for the moment, but require watching by trained persons and frequent re-triage.</li><li>• <b>Green / Wait:</b> (Walking wounded) these are the patients requiring doctors' care in several hours or days, but not immediately. Examples include soft tissue injuries, fracture of small bones (not a compound fracture).</li><li>• <b>White/ dismiss:</b> (walking wounded) such patients may have minor injuries where first-aid and home care would suffice and the injuries may include scrapes, minor burns or superficial cuts.</li></ul> <p>(Source: wikipedia search]</p>	
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## Referral Guidelines

### Annex-X

#### GUIDELINES FOR REFERRAL / TRANSPORT OF CRITICALLY ILL / INJURED PATIENTS

##### Definition

As per the internationally accepted Standard Operating Procedures (SOPs), referral is a process whereby the healthcare provider or a health facility seeks assistance of healthcare providers having better expertise and higher-level facilities to take over the responsibility to manage the particular clinical condition of the patient. Typically the health facilities where patients are referred from other facilities are supposed to have better infrastructure, more qualified human resource and advanced technology for diagnosis and management of patients requiring specialized care. While referral of patients in need of specialist advice from a general practitioner to a specialist clinic or hospital is a norm, referral of critically ill patients from one health facility to the other is an issue of concern. The referral therefore need to be regulated in order to ensure safety of the patient during transit, and upon arrival at the place of referral.

The Public Sector Healthcare system in Pakistan comprises of primary, secondary, and tertiary level healthcare facilities. The Primary health care facilities include basic health units (BHUs), rural dispensaries, mother and child health centers (MCHCs) and the rural health centers (RHCs). These facilities are manned by essential staff to provide preventive and promotive healthcare besides, treatment of minor ailments. The services are delivered through facility-based staff supported by outreach teams. Secondary level healthcare facilities, include District Headquarter (DHQ) and Tehsil headquarter (THQ) hospitals, which provide specialized care on both outpatient and in-patient basis in addition to the primary healthcare package. The DHQ and THQ hospitals also take referrals not only from the RHCs / BHUs but also from the private healthcare providers/ healthcare facilities. Tertiary care health facilities are mainly located in mega cities and are affiliated with undergraduate and postgraduate teaching and research institution. Secondary and tertiary care facilities are generally open on 24/7 basis and provide specialized and super specialized healthcare to the patients directly approaching these facilities as well as to the referrals from the public and private sector.

Although the Government is the largest single provider of the healthcare services, the private sector, has emerged in a big way during the three decades by establishing small, medium and mega private hospitals in addition to the clinics of general practitioners (GPs). The private sector facilities, providing varied range of healthcare have grown as for-profit business ventures over the years particularly in the peripheral districts. Most of these for-profit facilities except for those located in metropolitans however, are generally deficient in terms of infrastructure, qualified human resource and equipment required for providing specialized healthcare and handling complications of medical problems.

The poorly equipped and inadequately manned peripheral health facilities would more often, initially, accept any incoming patient, and would attempt definitive treatment / procedure, e.g. normal vaginal delivery, or an appendix surgery etc. However, during the subsequent course of treatment, in case of complications, the treating person would try to shift the patient in a precarious condition, by making a

hasty referral to the nearest (often a public sector) secondary level healthcare facility. The secondary level facility in turn, would refer such cases to the nearby tertiary care facilities including the provincial capital. As such, insufficient backup facilities, inadequately qualified and trained human resources, and lack of facilities for 24/7 critical care at such peripheral health facilities is the most common reason of referrals.

Referring patients from lower level to the higher-level facilities for specialized care to the patients and for handling the complicated cases is a common practice both, in public as well as private sector. Major bulk of referrals is however, made to the tertiary care hospitals in the public sector. Since neither the catchment area of the public and private sector facilities is prescribed, nor the referral pathway is defined, the referrals are made based on the discretion of the referring facilities or sometimes based on the choice of the patients/ families. The referral should be an important tool to ensure continuity of care provided to the patients by ensuring access to relevant services for physical, psychological and social needs through all the stages of referral process. All referrals to higher-level facilities for specialized care, whether for the critically sick or the elective cases, should contain essential documentation regarding the disease condition. The documentation should inter-alia cover the preliminary assessment, treatment provided, lab investigations performed and the pertinent information regarding the referral facility along with the purpose of referring. In case, the referred patient needs medical care during transportation that should be accordingly managed.

Following guidelines need to be practiced by all healthcare facilities both, public and private in letter and spirit while referring the patients:

- i. A typical referral would require stabilizing the patient, informing the patient's family, identifying the need for a nursing escort (if so required), identifying a caregiver, and prepare for the transport.
- ii. The referral documents must contain patient's identity, medical details and the general condition.
- iii. The Injured Persons (Medical Aid) Act, 2004 explains "injured person" as a person injured due to traffic accident, assault or *any other cause who is in need of an immediate treatment*. The Act (in terms of Section 6) further *provides that an injured person shall not be shifted from a hospital until he is stabilized or the requisite treatment is not available in such hospital and while shifting him to another hospital, the doctor concerned shall complete the relevant documents with regard to the clinical conditions of the patient and hand over such documents to the concerned doctor of the receiving hospital*.
- iv. Such record referred above shall be maintained by the referring hospital as well as the receiving hospital and the In-charge of the hospital shall be responsible for ensuring that such record is kept in a safe custody where it cannot be tampered with; provided that where necessary an injured person shall not be shifted unless he is accompanied by a doctor of the referring hospital.
- v. Section 5 of the Punjab Emergency Service Act, 2006 empowers Rescue Service to arrange transport (transport vehicle or ambulance) where necessary for carrying persons requiring emergency medical treatment to the nearest hospital emergency or healthcare unit having such arrangements. Section 17 of the said Act also enables the Emergency Officer or the Rescuer to administer such life safety procedures as are consistent with their training and competence.



- vi. The Minimum Service Delivery Standards (MSDS) prescribed by the Punjab Healthcare Commission, under its regulatory framework, provide clear mechanism and SOPs regarding referring any type of patients to other hospitals for specialized care. The following provisions are relevant and are to be followed mandatorily by the HCEs while making referrals of the patients:

Standard & Indicators	Relevant provision
Care of Patients (COP-1): Standard 3 Indicator 20	i. Discharge to home or transfer to another organization is documented ii. The referral record must contain advice and information for the patient and the other clinician or treatment facility adequate to ensure support, recovery, ongoing treatment and follow up that is clinically required
COP-3: Standard 5 Indicator 26	i. The HCE defines and displays whether high risk obstetric cases can be cared for, or not ii. <u>It is imperative for the hospital to inform its obstetrical patients of the high risk and its capability to provide services for these cases</u> iii. The hospital also has to inform about its capability to provide care to high risk obstetric cases to those practitioners and facilities that might refer such patients
Information Management System (IMS 2.10) Standard 29 Indicator 151	i. When a patient is transferred to another hospital, the medical record should contain the date of transfer, the reason for the transfer, and the name of receiving hospital ii. The referral medical record of such patients should contain the results of any diagnostic investigations and any treatment rendered prior to transfer and the clinical status of the patient

- vii. The MSDS Reference Manual, 2013, provided with the MSDS prescribed by the PHC entails that, in case of transfer to another facility, details regarding medical history of the patient, investigations / procedures performed, treatment provided, reasons for referral and name of the hospital to be referred will be recorded in the prescribed referral form. It further provides that in such cases, SOPs regarding patient transfer shall be strictly followed in order to ensure proper care during transportation and handing over of the patient to the referred facility.
- viii. Accordingly the ambulance for transportation of the critically ill patient upon referral must be adequately equipped and staffed to manage the patient during transit, and to sustain the life of the patient without putting him/her to extra risk during transportation. In addition to the provisions of Section 6 of "The Injured Persons (Medical Aid) Act, 2004" the provisions of the other applicable law are reiterated as under:
- The rescue vehicles, ambulances and patient transport vehicles must comply with the minimum standards and code of conduct prescribed by the Punjab Emergency Service in terms of the provisions of Section 5(1) (n) of the Punjab Emergency Service Act, 2006
  - In terms of Section 22 of the Punjab Emergency Service Act, 2006; the Emergency ambulance and rescue vehicles have to satisfy such requirements as laid down by the

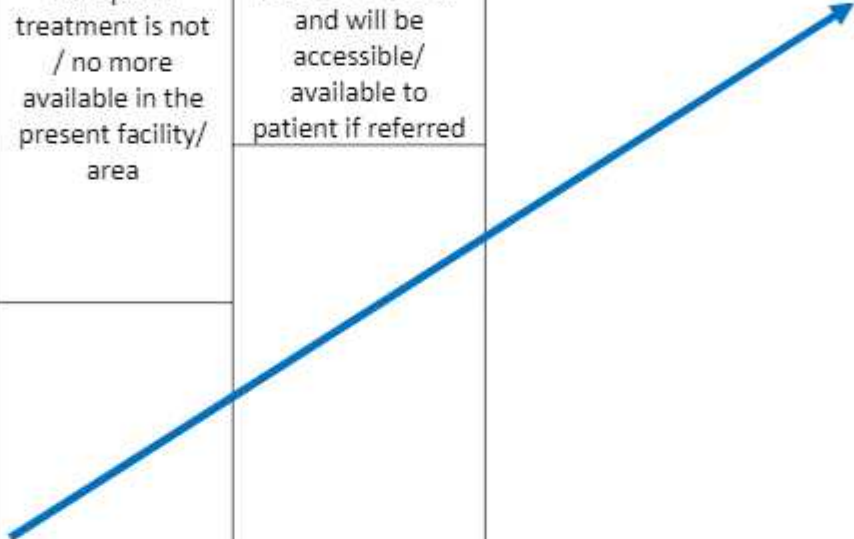


service; and where a vehicle does not fulfil the requirements laid down by the Service, it shall be used as a patient transport vehicle, and shall not use any siren or a warning light other than a round yellow warning light.

- ix. The Reference Manual further explains the detailed requirements for the HCEs claiming to provide care of high-risk pregnancies. These inter-alia, include an established laboratory with facility to perform all relevant tests, the blood bank facility that ensures availability of all rare blood groups and blood products, and an intensive care set up with multidisciplinary team for critical cases.
- x. In case the facilities, human and material resources available in the hospital are considered insufficient, referral of the patient must be made at the earliest to the nearest competent health facility.
- xi. There should be close professional links with the referral hospital/s providing specialized services to, ensure provision of necessary emergency care including maternity services not available in the referring hospital. Further, there should be a roster to indicate 24-hour arrangements for on-site availability of a suitably qualified and experienced doctor and an anesthetist in case of an emergency; in addition to other required essential staff.
- xii. The MSDS further provide that in case of referral to another hospital, there should be a written communication from the referring facility, and it should have acknowledgment from the receiving hospital in its record.
- xiii. There shall be written procedures to be followed by staff to arrange consultation with physician, surgeon and pediatrician for patients with medical or surgical needs.
- xiv. As such, all patients who present with an emergency medical condition, irrespective of their ability to pay, must receive treatment to the extent that their emergency condition is medically stabilized so that no material deterioration of the condition is likely within reasonable medical probability.

**PRE-CONDITIONS FOR A GOOD REFERRAL**

<b>Present Disease Condition</b>	<b>AND</b>	<b>AND</b>	<b>AND</b>
Present Disease Condition is life threatening OR There is Risk of irreversible loss of Functions OR Available Treatment in the present health facility has failed OR The clinical condition presents a significant obstacle to leading a normal life and achieving self sufficiency	Adequate treatment is not / no more available in the present facility/ area	Favorable prognosis is present in the place of referral, and will be accessible/ available to patient if referred	The patient (and /or the family) also expresses consents to the proposed referral



(Construed from Standard Operating Procedures of Medical referral of Persons of Concern in Ethiopia, UNHCR, 2015)

- xv. Medical conditions where referral may not have any advantage or the referral may not be justifiable and in cases where treatment is particularly costly and/or in cases of uncertain prognosis, referral should not be considered. Hence, referral should not be recommended, for such conditions that include the following:
- degenerative diseases and for which there is no known or little likelihood of cure;
  - chronic diseases which do not benefit from referral within the national / provincial health system;
  - healed and inactive lesions resulting from past illnesses or injuries such as an asymptomatic bullet in the body;
  - terminal diseases, including terminal cancers, chronic liver diseases and end-stage renal failure;
  - irreversible disabilities for which rehabilitative service is locally available or which cannot further benefit from any form of treatment;
  - irreversible neurological damage for which rehabilitative service is locally available or which cannot not further benefit from any form of treatment;
  - other health conditions requiring sophisticated surgery and medical care exceeding what is normally available to the general public, e.g. kidney, liver or heart transplant, and major skeletal reconstruction (in such cases, other options such as disability compensations/palliative care/alternative medicine may have advantage, or more suitable to the patient);

*(Reference: Standard Operating Procedures of Medical referral of Persons of Concern in Ethiopia, UNHCR March, 2015)*

**xvi. Responsibility / role of Hospital receiving the referral:**

- a. It should be necessary to communicate impending referral to the receiving facility in order make an appointment or other arrangements for the referral, or to let them know of the pending arrival of an emergency case.
- b. In case the patient is very ill, it might be necessary for a health worker to accompany them to the receiving facility.
- c. The Emergency or OPD section of the receiving facility will make necessary preparatory arrangements in anticipation of arrival, to accept and manage the number of such referrals
- d. Preferable to have separate counters for receiving the referrals and necessary referral documents
- e. To provide necessary level of specialized care to the patients and document the treatment provided
- f. Plan rehabilitation / discharge to home or refer back to the original health facility for follow up treatment
- g. Provide feedback to the referring hospital and to the central system if so established
- h. Maintain update data and records of patients received through referral
- i. Ensure complying with the medico legal requirements as applicable

**Role of the Specialized Healthcare and Medical Education Department and the Primary and Secondary Healthcare Department Government of Punjab**

The Specialized Healthcare and Medical Education Department as well as the Primary and Secondary Healthcare Department Government of Punjab may circulate the above stated Guidelines /SOPs amongst all the teaching / tertiary care hospitals and the THQ/DHQ hospitals for compliance in letter and spirit.

## Power Failure: SOPs to ensure patient safety in the wake of power failure

### Annex-XI

#### Power Failure and SOPs to ensure patient safety in the wake of power failure

<b>Reports of intraoperative power failure.</b> Abbreviations: OR – operating room; PACU – post-anesthesia care unit; ESU – electrosurgical unit; ICU – intensive care unit; CABG – coronary artery bypass graft; CPB – cardiopulmonary bypass; ACT – activated clotting time; TOF – train-of-four; TIVA – total intravenous anesthesia				
Year	Scenario	Root Cause	Outcome	Recommendation
2010	Complete loss of power on two consecutive days 9 operations in progress Outage lasted 13 minutes on day 1 and 9 minutes on day 2	Fault within the switching panel that controlled whether the hospital used municipal power or emergency generator power Unclear if generators worked	Anesthesia monitors failed and “clinical monitoring” was used until portable transport monitors arrived Video towers and imaging systems failed Surgical lights, ventilators, gas delivery systems and CPB continued because of built-in batteries	An uninterruptible power supply system for the OR should be installed as this would allow at least one hour of power in the ORs in order to complete ongoing procedures Staff should be familiar with power requirements of equipment



2010	<p>Partial hospital power failure with loss of power to emergency (generator) system</p> <p>8 operations in progress, including a craniotomy, Whipple procedure, and kidney transplant</p> <p>Outage lasted 15 minutes</p>	<p>During construction of a phase loss relay in main hospital circuit become dislodge, simulating loss of municipal power</p> <p>A critical branch transfer switch then connected hospital power to an emergency generator that was disabled for servicing</p> <p>"Red outlets" that were supplied by generator lost power</p>		
2005	<p>Complete loss of hospital power</p> <p>Emergency generators failed in wing of hospital with operating room, but functioned elsewhere</p> <p>Complex oral and maxillofacial operation in progress</p> <p>Outage lasted days</p>	<p>Multistate power outage (Northeast blackout of 2003)</p>	<p>Room lights failed</p> <p>Anesthesia machine display and monitors worked, but ventilator bellows could not be seen in the dark</p> <p>TIVA initiated.</p> <p>Patient ventilated with self-inflating resuscitation bag and tank oxygen</p> <p>Once portable lights confirmed normal bellows function and pipeline gas supply, anesthesia machine resumed ventilation with volatile agent</p> <p>Operation was suspended, patient was left intubated and transported to PACU</p> <p>Operation completed the next day in a different building which had generator power</p>	<p>Anesthesiologists have a critical leadership role in the OR during crisis. Clear communication and thoughtful planning are key to avoiding panic</p> <p>Daily equipment checks should include flashlights and batteries in every room</p> <p>The battery life of anesthesia equipment should be determined</p> <p>Consider resuming spontaneous ventilation under anesthesia as a safety precaution in case anesthesia machine battery fails<sup>7</sup></p>



2001	<p>Complete loss of hospital power</p> <p>3 operations in progress: ankle fusion, pelvic extenteration, and radical neck dissection</p> <p>Outage lasted &gt;1 week, requiring evacuation of all hospital patients</p>	<p>Fire in electrical vault</p> <p>Electricity still supplied to building by municipal power but unable to be distributed throughout hospital</p> <p>Main and backup generators destroyed by fire</p>	<p>Flashlight used for light source in ORs</p> <p>Anesthesia machines continued to function on battery</p> <p>Wall suction failed and portable suction unit used</p> <p>Electrosurgical units failed and battery-powered bipolar eye electrosurgical units and vessel ligation were used to achieve hemostasis</p> <p>Automated drug supply cabinets failed</p> <p>All operative procedures were near completion and incisions were closed</p>	<p>Create emergency staffing plan that identifies specific staff member responsibilities and roles</p> <p>Battery operated ESUs and suction should be available</p> <p>Perform mock disaster drills quarterly</p> <p>Pharmacy services should have a plan to ensure availability of medications to operating rooms</p> <p>Flashlights and paper intraoperative records should be available in ORs<sup>a</sup></p>
2000	<p>Complete loss of hospital power</p> <p>Both emergency generators failed</p> <p>Carotid endarterectomy in progress</p> <p>Outage lasted 30 minutes</p>	<p>Construction workers accidentally drove a steel pile through the hospital's main incoming power cables</p> <p>The first generator did not start at all. The second generator started, but was quickly overloaded and then failed</p>	<p>Room lights failed except for one light with a back-up battery</p> <p>Anesthesia machine ventilator continued to function</p> <p>Patient monitors failed, including gas analyzer and capnography.</p> <p>Surgeon watched pulsations of the carotid artery until a portable monitor was available</p> <p>Capnography and agent monitoring remained unavailable</p> <p>The case was aborted, and the patient was taken to the ICU</p>	<p>Emergency generator planning should take into account the load placed on one generator in case a second generator fails<sup>a</sup></p>
1995	<p>Complete loss of hospital power</p> <p>Ongoing cardiac case with patient on CPB</p> <p>Outage lasted 53 minutes</p>			

1993	<p>Operating room loss of power. No mention of other hospital areas</p> <p>Ongoing laparotomy</p> <p>Emergency generators worked for approximately 3 minutes, then failed</p> <p>Outage lasted 45 minutes</p>			
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**Annex-XII****Hospital Emergency Experts and Resource Persons Consulted**

<b>Emergency Experts / Resource Persons</b>
<ol style="list-style-type: none"> <li>1. Prof. Dr. Shoaib Shafi, President, College of Physicians and Surgeons, Pakistan</li> <li>2. Prof. Dr. Khalid Masood Gondal, VC KEMU Lahore</li> <li>3. Prof. Dr. Ghulam Mustafa Arain, Director Academics, CPSP</li> <li>4. Dr. Khawaja Junaaid Mustafa, Director Clinical Risk Management, Shifa International Hospital, Representative of Pakistan Society of Emergency Medicine</li> <li>5. Dr. M. Tehsin, Medical Superintendent, Jinnah Hospital, Lahore</li> <li>6. Syed Burhan Ali, Representative of Chairman Board of Management, Allama Iqbal Medical College and Jinnah Hospital, Lahore</li> <li>7. Dr. Mishkat Shaukat, AMS (Emergency Department), Jinnah Hospital, Lahore</li> <li>8. Associate Professor Dr. Nasir Rana, Chairman Emergency Pediatrics, University of Child Health Sciences (previously ICH&amp;CH) Lahore</li> <li>9. Dr. M. Amir Rafique, Director Emergency, Punjab Institute of Cardiology Lahore</li> <li>10. Dr. Muhammad Azhar, Director Emergency, Bahria International Hospital, Lahore</li> <li>11. Dr. Mujtaba Chaudhry, Consultant Internal Medicine, National Hospital Lahore</li> <li>12. Dr. Imran Ahmad Moin-uddin, UOL /Saleem Memorial Trust Hospital, Lahore</li> <li>13. Mr. Ali Hassan, Director Emergency, Shifa International Hospital, Islamabad (coordinator, Pakistan Society of Emergency Medicine)</li> <li>14. Dr. Shah Zaman, Deputy Director Emergency, Sir Ganga Ram Hospital, Lahore</li> <li>15. Dr. M Bakht Yawar, Director Emergency, Mayo Hospital, Lahore</li> <li>16. Dr. Ziman Amin, DMS Emergency Department, Mayo Hospital Lahore</li> <li>17. Dr. Mishkat Shaukat , Deputy Medical Superintendent (A&amp;E), Jinnah Hospital, Lahore</li> <li>18. Dr. Hamza Waheed, Deputy Medical Superintendent (P&amp;D), Jinnah Hospital, Lahore</li> <li>19. Ms Sana Ali, Pharmacist / Representative, Director General Health Services Punjab</li> </ol>
<b>PHC Team:</b>
<ol style="list-style-type: none"> <li>1. Dr. Muhammad Saqib Aziz – Chief Executive Officer, PHC</li> <li>2. Dr. Mushtaq Ahmed Salariya - Director Clinical Governance &amp; Organizational Standards</li> <li>3. Dr. Muhammad Anwar Janjua- Director Licensing &amp; Accreditation</li> <li>4. Dr. Shamoon Massoud, Director Complaint</li> <li>5. Dr. Qamar Salman- Additional Director Monitoring &amp; Evaluation &amp; Quality Assurance</li> <li>6. Dr. Shahid Amin- Additional Director, Standards Development &amp; Dissemination</li> <li>7. Dr. Muhammad Farooq Adeel, Additional Director Enforcement</li> <li>8. Dr. Imtiaz Ali - Deputy Director, Standards Development &amp; Dissemination</li> <li>9. Dr. Sana Hasan Deputy Director, Standards Development &amp; Dissemination</li> </ol>



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Daily Dawn dated 16 <sup>th</sup> January, 2022	Services MS seeks major penalty against four YDA members
Daily Dawn dated 23 <sup>rd</sup> January, 2022	Editorial: Medicolegal Flaws
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No.Nil Date Nil. <b>Inquiry Report:</b>	"Inquiry Report regarding death of patient (named Hamid) in Emergency Department of Services Hospital Lahore and subsequent events" Signed 07 <sup>th</sup> February, 2022 by Secretary SHC&ME
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[www.phc.org.pk](http://www.phc.org.pk)

The Punjab Healthcare Commission (PHC) has been established under the Punjab Healthcare Commission Act, 2010. It is an independent health regulatory body with the mandate to introduce a regime of clinical governance through enforcing Minimum Service Delivery Standards (MSDS) at the primary, secondary and tertiary healthcare establishments (HCEs), in both public and private sectors, to improve the quality of healthcare service delivery in Punjab. All HCEs are required to implement MSDS to acquire a license to deliver healthcare services in Punjab.



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**BEFORE THE HONOURABLE LAHORE HIGH COURT, LAHORE**

**IN RE:**

**WP No. 75490/2022**

**Mazhar Abbas**

**Versus**

**Federation of Pakistan etc.**

**REPORT ON BEHALF OF THE PUNJAB HEALTHCARE COMMISSION**

**INDEX**

<b>Sr. No.</b>	<b>Description</b>	<b>Dated</b>	<b>Pages</b>
1.	Report	15-12-2022	01-13
2.	<b><u>ANNEXURE-R/1</u></b> Copy of the Punjab Healthcare Commission Act, 2010	-	14-33
3.	<b><u>ANNEXURE-R/2</u></b> Copy of MSDS for hospitals pertaining to Emergency Services	-	34-36
4.	<b><u>ANNEXURE-R/3</u></b> Copy of Reference Manual pertaining to MSDS for hospitals pertaining to Emergency Services		37-47
5.	<b><u>ANNEXURE-R/4</u></b> Copy of Guidelines for Emergency Departments developed by the Commission	-	48-161
6.	<b><u>ANNEXURE-R/5</u></b> Copy of letter issued by the Commission	14-12-2022	162-163
7.	<b><u>ANNEXURE-R/6</u></b> Assessment Report of the Commission		164-188

Chief Executive Officer  
Punjab Healthcare Commission

Dated: 15-12-2022

**BEFORE THE HONOURABLE LAHORE HIGH COURT, LAHORE**

**IN**

**W.P No. 75490/2022**

**MAZHAR ABBAS**

**-VS-**

**FEDERATION OF PAKISTAN ETC.**

**Subject: REPORT ON BEHALF OF THE PUNJAB HEALTHCARE COMMISSION.**

Respectfully sheweth: -

1. That the captioned writ petition came up for hearing before this Honourable Court on 02.12.2022 wherein the Petitioner has *inter-alia* contended that the standard of care at the emergency services of both private and public sector hospitals are not up to the mark and citizens are suffering on account of the same. It has been further contended that most of the emergencies are not manned by experienced doctors and are working without necessary and proper equipment. In view of the directions issued by this August Court vide order dated 28.11.2022, the Chief Executive Officer (hereinafter "the CEO") of the Punjab Healthcare Commission (hereinafter "the Commission") tendered appearance on the aforesaid date, whereupon this Honourable Court was pleased to direct as under: -

*"The Chief Executive Officer of the Punjab Healthcare Commission has appeared and will file a report on the next date of hearing regarding the emergency departments of large private and public hospitals in Lahore initially. He has also informed that guidelines for emergency department to be followed by these hospitals are in the process of being complied and approved. This shall also be done by the Board within the next fifteen days as the matter is of some urgency. He also undertakes to set up an inspection team which will visit these hospitals and their emergency department and file a report regarding the situation on ground."*

PRELIMINARY SUBMISSIONS: -

2. That by way of background, it is very respectfully submitted that in the year 2008, the then Government of Punjab started working on various aspects of regulating the 'Healthcare Delivery System' in the province, for numerous reasons, including but not limited to serve the larger public interests. Local and international consultants along with relevant stakeholders were contacted in this regard. In the meantime, unfortunately, the incident of a baby girl namely, Imanae Malik took place and the then Honourable Chief Justice of the Lahore High Court, Lahore took Suo Moto notice of the matter. The issue eventually came up before the Honourable Supreme Court of Pakistan in the case titled as "*Doctors Hospital (Pvt.) Limited & Another v. The Government of the Punjab & 3 Others*", CA. No. 736/L/2009 in CPLA No. 2510/L/2009. The Punjab Healthcare Commission has been established in view of the issues / concerns of the Government of the Punjab as well as those raised by the Honourable Supreme Court of Pakistan during the proceedings pending adjudication before the Apex Court in the matter mentioned above.
3. That it was in view of this matter that the then Government of Punjab made submissions before the August Court that the 'Bill' in this regard has been submitted before the Provincial Assembly. Thus the Punjab Healthcare Commission Act, 2010 was promulgated. The Punjab Healthcare Commission has been established under the provisions of Section 3 of the Punjab Healthcare Commission Act, 2010 (hereinafter "the PHC Act"). A copy of the Punjab Healthcare Commission Act, 2010 is attached herewith as ANNEX - R/1.
4. That the foremost purposes of establishing the Commission inter alia are to make provisions for improvement of quality of Healthcare Services, to ban quackery in all its forms and manifestations and to provide for other 'ancillary matters'. The law applies to all Healthcare Establishments, **public** and **private** hospitals, non-profit organizations, charitable hospitals, trust hospitals, semi-government as well as autonomous healthcare organizations.
5. That the PHC Act, 2010 assigns Commission the role of a Regulator of the healthcare service providers / healthcare establishments in the Province of Punjab. It is duty bound, not only to lay Minimum Service Delivery Standards (MSDS) for the healthcare establishments but also to protect the rights of those, who seek or are in need of Healthcare Services (patients & non-patients) and that of those who deliver



such services under this system. The most important task, amongst others, envisaged in the governing law is of registering all the Healthcare Service Providers and issuing licenses to the Healthcare Establishments on the bases of compliance with the MSDS as assessed through a process of inspections by the PHC experts. Moreover, the aims and objectives of the Commission include, ensuring that proper / appropriate attention is given to patient-care.

#### **REGULATORY FRAMEWORK: -**

6. That upon its establishment, the Commission started implementing the following three pronged strategy to provide for the lacking regulatory mechanism and to improve quality of healthcare being provided in the healthcare establishments across the province of Punjab including the Emergency Services being provided thereat: -
  - a. **Development** of Minimum Service Delivery Standards (MSDS) for all major types and categories of healthcare facilities in Punjab;
  - b. **Enforcement** of the MSDS for grant of regular license to the healthcare establishments operating lawfully, thus requiring regular inspection of all healthcare establishments every five years for sustaining the licensed status;
  - c. **Adjudication** of complaints related to medical negligence and alleged failure in provision of services, and taking action on complaints of alleged medical negligence and serious non-compliance of the statutes, regulations, guidelines and standards.

#### **DEVELOPMENT OF MINIMUM SERVICE DELIVERY STANDARDS: -**

7. That it is very reverently submitted before this Honourable Court that so far, following set of Minimum Service Delivery Standards (MSDS) have been developed, and are being enforced by the Commission after formal approval of its Board of Commissioners; and notification by the Government of the Punjab:
  - (i). MSDS for Category-I Healthcare Establishments (having 50 or more beds)
  - (ii). MSDS for Category II-A Healthcare Establishments (having beds from 31 to 49)
  - (iii). MSDS for Category II-B Healthcare Establishments (having beds from 16 to 30)
  - (iv). MSDS for Category II-C Healthcare Establishments (having upto 15 beds)
  - (v). MSDS for Homoeopathic clinics
  - (vi). MSDS for Matabs
  - (vii). MSDS for Basic Health Units
  - (viii). MSDS for Rural Health Centres
  - (ix). MSDS for GP Clinics, Specialist Clinics
  - (x). MSDS for Clinical laboratories
  - (xi). MSDS for Radiological Diagnostic Facilities
8. That each MSDS includes description of the prescribed standards provided under the ten main functional areas of the health facility, e.g.,

I. Responsibilities of Management	II. Access, Assessment and Continuity of Care
III. Facility Management	IV. Care Of Patients
V. Human Resource Management	VI. Management of Medication
VII. Information Management	VIII. Patients' Rights and Education
IX. Continuous Quality Improvement	X. Infection Control

Under each functional area, relevant standards are described, along with a set of indicators. The indicators include a description of the actions or processes required to be accomplished by the health facility staff as an evidence to the fact that the prescribed standard has been complied with in letter and spirit.

9. That in addition to the list of MSDS depicted above, following set of minimum service delivery standards (MSDS) have been developed by the Punjab Healthcare Commission which have been duly approved by its Board of Commissioners and have accordingly been forwarded to the Government of the Punjab for their notification: -
  - (i). MSDS for Category III MCH & Family Planning facilities (OPD services only)
  - (ii). MSDS for Dialysis Facilities
  - (iii). MSDS for Psychiatric, and Addiction Treatment & Rehabilitation Facilities

**DEVELOPMENT OF REFERENCE MANUAL AND TRAININGS: -**

10. That in order to facilitate implementation of the above stated minimum service delivery standards, the Punjab Healthcare Commission has also developed its Reference Manual which provides elaborated description of the standards and their compliance requirements. The Reference Manual further provides explanation of the standard, the actions required to be taken by the health professionals providing the applicable service to comply with the standard, and the compliance requirements required to be demonstrated by the health facility staff, as evidence of compliance. The Reference Manuals include as annexures, sample of various templates to be used by the health facility staff for demonstrating compliance, for example, sample of informed consent statement, sample job descriptions, etc.
11. That in order to facilitate the healthcare establishment in the enforcement of relevant MSDS, the Punjab Healthcare Commission embarked upon an extensive training program. Accordingly, 691 training sessions were held and 25,502 key hospital trainers from 20,963 health facilities were trained in implementation of MSDS in their respective health facilities. In addition to the above training sessions, during the COVID-19 pandemic, the Commission arranged as many as 78 Orientation seminars for various healthcare professionals from 2020 till June, 2022 through video-link thus



interacting with another 2,568 healthcare providers and providing them orientation on PHC regulatory framework, and their responsibility towards implementing the MSDS and ensuring quality in healthcare service provision and patient safety.

**MSDS PERTAINING TO HOSPITAL EMERGENCY SERVICES: -**

12. That it is very humbly submitted before this Honourable Court that as regards to specific provisions relating to the Emergency Services in Hospitals, the Minimum Service Delivery Standards (MSDS) for hospitals prescribed in 2012 lay due emphasis on provision of emergency services in accordance with law, with the objective to ensure patient safety. More particularly, **Standard 3 indicators 15 to 20**, under the title of Care of Patients (COP-I) require that the **Emergency Services are guided by Policies, Procedures and Applicable laws and Regulations**. As such, the hospital need to have an Emergency Care Policy and plan, covering the administration of the emergency area including triage, waiting times, admission/registration, legal reporting requirements, discharge and patient transfer. A copy of the MSDS for hospitals pertaining to provision of emergency services and the corresponding explanation as provided through Reference Manual are attached herewith as **ANNEXES – R/2 & R/3** respectively.
13. That the aforesaid standard requires that an HCE should have well thought out and documented policies and procedures in line with statutory requirements. These policies and procedures, developed in the light of applicable laws, shall guide and encourage patient safety as the overall principle for providing healthcare services to patients. These documents should include SOPs/Protocols to provide either general emergency care or management of specific conditions, e.g. myocardial infarction, acute abdomen, poisoning etc. and shall address both adult and paediatric patients. The procedure shall incorporate at least identification, assessment and provision of care. The HCE policy should spell out and ensure availability of all the necessary equipment in working order, in line with the international standards, required in the Emergency Department (ED) to function round the clock (24/7) without interruption of its services.
14. That it is very humbly submitted before this Honourable Court that the Standard further requires that the Emergency Department should be appropriately staffed and must have one to two CMOs/EMOs depending upon the patient load of the HCE in each shift of 8-1/2 hours, with a half hour overlap of duties for handing/taking over of charge. Instead of night duty of 12 hours i.e. from 8PM to 8AM, a uniform duty of 8-

1/2 hour must be enforced. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and Surgery/Allied specialties for the appointment of CMO/EMO. Further, the hospital should make policies i.e. SOPs/SMPs, on at least the following areas of emergency services:

Policy Drafts.

- i. Emergency Department design
- ii. Patient assessment and care
- iii. Initial screening exam
- iv. Staffing of emergency services
- v. Emergency medical services (EMS)
- vi. Continuing education
- vii. Disaster plan
- viii. Medications
- ix. Equipment and supplies
- x. Power failure
- xi. Electrical safety
- xii. Fire plan
- xiii. Security/traffic control
- xiv. Inter-hospital transfers
- xv. Laboratory down time procedure
- xvi. Consent
- xvii. Confidentiality of patient information
- xviii. Triage
- xix. Shock-trauma area
- xx. Patient belongings and valuables
- xxi. Standing orders
- xxii. Integration of diagnostic radiology with Emergency Department
- xxiii. Integration of operating room with Emergency Department
- xxiv. Integration of special care units with Emergency Department
- xxv. Reporting of criminal injury
- xxvi. Invasive procedures
- xxvii. General anaesthesia
- xxviii. Special procedures
- xxix. Patient transport for radiological procedures
- xxx. Admission
- xxxi. Return of admitted patients to the Emergency Department
- xxxii. Length of stay in the Emergency Department beyond 8 hours
- xxxiii. Injury prevention of unconscious, confused or irrational patients
- xxxiv. Social works services consultation
- xxxv. Release of information to media
- xxxvi. Pesticide poisoning
- xxxvii. Patient discharge
- xxxviii. Infection control
- xxxix. Blood borne pathogen exposure in patients presenting to the Emergency Department

- 40 xl. Visitors  
 xli. Medical records  
 xlii. Elective sedation and analgesia  
 xliii. Patients pronounced dead in the Emergency Department  
 xliv. Poisonings  
 xlv. Tetanus prophylaxis  
 xlvi. Rabies prophylaxis  
 xlvii. Major adult trauma  
 xlviii. Major paediatric trauma  
 xlix. Adult Medical Resuscitations
- 50 l. Paediatric Medical Resuscitations  
 li. Paediatric Medication Administration  
 lii. Emergency Department Control Register (ED log)  
 liii. Quality Control  
 liv. Follow-Up program - Call Back  
 lv. Patient Follow-Up procedure  
 lvi. Continuous Quality Improvement (CQI)
- 56
15. That Indicator 16 of the above standard requires that the hospital policy regarding Medico-Legal cases shall be in line with legal requirements with reference to documentation and intimation to the police. MLC/MLR must be handled by the medical officers of the Forensic Department where it is available, as in teaching hospitals; vis-a-vis where a Forensic Department is not available then CMOs must be given capacity building training. Female victims of MLC/MLR must be dealt by female doctors. If not available in the Emergency Department, then a female doctor from the Gynaecology Department must be appointed in the ED, with her name and telephone number noted. An approved Government Policy/Procedure is to be followed while handling and reporting Medico Legal Cases.
16. That similarly Indicator 17 would require that the hospital staff receives awareness and training regarding the emergency policies and procedures. Whereas, Indicator 18 requires that the hospital policies and procedures should guide the triage of patients for initiation of appropriate care. Further, for the efficient management of patient workload, the following points need to be spelled out by the administration in consultation with Head of the Emergency Department:
- Criteria for identification of "non-emergency cases" presenting to the ED and requiring little or no clinical care and not needing assessment by a consultant at the ED. The criteria should enlist inclusions and exclusions and specified timelines for management.
  - A policy/procedure to sort and manage non-emergency patients.



- iii. Assessment criteria should include evaluation of vital signs, age, mobility and absence of co-morbidities.
17. That the standard further requires that the patients are **TRIAGED** on the **Basis of Urgency** with which they need medical attention. The Triage Nurse allocates a **Triage Category** to a patient based on the statement and/or condition of the patient as evaluated by the Emergency Doctor
- i. Ensure that SOPs regarding Triage and Treatment is well defined and understood by all staff.
  - ii. The SOPs should include management protocols for each category of patient viz. cardiac, road traffic accident and poisoning etc.
  - iii. Ensure clearly defined Roles and Responsibilities.

Indicators 19 and 20 of Standard 3 make it obligatory that the hospital staff is made aware of, and trained on providing emergency care, while all admissions and discharge / referrals are documented.

**SUMMARY OF ACTIONS TAKEN BY THE COMMISSION AGAINST HCEs FOR NON-COMPLIANCE OF MSDS PERTAINING TO EMERGENCY SERVICES: -**

18. That it is respectfully submitted before this August Court that inspection of Emergency department of an HCE is an integral part of the MSDS ensuring availability of the documented policy procedures, as mentioned above, awareness of staff regarding these SOPs and their implementation status. The duty roster of the Emergency Staff is checked and availability of HR according to said roster is verified. Availability of emergency equipment, stretchers and wheel chairs is looked for. Essential emergency medicine is examined. All the above is necessary to ascertain as to how the patients are receiving care.
19. It shall not be out of place to mention at this juncture that as many as 3756 hospitals having indoor facilities are registered with the Commission. Out of these, the Commission has visited 2179 hospitals for assessment against the MSDS whereupon, 1839 were found non-complaint on the MSDS pertaining to emergency services. Details of the same is being depicted through the following tables below:

**SUMMARY OF CAT-I HCES (HAVING # OF BEDS 50 AND ABOVE)**

Type of HCEs	# of Registered HCEs	# of HCEs Inspected	# of Non-Compliant HCEs
Public	171	169	81
Private	174	152	56
<b>Total</b>	<b>345</b>	<b>321</b>	<b>137</b>

**SUMMARY OF CAT II HCES (HAVING # OF BEDS 49 AND BELOW)**

Type of HCEs	# of Registered HCEs	# of HCEs Inspected	# of Non-Compliant HCEs
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Public	362	48	46
Private	3087	1810	1656
<b>Total</b>	<b>3449</b>	<b>1858</b>	<b>1702</b>

Details of action taken by the Commission against 1839 HCEs which were found non-complaint against MSDS pertaining to Emergency Services is as follows:

<b>Services Suspended / Sealed</b>		
<b>Type of Services</b>	<b>Public</b>	<b>Private</b>
Gynae Services	1	49
Lab Services	1	3
OT Services	41	572
Indoor Services	0	45
Surgical Services	5	16
Warning issued / No action taken	79	1027
<b>Total</b>	<b>127</b>	<b>1712</b>

It may not be out of place to mention here that in addition to the above, an amount of Rs. 61,960,000 was also imposed upon 1119 HCEs out of the above 1839 non-compliant HCEs.

#### **GUIDELINES FOR EMERGENCY DEPARTMENTS OF REFERRAL HOSPITALS:**

20. In order to further facilitate the managerial and clinical staff of the health facilities, the Commission has undertaken to develop area specific guidelines which need to be implemented in letter for the standardization of care and service provision in such areas to a certain minimum level. The Commission is currently working on development / finalization of such Guidelines in the following areas through active engagement of relevant experts, having vast professional work experience at national and international level, for health facilities providing the following services:

- I) Hair Transplant, Aesthetic & Cosmetic procedures, etc
- II) Eye Camps / day care procedures
- III) Stem Cell Therapy; IVF Services;
- IV) Pain Management, Physiotherapy services
- V) Hospital Infrastructure

21. That it is reverently submitted before this Honourable Court that recognizing the importance of provision of quality emergency services, the Punjab Healthcare Commission, after detailed deliberations and consultation with the experts of the relevant field, has developed specific Guidelines for Emergency Departments of



**Referral Hospitals.** A copy of the Punjab Healthcare Commission Guidelines for Emergency Departments are attached herewith as **ANNEX – R/4.**

22. That further, the Commission vide its letter bearing No. PHC/CG&OS/2022/720 dated 14.12.2022 communicated the recommendations of the Sub-Committee of the Emergency Experts, presented in the meeting held on 02.12.2022, pertaining to improving quality of care in hospital emergency departments and to ensure safety of patients and healthcare service providers, to the Secretary Specialized Healthcare and Medical Education Department, Government of the Punjab for appropriate action. A copy of the said letter is placed herewith as **ANNEX-R/5.**

**INSPECTION OF EMERGENCY DEPARTMENTS OF LARGE PUBLIC AND PRIVATE HOSPITALS: -**

23. That in compliance of the aforesaid order of this August Court dated 02.12.2022, the Commission, after developing a specific tool for the purpose, has inspected and assessed the emergency departments of following 17 large public and private hospitals (6 public and 11 private) against the quality of healthcare services being provided thereat.

- i. Services Hospital
- ii. Lahore General Hospital
- iii. Jinnah Hospital
- iv. Mayo Hospital
- v. Sir Ganga Ram Hospital, Lahore
- vi. Children Hospital, Lahore
- vii. Central Park Teaching Hospital
- viii. Ch. Muhammad Akram Teaching & Research Hospital, Lahore
- ix. Surgimed Hospital, Lahore
- x. Fatima Memorial Hospital, Lahore
- xi. Doctors Hospital & Medical Center, Lahore
- xii. Hameed Latif Teaching Hospital, Lahore
- xiii. Shalamar Hospital, Lahore
- xiv. Farooq Hospital, West Wood, Lahore
- xv. Omer Hospital, Lahore
- xvi. National Hospital & Medical Center, Lahore
- xvii. Avicenna Hospital, Lahore

A detailed report in this regards is placed herewith as **ANNEX-R/6.**

**ISSUES / GAPS IDENTIFIED: -**

★ 24. That in view of the inspections of the emergency departments of the above hospitals carried out by the Commission, following gaps / issues have been identified: -

- i. Poor documentation and implementation of Emergency SOPs;
- ii. Insufficient bed allocation for ED;
- iii. Deficient maintenance of patient medical record;
- iv. Non-use of IT based maintenance of patient record;
- v. Inadequate essential equipment;
- vi. ED in charge not appropriately qualified in Emergency Care;
- vii. Lack of recognized trainings in emergency management protocols;
- viii. In public sector hospitals the emergency care areas were staffed only with doctors assigned for periods of 24 hours on rotation basis, and did not have medical staff permanently assigned to emergency care areas;
- ix. Only few hospitals have Burn emergency services;
- x. Weak monitoring of ED by the senior management of the hospitals;
- xi. Inadequate preparedness for fire emergencies;
- × xii. Non-availability of dedicated OTs especially in private sector hospitals;
- xiii. Poor infection prevention control measures and documentation in the available OTs;
- xiv. Deficient dedicated diagnostic services, especially CT and MRI facilities;

#### RECOMMENDATIONS / WAY FORWARD: -

25. That after minutely analyzing the inspection reports and the gaps enumerated above, the Commission humbly recommends following Minimum / Mandatory measures to be complied ultimately by all hospitals, both public and private to ensure sustained improvement in the quality of healthcare services being provided thereat: -

- i. At least 10% of the total bed strength to be allocated to the Emergency Departments in all the Hospitals;
- ii. 24-hour availability of specialist cover, along with the following facilities should be available in Emergency Departments of multi-specialty Tertiary care / Teaching hospitals and Secondary referral (DHQ level+):
  - (a) Primary care of burn patients in Emergency
  - (b) Paediatric Surgery / primary trauma care for children
  - (c) Integrated Diagnostic (Lab & Radiology) services -
  - (d) Maintenance of Electronic Medical Records
  - (e) Doctors having post-graduate qualification in Emergency Care (FCPS Emergency care or equivalent)
  - (f) Initiate diploma courses in Emergency medicine for doctors and nurses

- (g) Incentivized pay package and career structure for the doctors, working in the Emergency Departments
  - (h) Incentivized service structure for nurses having post-graduate qualification and training in ICU, CCU & Accident & Emergency nursing, etc.
- iii. Establishing dedicated chest pain clinics in the emergency departments;
  - iv. Imparting formal hands-on training skills to the hospital emergency staff on life-saving skills and various emergency procedures;
  - v. Increase induction of medical graduates in the postgraduate Programme, FCPS in Emergency Medicine as approved by the College of Physicians and Surgeons Pakistan (CPSP);
  - vi. Improve physical ambience in the emergency departments to enhance their efficiency and ensure smooth flow of patients;
  - vii. Provision of fast track/ urgent primary care through extended / late hour OPD clinics for the bulk of patients presenting with ambulant non-complex conditions;
  - viii. Location of the Emergency Department should be easily accessible from Entry Point without any physical barriers / obstructions for hassle free movement of the patient through trolley/stretcher/hospital bed or wheelchair;
  - ix. The facilities in the Emergency Department should be integrated with diagnostic and support services of the hospital, including the laboratory, radiology, operation theaters, pharmacy, blood transfusion to provide easy access for staff and the patients;
  - x. There should be dedicated staff (Doctors, Nurses & allied) allocated for emergency departments and those must be trained in life saving skills as applicable (ACLS/ATLS/ALSO /BLS);
  - xi. Duty Roster of Medical, Nursing & Allied staff on duty in the Emergency should be displayed, preferably on LCD;
  - xii. Duty roster should provide for adequate overlap in time for smooth handing over and taking over of patients, which must be documented, and verifiable;
  - xiii. The functioning of the Emergency Departments and care provision must be monitored through CCTV cameras;
  - xiv. Minimum set of dedicated lifesaving equipment, inter-alia, including the cardiac monitors, defibrillator, ventilators, as per the declared scope of service should be available in the Emergency Department;
  - xv. There should be adequate arrangement of medical gases, preferably through central supply and central suction with back up;
  - xvi. Generator for back up in case electricity failures should be ensured;
  - xvii. Physical Environment and infrastructure should be so designed and so provided, to allow for smooth and un-obstructed, safe movement of patients for the purpose of shifting, referral or discharge, of for the purpose of diagnostic tests or procedures;
  - xviii. The Emergency Department should have easy access to public utility area, i.e., waiting room, toilets, etc.



- xix. The physical environment should provide segregated utility area with sufficient privacy, to the medical and nursing staff for refreshment / changeover, with permitted bathroom break period (c.g., 20 minutes each during six hours' duty etc.);
- xx. Initiate three weeks hands-on training to head nurses as "Triage Nurse" for placing them in public sector hospitals' emergency departments on pilot basis.

**RECOMMENDATIONS TO BE INITIALLY IMPLEMENTED: -**

In order to optimize the quality of emergency services, following measures are hereby recommended to be initially implemented: -

- ✓ i. Improvement in the infrastructure of the emergency department (number of beds, accessibility, waiting area etc.);
- ✓ ii. Provision of trained / qualified, special Cadre staff i.e. Doctors, Nurses and allied staff;
- ✓ iii. Physical presence of senior level consultant (minimum Assistant Professor) within the premises of public sector teaching hospitals;
- ✓ iv. Availability of essential equipment and lifesaving medicine;
- ✓ v. Integrated Diagnostics services and pharmacy and
- ✓ vi. Maintenance of Electronic Medical Record of the patients.

  
 Chief Executive Officer  
 Punjab Healthcare Commission

Dated: 15.12.2022

**THE PUNJAB HEALTHCARE COMMISSION ACT 2010**  
**(XVI of 2010)**

<b>CONTENTS</b>
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**CHAPTER I**  
**INTRODUCTORY**

1. Short title, extent, commencement and application
2. Definitions

**CHAPTER II**  
**HEALTHCARE COMMISSION AND GOVERNANCE**

3. Establishment of the Commission
4. Functions and powers of the Commission
5. Constitution of the Board
6. Term of the Commissioners
7. Disqualifications
8. Chairperson
9. Functions and powers of the Board
10. Technical Advisory Committee
11. Chief executive officer
12. Disqualifications of chief executive officer

**CHAPTER III**  
**REGISTRATION AND LICENSING**

13. Registration
14. Licensing
15. Application for licenses
16. Licensing procedure
17. Kinds of licenses
18. Revocation and suspension of licenses
19. Medical negligence



**CHAPTER IV  
STANDARDS OF HEALTHCARE SERVICES**

- 20. **Standard of healthcare services**
- 21. **Accreditation**

**CHAPTER V  
INSPECTION AND ENFORCEMENT**

- 22. **Inspection**
- 23. **Procedure of investigation**
- 24. **Directions as to apparatus, appliance, equipment or products**
- 25. **Obstructing inspection team**
- 26. **Violations by bodies corporate**
- 27. **Protection from liability**
- 28. **Jurisdiction of Commission for adjudication of fine**
- 29. **Immunity**
- 30. **Bar of jurisdiction**
- 31. **Appeal**

**CHAPTER VI  
FUND, BUDGET AND ACCOUNTS**

- 32. **The Fund**
- 33. **Annual budget**
- 34. **Annual report and accounts**
- 35. **Investments**

**CHAPTER VII  
MISCELLANEOUS**

- 36. **Executive authorities to assist the Commission**
- 37. **Recovery of fines and other dues as arrears of land revenue**
- 38. **Failure to comply with the decision of the Commission**
- 39. **Removal of difficulties**
- 40. **Regulations**
- 41. **Rules**

<b>TEXT</b>
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**THE PUNJAB HEALTHCARE COMMISSION ACT 2010**  
**(XVI of 2010)**

[2<sup>nd</sup> August, 2010]

**An  
Act**

*to improve quality of healthcare services and ban quackery in the Punjab in all its forms and manifestations.*

**Preamble.**— Whereas it is expedient to provide for establishment of the Punjab Healthcare Commission, to make provisions for the improvement of quality of healthcare services, to ban quackery in all its forms and manifestations and to provide for ancillary matters;

It is enacted as follows:—

**CHAPTER I  
INTRODUCTORY**

**1. Short title, extent, commencement and application.**— (1) This Act may be cited as the Punjab Healthcare Commission Act 2010.

(2) It shall extend to the whole of the Punjab.

(3) It shall come into force at once.

(4) It shall apply to all healthcare establishments, public or private hospitals, non-profit organizations, charitable hospitals, trust hospitals, semi-government and autonomous healthcare organizations.

**2. Definitions.**— In this Act—

- (i) "accreditation" means the process of accepting or declaring a healthcare establishment providing services in accordance with the standards and accepted medical, allopathic, homeopathic or Tibb-i-Unani protocols, guidelines or tools;
- (ii) "Board" means the Board of Commissioners constituted under section 5;
- (iii) "certificate of registration" means the certificate issued by the Commission evidencing registration of a healthcare service provider;
- (iv) "Chairperson" means the Chairperson of the Board;
- (v) "chief executive officer" means the chief executive officer of the Commission;
- (vi) "clinical governance" means a systematic approach to maintaining and improving the quality of patient care;

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<sup>1</sup>This Act was passed by the Punjab Assembly on 23 July 2010; assented to by the Governor of the Punjab on 30 July 2010; and published in the Punjab Gazette (Extraordinary), dated 2 August 2010, pages 465-477.

- (vii) "Commission" means the Punjab Healthcare Commission;
- (viii) "Commissioner" means a member of the Board nominated under section 5;
- (ix) "convener" means the convener of the Technical Advisory Committee;
- (x) "Council for Homeopathy" means the National Council for Homeopathy established under the Unani, Ayurvedic and Homoeopathic Practitioners Act 1965 (II of 1965);
- (xi) "Council for Tibb" means the National Council for Tibb established under the Unani, Ayurvedic and Homoeopathic Practitioners Act 1965 (II of 1965);
- (xii) "Fund" means the Fund established under the Act;
- (xiii) "Government" means the Government of the Punjab;
- (xiv) "grading" means the ranking of the healthcare establishments made on the basis of the tools;
- (xv) "healthcare establishment" means a hospital, diagnostic centre, medical clinics, nursing home, maternity home, dental clinic, homeopathy clinic, Tibb clinic, acupuncture, physiotherapy clinic or any other premises or conveyance—
  - (a) wholly or partly used for providing healthcare services; and
  - (b) declared by the Government, by order published in the official Gazette, as a healthcare establishment;
- (xvi) "healthcare services" means services provided for diagnosis, treatment or care of persons suffering from any physical or mental disease, injury or disability including procedures that are similar to forms of medical, dental or surgical care but are not provided in connection with a medical condition and includes any other service notified by the Government;
- (xvii) "healthcare service provider" means an owner, manager or incharge of a healthcare establishment and includes a person registered by the Medical and Dental Council, Council for Tibb, Council for Homeopathy or Nursing Council;
- (xviii) "inspection team" means a team comprising more than two medical experts having postgraduate qualification and not less than fifteen years experience in the concerned field, and consisting of one employee of the Commission and others from public or private sector, to inspect any healthcare establishment under the Act;
- (xix) "license" means a license issued by the Commission under the Act for the use of any premises or conveyance as a healthcare establishment and "licensed" and "licensing" shall be construed accordingly;
- (xx) "licensee" means a person to whom license has been issued under the Act;



- (xxi) "Medical and Dental Council" means the Medical and Dental Council constituted under the Medical and Dental Council Ordinance 1962 (XXXII of 1962);
- (xii) "medical negligence" means a case where a patient sustains injury or dies as a result of improper treatment in a healthcare establishment and, in case of death, determined on the basis of medical autopsy report;
- (xxiii) "Nursing Council" means the Pakistan Nursing Council established under the Pakistan Nursing Council Act 1973 (XXVI of 1973);
- (xxiv) "Pakistan Medical Association" means the Pakistan Medical Association, a society registered under the Societies Registration Act 1860 (XXI of 1860);
- (xxv) "performance audit" means a process done through the tools and other similar instruments;
- (xxvi) "person" includes association of persons, authority, body, company, corporation, individual, partnership, proprietorship or other entity;
- (xxvii) "prescribed" means prescribed by rules or regulations made under the Act;
- (xxviii) "property" includes all kinds of property and assets, whether movable or immovable, tangible or intangible, deeds of title or any document evidencing right, title or interest of any kind in any property or assets;
- (xxix) "quack" means a pretender providing health services without having registration of the Medical and Dental Council, Council for Tibb, Council for Homeopathy and Nursing Council;
- (xxx) "registration" means registration under section 13 of the Act;
- (xxxi) "regulations" means the regulations made under the Act;
- (xxxii) "rules" means Rules made under the Act;
- (xxxiii) "staff" means any employee or Commissioner of the Commission and includes consultants, advisors, liaison officers and experts;
- (xxxiv) "standards" include the minimum service delivery standards notified by the Government;
- (xxxv) "Technical Advisory Committee" means the Committee constituted under section 10 of the Act; and
- (xxxvi) "tools" include the third party performance audit tools notified by the Government.

## **CHAPTER II**

### **HEALTHCARE COMMISSION AND GOVERNANCE**

**3. Establishment of the Commission.**— (1) The Government may, by notification, establish a Commission to be called the Punjab Healthcare Commission for carrying out the purposes of this Act.



(2) The Commission shall be a body corporate having perpetual succession and a common seal, with powers to enter into contract, sue and be sued by its name.

(3) The head office of the Commission shall be at Lahore and it may have such other offices in the Punjab as the Board may determine.

**4. Functions and powers of the Commission.**— (1) The Commission shall perform such functions and exercise such powers as may be required to improve the quality of healthcare services and clinical governance and to ban quackery.

(2) Without prejudice to the generality of the provisions of sub-section (1), the Commission shall—

- (a) maintain register of all healthcare service providers;
- (b) grant, revoke and renew licenses to persons involved in the provision of the healthcare services and to vary terms and conditions and purposes of the licenses;
- (c) monitor and regulate the quality and standards;
- (d) operate accreditation programmes in respect of the healthcare services and to grant accreditation to such healthcare service providers who meet the standards;
- (e) enquire and investigate into maladministration, malpractice and failures in the provision of healthcare services and issue consequential advice and orders;
- (f) impose and collect fees and charges on registration, licensing and accreditation under this Act;
- (g) impose and collect penalties on violation, breach or non-compliance of the provisions of the rules, regulations, standing orders and instructions issued under this Act;
- (h) advocate rights and responsibilities of recipients and providers of the healthcare services;
- (i) hold seminars, conferences and meetings on developing awareness about provision of high quality healthcare services;
- (j) enter into agreement or arrangement with the Federal Government or a Provincial Government, any authority, board, council or entity, non-governmental organization, domestic or international institution or agency for the purposes of this Act;
- (k) coordinate, liaise and network with any person, agency or institution;
- (l) take on lease land, buildings for the purpose of offices or premises of the Commission at such price and on such term as may be necessary;
- (m) appoint, engage, authorize and terminate employees, consultants, advisors, attorneys, inspection teams, contractors, agents and experts on such terms and conditions as deemed fit and assign, delegate or entrust them with such functions and powers as are expedient for the performance of functions of the Commission;

- (n) take measures for the welfare of the present and past employees of the Commission as well as its all registered members;
  - (o) issue regulations, guidelines, instructions and directives to persons involved in the provision of Healthcare services;
  - (p) grading of the healthcare establishments; and
  - (q) take necessary steps to ban quackery.
- (3) The Commission may assign any of its functions to a person on such terms and conditions as may be agreed between the Commission and the person.
- (4) In the performance of its functions, the Commission shall—
- (a) take into consideration the policy advice of the Technical Advisory Committee; and
  - (b) co-ordinate with the Government.
- (5) Subject to sub-section (6), the Commission shall conduct third party evaluation through independent performance audit of healthcare establishments in a phased manner.
- (6) The Commission shall not conduct third party evaluation through independent performance audit of healthcare establishments in the private sector other than tertiary care hospitals.
- (7) Notwithstanding anything contained in any other law, the Commission may—
- (a) on a complaint by any aggrieved person; or
  - (b) on a complaint by any aggrieved healthcare service provider; and shall—
  - (c) on a reference by the Government or the Provincial Assembly of the Punjab; or
  - (d) on a motion of the Supreme Court of Pakistan or the Lahore High Court made during the course of any proceedings before it, undertake investigation into allegations of maladministration, malpractice or failures on the part of a healthcare service provider, or any employee of the healthcare service provider.
- (8) The Commission shall take cognizance of any case of harassment of a healthcare service provider or damage to a healthcare establishment and may refer such a case to the competent forum.
- (9) The Commission shall take measures and devise a strategy to counter sale of drugs without prescription.
- (10) The Commission may exercise the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (V of 1908), in respect of the following matters:—
- (a) summoning and enforcing the attendance of any person and examining him on oath;
  - (b) compelling the production of documents;



- (c) receiving evidence on affidavits; and
- (d) issuing commission for the examination of witnesses.

(11) The Commission shall not investigate or inquire into any matter subjudice before a Court of competent jurisdiction on the date of the receipt of a complaint, reference or motion.

(12) The Commission may authorize members of the staff to administer oaths and to attest various affidavits, affirmations or declarations which shall be admitted in evidence in all proceedings under this Act without proof of the signature or seal or official character of such person.

**5. Constitution of the Board.**— (1) The general superintendence, direction and management of the affairs of the Commission and overall policy making in respect of its operations shall vest in the Board which may exercise all such powers and do all such acts, deeds and things that may be exercised or done by the Commission under this Act.

(2) The Government shall notify the Board which shall consist of nine Commissioners, seven of whom shall be nominated on the recommendation of the committee.

(3) A person shall not be eligible to be nominated as Commissioner unless he possesses a minimum of fifteen years experience in public or private sector.

(4) The committee shall recommend to the Government a panel of two persons for each vacant post of the seven Commissioners to be nominated on the recommendation of the committee.

(5) The Government shall nominate a former Judge of the Lahore High Court and a financial expert as Commissioners.

(6) The Board shall regulate the conduct of its meetings, quorum and minutes of the meetings.

(7) The Government shall prescribe the remuneration payable to a Commissioner for attending a meeting of the Board.

(8) A decision of the Board shall not be valid if decided in a meeting without quorum.

(9) The committee, for the purpose of recommendation for nomination of Commissioners under this section, shall consist of the following:

- |  |          |
|--|----------|
| (a) Secretary to the Government, Health Department;  | Chairman |
| (b) Vice Chancellor of a health sector University nominated by the Government;             | Member   |
| (c) a representative of the Pakistan Medical Association;                                  | Member   |
| (d) a representative of the private healthcare establishments nominated by the Government; | Member   |
| (e) a representative of the general practitioners nominated by the Government;             | Member   |
| (f) a representative of the Council for Tibb; and  | Member   |

(g) a representative of the Council for Homeopathy.

Member

**6. Term of the Commissioners.**— (1) A Commissioner shall hold office for a term of three years and shall be eligible for re-nomination in accordance with the provisions of section 5.

(2) In case of a casual vacancy of a Commissioner, the Government shall appoint a person as Commissioner in accordance with the provisions of section 5 for the remainder of the term of the Commissioner who has died, resigned or disqualified under this Act.

**7. Disqualifications.**— No person shall be, or shall continue to be, the Chairperson or a Commissioner who—

- (a) has tendered resignation and not withdrawn it within a period of thirty days;
- (b) is, or at any time has been, adjudicated as insolvent;
- (c) is found to be of unsound mind by a court of competent jurisdiction;
- (d) is, or has at any time been, convicted of any offence which, in the opinion of the Government, is an offence involving moral turpitude;
- (e) absents himself from three consecutive meetings of the Board, without leave of absence from the Board;
- (f) is an employee, advisor or consultant of a healthcare service provider; and
- (g) is a salaried official of the Commission.

**8. Chairperson.**— (1) The Commissioners shall hold a secret ballot to elect the Chairperson from amongst themselves for a term of three years.

(2) The Government shall notify the Chairperson elected by the Commissioners and the Chairperson shall hold office during the pleasure of majority of the Commissioners.

(3) The Chairperson shall cease to hold office if a vote of no confidence has been passed by the majority of the Commissioners or he ceases to hold office as Commissioner.

(4) The Chairperson shall not, for one year after the expiry of his term of office, enter into the employment or accept any advisory or consultancy relationship with any healthcare service provider.

**9. Functions and powers of the Board.**— (1) The Board may:—

- (a) determine the character, value and mission of the Commission;
- (b) provide leadership and oversight of activities of the Commission;
- (c) ensure the effective and efficient use of resources, solvency and safeguarding of the assets of the Commission;
- (d) establish and maintain strategic direction of the Commission;
- (e) oversee implementation of strategic objectives of the Commission;



- (f) monitor performance and review achievements of the Commission;
- (g) ensure adequate and effective governance and risk management systems in the Commission;
- (h) promote and develop partnerships with other organizations;
- (i) approve the standing orders of the Commission;
- (j) approve annual plans and reports;
- (k) approve annual accounts, budget and estimates of income and expenditure;
- (l) appoint inspection team;
- (m) appoint bankers and auditors;
- (n) handle and redress any complaint about the Commission;
- (o) appoint, oversee, authorize the chief executive officer, determine his terms and conditions of service and take any disciplinary action against him; and
- (p) regulate appointment, grades, appraisal, dismissal and terms and conditions of service of the employees of the Commission.

(2) The Board shall take all the decisions regarding penalties, suspension and revocation of licenses in a meeting.

(3) The Board may establish committees for assistance and advice to the Board in relation to the performance of its functions and determine the membership, remuneration of members and terms of reference of each committee.

**10. Technical Advisory Committee.**— (1) The Board shall constitute a Technical Advisory Committee consisting of the following members:—

- (a) one person each to be nominated by the—
  - (i) Medical and Dental Council;
  - (ii) College of Physicians and Surgeons Pakistan established under the Pakistan College of Physicians and Surgeons Ordinance 1962 (XX of 1962);
  - (iii) Nursing Council;
  - (iv) Pharmacy Council of Pakistan established under the Pharmacy Act 1967 (XI of 1967);
  - (v) Federal Mental Health Authority constituted under the Mental Health Ordinance 2001 (VIII of 2001);
  - (vi) Council for Homeopathy;
  - (vii) Council for Tibb;
  - (viii) Auditor General of Pakistan;
  - (ix) University of Health Sciences, Lahore;
  - (x) Punjab Medical Faculty constituted under the Medical and Dental Degrees Ordinance 1982 (XXVI of 1982);

- (xi) King Edward Medical University, Lahore;
  - (xii) Pakistan Medical Association; and
  - (xiii) Government from amongst the young doctors;
  - (b) one representative of the Government;
  - (c) one member of the Provincial Assembly of the Punjab to be nominated by the Speaker of the Assembly;
  - (d) one representative each of the six District Governments selected by the Government for one year on non-recurring basis;
  - (e) one person each to be nominated by the Government from the private healthcare establishments;
  - (f) five experts in healthcare services to be nominated by the convener of the Technical Advisory Committee in consultation with the Chairperson; and
  - (g) two international health experts to be nominated by the Government.
- (2) Except for the ex-officio members, all other members of the Technical Advisory Committee shall hold office for a period of three years and shall be eligible for re-appointment for another term of three years.
- (3) The Technical Advisory Committee shall elect one of its members as the convener.
- (4) The convener of the Technical Advisory Committee shall chair meetings of the Technical Advisory Committee and the chief executive officer may attend any meeting of the Committee.
- (5) The Board may determine the remunerations payable to the members of the Technical Advisory Committee for attending a meeting.
- (6) The Technical Advisory Committee may organize itself into sub-committees and shall provide advice on any matter referred to it by the Commission, including the matters relating to—
- (a) policy and strategic framework of the Commission;
  - (b) healthcare standards, accreditation and quality assurance;
  - (c) governance process of the Commission;
  - (d) advocacy, promotion and contribution towards development and sustainability of the work of the Commission; and
  - (e) stakeholder consultation for the promotion of quality and standards of the healthcare services.

**11. Chief executive officer.**— (1) The Board shall appoint a person having a minimum of fifteen years of experience in hospital or public administration, medicine, accounting, finance, law, regulation or other related field to be the chief executive officer of the Commission.

(2) The chief executive officer shall, subject to the supervision and control of the Board, administer the affairs of the Commission, and may exercise such powers as are delegated to him by the Board.



- (3) In particular, the chief executive officer may—
  - (a) manage the administration, operations and functions of the Commission;
  - (b) act as the principal accounting officer responsible and accountable for the management of the Commission's funds and assets;
  - (c) prepare and present the Board with strategic and operational plans for its review and appraisal;
  - (d) assist the Board in strategic thinking, planning and leadership and implement its policies;
  - (e) protect the financial health of the Commission;
  - (f) act as spokesperson and advocate of the Commission; and
  - (g) provide leadership to the senior management and direction to all staff.
- (4) The chief executive officer shall devote his whole time and attention to the affairs of the Commission.

**12. Disqualifications of chief executive officer.**— A person shall not be appointed or hold office as chief executive officer who—

- (a) is a member of the Federal or Provincial legislature, local council or local body constituted under any law or has contested last general election;
- (b) is employed in any capacity in the service relating to the affairs of the Federation or Province or hold any office for which salary or other remuneration is payable out of public funds;
- (c) is a director, officer or employee of any healthcare service provider or has an interest or share in any healthcare establishment;
- (d) has been convicted of tax evasion or for an offence involving moral turpitude; or
- (e) is in default of payments due from him, for more than one hundred and eighty days, to any bank, financial institution, cooperative society, governmental agency, department or corporation.

### **CHAPTER III REGISTRATION AND LICENSING**

**13. Registration.**— (1) A healthcare service provider shall not provide healthcare services without being registered under this section and the regulations.

(2) An existing healthcare service provider shall, within a period of ninety days of the coming into force of this Act, apply for registration in accordance with this section and the regulations.

(3) A person seeking to be registered as a healthcare service provider shall make an application to the Commission in the prescribed form and accompanied by such particulars, documents as the Commission may prescribe.

(4) If a person fulfills the requirements of this section, the Commission shall issue a certificate of registration to the person within fourteen days otherwise the applicant shall be considered as having provisionally registered.

(5) The Commission may impose a fine which may extend to five hundred thousand rupees upon a healthcare service provider or who pretends to be a healthcare service provider without registration.

**14. Licensing.**— (1) A healthcare establishment shall not be used except in accordance with the terms and conditions of a license issued by the Commission.

(2) If a healthcare establishment is not licensed under this Act, the Commission may impose a fine which may extend to five hundred thousand rupees upon the healthcare service provider.

(3) In case of shifting of a healthcare establishment, the license issued earlier under this Act shall be valid but the healthcare service provider shall inform the Commission prior to the shifting of the healthcare establishment.

**15. Application for licenses.**— Within thirty days of the issuance of the certificate of registration or such other time as may be fixed by the Government, the healthcare service provider shall make an application for a license to the Commission in the prescribed form which shall be accompanied by such particulars, documents and fees as the Commission may prescribe.

**16. Licensing procedure.**— (1) The Commission shall, on receipt of an application, complete with all required documents under section 15, issue a provisional license to the healthcare establishment and shall, within the period of thirty days from the date of acceptance of the application, issue the regular license to the healthcare establishment.

(2) The Commission may, before issuing the license, inspect the healthcare establishment which is to be licensed, or cause such healthcare establishment to be inspected by an inspection team.

(3) A license issued by the Commission under this section—

- (a) shall be in such form as may be prescribed;
- (b) shall be valid for the period of five years; and
- (c) may be renewed upon expiry.

**17. Kinds of licenses.**— (1) Every license of a healthcare establishment shall specify the kind of healthcare establishment for which it is issued and the purposes of the healthcare establishment.

(2) A licensed healthcare establishment shall not be used for any purpose other than the purposes in respect of which the license is issued and purposes incidental to such purposes.

(3) The Commission shall maintain a register of all licensed healthcare establishments and may enter in the register any necessary details or other particulars of the healthcare establishments.



**18. Revocation and suspension of licenses.**— (1) The Commission may revoke a license if the license has been obtained by fraud or misrepresentation.

(2) The Commission may suspend a license of a healthcare establishment if repeated cases of medical negligence of same nature have proved against the healthcare establishment.

**19. Medical negligence.**— (1) Subject to sub-section (2), a healthcare service provider may be held guilty of medical negligent on one of the following two findings:—

- (a) the healthcare establishment does not have the requisite human resource and equipments which it professes to have possessed; or
- (b) he or any of his employee did not, in the given case, exercise with reasonable competence the skill which he or his employee did possess.

(2) The recognized and known complications of a medical or surgical treatment are not considered as medical negligence.

#### **CHAPTER IV STANDARDS OF HEALTHCARE SERVICES**

**20. Standards of healthcare services.**— (1) The Commission shall implement the standards developed and approved by the Government.

(2) The Commission, with the approval of the Government, shall—

- (a) prepare and publish standards in relation to the provision of healthcare services; and
- (b) keep the standards under review and publish amended standards whenever deemed appropriate.

(3) The Government may, after considering any representations made in relation to the standards prepared and published by the Commission, make such revision of the standards as deemed necessary and the Commission shall publish the revised standards.

(4) The Commission or the Government shall, for meeting the mutually agreed standards, give an appropriate and reasonable period of time by keeping in view the ground realities regarding availability of trained human resource, improvement of the existing human resource and all other allied factors.

**21. Accreditation.**— (1) The Commission shall develop framework and procedures for the accreditation of the healthcare establishments and issue necessary guidelines and instructions in this behalf in a phased manner.

(2) The Commission shall review the best national and international practices in accreditation and build supportive links and enter into collaborations and agreements with national and international organizations in relation to accreditation of the healthcare establishments.

## CHAPTER V INSPECTION AND ENFORCEMENT

**22. Inspection.**— (1) The Commission may, by order in writing, appoint an inspection team to perform the functions and exercise the powers of the Commission in relation to inspections under this Act, rules or regulations subject to such conditions and limitations as the Commission may specify in this behalf.

(2) The inspection team may inspect a healthcare establishment:

- (a) at the time of issuance and renewal of license; or
- (b) on receipt of a complaint.

(3) The inspection team may inspect any apparatus, appliance, equipment, instrument, product, goods or item used or found in, or any practice or procedure being carried out at, the healthcare establishment.

(4) The inspection team may enquire any case if there has been any instance or allegation of maladministration, malpractice or failure in the provision of healthcare services against a healthcare establishment.

(5) The Commission may impose a fine which may extend to fifty thousand rupees upon a healthcare service provider who—

- (a) refuses or fails, without reasonable cause, to furnish any information to the inspection team; or
- (b) gives any false or misleading information to the inspection team.

(6) Except in the case of a prosecution for an offence under this Act, a member of the inspection team shall not be bound to give evidence in any proceedings in respect of, or to produce any document containing, any information which has been obtained from any healthcare establishment in the course of carrying out any investigation, inspection, enquiry or performing any duty or function under this Act.

(7) A member of the inspection team shall not disclose any information at any forum which is contained in the medical record, or which relates to the condition, treatment or diagnosis, of any person, as may have come to his knowledge in the course of carrying out any investigation, inspection, enquiry or performing any duty or function under this Act unless allowed in writing by the Commission.

**23. Procedure of investigation.**— (1) The Commission shall prescribe the procedure for the conduct of investigation to be carried out by the Commission under this Act.

(2) An aggrieved person may, within sixty days from the date of knowledge of the cause of action, file a complaint against a healthcare service provider or healthcare establishment by submitting an application in writing supported by an affidavit of the aggrieved person.

(3) The Commission shall not entertain an anonymous or pseudonymous complaint against a healthcare service provider or healthcare establishment.

**24. Directions as to apparatus, appliance, equipment or products.**— Where, in the opinion of the inspection team:



- (a) the use of any apparatus, appliance, equipment, instrument, product, goods or item; or
- (b) the carrying out of any practice or procedure in a healthcare establishment, is dangerous or detrimental to any person therein or otherwise unsuitable for the purpose for which it is used or carried out, he shall immediately report, the matter in writing to the Commission along with the necessary details. On receipt of report the Commission may act according to the rules, regulations and the procedure prescribed by the Government.

**25. Obstructing inspection team.**— The Commission may impose a fine which may extend upto fifty thousand rupees on a person who obstructs, hinders or impedes an inspection team in the performance of its function or execution of its duty.

**26. Violations by bodies corporate.**— (1) Where any contravention of this Act is committed by a body corporate and it is proved to have been committed with the consent or connivance of, or to be attributable to any director, manager, secretary or other officer or employee of the body corporate, or any person who purported to act in any such capacity, he as well as the body corporate shall be liable to pay fine for the violation.

(2) Where it appears to the Commission that the circumstances of a case warrant action under any other law, the Commission may refer such case to the concerned governmental authorities or law enforcement agencies for appropriate action under relevant laws.

**27. Protection from liability.**— No suit or other legal proceedings shall lie against the Commission, Board, Technical Advisory Committee, chief executive officer, officers, inspection teams, advisors, consultants or agents of the Commission for anything done in good faith in the execution or purported execution of this Act, rules or regulations.

**28. Jurisdiction of Commission for adjudication of fine.**— (1) Notwithstanding anything contained in any other law, the Commission may, for contravention of a provision of this Act, rules or regulations, impose fine which may extend to five hundred thousand rupees in accordance with the provisions of this Act, keeping in view the gravity of offence.

(2) The Commission shall afford adequate opportunity of hearing to a person before imposing fine on the person under this Act.

(3) If the complaint, submitted either by an aggrieved person or a healthcare service provider, is proved false, the Commission may impose fine which may extend to two hundred thousand rupees upon the complainant.

**29. Immunity.**— No suit, prosecution or other legal proceedings related to provision of healthcare services shall lie against a healthcare service provider except under this Act.

**30. Bar of jurisdiction.**— Save as provided in this Act, no court other than the Court of the District and Sessions Judge shall have jurisdiction—

- (a) to question the validity of any action taken, or intended to be taken, or order made, or anything done or purporting to have been taken, made or done under this Act; or
- (b) to grant an injunction or stay or to make any interim order in relation to any proceeding before, or anything done or intended to be done or purporting to have been done by, or under the orders or at the instance of the Commission.

**31. Appeal.**— (1) A person who is aggrieved by the—

- (a) refusal of the Commission to issue or renew a license;
- (b) decision of the Commission to suspend or revoke a license;
- (c) order of closing down of a healthcare establishment or making improvements in the healthcare establishment;
- (d) order relating to equipments, apparatus, appliances, or other things at a healthcare establishment; or
- (e) imposition of fine by the Commission.

may, within thirty days from the date of communication of the order of the Commission, prefer an appeal in writing to the District and Sessions Judge.

(2) The healthcare service provider shall provide legal aid to a person, working in the healthcare establishment, pertaining to the matters related to this Act.

## **CHAPTER VI**

### **FUND, BUDGET AND ACCOUNTS**

**32. The Fund.**— (1) There shall be established a Fund for the purposes of this Act which shall vest in, and be administered and controlled by the Commission.

- (2) The Fund shall consist of—
  - (a) such sums as the Government may grant by way of seed money or otherwise;
  - (b) donations from domestic and international donor agencies and other institutions;
  - (c) grants of money and sums borrowed or raised by the Commission for the purposes of meeting any of its obligations or discharging any of its duties;
  - (d) fees, penalties or other charges imposed under this Act; and
  - (e) all other sums which may in any manner become payable to or vested in the Commission in respect of any matter incidental to the exercise of its functions and powers.
- (3) The Fund shall be expended for the purpose of—



- (a) paying any expenditure lawfully incurred by the Commission, including the remuneration of employees appointed by the Commission, their provident fund contributions, superannuating allowances or gratuities<sup>2</sup>;
- (b) meeting the costs and charges of the contractors, inspection teams, advisors, consultants and agents hired by the Commission;
- (c) paying any other expenses, costs or expenditure properly incurred or accepted by the Commission in the performance of its functions or the exercise of its powers under this Act, including legal fees and costs;
- (d) purchasing or hiring equipment, machinery and any other materials, acquiring land and erecting buildings, and carrying out any other work and undertakings in the performance of its functions or the exercise of its powers under this Act;
- (e) repaying any financial accommodation received or moneys borrowed under this Act and the profit, return, mark-up or interest due thereon; and
- (f) generally paying any expenses for carrying into effect the provisions of this Act.

**33. Annual budget.**— (1) The Commission shall prepare and approve annual budget for a financial year in the prescribed manner.

(2) No expenditure shall be made for which provision has not been made in any approved budget except if made from any previously approved contingency funds, unless further approval is sought and obtained from the Board.

**34. Annual report and accounts.**— (1) Within ninety days from the end of each financial year, the Commission shall prepare a report on the activities and performance of the Commission, including inspections carried out under this Act during the financial year and submit a copy of the report to the Government.

(2) The Commission shall keep proper accounts and shall, as soon as practicable, after the end of each financial year, prepare a statement of accounts of the Commission for the financial year which shall include a balance sheet and an account of income and expenditure.

(3) The Commission shall appoint a firm of chartered accountants for audit of the statement of accounts of the Commission.

(4) The Board shall, within one hundred and twenty days of the end of each financial year, together with the annual report of the Commission under sub-section (2), send a copy of the statement of accounts of the Commission certified by the auditors and a copy of the auditors' report to the Government.

**35. Investments.**— (1) Subject to sub-section (2), the Commission may, in so far as its moneys are not required to be expended under this Act, invest the surplus moneys in such manner as may be prescribed.

(2) The Commission shall not invest its money in listed securities or any derivative thereof whether listed or not.

<sup>2</sup>Misprinted in the Gazette.

## CHAPTER VII MISCELLANEOUS

**36. Executive authorities to assist the Commission.**— All executive authorities and law enforcement agencies of the Government shall act in aid of the Commission.

**37. Recovery of fines and other dues as arrears of land revenue.**— The Commission may recover the fines imposed under this Act or other dues recoverable under the Act as arrears of land revenue under the Punjab Land Revenue Act 1967 ( of 1967).

**38. Failure to comply with the decision of the Commission.**— Any person who, in the opinion of the Commission, fails to comply with the final decision or recommendation of the Commission, the Commission may impose a fine which may extend to five hundred thousand rupees on the person.

**39. Removal of difficulties.**— If any difficulty arises in giving effect to any provision of this Act, the Government may make such order not inconsistent with the provisions of this Act as may appear to it to be necessary for the purpose of removing such difficulty.

**40. Regulations.**— (1) The Commission may, by notification in the official Gazette, make regulations for carrying out the purposes of this Act.

(2) Without prejudice to the generality of sub-section (1), the Commission may make regulations with respect to all or any of the following matters:—

- (a) the forms, fees and registers for the purposes of this Act;
- (b) the records of patients treated in a healthcare establishment are provided;
- (c) the records of the staff of a healthcare establishment;
- (d) the requirements as to the number and qualifications of nursing and other staff in a healthcare establishment;
- (e) the apparatus, appliances, equipment and instruments to be provided and maintained in a healthcare establishment;
- (f) the ambulances to be provided and maintained by a healthcare establishment;
- (g) the standards of accommodation, sanitation, and other amenities in a healthcare establishment;
- (h) fix penalties according to offence;
- (i) the cleanliness and hygiene in a healthcare establishment;
- (j) the safety and welfare of patients in a healthcare establishment are provided;
- (k) the management, control, superintendence and care of a healthcare establishment;
- (l) the composition, procedures, duties and responsibilities of quality assurance committees of healthcare establishments; and



(m) the regulation and control of prices of the healthcare services.

(3) The power to make regulations conferred by this section shall be subject to the condition of previous publication and, before making any regulations, the draft thereof shall be published, in the official Gazette, two newspapers of wide circulation and on the website of the Commission, for eliciting public opinion thereon within a period of not less than fifteen days from the date of publication.

**41. Rules.—** (1) The Government may, by notification in the official Gazette, make rules for giving effect to the provisions of this Act.

(2) The power to make rules conferred by this section shall be subject to the condition of previous publication and, before making any rule, the draft thereof shall be published in the official Gazette for eliciting public opinion thereon within a period of not less than fifteen days from the date of publication.

34

P/2

# MSDS

## Minimum Service Delivery Standards



**Punjab Healthcare Commission**

*Striving for quality healthcare in Punjab*



## 2.2 Care of Patients (COP)

**Standard 3.** COP-1: Emergency services are guided by policies, procedures and applicable laws and regulations.

**Indicators (15-20):**

**Ind 15.** *Policies and procedures for emergency care are documented.*

**Survey Process:**

Review the policies and procedures, which should cover the administration of the emergency area (triage, waiting times, admission/registration, legal reporting requirements, discharge and patient transfer). There should be observation of the policy and procedure manual and evidence that staff members are aware of its existence. There should be evidence by observation and interview with staff that the policies and procedures have been implemented.

**Scoring:**

- If there are policies and procedures, that staff members are aware of, and there is evidence that they are followed by ALL staff, then score as fully met.
- If there are policies and procedures and only 1-2 staff members are not aware of them, or if only 1-2 policies and procedures have not yet been implemented, then score as partially met.
- If there are no policies and procedures, or if none have been implemented, then score as not met.

**Ind 16.** *Policies also address handling of medico-legal cases.*

**Survey Process:**

The policy should define what types of cases should be reported and to whom (what agency) they should be reported to. The surveyor should review the record of reported cases and assess how they have been managed in terms of analysis and consequential changes, if required.

**Scoring:**

- If there are policies that define what types of cases are "medico-legal" and to whom and how to report such cases, then score as fully met.
- Since this is a legal requirement, if there are no policies, then score as not met.

**Ind 17.** *The patients receive care in consonance with the policies.*

**Survey Process:**

This will need to be surveyed by observation and interview with staff members. The policies should be readily available and understood by staff and embrace ALL the aspects of care being received by patients. There should be evidence of a process where the staff is made aware of and receive training regarding the policies and associated procedures.

**Scoring:**

- If agreed by the team that there is sufficient evidence that policies are being followed by staff, then score as fully met.
- If a majority of the survey team agrees that there is evidence that one or more policies are not being followed, then score as not met.

**Ind 18. Policies and procedures guide the triage of patients for initiation of appropriate care.****Survey Process:**

Look for a formal triage process, ideally based on a written algorithm. The most important issue is to validate that triage is based on an evaluation of the patient's presenting complaint and/or condition (clinical need) and NOT on time of arrival (first come, first served) or mode of arrival (ambulance versus walk-in). A walk-in patient may well have more emergent needs than the patient who arrived by ambulance. Existing standards on emergency management and disaster response should be observed.<sup>8</sup>

**Scoring:**

- If there is: 1. A triage process and 2. It is based on actual clinical evaluation<sup>9</sup> 3. By appropriately trained staff 4. Using appropriate facilities and 5. Staff members are aware and 6. Applying the process, then score as fully met.
- If there is a triage process, but it is not consistently based on at least a brief clinical evaluation of the patient using appropriate facilities, then score as partially met. Surveyor judgment is required since some presenting complaints (chest pain and acute respiratory distress) should trigger immediate attention even without a brief clinical evaluation.
- If there is no triage process or if it is only on a first come, first served basis, then score as not met.

**Ind 19. Staff members are familiar with the policies and trained on the procedures for care of emergency patients.****Survey Process:**

This is surveyed by observation and interview with staff members. Training and orientation should be documented in terms of content and participation.

**Scoring:**

- This should be scored the same as for Ind 15.

**Ind 20. Admission or discharge to home or transfer to another organization is documented.****Survey Process:**

Review a sample of at least 10 medical records, files or other documentation (emergency services log book) of patients who were treated in the Emergency Department. Observe the records and determine the discharge process. Review the advice and information provided to the patient or other clinician or treatment facility and determine if it is adequate to ensure support, recovery, on going treatment and follow-up that is clinically required.

**Scoring:**

- If this is 100 percent documented, then score as fully met.
- If only 1-2 cases fail to meet this requirement, then score as partially met.
- If 3 or more of the cases reviewed do not document this, then score as not met.

<sup>8</sup> In keeping with the National Disaster Management Agency and Government of Punjab hospital requirements for the management of disasters. – The Society of Emergency Physicians Pakistan (SEPP)

<sup>9</sup> Commensurate with the triage process of initial assessment



# Minimum Service Delivery Standards Reference Manual 2013



HOSPITALS



**Punjab Healthcare Commission**

*Striving for Quality Healthcare in Punjab*

**2.2****Care of Patients  
(COP)**



## 2.2 Care of Patients (COP)

The process of patient care includes planning of care, providing care, evaluating the patient's response to care, and planning follow-up care. Care may be provided in multiple locations, by multiple disciplines, and it may involve different processes. The following standards for the Care of Patients address essential principles and processes for the clinical care of patients who come to hospitals for their treatment, with excellent care being the overarching goal. These standards offer guidance on multidisciplinary patient care, especially in the fields of Emergency Services, Blood Transfusion, Obstetrics, Anaesthesia and Surgery. Comprehensive treatment shall take place in the respective clinical specialty areas with strict adherence to the Standards of Care.

**STANDARD-3. COP-1: EMERGENCY SERVICES ARE GUIDED BY POLICIES, PROCEDURES AND APPLICABLE LAWS AND REGULATIONS.****IND.15 - POLICIES AND PROCEDURES FOR EMERGENCY CARE ARE DOCUMENTED.****Policies and Procedures**

Each HCE should have well thought out and documented policies and procedures for emergency care, in line with statutory requirements. These policies and procedures, developed in the light of applicable laws, shall guide and encourage patient safety as the overall principle for providing healthcare services to patients.

These documents include SOPs/Protocols to provide either general emergency care or management of specific conditions, e.g. myocardial infarction, acute abdomen, poisoning etc. and shall address both adult and paediatric patients. The procedure shall incorporate at least identification, assessment and provision of care. The HCE policy should spell out and ensure availability of all the necessary equipment in working order, in line with the international standards, required in the Emergency Department (ED) to function round the clock (24/7) without interruption of its services. Hospitals should make policies i.e. SOPs/SMPs, on at least the following topics:

- i. Patient assessment and care
- ii. ED design
- iii. Initial screening exam
- iv. Staffing of emergency services
- v. Emergency medical services (EMS)
- vi. Continuing education
- vii. Disaster plan
- viii. Medications
- ix. Equipment and supplies
- x. Power failure
- xi. Electrical safety
- xii. Fire plan
- xiii. Security/traffic control
- xiv. Inter-hospital transfers
- xv. Laboratory down time procedure
- xvi. Consent
- xvii. Confidentiality of patient information
- xviii. Triage
- xix. Shock-trauma area
- xx. Patient belongings and valuables

- xxi. Standing orders
- xxii. Integration of diagnostic radiology with ED
- xxiii. Integration of operating room with ED
- xxiv. Integration of special care units with ED
- xxv. Reporting of criminal injury
- xxvi. Invasive procedures
- xxvii. General anaesthesia
- xxviii. Special procedures
- xxix. Patient transport for radiological procedures
- xxx. Admission
- xxxi. Return of admitted patients to the ED
- xxxii. Length of stay in the ED beyond 8 hours
- xxxiii. Injury prevention of unconscious, confused or irrational patients
- xxxiv. Social works services consultation
- xxxv. Release of information to media
- xxxvi. Pesticide poisoning
- xxxvii. Patient discharge
- xxxviii. Infection control
- xxxix. Blood borne pathogen exposure in patients presenting to the ED
- xl. Visitors
- xli. Medical records
- xlii. Elective sedation and analgesia
- xliii. Patients pronounced dead in the ED
- xliv. Poisonings
- xlvi. Tetanus prophylaxis
- xlvii. Rabies prophylaxis
- xlviii. Major adult trauma
- xlix. Major paediatric trauma
- l. Adult Medical Resuscitations
- li. Paediatric Medical Resuscitations
- lii. Paediatric Medication Administration
- liii. ED Control Register (ED log)
- liiii. QC
- liv. Follow-Up program - Call Back
- lv. Patient Follow-Up procedure
- lvi. Continuous Quality Improvement (CQI)

The ED should be appropriately staffed and must have one to two CMOs/EMOs depending upon the patient load of the HCE in each shift of 8-1/2 hours, with a half hour overlap of duties for



handing/taking over of charge. Night duty of 12 hours i.e. from 8 pm to 8 am, currently in vogue, hampers the quality of service and therefore a uniform duty of 8-1/2 hour must be enforced. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and Surgery/Allied specialties for the appointment of CMO/EMO.

#### **IND.16 - POLICIES ALSO ADDRESS HANDLING OF MEDICO-LEGAL CASES.**

##### **Instructions on Handling of Medico Legal Cases**

The policy shall be in line with legal requirements with reference to documentation and intimation to the police. Medico Legal Cases/ Medico Legal Reports (MLC/MLR) will be defined by the HCE in the light of the statutory rules. MLC/MLR must be handled by the medical officers of the Forensic Department where it is available, as in teaching hospitals; vis-a-vis where a Forensic Department is not available then CMOs must be given capacity building training. Female victims of MLC/MLR must be dealt by female doctors. If not available in the ED, then a female doctor from the Gynaecology Department must be appointed in the ED, with her name and telephone number noted. An approved Government Policy/Procedure is to be followed while handling and reporting Medico Legal Cases.

#### **IND.17 - THE PATIENTS RECEIVE CARE IN CONSONANCE WITH THE POLICIES.**

##### **SOPs/SMPs for Accident and Emergency (A&E) Department**

The HCE shall evolve a solid and comprehensive policy for its ED, encompassing all the details regarding assessment and treatment protocols to be followed in the department. Cases/patients requiring immediate attention e.g. victims of road traffic accidents, patients with cardiac complaints, poisoning cases etc., shall be handled according to set HCE policies and procedures. Link this indicator's requirement with that of Indicator No. 15 above.

#### **IND.18 - POLICIES AND PROCEDURES GUIDE THE TRIAGE OF PATIENTS FOR INITIATION OF APPROPRIATE CARE.**

##### **Triage and Treatment**

Triage and Treatment is a protocol based Clinical Care/Management system, aimed at early and appropriate care and discharge from the ED.

Triage is the process of determining the priority of treatments based on the severity of the condition of patient. This rations patient treatments efficiently when resources are insufficient



for all to be treated immediately. Triage may result in determining the order and priority of emergency treatment, emergency transport or the transport destination for the patient.

Triage may also be used for patients arriving at the ED, or to telephone medical advice systems among others, and cater for medical emergencies, including the pre-hospital setting, disasters and emergency room treatment.

The outcome and grading of the victim is frequently the result of physiological and assessment findings. Some models, such as the START (Simple Triage And Rapid Treatment) model, are committed to memory, and may even be algorithm-based. As triage concepts become more sophisticated, triage guidance is also evolving into both software and hardware decision support products for use by caregivers in both hospitals and the field.

It is imperative to designate a dedicated staff with the responsibility of regular reevaluation and assessment of the patient and the initiation of appropriate clinical care. It shall be ensured that waiting patients know that they have someone looking after them. Currently, the patients experience significant delays with regard to timely access to a medical officer, symptom management, timely decision making and total treatment time. Improving the treatment time in managing the patient by a senior emergency staff with extended skills, at an earlier stage in the ED is an effective strategy in optimizing patient flow.

For the efficient management of patient workload, the following points need to be spelled out by the administration in consultation with Head of the ED:

- i. Criteria for Identification of "non-emergency cases" presenting to the ED and requiring little or no clinical care and not needing assessment by a consultant at the ED. The criteria should enlist inclusions and exclusions and specified timelines for management.
- ii. A policy/procedure to sort and manage non-emergency patients.
- iii. Assessment criteria should include evaluation of vital signs, age, mobility and absence of co-morbidities.

Patients are **TRIAGED** on the **Basis of the Urgency** with which they need medical attention. The Triage Nurse allocates a **Triage Category** to a patient based on the statement and/or the condition of the patient as evaluated by the EMO<sup>7</sup>.

- i. Ensure that SOPs regarding Triage and Treatment is well defined and understood by all staff.
- ii. The SOPs should include management protocols for each category of patient viz. cardiac, road traffic accident and poisoning etc.

<sup>7</sup> NSW Ministry of Health. (2013). *Hospital Triage*. Retrieved from [http://www.health.nsw.gov.au/hospitals/going\\_to\\_hospital/triage.asp](http://www.health.nsw.gov.au/hospitals/going_to_hospital/triage.asp)

### III. Ensure clearly defined Roles and Responsibilities.

A suggested triage pattern for patients, presenting to the ED is described in the following lines; however this is not a rigid document and prescribes only a general guideline for HCEs. The aim is to achieve a certain level of performance as a benchmark in terms of the time patients wait to be seen in EDs.

#### a. Triage Categories

##### 1. Immediate Resuscitation

Patients who need treatment immediately or within two minutes are categorized as having a life-threatening condition. Most of them would have arrived in the ED by ambulance and would probably be suffering from a critical injury or cardiac arrest.

##### 2. Emergency

Patients who need to be treated within 10 minutes are categorized as having an imminently life-threatening condition. This group of patients includes those suffering from a critical illness or are in very severe pain e.g. chest pain, difficulty in breathing and fractures etc.

##### 3. Urgent

This group of patients requires treatment within 30 minutes and is categorized as having a potentially life-threatening condition. These include patients suffering from severe illnesses, bleeding heavily from cuts/wounds, have major fractures, or are dehydrated.

##### 4. Semi-Urgent

People in this group are having a potentially serious condition with less severe symptoms or injuries, such as a foreign body in the eye, sprained ankle, migraine or earache etc. and need to be treated within one hour.

##### 5. Non-Urgent

This category includes patients who have a less urgent condition and need to have treatment within two hours. This includes those having minor illnesses or symptoms which may have been present for more than a week such as rashes or minor aches and pains.

#### b. Patient-Staff Contact/Introduction

Staff should reach the patient as soon as he/she enters the ED with words of comfort to break the ice and make him/her feel confident and comfortable. Courtesy and help rendered by the ED staff helps in preventing unpleasant situations. Special care is solicited in the ED with respect to staff behavior and care, therefore certain queries need to be clarified upon the patient's arrival.



1. **Clarify to the patient whether he/she can eat or drink anything**  
Sometimes the patient should not eat or drink while waiting to see a doctor because the patient may need to undergo a test or an operative procedure requiring the stomach to be empty.
2. **Clarify the complaint of pain and assess the requirement of pain relief.**  
Triage medical staff/nurse should clearly ask the patient about pain or any discomfort while waiting for the final disposal.
3. **Medications**  
Triage staff should elicit the history of medications from the patient.
4. **Contact the next of kin as soon as possible.**  
Triage staff should explain the condition of the patient to the relatives/friends accompanying the patient. In case the patient is brought to the ED by others, then the triage staff shall contact family, relatives or friends of the patient to let them know that the patient is in Emergency.
5. **Interpreter**  
Triage staff should arrange an interpreter for the patient, if necessary.

**IND.19 - STAFF MEMBERS ARE FAMILIAR WITH THE POLICIES AND TRAINED ON THE PROCEDURES FOR CARE OF EMERGENCY PATIENTS.**

**Training**

A specialist in emergency medicine is appointed to assume overall responsibility of the A&E services. The specialist shall regularly review the facilities, equipment and staff training of the services.

The CMO should remain in the A&E Department 24/7. A registered nurse who is trained and experienced in the practice of emergency nursing is available at all times to supervise nursing care in the A&E services.

An appropriate number of suitably qualified and experienced staff is in attendance. The hospital shall have a policy in place to mobilize additional personnel to attend to emergency situations.

The hospital maintains an up-to-date roster of specialty doctors who are readily available to render consultation service and necessary assistance.

All medical and nursing staff deployed to the A&E services receive training on the following courses:

- i. Advanced Trauma Life Support (ATLS);
- ii. Advanced Cardiac Life Support (ACLS);
- iii. Trauma Nursing Care Course (TNCC);

## iv. Paediatrics Advanced Life Support (PALS).

**IND.20 - ADMISSION OR DISCHARGE TO HOME OR TRANSFER TO ANOTHER ORGANIZATION IS DOCUMENTED.****Emergency Admission, Discharge and Transfer Policy**

All patients who present an **Emergency Medical Condition** must receive treatment to the extent that their emergency condition is medically "**stabilized**," irrespective of their ability to pay for such treatment, in case of a Private HCE.

An **Emergency Medical Condition** is defined as one that manifests itself by acute symptoms of sufficient severity (including severe pain, psychiatric disturbance, and/or symptoms of substance abuse) such that the absence of immediate medical attention could reasonably be expected to result in the following:

- i. Placing the health of the individual (or unborn child) in serious jeopardy.
- ii. Serious impairment of a bodily function.
- iii. Serious dysfunction of any bodily function or part.
- iv. Inadequate time to effect a safe transfer of a pregnant woman to another hospital before delivery or, that the transfer may pose a threat to the health or safety of the woman or unborn child.

"**Stabilization**" means "that no material deterioration of the condition is likely, within reasonable medical probability, to result from or occur during the transfer or discharge of the patient from a facility".

However, once the emergency is over and a patient's condition is stabilized, the patient can be discharged and refused further treatment by private hospitals. If the individual seeks routine medical care or schedules a doctor's appointment for non-emergency medical problems, doctors have a general right to refuse treatment if they have no insurance or any other means of paying for the provided care.

In case of discharge to home, a **Discharge Summary** shall be given to the patient. The patient's treating doctor determines the readiness for discharge during regular reassessments. The same is discussed with the patient and his/her family.

The **Discharge Procedures** are documented to ensure coordination amongst various departments including Accounts so that the discharge papers are complete well within time. For MLC/MLR, the HCE shall ensure that the police are informed.



The HCE hands over the **discharge papers** to the patient/attendant in all cases and a copy is retained. In Leaving Against Medical Advice (LAMA) cases, the declaration of the patient/attendant is to be recorded and signed on a proper format.

The **Discharge Summary** shall be signed by the treating doctor or a member of his/her team and should contain the following:

- a. Patient's name
- b. Unique identification number
- c. Date of admission and discharge
- d. Reasons for admission
- e. Significant findings
- f. Diagnosis
- g. Patient's condition on discharge
- h. Investigation results
- i. Any procedure performed
- j. Medication administered
- k. Treatment given
- l. Follow up advice and other instructions deemed necessary

(The instructions shall be in a manner that the patient can easily understand)

The HCE should have a documented policy for clients/patients LAMA and those being **Discharged on Request**. The treating doctor should explain the consequences of this action to the patient/attendant. This policy could address the reasons of being LAMA for any possible corrective and/or preventive action by the HCE.

In case of transfer to another facility, details regarding medical history of the patient, investigations/procedures performed, treatment provided, reasons for referral and the name of the HCE to be referred will be recorded in the prescribed referral form. In such cases, SOPs regarding patient transfer shall be strictly followed so as to ensure proper care during transportation and handing over of the patient to referred facility takes place.



# **PHC Guidelines**

## **for Emergency Departments**

### **of Referral Hospitals – Secondary and Tertiary care settings in the Punjab**





## Table of Contents

Sr. No.	Content	Page Number
1	Table of Contents	2
2	List of Acronyms and Abbreviations	4
3	Preamble	9
4	National Scenario	10
5	Provincial Scenario: year 2000 onwards	12
6	PHC Regulatory Framework: Minimum Service Delivery Standards	16
7	State of Emergency Departments in Pakistan	20
8	Levels of Care for Injured / Emergency Patient	23
9	Golden Hour Management	24
10	Planning of Emergency Services	30
11	Major Functional Areas in the Hospital Emergency	33
11.1.	Triage: Concept and Application	45
11.2	Triage Scale (TS)	48
11.3	The Triage Tool	49
11.4.	Discriminator List	50
11.5	Interventions to be carried out at Triage	51
11.7	Categorization of patients according to Seriousness of the Problems	54
11.8	Levels of Hospital Emergency Departments	55
12	Physical Setting Requirements	56
13	Continuous Professional Development	59
14	Admission Policy for the Emergency Department	60
15	Disposition of Patients from the Emergency Department	61
16	Code Blue	63
17	Power Failure in Hospital Emergencies	66
18	Emergency Department Check list	68
19	Hospital Emergency Departments Operational Model	73
19.1	Department of Emergency	73
19.2	Training	77
19.3	Transfer of Patient to other Hospital	81
19.4	SOPs –Infection Prevention and Control in Emergency	85
19.5	Anaphylactic and drug reactions, asphyxia, electric shock and drowning	86
19.6	Management of Cardiopulmonary Arrest	87
20	<b>Annexures</b>	
	Annex-I: Triage Sheet	89
	Annex-II: Code Blue Feedback Form	90
	Annex-III: Resuscitation Form	91
	Annex IV: Equipment & Supplies	92
	Annex-V: Essential Medicines list	94
	Annex-VI: The CTG discriminator list (adult version)	95
	Annex-VII: Children Triage Score (3-12years, 96 -150cm) TEWS	96
	Annex-VIII: Infant Triage Score (<3 years, < 95 cm) TEWS	97
	Annex-IX: Examples of triage systems internationally in vogue	98
	Annex-X: PHC Guidelines for Referral	103
	Annex-XI: power Failure and SOPs to ensure patient safety in the wake of power failure	109
21	References and Bibliography	112

NMNCHP	National Maternal Newborn and Child Health Promotion
OEM	Original Equipment Manufacturer
OPD	Outpatient Department
OR	Operating Room
OSHA	Occupational Safety and Health Administration
OT	Operation Theater
OTA	Operation Theatre Assistant
OTMC	Operation Theatre Management Committee
PACS	Picture Archiving and Communication System
PACU	Post Anaesthesia Care Unit
PALS	Paediatrics Advanced Life Support
PAR	Post Anaesthesia Recovery
PEPP	Payment Error Prevention Program
PGD	Patient Group Direction
PHC	Punjab Healthcare Commission
PIP	Patient Identification Procedure
PMDC	Pakistan Medical & Dental Council
PNC	Pakistan Nursing Council
PNC	Post - Natal Care
PNRA	Pakistan Nuclear Regulatory Authority
PO	Purchase Order
POD	Patients Own Drugs
PPE	Personal Protective Equipment
PPRA	Punjab Procurement Regulatory Authority
PRE	Patient Rights and Education
PTBA	Punjab Blood Transfusion Authority
QA	Quality Assurance
QC	Quality Control
QI	Quality Improvement
RBS	Random Blood Sugar
RDL	Role Delineation Level
RHC	Rural Health Centre
RIS	Radiology Information System
ROM	Responsibilities of Management
RTAT	Radiology Turn Around Time
RTI	Reproductive Tract Infection
SAM	Self-Administration of Medicine
SMPs	Standard Management Protocols
SOPs	Standard Operating Procedure
SPSS	Statistical Package of Social Sciences
SSI	Surgical Site Infection
SSIS	Surgical Site Infection Surveillance



STI	Sexually Transmitted Infections
SVD	Spontaneous Vaginal Delivery
SWOT	Strengths, Weaknesses, Opportunities, Threats
TAC	Technical Advisory Committee
THQH	Tehsil Headquarter Hospital
TNCC	Trauma Nursing Care Course
V/Q	Ventilation/Perfusion
WHO	World Health Organization
WM	Waste Management
WMO	Woman Medical Officer
WMT	Waste Management Team
ZBB	Zero-Based Budgeting

## Preamble

The Emergency Departments of healthcare establishment has pivotal role in providing access to emergency medical care, and backup support to the primary health care facilities including BHU, RHCs, and the family Physicians and smaller hospitals settings in the private sector. The Emergency Department is also an important interface for a variety of indoor and outdoor services operating in the healthcare establishment, as a large proportion of total admissions to inpatient wards are via Emergency Departments.

These guidelines are only intended to provide an outline towards integration of clinical requirements, functional needs and practical logistic and space requirements for an Emergency Department of a typical hospital. The document is not intended to provide an exhaustive guide or a prescriptive list of medical equipment and other requirements, as such information is essentially dynamic and can become outdated quickly. Rather these guidelines are aimed to highlight critical aspects, mode of care, and optimal patient pathways leading to smooth flow of patients and eliminating the chances of mismanagement or poor or un-intended outcome.

No matter how much diligence is observed in planning a hospital emergency department, models of care may rapidly change in the real case scenario, as a result of change in government policy, new initiatives, change in staffing of the Emergency Department in view of change in patients' needs and demographics, technology, physical and social environment related factors. In the private sector, the Emergency Department and Emergency Care is influenced by a number of factors including the business model, etc. The Emergency Physicians, nurses, allied health staff actually working in the Emergency Departments being the key stakeholders can provide valuable inputs during designing phase<sup>1</sup> of the hospital emergency services.

As per the JCI Survey Process <sup>2</sup>, Hospitals providing services that are available 365 days a year, and ensures that all direct patient care as well as ancillary and support services as needed for emergent, urgent, and/or emergency needs of patients, such as diagnostic testing, laboratory, and operating theatre, as appropriate to the type of acute care hospital are operational 24 /7 basis are eligible to apply for JCI accreditation.

Emergency Department of the hospital is often the gateway to healthcare system and point of first contact for many patients coming with acute illnesses or are suffering from some imminent complication of chronic health problem. Commonly presenting emergencies include obstetric cases, complications during pregnancy and post-partum, non-communicable diseases e.g. asthma, heart attacks, strokes, surgical issues, road traffic accident, environmental and man-made disasters, , exacerbations of acute life threatening infections e.g. sepsis, Covid-19, dengue, Congo Hemorrhagic Fever, and psychiatric illnesses etc.

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<sup>1</sup> Emergency Department Design Guidelines by Australian College for Emergency Medicine, 2014

<sup>2</sup> JCI Survey Process Guide (7<sup>th</sup> Edition, 2021).



## National Scenario

Whenever an injured person is brought to a hospital, it is mandatory to provide medical aid without delay on priority basis. This medical aid will be provided irrespective of any other consideration including medico legal formalities and no police officer shall interfere during the period an injured person is under treatment in a hospital<sup>3</sup>. The Injured Persons (Medical Aid) Act, 2004 further explains "injured person" as a person injured due to traffic accident, assault or *any other cause who is in need of an immediate treatment*. The Act in terms of Section 6 also *provide that an injured person shall not be shifted from a hospital until he is stabilized or the requisite treatment is not available in such hospital and while shifting to another hospital, the doctor concerned shall complete the relevant documents with regard to the clinical conditions of the patient and hand over such documents to the concerned doctor of the receiving hospital*.

In order to provide for early transport of the injured or ill person in a life threatening situation, section 5 of the Punjab Emergency Service Act, 2006<sup>4</sup> empowers Rescue Service to arrange transport (transport vehicle or ambulance) where necessary for carrying persons requiring emergency medical treatment to the nearest hospital emergency or healthcare unit having such arrangements. Section 17 of the said Act also enables the Emergency Officer or the Rescuer to administer such life safety procedures as are consistent with their training and competence.

National Reference Manual on Planning and Infrastructure Standards<sup>5</sup> formulated by the Government of Pakistan provided long term goal of 5 hospital beds per thousand population, whereas the sixth five year plan envisaged a target of 0.63 beds per 1000 population. As a general guide, Standards for Health Facilities envisaged a Tehsil hospital of 60 beds having three basic specialties and dentistry service, whereas every district should have one 100 to 250 bedded referral hospital with all medical facilities including 6 to 10 specialties. In larger cities, in addition to one district hospital, one general hospital of 100 to 250 beds with all medical facilities and 5 to 10 specialties was also envisaged.

On provincial and regional basis, the standards provided for teaching hospital having all specialties in a 500 to 1000 bedded facility, whereas in metropolitan cities and hill stations, specialized hospitals e.g. Mental hospitals, T.B Sanatoriums were envisaged. The standards also considered the scope of private clinics to take some load in larger urban centres and in upper income communities thus reducing the need for public provision.

The National Reference Manual also provided that coordination with other emergency services was crucial for a comprehensive efficient service and thus required that a hospital should at least be in communication with police, ambulance and fire services, and the ambulance service should be focused on district/general hospital upwards in the hierarchy. The Guidelines provided that there should be adequate parking near emergency wards/cardiology units, and access should be separate for ambulances from the main public entrance.

The Reference Manual also provides Elements and Covered areas of health facilities that require 10,576 square meters covered area for a 250 bedded district hospital, and 10% beds to be in single rooms for intensive care with space requirement per bed: 16.5 sq meters for adults and 18.5 Sq meters per bed for children ward. The Manual requires 464 Sq meter space for Accident & Emergency

<sup>3</sup> Injured Persons Medical Aid Act, 2004

<sup>4</sup> Punjab Emergency Service Act, 2006

<sup>5</sup> National Reference Manual on Planning and Infrastructure Standards, Ministry of Housing and Works, Environment and Urban Affairs, Government of Pakistan 1986

Department of such a secondary referral hospital and 30 to 35% of the net area to be allocated as circulation space and facilities for the ward.

In order to review the prevailing situation and to make recommendations for improvement, a working group comprising of the local emergency care experts was constituted by the Ministry of National Health Services and Coordination, Islamabad to undertake assessment of Emergency System in Pakistan in collaboration with the WHO. After detailed review and inputs from the key informants, the report submitted by the working group<sup>6</sup>, inter-alia, made the following recommendations:

- I) Implement use of system-wide standardized clinical forms /SOPs in Emergency Units
- II) Establish minimum standard guidance / standardized clinical forms for use in emergency based on WHO standards
- III) Establish an emergency registry platform in the Ministry to provide guidance on emergency care and for pre-hospital care; and a coordination mechanism at national and provincial level for collecting, analyzing and utilization of emergency care data at policy level
- IV) Standardize criteria and process for designation of trauma centres
- V) Set standards for first aid kit, and provide standardized training
- VI) Establish single national universal access number for emergency healthcare; and implementation of accreditation mechanism and oversight for ambulances (public and private)
- VII) Establish national level minimum service guidance on clinical care and communication protocols for inter-facility emergency transfer
- VIII) Implement formal emergency unit triage process at every district hospital and tertiary care level in line with WHO tools
- IX) Implement dedicated training in basic emergency care for front line emergency care providers
- X) Establish core or dedicated (non-rotating personnel) clinical response teams at emergency units of all levels
- XI) Establish minimum standards & guidelines for emergency Units regarding level of services, processes (triage, length of stay, handover or discharge), infrastructure, staffing, equipment, supplies at national level
- XII) Integrate emergency care training in undergraduate medical and nursing curricula, and to initiate additional medical emergency specialty training programmes
- XIII) The federal regulatory council to make it mandatory for ongoing practice a basic emergency care training for healthcare professionals providing services in emergency units
- XIV) Provide a mechanism for enforcement of accreditation standards in the emergency care elements in public and private hospitals
- XV) Develop pre-hospital and in-facility security plans at all levels of service delivery to protect staff, patients and infrastructure from violence
- XVI) Conduct regular assessment of the capacity of emergency care system to mobilize resources in case of disasters, outbreaks and large scale emergencies, and to strengthen such capacity by prior planning and coordination at national and provincial level.

<sup>6</sup> Assessment of Emergency System in Pakistan, 2014



## Provincial Scenario: year 2000 onwards

In Punjab province, the mainstay of emergency services rests with the public sector hospitals, which provide round the clock free medical cover for all incoming patients, while no patient is denied emergency care. Emergency Departments of the Teaching and tertiary care hospitals provide basic and specialized medical cover round the clock, while most of the district and tehsil hospitals provide 24/7 hour basic medical and surgical cover in the emergency departments, including medico legal services. Similarly, the rural health centers are open for 24/7-hour basic medical cover, and medico-legal services.

Since late 1990' and early 2000, the Cardiology Institutes and Pediatric hospitals provide specialized coronary and pediatric care in cities like Lahore, Multan, Faisalabad and Rawalpindi. However, these facilities draw their strength and backup from the regular set ups provided in the neighboring public sector tertiary care hospitals for other specialties' services. In 2002-2003, a major initiative was undertaken by the government when emergency departments of seven major teaching hospitals were planned for upgradation. In order to optimize operation of the upgraded emergency facilities, a Manual of Standard Operating Procedures (SOP)<sup>7</sup> was framed by the Health Department, Government of the Punjab in October, 2003. The Manual inter-alai, contained the following important recommendations:

- (i). Establishment of Ambulance Stations on highways /major intersections and provide linkage with ambulances and the referral hospitals, with a target time of 20 minutes to reach at accident site
- (ii). Purchase, equip and staff the ambulances with basic life support facilities
- (iii). Improve the DHQ hospitals by commissioning intensive care of at least 4 beds capacity with equipment and trained staff
- (iv). Increasing the number of general surgeons, orthopedic and neurosurgeon in each DHQ hospital, and ensure 24 hours availability of operation theaters
- (v). An additional medial superintendent as in-charge of emergency in DHQ hospital

The Manual also provided the job descriptions of key staff members including CMO, Nursing staff, and documented procedures for reception, registration, and management /transfer of patients in the emergency department. It also included 50% extra pay for regular emergency staff and provisions and procedures for emergency lab, radiology and blood bank facilities. The Manual also provided a summary of existing capacities in RHCs, THQ Hospitals, DHQ and Teaching hospitals, and the desired performance levels /capacity to be achieved as a result of the government initiative. The manual also provided a monitoring instrument / check list as per WHO guidelines.

In 2016, the Primary and Secondary Healthcare Department undertook baseline assessment of 25 district headquarter hospitals and 15 tehsil headquarter hospitals towards getting these hospitals licensed with the Punjab Healthcare Commission. As a result, a substantial transformation programme was undertaken with focus on upgrading the following:

- i). Medical infrastructure
- ii). Hospital infrastructure
- iii). Human resource
- iv). technology / EMR

<sup>7</sup> Standard Operating Procedures (S.O.P) Manual for Emergency Medical Services in Teaching Hospitals of the Punjab; Department of Health, Government of the Punjab, October 2003

- v). Outsourcing of non-clinical services
- vi). Implementation of best practices /SOPs

Following hospitals were included in the transformation programme

DHQ Hospitals		THQ Hospitals
1. DHQ Attock	2. DHQ Muzzafargarh	1. THQ Hazro
3. DHQ Bahawalnagar	4. DHQ Nankana Sahib	2. THQ Chistian
5. DHQ Bhakkar	6. DHQ Narowal	3. THQ Ahmedpur East
7. DHQ Chakwal	8. Additional DHQ Okara	4. THQ Taunsa Sharif
9. DHQ Chiniot	10. DHQ Okara	5. THQ kamoke
11. DHQ Hafizabad	12. DHQ Pakpattan	6. THQ Mian Channu
13. DHQ Jhang	14. DHQ Rajanpur	7. THQ Noorpur Thal
15. DHQ Jhelum	16. DHQ Sheikupora	8. THQ Esa Khel
17. DHQ Kasur	18. DHQ TT Singh	9. THQ Shuja Abad
19. DHQ Khanewal	20. DHQ Vehari	10. THQ Kot Addu
21. DHQ Khushab	22. DHQ Mandi Bahauddin	11. THQ Arifwala
23. DHQ Layyah	24. DHQ Mianwali	12. THQ Chichawatni
25. DHQ Lodhran		13. THQ Daska
		14. THQ Gojra
		15. THQ Burewala

In 2021-22, the Government of the Punjab envisaged to develop 250 bedded new emergency and trauma centre in Jinnah hospital Lahore, and a new hospital near Arfa Kareem tower in Lahore with an estimated bed strength of 1000, and having 250 bedded emergency department as per the following suggested breakup:

Departments	Proposed Bed Count
General Surgery	36+36 beds
General Medicine	60 beds
Orthopedic/Spinal surgery	24 beds
Modular Surgical ICU/Modular Medical ICU	14 beds
High Dependency Unit	21 beds
Emergency Dialysis Room	06 beds
Triage Accidents & emergency	48 beds
Code Blue Room	06 beds
<b>Total Beds</b>	<b>251 beds</b>
Modular OT Suites	06 beds
Minor OT	03 Tables

The above schemes are in the scrutiny process before approval under the Annual Development Programme (ADP), and once approved, will be setting new standards for emergency care in Punjab. On the contrary, dedicated emergency set ups in private hospitals are comparatively less developed, barring a few. It is primarily due to the fact that private hospitals are never sure that all clients in emergency would be affording to pay all expenses.



As per the **need assessment of Trauma Centres** undertaken in the Punjab<sup>8</sup>, there were 20 dedicated trauma centres in Punjab, out of which 8 were non-functional, while accident and emergency departments of teaching hospitals in Punjab were providing round the clock access to trauma care. The study observed that while there was no level-I specialized state of the art trauma care facility in Punjab as per WHO guidelines, the DHQ hospitals in Punjab were providing services equivalent to level-III trauma centres, whereas services at independent trauma centres were of level-IV.

The study revealed that there were no neurosurgeons in the trauma centres, while only 25% trauma centers had anesthetists. Only 17% of the DHQ hospitals and 63% of the teaching hospitals had neurosurgeons. Only 17% DHQ hospitals had the CT scan facility. Due to such shortages, there were frequent referrals to the higher level health facilities. In addition to the budgetary constraints, the independent trauma centres at Phool-nagar, Bhakkar, Layyah, Bahawalpur and Shuja abad had no specialized trauma team. Only 60% of the independent trauma centres had access to blood bank services. Only 25% of trauma centers were providing acute surgical care.

The study concluded that establishing new trauma centres was not a viable option, till the shortages in the existing facilities were met. It was emphasized that management of trauma patients requires a multidisciplinary approach, and specialized trauma care teams. It was recommended that formal education and specialized training in trauma care be introduced, and be made mandatory for personnel involved; PM&DC may introduce special courses of trauma care, and regular capacity building sessions be arranged for trauma care service providers, and be made essential for dealing with emergencies. The study also recommended to develop and update trauma protocols, regular trauma team training sessions.

The study concluded that if at all the trauma centres were to be established, these must be done in the existing DHQ Hospitals, which are more accessible for road accident victims, and where basic infrastructure and backup support is already available. The study also recommended to lay emphasis on proper stabilization of the road accident cases at nearest level 4 trauma facilities located around the main roads in Punjab, before referral for definitive management.

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<sup>8</sup> Need Assessment of Trauma Centres in Punjab, 2018 by Punjab Economic Research Institute (PERI)

**Level 1**

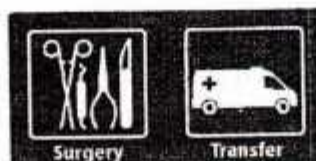
Level 1 facilities provide the highest level of trauma care for patients. These facilities have a full range of all types of specialists and equipment available 24 hours a day. These facilities also offer teaching and research-components.

**Level II**

Level II facilities provide the same services as Level I facility without the research component or a surgical residency programme. Level II facilities may not have specialist on-hand 24/7, but they have them on call.

**LEVEL III**

Level III facilities do not have the full availability of specialists as Level I & Level II centres do, but they do have resources for emergency surgery and intensive care. In some cases, the facility might have to transfer patients.

**Level IV**

Level IV facilities provide initial evaluation, stabilization and diagnostic capability but will likely have to transfer the patient to a trauma care centre with a higher designation.



Fig-1: Levels of Emergency Facilities <sup>9</sup>

<sup>9</sup> Need Assessment of Trauma Centres in Punjab, 2018 P: 24



## PHC Regulatory Framework: Minimum Service Delivery Standards

The Punjab Healthcare Commission (PHC), established through promulgation of the Punjab Healthcare Commission Act, 2010 framed the first Minimum Service Delivery Standards (MSDS) for hospitals in 2012. Based on a comprehensive, internationally accepted framework, the MSDS encompass all aspects of service delivery and focus on inculcating a culture of Clinical Governance, integral to the healthcare systems based on the principles of responsibility and accountability. While standards are broadly categorized as pertaining to 'clinical care' or 'operational management', the procedures and practices prescribed within are interdependent and when implemented together, they deliver a patient centered system of care that prevents avoidable errors and protect the patients from harm.

The MSDS prescribed by the PHC lay due emphasis on provision of emergency services in accordance with law, with the objective to ensure patient safety and better treatment outcome. The Standard 3, under the functional area titled 'Care of Patients (COP)', require the healthcare establishments (HCEs) to develop Policies, Procedures and SOPs for provision of the Emergency Services. The standards further require to ensure that services are guided by and provided in accordance with Policies, Procedures, SOPs, the Applicable law and Regulations. As such, the hospitals need to have an Emergency Care Policy and plan, covering all the aspects including, the administration of the emergency area, triage, waiting times, admission/registration, legal reporting requirements, discharge and patient transfer etc.

The guidelines provided in the Reference Manual<sup>10</sup>, explain further the standards that require the HCEs to have well thought out and documented policies and procedures for emergency care, in line with statutory requirements. These policies and procedures, developed in the light of applicable laws, shall guide and encourage patient safety as the overall principle for providing healthcare services to patients.

These policy documents should include SOPs/Protocols to provide both, general emergency care as well as management of specific conditions, e.g. myocardial infarction, acute abdomen, poisoning etc. and shall address both adult and pediatric patients. The procedure shall incorporate at least identification of patients, assessment and provision of care. The HCE policy should spell out and ensure availability of all the necessary equipment in the Emergency Department (ED) in working order and functional round the clock (24/7) without interruption of its services and in accordance with the international standards.

As per the reference manual, the Emergency Department should be appropriately staffed and must have one to two Emergency Medical Officers (EMOs)/ CMOs depending upon the patient load of the HCE in each shift of 8-1/2 hours, with a half hour overlap of duties for handing/taking over of charge. Instead of night duty of 12 hours i.e. from 8PM to 8AM, a uniform duty of 8-1/2 hour must be enforced. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and Surgery/Allied specialties and preferably training in advance basic life support (ABLS), advance trauma life support (ATLS) and advance cardiac life support (ACLS) for the appointment of CMO/EMO.

As per the guidelines provided in the Reference Manual with the MSDS for hospitals, the Hospital should make policies i.e. SOPs/SMPs, on at least the following topics:

<sup>10</sup> Minimum Service Delivery Standards Reference Manual, 2013

1. Triage	2. Admission of patient for definitive care
3. Patient assessment and care	4. Return of admitted patients to the Emergency Department
5. Emergency Department design	6. Length of stay in the Emergency Department beyond 8 hours (as prescribed)
7. Initial screening exam	8. Injury prevention of unconscious, confused or irritable patients
9. Staffing of emergency services	10. Social works services consultation
11. Emergency medical services (EMS)	12. Release of information to media
13. Continuing education	14. Poisonings / Pesticide poisoning
15. Disaster plan	16. Patient discharge
17. Medications	18. Infection control
19. Equipment and supplies	20. Blood borne pathogen exposure in patients presenting to the Emergency Department
21. Electrical safety and Power failure	22. Visitors/ attendants
23. Fire plan	24. Medical records
25. Security/traffic control	26. Elective sedation and analgesia
27. Inter-hospital transfers	28. Patients pronounced dead in the Emergency Department
29. Laboratory down time procedure	30. Tetanus prophylaxis
31. Consent	32. Rabies prophylaxis
33. Confidentiality of patient information	34. Major adult trauma
35. Shock-trauma area	36. Major paediatric trauma
37. Patients' belongings and valuables	38. Adult Medical Resuscitations
39. Standing orders	40. Paediatric Medical Resuscitations
41. Integration of diagnostic radiology with Emergency Department	42. Paediatric Medication Administration
43. Integration of operating room with Emergency Department	44. Emergency Department Control Register (ED log)
45. Integration of special care units with Emergency Department	46. Quality Control
47. Reporting of criminal injury/ medico legal cases	48. Follow-Up programme - Call Back
49. Invasive procedures	50. Patient Follow-Up procedure
51. General anaesthesia	52. Continuous Quality Improvement (CQI)
53. Special procedures	54. Admission of patient for definitive care
55. Patient transport for radiological procedures	56. Return of admitted patients to the Emergency Department

As per the Indicator 16 provided under the above said standard, the hospital policy shall be in line with legal requirements with reference to documentation and intimation to the police. Medico Legal Cases/ Medico Legal Reports (MLC/MLR) will be defined by the HCE in the light of the statutory rules. MLC/MLR must be handled by the medical officers of the Forensic Department where it is available, as in teaching hospitals; vis-a-vis where a Forensic Department is not available then CMOs must be



given capacity building training. Female victims of medico-legal cases must be dealt by female doctors. If not available in the Emergency Department, then a female doctor from the Gynaecology Department must be appointed in the emergency department, with her name and telephone number noted. An approved Government Policy/Procedure is to be followed while handling and reporting Medico Legal Cases. Details are provided in the SOPs<sup>11</sup> developed by the Project Management Unit, Primary & Secondary Healthcare Department, Government of the Punjab.

The Indicator 17 would require that the hospital staff receives awareness and training regarding the emergency policies and procedures. Similarly, Indicator 18 requires that the hospital policies and procedures guide the triage of patients for initiation of appropriate care. The Guidelines provided by the Punjab Healthcare Commission with the above said standards provide that for efficient management of patient workload, the following points need to be spelled out by the administration in consultation with Head of the Emergency Department:

- i. Criteria for identification of "non-emergency cases" presenting to the ED and requiring little or no clinical care and not needing assessment by a consultant at the ED. The criteria should enlist inclusions and exclusions and specified timelines for management
- ii. A policy/procedure to sort and manage non-emergency patients
- iii. Assessment criteria should include evaluation of vital signs, age, mobility and absence of co-morbidities
- iv. Ensure that SOPs regarding Triage and Treatment are well defined and understood by all staff
- v. The SOPs should include management protocols for each category of patient viz. cardiac, road traffic accident and poisoning etc.
- vi. Ensure clearly defined Roles and Responsibilities.

The Reference Manual provided with the MSDS for hospitals further explains that the patients are **TRIAGED** on the **Basis of the Urgency** with which they need medical attention. The Triage Nurse allocates a **Triage Category** to a patient based on the statement and/or the condition of the patient as evaluated by the Emergency Medical Officer. The guidelines under indicator 19 and 20 also elaborate that the hospital staff is made aware of, and trained on providing emergency care, while all admissions and discharge / referrals are documented.

<sup>11</sup> Section 14, 37, 38 & 42 of the A&E Department SOPs, 2019

## ALGORITHM OF ACTIVITIES IN ACCIDENT AND EMERGENCY

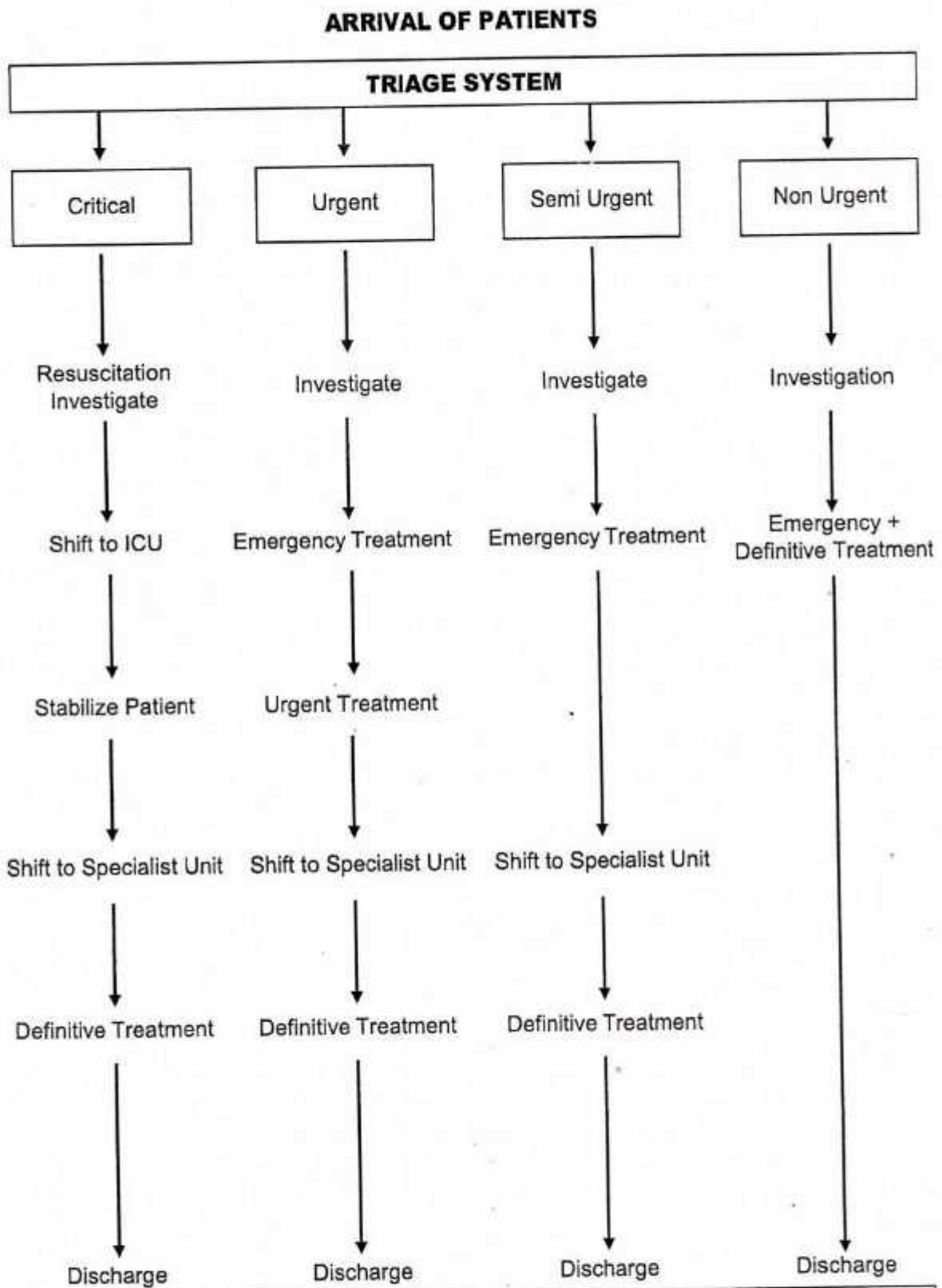


Fig-2: Algorithm of Activities in A&E Deptt: how does Triage System work?



## State of Emergency Departments in Pakistan

Health systems in all countries evolve within the prevailing social norms, cultural value system, and sustain within the bounds of economic

and social development. While it is an established norm that the healthcare services in private sector are only accessible to those who can afford to pay, emergency services in public sector hospitals are considered to be free to all, and accessible to every walk-in customer, and must be attended at the earliest without regard to the number of medics available on duty, number and seriousness of patients already in the emergency, and available bed-strength.

In our public sector teaching and tertiary care hospitals, emergency departments are purpose built facilities, where full time medical, nursing and allied staff is appointed in shifts, to attend the emergencies. The specialist services like surgery, medicine, obstetrics, pediatrics, neurosurgery, orthopedics, are provided by the visiting / consulting staff on rotation basis, usually through pre-determined rosters as to which unit will be on emergency duty on a specific week-day. Dedicated pharmacy, blood bank, radiology and Lab services for emergency cases are available round the clock in such hospitals. In smaller private and public sector (first referral or secondary referral) hospitals, usually there is one medical officer on emergency duty with paramedical staff, during off hours on shift basis. However, there are many concerns regarding quality of care in the emergency departments.

Results of a multicenter large scale emergency room surveillance<sup>12</sup> of trauma cases entertained in the year 2010-11 in seven tertiary care hospitals of Pakistan are depicted in Table 1 here. The study results reveal that most patients (70.7%) were not triaged. Only 23.1% had any vital sign noted; while 50% of patients had some form of physical examination performed. All the hospitals included in the study had formal emergency departments operational 24 hours a day, with heavy patient load exceeding 75,000 patients annually, and a daily patient to physician ratio of over 25:1. These hospitals included two private and five public sector tertiary care hospitals.

According to the statistics provided in 2019<sup>13</sup> the number of emergency cases entertained by the 18 public sector teaching hospital of Punjab rose from 8,449,334 patients attended in 2015 to 11,043,824

**Table 1: Presenting characteristics and emergency Services of patients in the Pakistan National Emergency Department Surveillance Study.**

Characteristics	N (%)
<b>Sex (n % 66,961)</b>	
Male	47,070 (70.3)
Female	19,891 (29.7)
<b>Age (n % 64,951)</b>	
0-9 years	4308 (6.6)
10-19 years	12,472 (19.2)
20-29 years	21,342 (32.9)
30-39 years	11,891 (18.3)
40-49 years	8585 (13.2)
50-59 years	3813 (5.9)
60+ years	2540 (3.9)
<b>Hospital (n % 68,390)</b>	
Lady Reading, Peshawar (public hospital)	23,567 (34.5)
Benazir Bhutto, Rawalpindi (public hospital)	14,538 (21.3)
Shifa, Islamabad (private hospital)	2540 (3.7)
Mayo, Lahore (public hospital)	8186 (12.0)
Sandeman Provincial, Quetta (public hospital)	5015 (7.3)
Jinnah Medical Center, Karachi (public hospital)	12,820 (18.7)
Age Khan, Karachi (private hospital)	1724 (2.5)
<b>Mode of arrival to the ED (n % 64,686)</b>	
On foot	27,292 (42.2)
Public or private transport	32,061 (49.6)
Ambulance	5333 (8.2)
<b>Features of the index visit (n % 62,434)</b>	
First visit to ED for this incident	60,194 (96.4)
Follow-up 2240 (3.6)	
<b>Received any treatment for index injury in last 72 h (n % 64,466)</b>	
No	59,882 (92.9)
Yes	4584 (7.1)
<b>Discharged from any hospital in last 7 days (n % 59,957)</b>	
No	58,401 (97.4)
Yes	1556 (2.6)
<b>Number of ED visits for any reason in last 1 year excluding Index visit (n % 48,022)</b>	
0 visits	27,918 (58.1)
One visit	13,875 (28.9)
Two or more visits	6229 (13.0)
<b>Services received</b>	
<b>Triage (n % 59,302)</b>	
Done	10,920 (16.0)
Not done	48,382 (70.7)
<b>Vitals noted (n % 15,789)<sup>b</sup></b>	
Blood pressure (at least systolic or diastolic)	11,632 (17.0)
Pulse	9055 (13.2)
Temperature	8802 (12.9)
Respiratory rate	7091 (10.4)
Glasgow Coma Scale (GCS)	1287 (1.9)
Physical examination performed	57,231 (83.7)
Imaging performed (X-ray, CT, other)	34,225 (50.0)
Laboratory investigation performed	4989 (7.3)
<b>Outcome of the ED visit (n % 55,520)</b>	
Discharged	26,020 (38.0)
Outpatient follow-up	17,202 (25.1)
Detained for observation/admitted	9443 (13.8)
Referred to other facility	1978 (2.9)
Expired	679 (1.0)
Left ED	198 (0.2)

CT, computed tomography; ED, emergency department.

a. For 'Service received' and 'Outcome of ED visit'

characteristics,

percentages were calculated using total sample size (68,390) as denominator, while all other percentages used available sample size for each characteristic as denominator.

b. One patient could have more than one vital sign recorded

<sup>12</sup> Hyder A.A., He. S., & Zafar W. et al "The Royal Society of Public Health" 2017

<sup>13</sup> Annual Report 2019, District Health Information System, DGHS Punjab.



patients in the year 2019. The DHQ hospitals in Punjab attended 6,556,530 emergency cases in 2019 while the THQ hospitals managed 7,741,555 emergency cases in year 2019. Bed occupancy in teaching hospitals of Punjab remained 94%, and in the DHQ hospitals 91% during 2019. Given this amount of workload, it is no wonder that parameters for quality of care would have suffered.

A number of pilot studies conducted in local hospitals have documented introduction of triage system, e.g., implementation of South African Triage Scale in the Emergency Department of Fatima Memorial Hospital Lahore in 2017<sup>14</sup>; establishing triage desk in AKUH-ED in year 2000<sup>15</sup>; implementation of a triage score system in an emergency room in Timergara, Pakistan in June, 2011<sup>16</sup> have demonstrated an improvement in safe disposal of patients and better patient satisfaction. However, need for making adequate provisions of staff trained in emergency procedures has also been established.

Mr. R. Rehmani from the Aga Khan University Karachi<sup>17</sup> in his Editorial published in the Journal of Pakistan Medical Association in May 2004, highlighted the need to initiate residency training programs in emergency medicine. The College of Physicians and Surgeons Pakistan approved FCPS training programme in Emergency Medicine in 2010. The program started at Aga Khan University Hospital Karachi and Shifa International Hospital. Presently, 13 institutions in Pakistan have been approved by the College of Physicians and Surgeons Pakistan (CPSP) for such training. However, public sector institutions in Punjab are lagging behind in taking up emergency medicine fellowship training programme. Lately, one year Certification Programme in Emergency Medicine (CPEM) was also started by Indus Hospital in 2018<sup>18</sup>, in collaboration with Brigham & Women Hospital (a teaching affiliate of Harvard Medical School Boston).

Taking an account of what is the current status of emergency care in hospitals of Punjab compared to the working of hospital emergency departments in Australia, Dr. Naveed Aziz (a Pakistani doctor settled in Australia)<sup>19</sup> stated that an emergency department cannot work successfully without the whole hospital behind it supporting its performance and backing it up. While declaring the current hospital emergency departments' model operational in Pakistan as an obsolete version fraught with danger, as young doctors are put in emergency with no formal training or supervision in managing emergency, resulting in low level of care.

Dr. Naveed stated that in the first hour "the golden hour" you need senior and experienced clinicians who can manage critical emergencies in an organized and methodical manner. He concluded that the emergency departments should be managed by doctors trained in emergency medicine who should provide leadership and ownership of the department. Dr. Naveed also recommended to inculcate triage practice, based on urgency (and not essentially on severity of disease); and advised to implement the triage practice fairly, with an attempt to distribute available resources equally and equitably. Dr. Naveed suggested to organize hospital emergency departments with these major functional sub-divisions internally:

<sup>14</sup> Muhammad L.A. et al PJMHS Vol.12, No.4 Oct-Dec 2018

<sup>15</sup> Munawar K et al J Ayub Med Coll Abbottabad 2015; 27(3)

<sup>16</sup> M.K. Dalwai et al PHA 2013, 3(1) 43-45

<sup>17</sup> R. Rehmani JMPA Vol.54., No.5 May 2004

<sup>18</sup> Syed G Saleem et al, West J Emerg Med 2020 Mar 21(2)

<sup>19</sup> Email by Dr. Naveed Aziz dated 28<sup>th</sup> Feb, 2022

<b>Reception</b>
Easy access, close to public transport, and adequately sign posted
<b>Triage</b>
Triage should be done by specially trained nurses
<b>Resuscitation Rooms</b>
With 2-3 beds with oxygen ports, suction outlets, airway/breathing and circulation resuscitation equipment; Nursing ratio 1:1
<b>Acute beds</b>
With monitoring equipment Nursing ratio 1:3
<b>Sub-acute beds</b>
Intermittent monitoring (to assess deterioration or escalation periodically) Nursing ratio 1:5
<b>Consultation Rooms</b>
<b>Procedure Rooms</b>
<ul style="list-style-type: none"> <li>— Suturing</li> <li>— Plaster application</li> <li>— Procedures under Minor anesthesia</li> </ul>
<b>Allied Facilities</b> like staff room, conference / education room, offices for Nursing, medical and admin staff, distressed relatives room, security, stores and toilets

## LEVELS OF CARE - INJURED/EMERGENCY PATIENT

Following are the progressive stages of care for the patients falling in an emergency situation. Preparedness and ability of those in attendance to respond appropriately can greatly reduce the extent of damage that is possible as a final outcome of trauma or emergency situation.

- a) Pre-hospital care
  1. Detection/Notification/Announcement
  2. Early intervention
  3. Transportation
- b) Hospital care
  1. Emergency care
  2. Critical care
  3. Definitive Treatment



### c) Rehabilitation

Countries and communities where the populations have developed good understanding and foresight into possible causes and events leading to the emergency situation, and have developed understanding amongst the people to identify the early signs, and to act smartly towards seeking help; and have social structures capable of being helpful (e.g., calling 15 or 1122 for ambulance service, rescue service, fire service, civil defence, etc.) can minimize the risks of fatality or help to reduce morbidity. Equally important is education and capacity building of volunteers and general public about "what to do" in an emergency scenario, before the medics can take over the care of patient.

Availability of good emergency services in hospitals is a cost and resource intensive activity and it takes years of sustained input and efforts to develop high tech and efficient surgical or medical teams and systems to meet the challenge. The medical doctors, nurses and allied health professionals, all need to be trained on life saving skills, and use of technology in time, to be effective.

Finally, once the emergency situation is over, the victim may very often need rehabilitation services to become fully functional. Such services are obligatory to the institutional care of serious trauma patients like spine injuries, head injury, burns, stroke, etc. Even though such services fall outside the scope of emergency services, these services, coupled with social support networks, are extremely important to harvest maximum benefit from the life-saving efforts of emergency services.

Public Policy owners, therefore have the responsibility to design and build the whole systems in a way that is comprehensive, and is able to deliver best possible outcome while working in work in tandem and harmony to achieve 'health' status for the population. In this regard, importance of life saving measures to be undertaken during first hour after trauma or injury cannot be over emphasized.

## Golden Hour Management

Golden Hour is the critical period of one hour after an injury, accident or trauma, as the mortality would considerably increase if efficient care was not provided within sixty minutes after the trauma<sup>20</sup>. Trauma in many countries is the leading cause of death during the first four decades of life<sup>21</sup>. In cases where death occurs within seconds to minutes due to laceration of brain stem, heart or large vessels, it is difficult to save such lives.

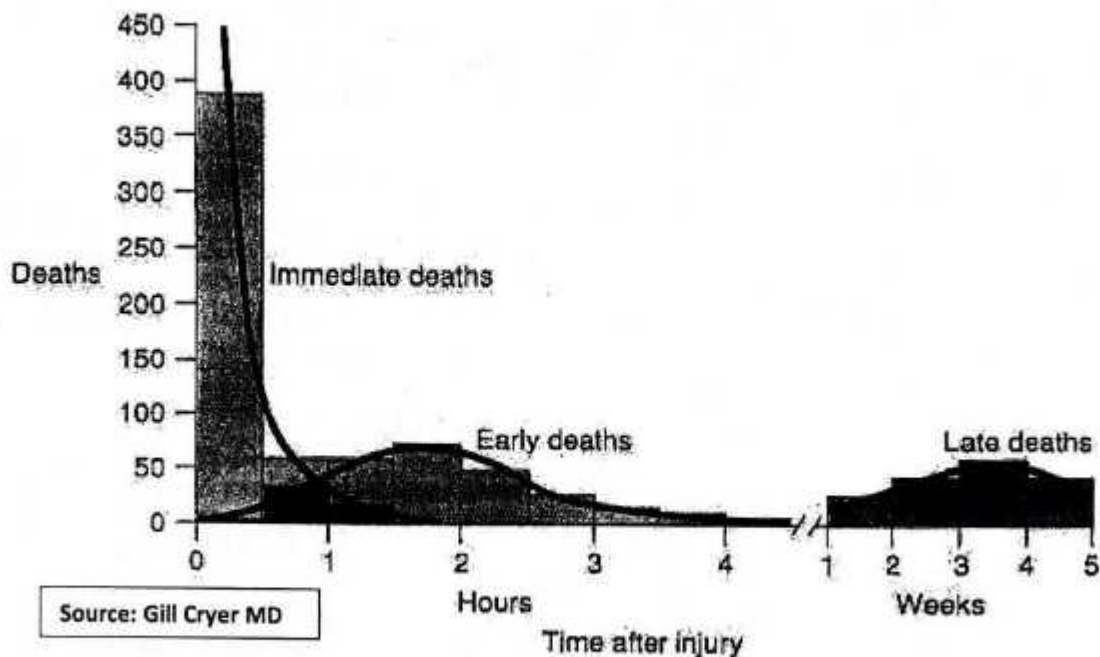
In the second common mode, death may occur within minutes to hours later, as a result of diverse injuries like haemo-pneumothorax, rupture of spleen, subdural hematoma or long bone fractures leading to massive blood loss. Here an aggressive and appropriate timely management can save many lives. The concept of Golden Hour has come out of this scenario.

<sup>20</sup> Adonis N et al, 2020

<sup>21</sup> Kundavaram P. A & A. Sivanandan, 2020



Tri-modal Distribution of Death from Trauma



The concept of Golden Hour lays emphasis on time, promptness and provision of life saving services at the earliest, during the first hour of injury or trauma. This is only possible if well trained medics and paramedics are available on call, 24 hours a day at various locations in the urban locations. The system would require availability of well-equipped ambulances with necessary logistics and staff deployed throughout the year. The quality of emergency care during golden hour would also depend upon the stringent training protocols and drills. In this regard, availability of 1122 rescue service in Punjab is a substantial input towards saving lives during golden hour.

Third common mode of deaths would occur days or weeks after the initial injury and would be most commonly the result of sepsis, or multiple organ failure. Such deaths may sometimes be inevitable due to subsequent complications of trauma, poor definitive or follow up or as a result of pre-existing medical conditions predisposing to poor survival. The very basic principles in early management of trauma are as under:

- i). treat the greatest threat to the life first;
- ii). lack of a definitive diagnosis should never stop from starting an indicated treatment;
- iii). a detailed history is not a pre-requisite to begin the evaluation of an acutely injured patient

Following are the order of priority for management of trauma in the Golden Hour:

- A: Airway
- B: Breathing
- C: Circulation

The primary assessment of the trauma patient is undertaken in a sequential manner to identify life and limb-threatening injuries. The primary assessment and resuscitation is often undertaken together, in the following manner:




- Assess patency of airway first; clear speech in a conscious patient is a good indicator
- Noisy breathing is an indication of airway obstruction – suction of mouth with a chin lift or jaw thrust maneuver will prevent the airway from obstruction in most cases

- Oro-pharyngeal airway will be helpful to maintain airway in in comatose patient
- Endotracheal intubation may be considered in severe cases (for expert hands only)
- In patients where endotracheal intubation is not possible, surgical airway may have to be established without delay, in case such patients appear to have lost airway protective reflexes and have risk of gastric aspiration
- Measures to establish airway should also include protection of the cervical spine
- In a case with altered level of consciousness having blunt injury above the clavicle, or a patient with multisystem trauma, always assume that the patient has a cervical spine injury
- Undertake manual in-line stabilization of the neck ( by an assistant) in such cases to prevent un-intentional movement of the cervical spine during oro-tracheal intubation
- Once the airway is established, oxygen may be administered; followed by inspection, palpation, and auscultation of the patient's chest
- No chest wall movement with abdominal breathing may indicate a cervical cord lesion
- Observe for chest excursions and symmetry of breathing: paradoxical chest wall motion may indicate the presence of a flail chest injury
- Massive hemothorax, tension pneumothorax and open pneumothorax need to be treated immediately (consider needle thoracotomy as emergency measure)

Once the airway has been taken care of, assess pulse, blood pressure and neurological status

- Rapid and thread pulse is early sign of hypovolemia
- A restless or an unusually cooperative patient is usually because of decreased cerebral perfusion
- Immediately secure IV line with two large bore branula for infusing fluids rapidly in case it is needed.
- Apply pressure to obvious external bleed
- In case of hypotension, bolus of one to two one liter of Ringers Lactate may be life-saving.
- In case the hypotension persists, look for a continuing bleed – Hemorrhage must be controlled before proceeding with rest of the primary assessment
- Be cautious; Raising blood pressure to normal in the presence of an ongoing bleed may cause more damage

A rapid neurological evaluation should be performed during primary assessment; Glasgow Coma Scale (GCS) can help to assess consciousness level

GLASGOW COMA SCALE	
<b>EYE OPENING RESPONSE</b> 	Spontaneous — 4 To sound — 3 To pressure — 2 None — 1
<b>VERBAL RESPONSE</b> 	Orientated — 5 Confused — 4 Words — 3 Sounds — 2 None — 1
<b>MOTOR RESPONSE</b> 	Obey commands — 6 Localising — 5 Normal flexion — 4 Abnormal flexion — 3 Extension — 2 None — 1
GLASGOW COMA SCALE	

Mild  
13-15

Moderate  
9-12

Severe  
3-8

MEDICAL TESTS #1 EMT & PARAMEDIC EXAM PREP

- Complete disrobing of the patient is mandatory of occult injuries are to be identified; undergarments may be retained after the physical examination, if there is socio-cultural sensitivity
- Examination of the external genitalia and rectal examination is part of the secondary assessment

Resuscitation should follow the ABC pattern of primary assessment, and should be performed simultaneously.

- if the airway is compromised, primary assessment should be suspended till the airway is secured
- Compromised breathing may require decompression if there is a tension pneumothorax, or a massive hemothorax.
- Endotracheal intubation and mechanical ventilation may be required if not breathing adequately
- During resuscitation of circulation, if there is indication of blood loss, blood sample for cross-match, serum electrolytes and hemoglobin assessment may be needed.
- ECG monitoring is essential for all trauma patients, so that volume loss (indicated by increasing heart rate) and arrhythmias (due to blunt injury to the chest) can be identified



Calculation of the areas should take into account the space required for departmental corridors, Plant rooms, fire hose reels, Fire stairs, Lift shafts, Service Cupboards and ramps. The location of parking areas require proximity to staff, patients and other users, location of main waiting area. For private and emergency vehicles, the car park or drop off areas should be in accordance with the local building authority guidelines. For ambulances, designated ambulance drop-off and parking is essential.

An electronic **Emergency Information system** may be installed to support clinical management, patient tracking and departmental administration. Sufficient number of terminals, peripheral devices, keyboards, drives and printers should be provided to support functioning of the emergency departments. An intercom and public address system that can reach all areas of the emergency department would be greatly helpful. All patient spaces and clinical areas including beds, patients toilets and bathrooms, treatment areas and lounges should have access to the emergency call facility, so that help can be called through a central module situated adjacent to the staff station.

The following IT/ Communications systems shall be provided within the Emergency Department:

- a. Voice and data points for telephones and computers/ internet
- b. Data provision for electronic medical records and patient management systems as required
- c. Access to a Picture Archival Communications System (PACS) in clinical areas
- d. Queue management system.
- e. Nurse and emergency call systems should be installed in all clinical areas including patient lounge areas and patient toilets to assist staff and patients
- f. A duress alarm system should be designed into Reception, Interview rooms and Cashier positions.

Entry points, doors and openings to the Admission and Discharge area should be a minimum of 1200 mm wide, unobstructed, and doors used for bed transfers should be a minimum of 1400mm wide, unobstructed<sup>23</sup>. Doors must provide acoustic privacy, and door openings must allow risk free passage of patients, staff and maneuvering space for equipment, wheelchairs and trolleys where necessary.

The Emergency Department should be at ground floor for ease of access, and accessible by **two separate entrances**; one for ambulance patients and the other for ambulant patients<sup>24</sup>. Each entrance area should have a separate foyer that can be sealed remotely by activating the security doors, and both entrances should direct the patient flow to the reception / triage area. It is recommended that a decontamination area is provided near the ambulance bay, and provided with shower hose spray, and floor drain.

**The Entrance** to the Emergency Department must be at grade-level (same ground level), well-marked, illuminated and covered. A ramp should be provided for pedestrian and wheelchair access. At the Emergency Entrance, waiting area should provide sufficient space for waiting patients as well as relatives, and have adequate seating capacity. The area should be open and easily observed from triage and reception areas. Space should be allowed for wheelchairs, prams and walking aids. Children play area, television, health literature and access to drinking water is desirable. Fittings must not provide the opportunity for self-harm or harm to staff. Waiting area should have access to triage and reception, toilets, light refreshments, and telephone.

The **Triage** facility should be co-located with the reception desk and ambulance entry. In a smaller facility, the triage nurse may interview the patients, perform observations and provide first-aid in

<sup>23</sup> International Health Facility Guidelines, Part 2; Oct 2016

<sup>24</sup> International Health facility Guidelines, Version 5, 2017

relative privacy in the triage area (bed-bay or cubicle). Another senior nurse may manage the patients in the waiting area after triage, and awaiting treatment. After the triage and registration, patient may be transferred into a separate clinical area called "early treatment zone" where patients are to be managed for a short time before they are moved to the appropriate area (acute care or waiting-for-discharge area)

Some health facilities dedicate a separate "**fast-track or Urgent Primary care**" after the triage point, usually on the model of extended late hour GP service. Patients who are ambulant with non-complex conditions such as contagious diseases, minor injuries, and pediatric illnesses are mostly managed here. The facility includes a consultation / examination area, basic resuscitation, stabilization and minor procedures taken care by senior GPs and Registered Nurses. The patients who may need more specialized care are transferred to the main emergency department.

In larger tertiary care hospital settings patients may be managed in different areas according to the specialty of service they require, i.e., **grouping of patients by specialty**. The examples include separate bay for Chest pain paediatrics, obstetrics, or acute treatment with complex investigation and discharge pathway. Patients may be triaged from a central arrival point, or from separate ambulance entry points. Such a model would require separate staffing for each area, and separate workspaces for staff.

Another functional model provides **grouping by patient acuity** or urgency, where patients of similar intensity are treated in the same zone. Such facility may have separate areas for resuscitation, acute monitoring beds, acute non-monitoring beds and ambulatory treatment bays allocated separately. The facility may have separate entry points or triage points for different areas, with separate staff allocation. **Short stay wards / emergency medical unit or observation bays** may be incorporated into one emergency unit, thus allowing sharing of staff and support facilities.

A significant proportion of patients attending Emergency Departments can also be managed in general practice easily<sup>25</sup>. In England, policies require such patients attending the Emergency Departments to be directed or 'streamed' to General Practitioners working in or parallel to the Emergency Departments.

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<sup>25</sup> Anderson H et al, 2021



## Major Functional Areas in the Hospital Emergency

### A: ENTRANCE / RECEPTION / TRIAGE:

- Receiving of patients and visitors and administration
- Assessment for patients
- Designated area at the entrance for holding wheel-chairs and patient trolleys along with porters ready to receive the patient and shifting the patient to appropriate treatment area after triage

### B: PATIENT TREATMENT AREAS:

Assessment and treatment areas including Resuscitation, Acute Treatment bays/ rooms, Seclusion Room and Decontamination Facility, Paediatric patient areas, Procedure Rooms Short-Stay Ward/ Emergency Medicine Unit/ Observation Unit;

- Primary Care Area - for patients with low acuity conditions;
- Stepdown Area - for patients awaiting test results, considered safe, but requiring observation prior to admission or discharge.

### C: STAFF AND SUPPORT AREAS

- Clean and Dirty Utility Rooms
- Store rooms
- Linen
- Waste Holding/ Cleaners rooms
- Staff amenities, administrative and teaching functions;
- Ambulance facilities.

The main aggregation of clinical staff will be at the Staff Station in the Acute Treatment/ Resuscitation Area. This should be the focus around which the other clinical areas are grouped. The Entrance/Reception Area is the focus of initial presentation.

### D: ADDITIONAL DESIGNATED AREAS

In addition to standard treatment areas, some departments may require additional, specifically designed areas to fulfil special roles, such as:

- Management of paediatric patients
- Management of major trauma patients
- Management of psychiatric patients
- Management of patients following sexual assault
- Extended observation and management of patients
- Undergraduate and postgraduate teaching
- Transport and retrieval services
- Tele-medical referral/ consultation service

### E. ENTRANCE AREA

The entrance to the Emergency Unit must be at grade-level, well-marked, illuminated, and covered. It shall provide direct access from public roads for ambulance and vehicle traffic, with the entrance and driveway clearly marked. A ramp shall be provided for pedestrian and wheelchair access. The entrance to the Emergency Unit shall be paved to allow discharge of patients from cars and ambulances. Temporary parking should be provided close to the entrance.



**F: WAITING AREA**

Waiting Area should provide space for patients in waiting, as well as relatives/ escorts. The area should be open and easily observed from the Triage and Reception areas. Seating should be comfortable and adequate. Space should be available for wheelchairs, prams, walking aids and for patients being assisted. There should be an area where children can play.

**G: SUPPORT FACILITIES**

Support facilities, such as a television should be available. Fittings must not provide the opportunity for self-harm or harm towards staff. Waiting Areas shall be negatively pressured.

From the Waiting Area there must be access to:

- Triage and Reception Areas
- Toilets; Baby Change Room
- Light refreshment facilities which may include automatic beverage dispensing machines
- Telephone and change machines; Health literature

It is desirable to have separate waiting areas particularly for children. Child play areas may also provide equipment suitable for safe play activities, including a television. It shall be separated for sound from the general Waiting Rooms and must be visible to the Triage Nurse. The area should be monitored to safeguard security and to ensure patient's wellbeing.

**H. RECEPTION / CLERICAL AREAS**

The Reception Area should accommodate for:

- Reception of patients and visitors
- Registration interviews of patients
- Collation of clinical records
- Printing of identification labels.

The counter should provide seating and be partitioned for privacy at the interview area. There should be direct communication with the Reception / Triage area and the Staff Station in the Acute Treatment / Observation Area. The Reception/Clerical Area should be designed with due consideration for the safety of staff. This area requires a duress alarm.

**I. RECEPTION / TRIAGE**

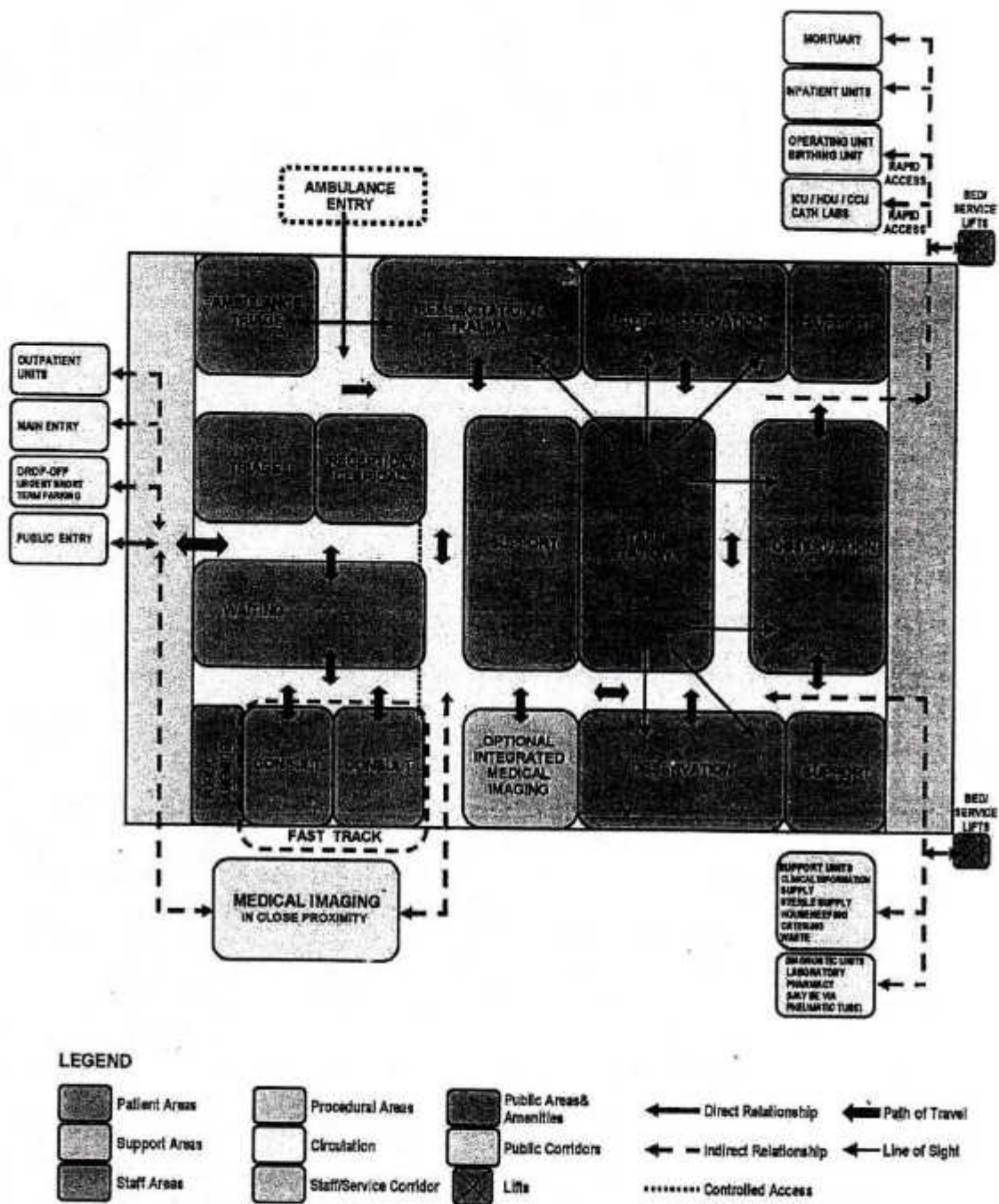
The Reception / Triage and Staff Station shall be located where staff can observe and control access to treatment areas, pedestrian and ambulance entrances, and public waiting areas. This area requires a duress alarm. The Emergency Unit should be accessible by **two separate entrances**: one for ambulance patients and the other for ambulant or walk-in patients. It is recommended that each entrance area contains a separate foyer that can be sealed by remotely activating the security doors. Access to Treatment Areas should also be restricted by the use of security doors. The Ambulance Entrance should be screened as much as possible for sight and sound from the ambulant patient entrance. Both entrances should direct patient flow towards the Reception/Triage Area.

The Reception / Triage area should have clear a vision to the Waiting Room, the children's play area (if provided) and the ambulance entrance. The Reception / Triage Area may perform observations and provide first aid in relative privacy.

**INTERNAL LINKAGES**

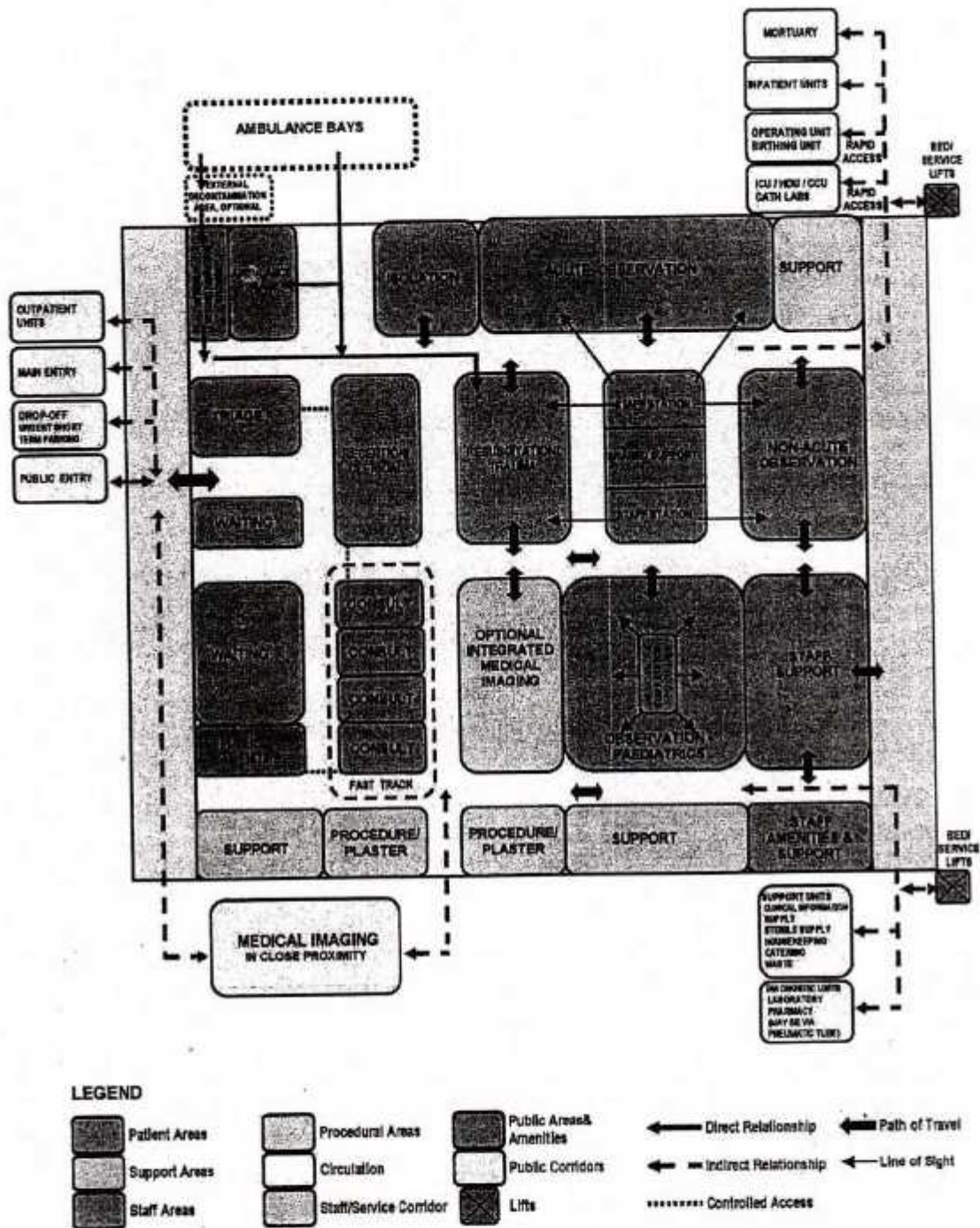
The Hospital Emergency Department would require ready access to the following key functional areas:

- Medical Imaging Unit
- Operating Unit - rapid access is highly desirable for surgical emergencies
- Coronary Care Unit
- Pathology / Blood Bank Unit
- Clinical Records Unit
- Inpatient Accommodation Unit
- Pharmacy Unit - proximity is required
- Outpatients (if an outpatient service is provided adjacent to the Emergency Unit)
- Mortuary



**Fig.1 Sample Outlay of Small Emergency Unit: minimum 5 to 10 treatment beds**





**Fig.2 Sample Outlay of medium size Emergency Unit: minimum 11 to 30 treatment beds**

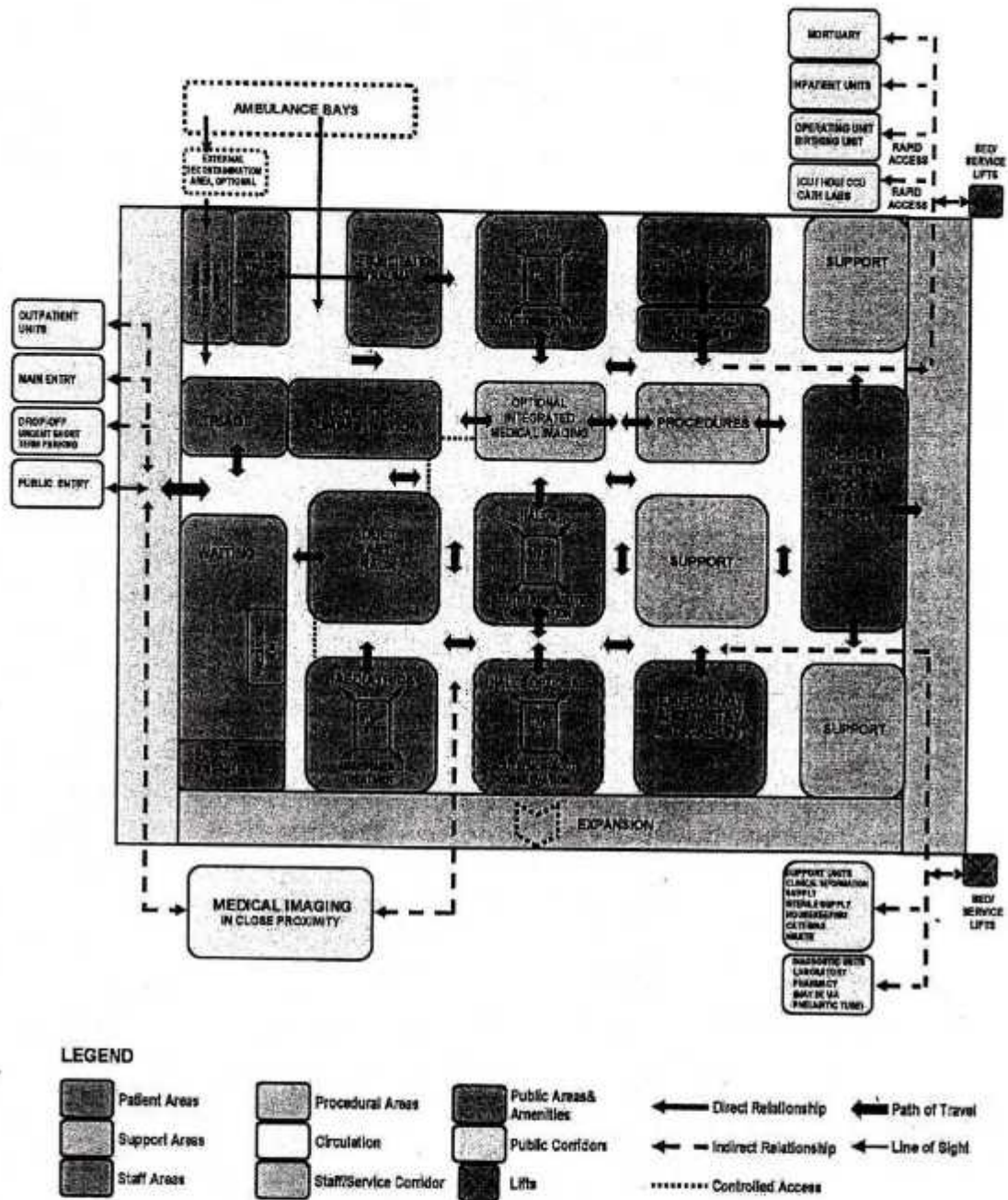


Fig.3 Sample Outlay of Large size Emergency Unit: minimum 31 or 100 or more treatment beds



There should be a **separate negatively pressured waiting area** for use by patients presenting with **suspected pandemic infections**. Otherwise, the emergency department should have appropriate air conditioning that allows control of temperature and humidity within each functional area. For the purpose of **Infection control**, hand-basins should be located in close proximity to each treatment bays and must be included in each enclosed bay or treatment room. All hand-basins in clinical areas should be of surgical type-A with hands free activation. Dispensers for non-sterile latex gloves should be available in the vicinity of each hand-basin and each treatment area.

The **resuscitation Room or bay** requires adequate space for resuscitation bed, enough to provide 360 degree access to all parts of the patient for un-interrupted procedures, and circulation space to allow movement of staff and equipment around the work area. The resuscitation area should care for maximum visual and auditory privacy for the occupants, other patients and relatives. This area should be close to ambulance entrance and separate from the patient circulation area, with easy access to the staff station of the acute treatment /observation area. The facility should include full range of **physiological monitoring** and resuscitation equipment. In case partitions are required from other areas, these should be solid. Each resuscitation bay should be equipped with physiological monitors with facility for ECG, Non-invasive blood pressure monitoring (NIBP), SpO<sub>2</sub> monitoring, temperature probe, CO<sub>2</sub> monitor, a procedure light, equipment to hang IV fluids and to attach infusion pumps. The resuscitation area should have a **resuscitation patient trolley**, and clinical scrub basin with paper towel and soap fittings. The imaging facilities should include overhead X-ray or mobile digital x-ray, X-ray screening (lead lining) of walls and partitions between beds, and patient resuscitation bed, with X-ray capability.

Once the patient has been triaged and resuscitated, he or she is moved to Acute or Non Acute Treatment Areas, depending upon the condition. **Acute Treatment Areas** are meant for management of acutely ill patients, whereas the patients who are not critical but require observation or investigation prior to discharge are managed in **non-acute treatment area**. Essential requirements are bed bays to fit a standard mobile bed, storage space for essential equipment and supplies to be used at the bed side, and space to allow for monitoring equipment.

Wall mounted **air/vacuum Suction points**, or **mobile Sucker machines**; and **Medical gases** may be provided within selected recliner/ bed bays as required by the facility's operational policy. **All treatment bays** in the hospital emergency department including triage are, would require the following facilities:

- Service panel with medical gases, power and data
- Examination light, focused with a power output of 30,000 lux to illuminate field size of at least 150 mm
- Wall mounted sphygmomanometer
- Waste bins and sharp containers
- Emergency call facilities (e.g., 15 or 1122)

The Acute and non-acute patient areas must provide the patient toilet / Ensuite facilities as under:

No. of beds / treatment bays	Number of Toilets / Ensuities
Up to eight treatment bays	two patient toilets / Ensuite facility for; one each for male and female patients
Between 9 and 20 treatment bays	Four patient toilets / Ensuities (2 male, 2 for female)
Between 21 to 40 treatment bays	Six patient toilets (three each for male / female)
More than 40 treatment bays	Eight patient toilets (four each for male/female)



At least two of the above toilets /Ensuites should be accessible to wheelchair; one for male and one for female.

Design and dimensions of **counters and workstations** should ensure privacy and security for patients, visitors and the staff. Same counter heights should be made for both patients/ visitors and staff to enhance communication and to minimize aggressive behaviour. Seating in the waiting areas should be provided at a range of heights to cater for the different mobility levels of patients. The following security issues shall be addressed when designing the Emergency Departments:

- a. Counters should be designed so as to enable unobstructed vision to waiting areas<sup>26</sup>
- b. Duress alarm and access to egress points must be provided at reception counters
- c. Waiting areas shall have no visibility to the staff and/or cashier area behind the counter
- d. Controlled after-hours access to prevent un-authorized entry and theft
- e. Provision of CCTV to monitor movement and behaviour within the Unit
- f. Provide training to staff on procedures to follow during an armed hold-up
- g. Design should maximize observation of waiting area by the staff

Colors should be chosen for **Internal finishes** of the emergency department, especially where patient observation is critical, in such a way that these do not alter the observers perception of skin color. Acoustic properties, durability, ease of cleaning, infection control, fire safety and ease of movement of equipment are key features in selection of materials. The floor finishers in patient care areas, and corridors should be non-slip, impermeable to water, and body fluids, durable, easy to clean and of such acoustic properties that reduce sound transmission, and help to absorb shock to optimize staff comfort, but facilitate bed movement. All wall surfaces that come into contact with mobile equipment or beds should be reinforced and protected with buffer rails. Windows should be durable and easy to clean, and may use double glazing with integral blinds, tinted glass, reflective glass, exterior overhangs or louvers to control the level of lighting.

The Hospital Emergency Departments receive a large number of patients and their relatives /visitor, many of whom may be distressed agitated, intoxicated or have tendency towards violence. The hospital management has a **duty of care to provide for the safety** and security of employees, patients and visitors. Hence, policies should be in place to minimize injury, psychological trauma and damage or loss to property after undertaking a detailed security risk assessment. The security office should preferably be located near the entrance, allowing clear view of the waiting room, triage and reception area, while allowing remote monitoring of other areas by CCTV and immediate response to staff duress alarm.

Height of the counter should be at 850 mm ( $\pm 20$  mm) to allow for standing interactions, and reduced to 720 mm if a seated position is required. Depth of the counter should not be more than 1400 mm. Usually the standard hospital bed (97 cm or 36 inch wide) is enough<sup>27</sup>. However, for patients having Body Mass Index of more than 45 kg/m<sup>2</sup> should be put on larger bariatric beds.

A minimum of 1400 mm clear opening is recommended for doors requiring bed/trolley access. Treatment bed area should be at least 2.4 meters of clear floor space between the centres of each bed and a minimum of 900 mm clear space at the sides and foot of each bed. Hospital corridors should allow the passage of two hospital beds without difficulty.

<sup>26</sup> International Health Facility Guidelines, May 2016

<sup>27</sup> Neal Wiggermann et al, 2017



The **Emergency Medical Ward** is typically a short stay facility. Patients requiring observation, diagnostic services, therapy or follow up that may take up to 24 hours. Mostly such patients would be discharged home or admitted to an in-patient unit, in case their condition does not allow them discharge to home.

A number of hospitals have separate areas or blocks allocated for pediatric emergencies, In case there is no such allocation, a separate zone with restricted access should be designated for pediatric assessment and treatment. Such unit should have beds/cot bays and chair bays for nebulizer therapy, and pediatric consultant rooms.

For patients coming up with mental health issues, or behavioral problems, the emergency department should have adequate facilities for reception, assessment, stabilization and initial treatment. Such facility would not be meant for prolonged observation of uncontrolled patients, but rather to provide a safe and appropriate space to interview and stabilize the patient. Environment of a busy medial emergency department may not be conducive to the care of patients with acute mental health crises, whereas such patients have the potential to disrupt the normal operations of the emergency department. The **acute mental health and behavioral assessment area** should be separate enough from adjacent patient care areas to allow privacy for the mental health patient and protection of other patients from potential disturbance or violence. Following are the recommended settings for such facility:

#### **Interview Room (Mental Health) with**

- Two exit doors, swinging outward and lockable from outside, to allow for the escape of staff members when one exit is blocked; one door should be large enough to allow a patient to be carried through it; consideration should be given to solid core doors with safety viewing glass
- Design that permits observation of the patient by staff outside the room at all times; this may be backed up with closed circuit television for the safety of staff
- Acoustic shielding from external noise
- Soft furnishings with no hard edges
- No patient access to air vents or hanging points
- Smoke detectors fitted
- Duress alarm at each exit.

#### **Treatment room (Mental Health) with the following features:**

- The room should be immediately adjacent to the Interview room and should contain adequate facilities for physical examination of the patient; however, the inclusion of unnecessary and easily dislodged equipment should be avoided; a lockable retractable door or panel to services is recommended.
- If operational policy dictates that intravenous sedation is to occur in this area, the room should include appropriate facilities and monitoring equipment, mounted out of reach of a potentially violent patient. The room should contain the minimum of additional fittings or hard furnishings that could be used to harm an uncontrolled patient. It should be of sufficient size to allow a restraint team of five people to surround a patient on a standard Emergency Unit bed and should be at least 14 m<sup>2</sup> in floor area.

Patient flow should be separated and a separate secure entrance for use by community emergency mental health team and police may be required. Patient should be under continuous observation directly or through CCTV, and assistance when required, should be readily available. The area should not have the objects that can be thrown at staff. The area should be free of heavy or breakable furniture, sharp or hard surfaces which could injure an uncontrolled patient, and should incorporate tamper resistant electrical fittings. There should be two separate exit doors opening outwards, and

should be lockable from outside. The window drapes or blinds should be operable from outside. All areas should have easy access to duress alarms.

Additional facilities in the Hospital Emergency Department may include **vital signs room** having weighing scale, stadiometer for height measurement, and vital signs monitoring equipment, **holding room** for the storage of bodies of the deceased patients.

In-house radiology facility and easy linkages with main radiology department of the hospital should exist, for detailed investigation where necessary.

The in-house facility of **blood bank** and provision of blood preparations, or an appropriate linkage with the main blood bank facility of the hospital should be available.

Similarly, **basic pathology** testing through an in-house lab facility, including point of care services, or a connected set up with the main hospital laboratory (through a shoot or duct) should be operational, ensuring safety of samples, time saving and efficiency.

### **Triage System**

Triage is a French word meaning to sort or to choose. Triage is therefore a process whereby each patient is prioritized amongst the randomly approaching patients in the Accident & Emergency Department/rescue area for emergency care. Sorting of patients into priority categories is often performed by an experienced doctor/surgeon or a senior health professional/nurse.

The triage nurse/health professional shall quickly assess the patient's condition, interpret the clinical features and then exercise interventions in the early phase to prevent deterioration and death. The objective of the triage is to defer a patient who can wait, while give priority to those who are in imminent danger, and whose life can be saved by a timely intervention.

### **How Does Triage Work**

The triage system is meant to be implemented in all Accident & Emergency Departments (A&EDs) so as to help and determine the relative priority of individual patient needs. Emergency patients are to be given immediate treatment, while those with non-acute symptoms may have to wait longer. Assessment process during the triage need to be balanced with the extent of patient flow, as expanding the assessment process during triage may slow down the patient flow and may lead to delay in emergency service provision<sup>28</sup>.

Upon arrival at the A & E department, the patients will first be assessed by a health professional like an experienced doctor/triage nurse, according to the severity and nature of their medical conditions, and priority will be given to urgent cases. The Patients are divided into four categories according to their medical condition.

- Critical
- Urgent
- Semi urge
- Non urgent

Critical patients, who are in life threatening condition, are accorded top priority and attended immediately by medical and nursing staff without delay. The non-urgent cases will be treated in the order of their arrival and should expect a longer waiting time.

<sup>28</sup> Ajani K., JPMA 2012



### Objectives of the Triage.

- Ensure early recognition and assessment of patient's condition and prioritize the treatment according to severity of the condition
- Reduce unnecessary delay of treatment
- Give brief first aid advice
- Initiate immediate diagnosis test intervention and nursing treatment
- Allow effective utilization of staff and resources by allocating patients to appropriate treatment according to their condition
- Improve patient staff relationship and departmental image through greeting and communication during process of triage
- Promote public relationship by immediate interview with patients
- Enable direct communication with pre-hospital care providers
- Provide staff training and decision making

In order to understand the proportion of resources a health facility can commit for the Emergency Department, capacity of the hospital in terms of the following parameters need to be understood.

**Hospital Treatment Capacity (HTC):** the number of casualties that can be treated in the hospital in an hour and is usually calculated as 3% of total number of beds.

**Hospital Surgical Capacity (HSC):** the number of seriously injured patients that can be operated upon within a 12 hour period, i.e.  $HSC = \text{Number of operation rooms} \times 7 \times 0.25 \text{ operations} / 12 \text{ hours}$ .

**Surge Capacity:** The ability of a health service to expand beyond normal capacity to meet increased demand for clinical care. It is an important factor of hospital disaster response and should be addressed early in planning process. Following factors are critical to augment surge capacity of a hospital:

- i. Total number of beds available
- ii. Human resource
- iii. Essential equipment, logistics and supplies
- iv. Adaptability of available facility space for critical care
- v. Estimating the increased demand on hospital resources
- vi. Options or available methods of expanding hospital inpatient capacity, considering available physical space, staff, supplies and processes
- vii. Designating areas for care in case of patient overflow, e.g. auditorium, lobby
- viii. Outsourcing the care of non-critical patients to appropriate alternative treatment facilities
- ix. Assigning home care for non-critical patients and chronic care facilities for long term patients
- x. Availability of vehicles for transportation of patients, contingency plan to transfer patients in case the traditional methods of transportation fail
- xi. Identify potential gaps and address the gaps, especially in critical care in coordination with hospital networks/neighborhoods
- xii. Identify additional sites for converting onto patient care units e.g. convalescent homes, hotels, schools, community centres, gyms, etc.
- xiii. Prioritize or cancel non-essential services e.g., elective surgery, adapt hospital admission and discharge criteria and prioritize clinical interventions according to available treatment capacity and demand

- xiv. Designate an area for use as a temporary morgue and ensure availability of adequate number of body bags, and formulate a contingency plan for post-mortem care with appropriate partners.

Emergency situation can be classified keeping in view, either the total number of similarly disposed patients received in the Emergency Department in a given time, or based on type of casualties being received.



## Triage: Concept and Application

Internationally, there are a number of triage concepts. Simple triage is used at accident scene where patients are sorted to identify those who need critical attention and immediate transport to the hospital. During this process, each patient is labelled with identity and triage tags if available, or with marker pen, with display of assessment findings, and assigned priority for medical treatment. Triage should be a continuous process, as successful initial management may help to re-categorize such patients to a lower priority in the short term. Hence, the priority or category once assigned, should be checked regularly/periodically to ensure that the priority remains correct, unless there is change in patient's condition.

In advanced triage, usually in case of mass scale disasters, like earthquakes, storms, terrorist attacks, bomb blasts etc., the specially trained doctors, nurses and paramedics may decide to defer advanced care for some very seriously injured people that are unlikely to survive. This ensures that scarce resources are not exhausted on patients having little chance of survival that can rather be preserved for others with higher likelihood to survive. Such patients having poor prognosis may be offered palliative care only, set aside the hopeless victims and avoid trying to save one life at the expense of several others.

In a real case scenario, it is acceptable to over-triage /over-estimating the severity of illness up to 50% and assigning higher priority for care rather than under-triage /under-estimating the urgency of care for patients that actually need immediate care as first priority which should not be more than 5%. Reverse triage is used to discharge a number of admitted patients who may not need immediate care in the wake of a major wave of new patients arriving in the hospital upon occurrence of a natural disaster, so as to make hospital beds available for new critical patients.

Secondary triage is done when the patients arrive at hospital emergency, by the emergency nurses or skilled paramedic. Based on the availability of immediate care, a person with amputation injury may be assigned "red" or immediate category as surgical re-attachment would only be possible if offered within minutes, while patient may not be at the risk of dying without a thumb or a hand.

### Ethical Dilemma in Triage

How the VIPs and celebrities should be cared for in the emergency department, is a big question. Giving special considerations or deviating from the standard medical protocol for VIPs or celebrities at the cost of suffering of others is unethical. However, it may be morally justifiable as long as their treatment does not hinder the needs of others after assessing overall fairness, quality of care, privacy, and other ethical implications. Keeping in view the ethical dilemma involved in the triage process, individuals involved in triage must take a comprehensive view of the process to ensure that values of fidelity, veracity, justice, autonomy, and beneficence are safeguarded.

It is advised for emergency departments to preemptively plan strategies so as to mitigate the emotional burden on the triage responders. However, while doing so, standards of care must be maintained and safety of both patients and providers be kept as the foremost consideration.

There are different Scoring Systems for assigning priority for treatment and /or evacuation of the injured / affected persons in a disaster situation, during rescue and subsequently in the hospitals, for the purpose of prioritizing them for providing medical care. Different countries and teaching / training institutions use different triage schemes and techniques. Country wise selected examples of Triage Scoring Systems internationally in vogue are summarized at Annex-IX:



Sarah R et al, 2014<sup>29</sup> have observed that the triage scales and the triage tools widely used in the developed countries were not applicable as such in the hospitals in developing countries having much lower number of nurses and doctors. The South African Triage Scale (SATS) was thus developed for such setting with the objective to have an accurate measure of urgency based on physiological parameters and clinical discriminators that can be easily adopted in the low resource settings. Experience with Nurse-led triage, apart from saving waiting time for patients in emergency, has shown high level of sensitivity and specificity in such settings.

Triage Early Warning Score (**TEWS**) helps to measure physiological aspects of triage on a scale of 0 to 3 based on temperature, heart rate, respiration and systolic blood pressure, while also taking into account conscious level, mobility and exposure to trauma. This scoring requires only a blood pressure cuff, a thermometer, and a scoring card for accurate and uniform assessment of both medical and trauma patients.

When patients arrive to the Emergency, the triage nurse interviews the patient to assess for presenting complaint, mobility and AVPU score (A = alert, V = responds to voice, P = responds to pain, U = unresponsive). Pulse rate, blood pressure, respiratory rate and temperature are measured and recorded. The Triage Early Warning Scale (**TEWS**) score is then matched to a **SATS** discriminator list, and an appropriate triage color is assigned. Further patient management is undertaken as per assigned priority based on such information.

In the international literature, two research articles have documented use of triage system in Pakistan. Firstly, the Aga Khan University Hospital Karachi has been reported to have implemented the concept of triage for the first time in year 2000 (Munawar K. et al, 2015)<sup>15</sup>, as there was no triage system in place at local or national level and patients are being catered on first come first basis. The Aga Khan University Hospital Karachi, a 550 bedded tertiary care private hospital, with nearly 48,000 patients visiting annually started with a single room emergency in 1983. The Emergency Department of the AKU now became a 51 bedded dedicated emergency facility with resuscitation area, adult critical care area, adult non critical care area, and a well designated 10 bedded pediatric care area.

Initially, the physicians and nurse both were assigned to triage desk for sorting out the patients according to presenting complaints, on a manual recording system, and in accordance with the locally developed triage priorities. The AKU experts' team observed that the triage protocols like Emergency Severity Index (**ESI**), Canadian Triage and Acuity Scale (**CTAS**), Australian Triage Scale (**ATS**) had limited applicability in developing countries. The AKU experts came up with four level priority (P1-life threatening, P2-Emergency, P3-Urgency and P4-stable walk-in) for triage.

In 2008 the triage system at AKU hospital was expanded and responsibility of triage was shifted to the nursing staff. Specific triage protocols were developed for guidance of the staff; and to ensure uniformity of care. The triage data was computerized by using a software platform. Thus it became possible to monitor the triage process by using quality care indicators like total number of patients triaged, triage category, lag time reports and 'left without being seen by physicians'.

The AKU Hospital triage data analysis also documented that around 12.73% "left without been seen" were those patient who upon arrival were triaged by the nurse, but while waiting to be taken inside emergency department and seen by physician for evaluation, they left. This Indicator is considered very important in modern emergency for measuring overcrowding and call for better management of patient flow. This data led the AKU Emergency Department to establish a dedicated Emergency Clinic

<sup>29</sup> Sarah R et al, AFJEM, 2014

in afternoon for follow up and for walk-stable category of patients when the flow of patients was at peak.

Subsequently, in June 2011, The South African Triage Scale (SATS) system was pilot tested in the Emergency Department of Timergara district headquarter hospital, lower Dir, Khyber Pakhtunkhwa province<sup>16</sup>. The emergency department of Timergara DHQ hospital consisted of 18 beds, with a monthly caseload of about 4,000 patients. The results concluded with 86% triage forms filled without error, and in 3% cases the patients were under triaged, and in 1% cases the patients were over triaged. The study concluded that the SATS can be implemented successfully and used accurately by the nurses in the Emergency Departments in Pakistan.

The adopted version of the South African Triage Scale (SATS), has been described in the subsequent sections in detail.

Lately, in Brazil Portugal and many other European countries, the Manchester Triage System (MTS) has been wide disseminated<sup>30</sup>. The MTS establishes five categories or clinical priorities for the purpose of risk stratification, depicted as under:

Sr. No.	Color code	Level of urgency	Max waiting time
1	Red	Emergent	Immediate service
2	Orange	Very urgent	10 minutes
3	Yellow	Urgent	60 minutes
4	Green	Not urgent	120 minutes
5	Blue	Not urgent	240 minutes
6	White* category used in Brazil & Portugal to identify patients using Emergency Service as gateway for elective or scheduled procedures		

<sup>30</sup> APS Jesus et al, 2021



## Triage Scale (TS)

### Introduction

The Triage Scale (TS) is a scale for rating clinical urgency and is designed for use in hospital-based emergency services<sup>31</sup>. Although, primarily a clinical tool for ensuring that patients are seen in a timely manner, commensurate with their clinical urgency, the TS is also a useful case-mix measure. The scale directly relates triage code/colour with a range of outcome measures e.g. inpatient length of stay, ICU admission, mortality rate and resource consumption (staff time, cost). It provides an opportunity for analysis of a number of performance indicators in the A & E (operational efficiency, utilization review, outcome effectiveness and cost).

### What is Hospital Emergency Triage?

A method of ranking sick or injured people according to the severity of their sickness or injury in order to ensure that medical and nursing staff and facilities are used most efficiently; assessment of injury intensity and the immediacy or urgency for medical attention.

### Benefits of Triage:

- i. To expedite the delivery of time-critical treatment for patients with life-threatening conditions
- ii. To ensure that all people requiring emergency care are appropriately categorized according to their clinical condition
- iii. To improve patient flow
- iv. To improve patient satisfaction
- v. To decrease the patients' overall length of stay
- vi. To facilitate streaming of less urgent patients
- vii. To be user-friendly for all levels of health care professionals

### Application of Triage Scale

#### Procedure

All patients presenting to an A & E should be triaged on arrival by a specifically trained and experienced registered nurse. The triage assessment and TS code/colour allocated must be recorded. The triage nurse should ensure continuous reassessment of patients who remain waiting, and, if the clinical features change, re-triage the patient accordingly. The triage nurse may also initiate appropriate investigations or initial management according to organizational guidelines. The triage nurse applies a TS category in response to the question: *"This patient should wait for medical assessment and treatment no longer than...."*

### Environmental and Equipment Requirements

The triage area must be immediately accessible and clearly sign-posted. Its size and design must allow for patient examination, privacy and visual access to the entrance and waiting areas, as well as for staff security. The area should be equipped with emergency equipment, facilities for standard precautions (hand hygiene facilities, gloves), security measures (duress alarms or ready access to security assistance), adequate communications devices (telephone and/or intercom etc.) and facilities for recording triage information.

<sup>31</sup> The MOH Ghana A&E Services Policy & Guidelines, 2011



## The Triage Tool

### Three versions of the Triage Score<sup>22</sup>

There are three versions of the Triage Score (TS), depending on whether the patient is an adult or not. The children have different values of heart rate, respiratory rate and blood pressure. The adults have their own version while there are two pediatric versions, one for **infants** (50cm to 95cm – one week to almost 3 years), and one for **children** (96cm to 150cm – 3 years to around 12 years). Neonates aged one month or younger should be seen immediately by a doctor.

### The Two Parts of the Triage Tool

The TS consists of 2 parts: The Triage Early Warning Score (**TEWS**) and the Discriminator List as placed at (**Annex-VI, VII & VIII**). The discriminator list follows after the TEWS and the provider needs to calculate the TEWS before moving on to the discriminator list.

### Triage Early Warning Score (TEWS)<sup>21</sup>

In order to generate a total score, the provider has to observe the basic vital signs of the patient. Each vital sign monitors a different physiological system:

- **Blood pressure and Heart rate** monitor the **cardiovascular** system (heart and blood flow). As the provider are interested in the **systolic** value only, that is the top value of the blood pressure (BP=120/80, systolic BP or SBP=120)
- **Respiratory rate** monitors the **respiratory** system (lungs)
- **Temperature** monitors **thermoregulatory** system (infections, hypothermia)
- **Alertness, Verbal response, Reaction to pain and Unresponsiveness (AVPU)** monitors the **central nervous system** (brain)
- **Mobility** monitors the **musculoskeletal** system (bones and muscles)
- **Trauma** refers to the presence of any injury (bump, bruise, cut etc.)

By comparing the observed basic vitals of the patient with a parameter on the **TEWS** calculator (horizontally) a score can be read off (vertically) adding together the scores gives the provider the total TEWS.

## Discriminator List

The second part or the discriminator list is the part that generates the actual triage colour (red, orange, yellow, green, blue) which will determine urgency level and also when the patient will be attended to essentially. As with the TEWS, there are separate versions of this for Infants, children and adults respectively.

The TEWS will only identify and classify a patient into an appropriate triage code if the physiology of the patient is altered from normal. The TEWS will be effective for most of the cases presenting to the triage provider.

There are however, some **discriminators** that require **special attention**. It has been found that physiology alone does not pick up and classify patients with these discriminators safely and effectively. These discriminators therefore, serve as a **safety net** for those patients with severe pathology to be seen more urgently, but for anyone whose physiology did not respond to the insult and therefore, did not generate an urgency appropriate **TEWS**, they are reclassified after the TEWS has been calculated.

### The Stepwise Approach

The **Stepwise flowchart poster** shows how simple it is to calculate the triage code for a patient by simply following the stepwise approach. This approach allows the triage provider to code patients both effectively and safely in the minimum time period. Triage providers should always use this approach unless directed otherwise by the senior health care professionals.

### Triage Interventions and Management Aids

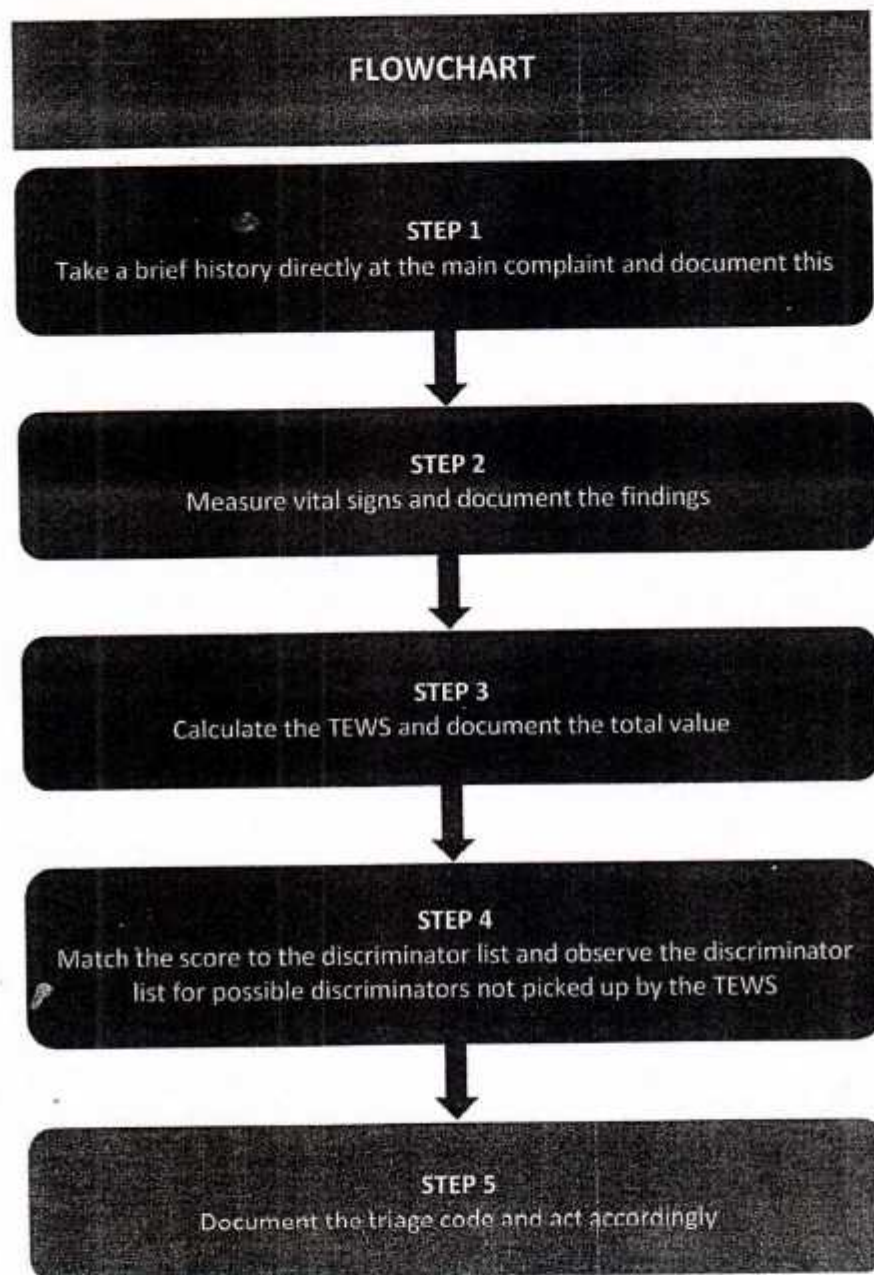
Management of the patient starts with the triage provider's analysis. It is therefore, critical that this management continues after the triage process has been completed. The table below indicates appropriate management of different triage categories by the triage provider:

COLOUR	ACTION
RED	Refer to the resuscitation room for <b>emergency</b> management
ORANGE	Refer to the patient waiting area for <b>urgent</b> management
YELLOW	Refer to the patient waiting area for management
GREEN	Patient for potential <b>streaming</b>
BLUE	Refer to doctor for certification

It is also possible for the triage provider to commence management when treatment is readily available and the provider's qualification allows the intervention. Appropriate interventions directed at observed abnormalities during triage decreases the patient's morbidity and increases patient satisfaction.

A triage provider may also, use triage aids to enhance the triage sensitivity if the time so permits. Triage aids will assist the senior health care professional later, after the patient has been referred according to the above set criteria. Triage aids (**compulsory**) should be performed, whenever available if the time permits but is not essential for the triage itself. The **triage interventions and management aids poster** indicates appropriate interventions that must be commenced by the triage provider as well as triage aids that can be used to enhance the triage process.

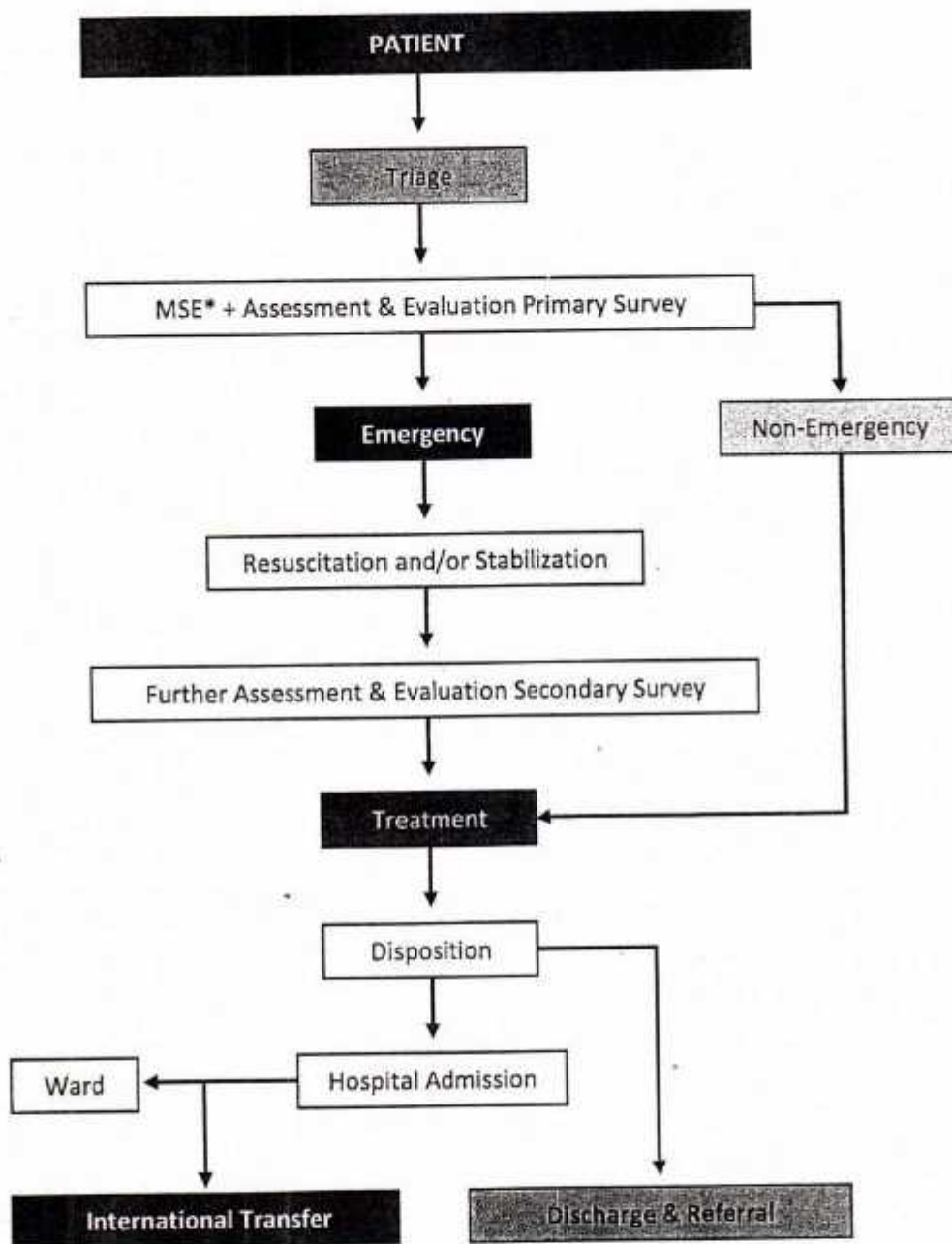
Tools for help in undertaking triage process are placed at **Annex-I, Annex-VI, VII & VIII**

**INTERVENTIONS TO BE CARRIED OUT AT TRIAGE**



Problem	Compulsory	Optional
Respiratory rate scores 1 point or more	<ol style="list-style-type: none"> <li>1. Pulse oximetry (saturation)</li> <li>2. Finger prick gluco-test if patient is disable</li> <li>3. Refer to anteroom and give oxygen</li> </ol>	
Temperature 38.5° or more	<ol style="list-style-type: none"> <li>1. Paracetamol 1g orally stat (document in the notes) (children-discuss with sister or doctor)</li> </ol>	
Temperature 35° or less	<ol style="list-style-type: none"> <li>1. Blankets</li> </ol>	
Altered level of consciousness (AVPU score other than A)	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> </ol>	
Unable to sit up/ need to lie down	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> </ol>	
Chest pain	<ol style="list-style-type: none"> <li>1. Immediate ECG and present to senior health care professional</li> </ol>	
Active bleeding	<ol style="list-style-type: none"> <li>1. Apply pressure to site of trauma with a dry dressing and take to anteroom</li> <li>2. HB to obtain baseline</li> </ol>	
Active seizure/ fitting	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand the patient to senior healthcare professional</li> <li>2. Finger prick glucotest</li> <li>3. IV access (NO intramuscular)</li> </ol>	
History of diabetes	<ol style="list-style-type: none"> <li>1. Finger prick glucotest</li> </ol>	
Diabetes and Hyperglycaemia (glucotest 11 or more)	<ol style="list-style-type: none"> <li>1. Urine dipsticks to check for ketones</li> </ol>	
Hyperglycaemia (glucotest 3 or less)	<ol style="list-style-type: none"> <li>1. Refer to anteroom and hand over the patient to senior healthcare professional</li> </ol>	<ol style="list-style-type: none"> <li>2. If the patient is alert, give food or drink orally</li> </ol>
History of bleeding		<ol style="list-style-type: none"> <li>1. Finger prick hemoglobin</li> </ol>
Bleeding PR, PO or from a site of trauma		<ol style="list-style-type: none"> <li>1. Finger prick hemoglobin</li> </ol>
Abdominal pain or backache: male		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> </ol>
Abdominal pain or backache: female		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> <li>2. Urine pregnancy test</li> </ol>
PV Bleeding		<ol style="list-style-type: none"> <li>1. Urine dipsticks</li> <li>2. Urine pregnancy test</li> <li>3. Finger prick h2moglobin</li> </ol>

## Flowchart of the Care Process at the Emergency Departments



## Categorization of Patients according to Seriousness of the Problems

### 1. Mild: (Non-urgent)

These patients have blunt injuries, small cuts, abrasions etc. and need reassurance and first aid treatment, and are straight away discharged.

### 2. Moderate: (Semi-urgent)

These patients have injuries that require treatment which can be provided in Accident and Emergency Department of any hospital i.e. simple fractures dislocations, small wounds etc. These patients are discharged from the Emergency Department.

### 3. Serious: (Urgent)

These patients after emergency treatment need admission in the hospital for definitive treatment and / or observations. After definitive treatment these patients are discharged.

### 4. Critically Serious: (Critical)

These patients have risk to life if active intensive critical care is delayed or is not proper. These patients are resuscitated, provided basic life support in A & E Department and are straight away shifted to intensive care unit.

After stabilization of the patient's condition, patient is shifted to specialist ward for definitive treatment, from where patient is discharged after treatment.

### Pre-Hospital Triage Categories: An example

PATIENT TRIAGE GUIDELINES	
Red	Needs immediate help and/or evacuation within 30 minutes, unstable patient, mechanically ventilated (outside of OR environment), or requiring significant cardiac or pulmonary resuscitation
Yellow	Can wait 30 min-2 hr for evacuation, relatively stable patient but requiring ongoing supportive care or continuation of procedure beyond 30 min
Green	Can abort or finish procedure within 30 min... OR...can wait > 2 hr for evacuation, patient otherwise stable
Blue	Can be discharged home within 30 min, stable patient
Black	Deceased



## LEVELS OF HOSPITAL EMERGENCY DEPARTMENTS

The designated Emergency Department of the hospital is distinguished by the immediate availability of specialist staff inter-alia including, surgeons, anesthetists, physicians, nurses and resuscitation and life support equipment on a twenty-four hour and seven days a week basis. Three levels of accident and emergency services are defined on the basis of capability from lower to higher levels<sup>32</sup>.

### LEVEL I

Level I Accident and Emergency (A&E) Department performs all functions as level II but has Anesthetist, physicians and Surgeons on site 24 hours, and include specialized facilities like burn units and spinal cord injury units. These centers are also involved in Education and research activities. Level I Accident and Emergency Departments are located in all the teaching hospitals and must maintain their expertise by treating at least 1000 patients per hospital every year (83 per month).

### LEVEL II.

Level II Accident and Emergency Department can resuscitate the patients, perform emergency procedures including surgery, treat the patient in intensive care unit, and provide rehabilitation. These hospitals have anesthetists, physicians and surgeons not on duty in the emergency department but on call. Level II Emergency facilities are available at most of the Tehsil (THQ) and District Headquarters Hospitals. Keeping in view the available resource, such facilities must be able to treat at least 600 patients a year (50 per month).

### LEVEL III

Such Emergency Department can receive, resuscitate, and stabilize a patient while arranging for transfer of patient to a hospital that can provide definitive surgical/medical care. Level III Emergency facilities are available at BHUs, RHCs, and such other health facilities with no specialist cover, and limited indoor capacity.

The International Health Facility Guidelines, 2017 now classify the Health Facilities according to Role Delineation Level (RDL) on an ascending scale. For example, a major metropolitan hospital having Teaching and Research facility status providing intensive care services will be at RDL 6. The same service provided at small general hospital without teaching and research facilities will be at RDL 4. At higher RDLs, the service provision will require access to higher levels of skill and additional complementary services. Thus surgery at RDL 5 will require intensive care services plus many supporting services. The number, type and size of rooms for an ICU service at RDL 6 will thus be different to one at RDL 4. Similarly, schedule of accommodation in a birthing unit (obstetric facility), the international Health Facility Guidelines depict the following number of rooms for the ascending RDL.

RDL :	RDL 2	RDL 3	RDL 4	RDL 5/6
Entry /reception	2 rooms	4 rooms	8 rooms	12 rooms
Birthing Suite (patient area)	2 rooms	4 rooms	8 rooms	12 rooms

For the purpose of this work, the scheme of Level 1, Level 2 and Level 3 as contained in the Government of the Punjab Health Department SOPs for Emergency Medical Services as prescribed in 2003 has been retained.

<sup>32</sup> Emergency Medical Services in Teaching Hospitals of Punjab, DOH Oct, 2003

## PHYSICAL SETTING REQUIREMENTS

Accident and Emergency Department should be located in such a way that it is easily accessible for the public. It should be close to parking area and preferably have a separate entrance. Accident and Emergency Department should always be on ground floor with easy access to indoor facilities and the OPD, and should be adjacent to diagnostic facilities like laboratory and Radiology Department. Both stairs and ramps, clearly designed for patient arrival and departure, should ensure smooth access to the facility. The pathways should facilitate free movement of patient's trolley, stretcher etc. Adequate space for wheelchairs and patient trolleys should be ensured with the availability of porter service. The Emergency Department must be able to accommodate transportation of large number of patients in case of a disaster. Effective and standard signage for the guidance of patients should be ensured. Accident and Emergency Department must have an easy connections to the following units:

- i. Blood bank
- ii. Main Pharmacy
- iii. Technical support services especially Biomedical Department.
- iv. Clinical Laboratory
- v. Imaging services

### The Functional Area of Hospital Emergency Department

A standard Hospital Emergency Department (Level-I) should have the following facilities:

i. Ramp and stairs	ii. Area for porters
iii. Area for stretchers, trolleys and wheelchairs	iv. Sufficient space for parking of ambulance and unloading of patients
v. Triage area	vi. Security office
vii. Emergency Department reception/patient registration counter	viii. Resuscitation Room
ix. Nursing station	x. Minor Operation Theatre
xi. Patient care area (Medical/Surgical/Pediatric)	xii. Procedure Room
xiii. Lab counter with LCD display of tests	xiv. Major Operation Theatre
xv. X-Ray /USG	xvi. Doctor's office
xvii. Facilitation Counter	xviii. Nurses office
xix. Pharmacy Services	xx. Administration office

Depending upon the available workload at some of the smaller, Level-II Emergency set ups, and on the basis of available / committed resources, some of the above facilities may be regarded as optional, or made available on shared basis with the main health facility. Following segregated structural requirements are essential for the Emergency Unit:

- i. Triage area
- ii. A functional resuscitation area for patient stabilization
- iii. A transient area for patient observation for not more than 24 hours
- iv. Procedure room for minor cases/Theatre



- v. Waiting area
- vi. Ambulance bay

#### **Minimum / Mandatory Requirements to be Met by all Hospitals (public and private)**

- i. At least 10% of the total bed strength to be allocated in the Hospital Emergency Department
- ii. In the Emergency Departments of multi-specialty Tertiary care / Teaching hospitals and Secondary referral (DHQ level+) facilities with 24-hour availability of specialist cover, the following services should be made available in Emergency Departments:
  - a. Primary care of burn patients in Emergency
  - b. Paediatric Surgery / primary trauma care for children
  - c. Integrated Diagnostic (Lab & Radiology) services to be accessible to the emergency patients
  - d. Maintaining Electronic Medical Records
  - e. Appointment of dedicated staff including doctors having post-graduate qualification in Emergency Care (FCPS Emergency Medicine or equivalent), with incentivized pay package and career structure
  - f. Similar incentivized service structure for nurses having post-graduate qualification and training in ICU, CCU & Accident & Emergency nursing, etc., and working in such areas
- iii. Location of the Emergency Department should be easily accessible from Entry Point without any physical barriers / obstructions; and movement of the patient through trolley/stretcher/hospital bed or wheelchair should be without obstacles
- iv. The facilities in the Emergency Department should be integrated with diagnostic and support services of the hospital, to provide ease of access for staff and the patients
- v. There should be dedicated staff (Doctors, Nurses & allied) allocated for emergency department, and must be trained in life saving skills as applicable (ACLS/BLS); and the list of staff for each shift must be displayed in the emergency office
- vi. Duty Roster of Medical, Nursing & Allied staff to be on duty in the Emergency should be displayed, providing for adequate overlap in time for smooth handing over and taking over, which must be documented, and verifiable.
- vii. Minimum set of dedicated equipment as per the declared scope of service by the hospital administration should be available in the Emergency Department
- viii. Physical Environment and infrastructure should be so designed and so provided, to allow for smooth and un-obstructed, safe movement of patient for the purpose of shifting, referral or discharge, or for the purpose of diagnostic tests or procedures
- ix. The Emergency Department should have easy access to public utility area, i.e., waiting room, toilets, etc.
- x. The physical environment should provide segregated utility area with sufficient privacy, to the medical and nursing staff for refreshment / changeover, with permitted bathroom break period (e.g., 20 minutes each during six hours duty; with allowance for conditions like pregnancy, or other medical conditions posing limitations).

#### **Equipment and Supplies**

Time is an essential factor in emergency treatment, therefore, Accident and Emergency Department typically must have their own diagnostic equipment to avoid waiting for equipment installed elsewhere in the hospital. Ideally, the Level-I Emergency facility shall have a dedicated Laboratory for



basic laboratory tests or the Emergency may be supported by uninterrupted 24-hour service from the hospital's main laboratory.

### **Standards for Management of Equipment**

Facilities and services at the Emergency Department should comply with national / prescribed standards with respect to all the equipment installed and used in the Emergency Department in terms of number and specifications. The preventive periodic maintenance programme should be documented and implemented. All equipment must conform to the relevant safety standards and be regularly calibrated. All staff must be appropriately trained, competent and familiar with the use of equipment.

Type and number of equipment and quantity of consumables will vary with the Level, size and function of the department and must be appropriate to the workload of the unit as judged by the contemporary standards. The sample list of basic equipment and supplies needed for effective operations at Level II Emergency Department is attached in **Annex-IV**:

### **Selection of equipment**

Criteria for the selection, purchasing, storage, servicing, sterilization, and replacement of durable equipment should be predefined by the hospital management committee including senior consultants, nurses, and biomedical engineers. A continuously updated selection policy in respect of durable equipment is recommended. Medical and nursing staff should review available equipment by assessing it in use, with a view to eventual purchase also considering its compatibility with existing equipment.

Technical advice on performance and service of the equipment should be sought from the hospital electronic/medical engineers. Methods of sterilization must be compatible with existing hospital facilities, and there should be documented contracts with manufacturers/vendors supplying such items to provide all requisite technical support / information and training of the staff handling these equipment. Other equipment supplies not listed in the above Annexure may be supplied from the hospital store and pharmacy as and when needed.

### **Procurement**

The users should agree with the manufacturer/vendor which items e.g. in a modular system will actually be required. The list should include all recommended spares, extra copies of instruction books and a stock of consumables/disposables if needed. The order, which will normally be handled by a supplies officer, should define clearly which items are to be supplied, any commissioning or installation work required, acceptance procedure, delivery date and other conditions of supply.

### **Medicines**

The inventory of essential medicines for the Emergency Department should be based on the anticipated workload, and case-mix usually presenting in the hospital emergency department. A tentative list of essential medicines needed for effective running of the level II Emergency Department is placed at **Annex-V**. The medicines and supplies not listed in the above Annexure may be supplied from the hospital pharmacy as and when needed.

### **Human Resource**

The Emergency Department should be appropriately staffed and must have one to two emergency / casualty medical officers (EMOs /CMOs) depending upon the patient load of the Healthcare Establishment in each shift of 8-1/2 hours, with a half hour overlap of duties for handing/taking over of charge.

Night duty of 12 hours i.e. from 8PM to 8AM, currently in vogue for the hospital interns in the Emergency Departments hampers the quality of service by increasing the chances of human error, due to fatigue. Therefore, in a high turnover facility, a uniform duty of 8-1/2 hour should be preferred. Alternatively, four hourly rotating shifts (with few hours break in between the successive shifts) can be scheduled, provided there is sufficient provision of rest area in the facility. It should be mandatory to have sufficient experience and/or a house job in Medicine/Allied and Surgery/Allied specialties along with special training in ABLS, ACLS and ATLS for the appointment of CMO/EMO.

### **Training**

- i There should be arrangement, preferably a national pool of resource persons available to train accident and emergency teams.
- ii This training will first be geared towards hospital Emergency teams
- iii All doctors and nurses shall be trained in basic and advanced life support
- iv All other health professionals shall be trained in basic life support by accredited trainers
- v For uniformity and standardization all training shall be done in selected centers of excellence and by accredited trainers
- vi Re-certification shall be done every three years

## **Continuous Professional Development**

### **Core Staff**

The core staff working at the Emergency Department should be re-certified every 3 years by accredited training teams and institutions. All institutions must ensure strict adherence to this provision. Hospital Management should ensure that all those working in the Emergency Department have training in emergency care. Core Team members (e.g. doctors, physician assistants and nurses) should at least be trained in:

- Basic Life Support
- Advance Cardiac Life support
- AED (automated external defibrillator)
- Advance Trauma Life Support
- Pediatric Advance Life Support
- Triaging
- Recognition and Management of the critically ill

### **Training of other (Non-Core) Staff**

- Enrolled Nurses (Health Assistants) should undergo at least BLS + AED (automated external defibrillator)
- Healthcare Assistance: At least BLS + AED (automated external defibrillator)
- Orderlies & Porters: BLS and Patient transport

### **Accident and Emergency Team(s)**

1. An emergency **core team**, physically present at all times should comprise the emergency physician/doctors, physician assistants, Emergency Nurses, Critical Care Nurse, triage personnel, porters and cleaners. The Expanded Team should comprise the following:

- i. Surgeons, Trauma/Orthopedic Surgeon, Neurosurgeons,
- ii. Radiologist, Anesthetist, Intensivist,
- iii. Pharmacist and others as required.



2. The Unit shall be headed by an Emergency Physician (EP) and in the absence of the EP a Medical Officer with requisite skills in emergency care shall be the head.
3. The head of the unit in collaboration with the Emergency Department Head Nurse shall see to the day-to-day running of the unit.
4. It is desirable that the staff should have had qualification/ training in Quality Assurance/Customer Care.
5. Staff job descriptions should be clearly stipulated, discussed and written copies given to them.

#### **Periodic Review Meetings/reviews**

There shall be at least the following review meetings:

- i. Monthly Clinical updates organized by the Emergency Department
- ii. Bi-monthly mortality meeting.
- iii. Quarterly inter-departmental or inter-unit meeting/reviews

#### **Ethics for Emergency Staff**

All citizens have the right to emergency medical care and in order to fulfil this right, emergency care providers shall:

- Abide by institutional code of ethics and patient's charter.
- Respond promptly and expertly, without prejudice or partiality, to the need for emergency medical care.
- Respect the rights and strive to protect the best interests of their patients, particularly the most vulnerable and those unable to make treatment choices due to diminished decision-making capacity.
- Communicate truthfully with patients and secure their informed consent for treatment, unless the urgency of the patient's condition demands an immediate response.
- Respect patient privacy and disclose confidential information only with consent of the patient/guardian or when required by an overriding duty such as the duty to protect others or to obey the law.
- Deal fairly and honestly with colleagues and take appropriate action to protect patients from healthcare providers who are impaired or incompetent, or who engage in fraud or deception.
- Work cooperatively with other stakeholders in the care of emergency patients.
- Engage in continuing medical education to maintain the knowledge and skills necessary to provide high quality care for emergency patients.
- Act as responsible stewards of the healthcare resources entrusted to them.
- Support societal efforts to improve public health and safety, reduce the effects of injury and illness, and secure access to emergency and other basic healthcare for all.

### **Admission Policy for the Emergency Department**

Only patients whose assessment during triage as per Triage Guidelines falls under **Red, Orange** and **Yellow** may be admitted to the Emergency Department for further management. It is the responsibility of the triage officer/nurse to refer all patients whose triage assessment falls under **Green** to the general outpatient or an appropriate health facility for further management. Patients that are at the end stage of a severe disease will be placed in categories green or blue, and will "only" receive palliative measures that accompany the dying process.



### **Internal Consultations and Referrals to other Hospitals**

The emergency doctor on duty may request consultation with another specialist for a patient in the Emergency Department. The request shall follow established internal arrangements such as the use of SMS, phone calls, etc. and shall be attended to immediately. All consultation requests should be written in the patient's medical notes indicating time, date, and signature.

### **Referral to other Hospitals**

The procedure for referral should follow the HCE Policy Guidelines. Only the emergency physician/specialist or senior doctor on duty has the authority to refer patients to other hospitals. The emergency doctor on duty should provide a written consultation regarding his recommendation for treatment and disposition on the emergency record.

## **Disposition of Patients from the Emergency Department**

### **Transfers**

Transfer of patients into and out of the Emergency Department shall be in compliance with the health facility transfer policy. The attending doctor must personally evaluate a patient in the Emergency unit prior to transfer to another ward. All safety measures and appropriate care shall be provided during the transfer of patients. The transferring doctor is responsible for completing the appropriate documentation who should also ensure that a mutual decision with the receiving department/unit has been reached.

### **Discharge Home**

Patients not requiring hospital admission should be given written and verbal instructions regarding follow-up care. The doctor at the time of discharge is responsible for providing the patient with verbal or written instructions as necessary.

### **Leave against Medical Advice /Refuse treatment**

Patients refusing further management should be requested to complete and sign the Leave -Against-Medical-Advice (LAMA) Form that should be attached to the patient's Emergency folder. This Form records the doctor's explanation of the consequences of the patient's action.

Refusal to sign the LAMA form should be documented on the form and witnessed and placed in the Emergency folder. A patient who leaves the unit prior to treatment should have such information noted on the folder along with the reason of leaving if known, and should be timed and signed.

### **Deaths in the Emergency Department and those brought dead**

Death of the patients do happen in the emergency departments of the hospitals, very often due to the pathology or the cause responsible to bringing the patient in. However, in certain un-expected or un-explained cases, the family of the deceased may get agitated and resort to violence against the hospital staff.

Patient must be examined before declared brought-in-dead and the EMO/ CMO should be responsible to initiate lawful procedure. There should be a team of senior hospital staff including nursing, allied and administration etc. to take the charge of situation, isolate the body of the deceased person from common area, and to counsel the family of the deceased. Such a role demands extra restrain, somnolence, and exhibiting regard and respect to the emotions of the family in a passionate manner. The family should be assisted in documentation, clearance and disposal of the formalities in an expeditious manner.

in case of complaints, the complaint redress mechanism should be adopted up to the satisfaction of the complainant as far as his/her genuine grievance are concerned, and with due empathy, by reassuring of a fair process of hearing, and disposal as per rules.

Collaboration/Links with other departments and hospitals (within and without)

The Emergency Department should have links with other departments/units of the hospital. The facility management on the occasion should also have links with pre-hospital Emergency services and all relevant emergency services providers within the catchment area.

#### **Emergency Records**

The medical records of patients in Emergency Departments is to be maintained, and secured in the manner similar to that being prescribed and implemented under the Functional area, Information Management System 'IMS' provided in the Minimum Service Delivery Standards (MSDS) and subject to review and quality control, as prescribed in the MSDS, for continuous quality improvement.

The emergency files / folder should include all pertinent bio-medical data on standard format as per policy pertaining to the Medical Records of the hospital. The medical record of medico-legal cases need to be specially secured and held confidential, with restricted access.

The patients or the families also have a right to obtain a copy, or summary of medical record accordingly, and there should be systems in place to make it possible when so required.

#### **Emergency Preparedness Plan**

All hospitals shall have an emergency preparedness plan for meeting un-foreseen incidents, disasters, violence, or unnatural events, like earthquake, disruption of supplies, or services like power failure, failure of transport, water or sanitation services.



## Code blue

### Purpose

- To provide immediate life saving measures in case of life threatening emergencies
- Saving lives at the moment notice.
- To provide a plan for response to medical emergencies.
- The purpose of the Code Blue team is to assure prompt and skilled cardiovascular and cerebral resuscitation of persons who suffer a cardiopulmonary arrest.

### Definition

- It is an event of utmost emergency, a mode of alerting all medic, nursing, paramedic, and security staff.
- Code blue is a term hospital and medical professional use to describe a situation where a patient will need to be resuscitated.
- Code blue is announced when a patient is unresponsive, meaning him or her not breathing or heart stop beating.
- Medical Emergency is an event requiring the rapid assessment and intervention of trained medical personnel which may include but is not limited to serious injury, unconsciousness, serious respiratory symptoms, symptoms of cardiac crisis.

### Equipment/Material

- Cardiac monitor with pulse-oximeter
- Defibrillator
- Ambu bag
- Air way/s
- Air way maintaining equipment (air way, LMA, ETT, etc.)
- Oxygen flow meter with humidifier
- Suction regulator with suction bottle and suction catheter
- Emergency crash cart with all medical supplies and Emergency Drugs
- For documentation (Patient files, Resuscitation form, Code blue monitoring form)

### Staff Responsibility

- Employees who witness or are first on the site of a medical emergency will take immediate action, including CPR and basic First Aid if trained to do so, summon medical assistance and assist as directed.
- "Code Blue" announcement will be made by Charge Nurse or the doctor who discover patient irresponsive. Announcement includes department, bed number, gender, and floor/Area.
- RN will take the Emergency Med Cart or medicine tray and ensure that emergency equipment is transported to Code site.
- RN will ensure that the Code event is recorded and that equipment is ready for use. Emergency medications and equipment will be inventoried and Re-stocked on a weekly basis and following a Code.
- Shift Supervisor will ensure emergency medications and equipment are inventoried and restocked on a weekly basis and following a Code.
- Or an emergency Kit may be ready in ICU after announcement of code blue team member from ICU will reach at location with emergency KIT.
- Code Blue must be announced for the following Departments:

1. Emergency
2. OPD



3. MSW
4. FSW
5. FMW
6. MMW
7. Cardiology
8. Nephrology
9. Paediatrics
10. OTs/Anesthesia offices
11. ICUs duty rooms
12. Gynecology
13. Oto-Laryngo-rhinology (ENT)
14. Physiotherapy Dept.
15. Radiology Department.
16. Admn Deptt
17. Pharmacy
18. Cafeteria

### Team Members

- The team who are responsible to run the code blue includes:
  - i. ICU specialist ( ACLS certified )
  - ii. ICU Nurse (Assigned for Code team BLS or ACLS certified)
  - iii. Department on call MO
  - iv. Primary Consultant (if on duty during code)
  - v. H/N or Registered Nurse on duty from Department
  - vi. Nurse supervisor
  - vii. Security
  - viii. Pharmacy staff (if available for medicine preparation)
  - ix. Lab technician (to take urgent samples for ABGs etc.)
  - x. Support staff (Ward Boy, Ward Helper etc.)
- Respond to the Code site is to assist with assessment of the patient/victim, determination of severity of the emergency, and provision of emergency care and treatment.
- Medical Superintendent/ Medical Director, and Nursing In charge will ensure review of each Code to identify opportunities for improvement.

### Policy

- Hospital will follow its policy/procedure in providing for the emergency medical needs of patients, staff and visitors.

### Procedure

- The first person on site recognizing an emergency medical situation will follow the basic guidelines for assessing the situation, summoning assistance and starting Cardiopulmonary Resuscitation (CPR) as appropriate and/or rendering First Aid.
- A nurse at the site will assess the situation and determine the severity of the emergency.
  - i. Stay with the patient/victim if the situation is life-threatening and requires direct emergency care
  - ii. Call or delegate a staff member to call on a given number to instruct the staff to announce a "Code Blue" for the specific Department, Bed no, gender, and Floor or Area) and intimated by pager
  - iii. This announcement is to be made regardless of the time of day
  - iv. Assure all member of code blue team are present as soon as code is called

- v. Take the Emergency cart and equipment required to the site,
- vi. Upon arrival ICU Nurse will assist Code leader for intubation and medication administration
- vii. Follow ACLS guidelines to administer medicines and other treatment as per patient condition
- viii. To continue Code depends on the patient response to the treatment at least 30 –45 minutes
- ix. If patient revive shift to ICU after making necessary arrangement in ICU e.g availability of bed, Ventilator, etc.
- x. Nurse supervisor will record, or delegate RN, to record the event on the Emergency Response Sheet. The Emergency Response sheet will be placed in the patient record and copy forwarded to Quality Assurance Department
- xi. Following the use of the cart, replace all used items and notify the pharmacy to arrange for the timely restocking of medications to be ready for next use
- xii. Convey information and/or seek assistance regarding the Code situation with the Nurse Supervisor
- xiii. Attach cardiac monitor and defibrillator for recharging
- xiv. Refilling of portable oxygen cylinder

## Power Failure in Hospital Emergencies

Electrical power to the Accident & Emergency Department can fail, either as an isolated event (e.g., tripped circuit breaker or blown fuses), or as a part of larger event, like regional power shutdown, or as an outcome of a natural disaster. In countries like Pakistan, where imbalances in demand and supply of electric power, coupled with fuel shortages or poor cost recovery mechanisms leading to accumulation of circular debt, thus causing un-planned load shedding. Hospitals therefore, need to have emergency plan<sup>33</sup> to cope with such power outages so as to sustain smooth operation of the facility, and to avoid risk to lives of the patients undergoing procedures or recovering through mechanical assistance/ventilation support. Hospitals need to define Standard Operating Procedures appropriate for each kind of power failure scenario, and the hospital staff should be well prepared to act accordingly in case of such emergency as per plan<sup>34</sup>.

Most hospitals have two lines connected to the power grid; while larger hospitals in Pakistan may have electric supply from two different power grids. If one goes down, the facility can still run at least on half capacity. Hospitals also have backup generators to help bridge the gap, especially for the high priority areas, like operation theatres, intensive care units, etc. Following are the hazards<sup>35</sup> in smooth operation of the hospitals in case of power failure:

- Loss of respiratory devices and other critical equipment for patients in intensive care, neonatal, or cardiac units.
- Loss of lighting for high-risk surgical procedures and potential black out of rooms with no emergency lighting.
- Loss of pressure in water distribution systems.
- Potential loss of access to other hospitals and healthcare facilities if they are also affected.
- Inability to access electronic patient medical records and other hospital data.
- Loss of patient signaling system for assistance by medical and hospital staff.
- Potential loss of access to medication, vaccines, and other medical supplies requiring keyless entry.

Following is a checklist for the hospital management to assess their capability and capacity to overcome the challenges involved in case of extended power failure situation:

- What is the electric utility's contact information in the event of a power outage?
- Where is the facility located on the electricity distribution network? What other hospital facilities are located on the same circuit?
- How reliable is the electricity distribution network where this facility is located?
- Have you discussed with your utility if they consider your hospital facility to be a priority when responding to a power outage or shortage of electricity supply?
- Have you considered participating with your utility when they conduct drills or exercises to respond to a loss of power?
- Do you have partnerships in place with other local healthcare facilities in case of an extended power outage?
- Have you determined your energy usage under normal operating conditions?

<sup>33</sup> SOPs for Labs Electrical Power Failure; Purdue University Indiana

<sup>34</sup> KHSC Emergency procedures SOP-EP-01; Dec 2017

<sup>35</sup> Healthcare Facilities and Power Outages, August 2019



- Have you identified your essential functions and minimum electricity needs and sized your backup generators appropriately?
- Do you have procedures to prioritize emergency power allocation to key resources (i.e. HVAC systems, ventilators, patient monitors)?
- How often is your emergency generator system tested to assure reliable startup and sustained operation?
- How long will your supply of emergency generator fuel last, and how can you be assured of continued fuel delivery in the event of an extended power outage?

Following table provides general guidance to the hospital staff to identify the type of equipment which have good battery backup; and the type of equipment which usually do not have much power backup

**Table 1. Vulnerability of operating room equipment and hospital services to power failure**

This table is intended as an overview, as actual equipment performance may vary based on institution and make and model of device. Devices with limited or no battery back-up should operate if plugged into an emergency circuit ("red outlet") and generators are working.

<b>Substantial battery back-up, or not dependent on electrical power</b>	
Anesthesia machine/ventilator	Portable ultrasound machines
Non-desflurane vaporizers	Intra-aortic balloon pump
Portable patient monitors	Laptop computers
Portable infusion pumps	Medical gases (e.g., pipeline oxygen)
Portable suction	
<b>Limited or no battery back-up</b>	
Room lights	Patient warming devices
End-tidal gas analyzer	Transesophageal echocardiography machines
Automated medication dispensing devices (e.g., Cerner's RxStation®)	Wall suction and scavenging systems
Desflurane vaporizer	Da Vinci® Surgical System*
Patient monitors without battery back-up	Video towers
Electrosurgical units	Cardiopulmonary bypass machine
Fluoroscopy/portable X-ray units	Desktop computers without battery
Fluid warmers/rapid infusion devices	Cell salvage machine
<b>Depends on institution</b>	
WiFi/Internet access	Badge-activated door locks
Paging systems	Electronic medical record
Telephones	

\*Battery allows unlocking of patient from robot.

Anesthesia patient Safety Foundation, Circulation 122,210 • Volume 30, No. 3 • February 2016

## Emergency Department Check list

Sr	Criteria	Applicability for Emergency Department (tick ✓, No or Not Applicable (NA))		
		Level I	Level II	Level III
1.	<b>Hospital Emergency Plan</b> — developed — displayed / available — and in operation	Mandatory	Mandatory	Recommended
2.	<b>Hospital Emergency Building Map / Layout</b> — available & displayed — directions displayed for smooth patient flow	Mandatory	Mandatory	Recommended
3.	<b>Dedicated Entry for ambulances &amp; patient transport vehicles</b> — available — sufficient space available for ambulance parking and to unload patients	Mandatory	Mandatory	Recommended
4.	<b>Parking facility available for</b> — ambulances, — patients — staff cars	Mandatory	Mandatory	Recommended
5.	<b>Ramps &amp; clear way</b> for movement of patients available for all service area	Mandatory	Mandatory	Recommended
6.	<b>Area for Stretchers &amp; wheel chairs</b> — wheel chairs — stretchers	Mandatory	Mandatory	Recommended
7.	<b>Stretcher boys/Porters</b> — available	Mandatory	Mandatory	Recommended
8.	<b>Triage area available and identifiable</b> — direction signs displayed	Mandatory	Recommended	NA
9.	<b>Hospital staff available at</b> — reception/registration — help desk — dengue counter (in season) — Covid desk (in season)	Mandatory	Recommended	Desirable
10.	<b>Triage SOPs</b> — notified — triage physician / triage nurse / experienced paramedic notified and available	Mandatory	Recommended (in smaller private hospitals trained triage nurse may be sufficient)	NA
11.	<b>Triage system in practice</b> — Triage sheet available with patient registration slip /treatment chart duly filled as per protocol — Triage category /code assigned	Mandatory	Recommended	NA



12.	<b>Resuscitation Room / area designated for resuscitation of critically ill patients has wall mounted or stand by</b> — Suction units, — Oxygen supply, — Monitors — ECG — BP apparatus, — Defibrillator	Mandatory	Mandatory	Desirable
13.	<b>Acute care area / beds allocated for major emergency cases has</b> — Suction units — Oxygen supply — ECG — monitors — BP apparatus	Mandatory	Mandatory	NA
14.	<b>HDU / ICU facility</b> (for seriously ill patients like DHF, dengue shock Syndrome, etc.)	Mandatory	Mandatory	NA
15.	<b>Isolation facility</b> (suspected infectious conditions like covid-19 / H1N1, etc.)	Mandatory	Mandatory	NA
16.	<b>Beds / area allocated for management of burn patients</b> — air condition room with stainless steel bath and mechanical hoist — plenum-ventilation of dressing room with an exhaust ventilated air lock	Mandatory	Mandatory	NA
17.	<b>Step down area</b> for patients already managed and awaiting test results and requiring observation prior to admission or discharge	Mandatory	Recommended	NA
18.	<b>Special treatment rooms (preferable) for</b> — pediatric patients — obstetric patients — major psychiatric disorders — Eye /ENT & dental rooms	Mandatory	Recommended	Desirable
19.	<b>Hand wash facility in all areas</b>	Mandatory	Mandatory	Desirable
20.	<b>Decontamination area</b> (preferable)	Recommended	desirable	NA
21.	<b>Primary care facility</b> — for management of the low acuity conditions — suture room / minor OT	Mandatory	Recommended	Desirable
22.	<b>Nursing Station</b> — ease of monitoring patients — limited privacy	Recommended	Recommended	Desirable
23.	<b>Observation area/patient beds designated</b> (for short stay after evaluation)	Recommended	Recommended	NA
24.	<b>Holding area /waiting area for non-injured / patients relatives</b> — open and easily observed from the	Mandatory	Recommended	Desirable



	triage & reception area — negatively pressured — Counsellor/Social worker/ volunteer for re-assuring relatives/family of seriously ill — TV / information display — visitors toilets			
25.	<b>Staff &amp; support area</b> — staff room & utility rooms — Staff change room with <ul style="list-style-type: none"> <li>lockers</li> <li>pantry &amp; retiring area</li> <li>shower &amp; lavatories,</li> <li>storage of soiled linen</li> </ul> — store rooms for hospital equipment & linen — waste holding & cleaners room	Mandatory	Recommended	Desirable
26.	<b>Doctors office</b> <b>Nurses office</b> <b>Administration office</b> <b>Security office</b>	Mandatory	Recommended	Desirable
27.	<b>Director Emergency</b> — notified — available on duty	Mandatory	Recommended	NA
28.	<b>Authorization for medico-legal work available</b> — necessary support staff and logistics available for medico legal work — Authorized Lady Doctor available for female patients medico-legal work — (MLC register) — Mortuary — Mortuary Assistant — Post-mortem kit — preservation jars, bottles and preservative liquids available	Mandatory in Public sector General Hospitals	Mandatory in Public sector General Hospitals  (only if authorized by Government)	NA in private sector  (only at RHCs or such public sector HCEs duly authorized for the given type of medicolegal work)
29.	<b>EMO/ CMO available</b> — Emergency Shift In-charge available	Mandatory	(Recommended in Pvt, mandatory in Public sector) (as per declared scope)	NA
30.	<b>Duty Rosters available / displayed for</b> — Doctors on duty — Nurses on duty — Pharmacy, Radiology, Laboratory, Blood Bank, Engineering support staff (for lifts and equipment, electricity & supplies, etc.)	All Mandatory	Recommended (as per declared scope)	Desirable

31.	<b>Roster for on-call staff is available / displayed</b> <ul style="list-style-type: none"> <li>— Physician on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Surgeon on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Anesthetist on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Obstetrician on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Pediatrician on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Neurosurgeon on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Orthopedic Surgeon on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> <li>— Cardiologist on call <ul style="list-style-type: none"> <li>▪ (respective PGR/MO on call in after -hours)</li> <li>▪ (respective PGR/MO on call in after -hours)</li> </ul> </li> </ul>	All Mandatory	Recommended (as per declared scope)	Medical Officer & Registered Nurse trained in emergency service provision recommended  Specialist cover Not recommended
32.	<b>Roster for paramedic &amp; support staff available</b> <ul style="list-style-type: none"> <li>— Electrician</li> <li>— lift operator</li> <li>— Dispensers</li> <li>— Ward master</li> <li>— Ward boys</li> <li>— Cleaners</li> </ul>	All Mandatory	Mandatory  Mandatory Mandatory	Recommended
33.	<b>Diagnostic Services available as per declared scope</b> <ul style="list-style-type: none"> <li>— Radiology &amp; imaging <ul style="list-style-type: none"> <li>▪ X-ray</li> <li>▪ Ultrasound / Doppler</li> <li>▪ CT scan</li> </ul> </li> <li>— Pathology Laboratory</li> <li>— Blood bank services</li> </ul>	Mandatory  Mandatory Mandatory	Mandatory  Recommended Recommended Recommended	Recommended (regional x-ray facility)
34.	<b>Pharmacy services available</b> <ul style="list-style-type: none"> <li>— Essential life saving &amp; emergency use medicines and supplies as per standard list finalized by the hospital committee <ul style="list-style-type: none"> <li>▪ Emergency tray</li> <li>▪ Resuscitation trolley</li> <li>▪ Anti-snake venom</li> <li>▪ Morphine antidote</li> </ul> </li> </ul>	All Mandatory	Mandatory  Mandatory  Recommended  Recommended	Recommended (basic emergency life saving medicines)

	<ul style="list-style-type: none"> <li>▪ Anti-rabies vaccine</li> <li>▪ Anti-rabies immunoglobulin</li> <li>▪ Immunoglobulin for tetanus</li> <li>▪ Inj Streptokinase</li> </ul>		Recommended Recommended	
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## Hospital Emergency Departments

Operational Model for Public and Private Sector (first referral facilities)

Change over time on work days and closed Holidays

Change Over Time	Days / Shifts
07:30 hrs	Between the night EMO/ CMO/Registrar and the morning EMO/ CMO/ Registrar
13:30 hrs	Between the morning EMO /CMO / Registrar and the Evening EMO /CMO /Registrar
19:30 hrs	Between the day evening EMO /CMO/ Registrar and the night EMO /CMO /Registrar
17:00 till 23:00 hrs	Evening 2 <sup>nd</sup> EMO /CMO (Additional) will work along

### Typical Duty Roster of Medical Staff in Emergency Shifts

From 07:30 hrs till 14:00 hrs		Nos.
Director Emergency	In-charge Medical Emergency / Registrar	1
	Emergency /Causality Medical Officers	3
On Call Staff:	Medical Officer/PGR (Medical ward)	1
	Medical Officer/PGR (Surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO /PGR (Gynecology/ Obstetrics)	1

From 14:00 hrs till 20:00 hrs		Nos.
	In-charge Medical Emergency / Registrar	1
	Emergency/Causality Medical Officers	3
On Call Staff:	Medical Officer/PGR (medical ward)	1
	Medical Officer/PGR (surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO/PGR (Gynecology/Obstetrics)	1

From 19:00 till 23:00	Additional Causality Medical Officer	1
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From 20:00 hrs till 07:30 hrs		Nos.
	Night EMO /CMO (Emergency /Causality Medical Officer)	3
On Call Staff:	Medical Officer/PGR (Medical ward)	1
	Medical Officer/PGR (Surgery)	1
	Medical Officer/PGR (Cardiology)	1
	WMO /PGR (Gynecology /Obstetrics)	1

### Typical Duty Roster of Nursing & Allied Staff in Emergency Shifts

From 07:30 hrs till 14:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (On week days she will remain available till 15:30 hrs)	1
	Charge Nurses (numbers depending on workload)	7*
	Nurse Aids	2
	Male Nurse	1
	ECG Tech	1
Paramedics	Ward Helpers	4
	Cleaner / sweeper	1+1
	Stretcher boys / wheel chair helpers (main gate to emergency)	3



## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

From 14:00 hrs till 20:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (She will remain available from 13:00 till 20:00 hrs on week-days)	1
	Charge Nurses (numbers depending on workload)	7
	Nurse Aids	2
	Male Nurse	1
Paramedics	ECG Tech	1
	Ward Helpers	4
	Cleaner / sweeper	1+1
	Stretcher boys / wheel chair helpers (main gate to emergency)	3

From 20:00 hrs till 08:00 hrs		Nos.
Nursing	In-charge Emergency / Head Nurse (She will remain available from 19:00 till 08:30 hrs on week-days)	1
	Charge Nurses (numbers depending on workload)	7
	Nurse Aids	2
	Male Nurse	1
Paramedics	ECG Tech	1
	Ward Helpers	4
	Cleaner / sweeper	1+1
	Stretcher boys / wheel chair helpers (main gate to emergency)	3

#### BASIC FACILITIES

While the obstetric emergencies shall be directly routed to the Labor Room and the infants shall be sent directly to the Pediatric Ward for management, the remaining bulk of patients reporting to the Emergency will be assessed and managed for the Imminent care in the main Emergency Department. The Hospital Emergency Department will provide the following basic facilities to the patients reporting in the emergency:

- i. First Aid and emergency management including resuscitation
- ii. Necessary diagnostic facilities /investigations
- iii. Detention for short periods (to a maximum of 4 hours) of cases requiring observation, I/V therapy, nebulization, relief of pain etc., or pending disposal by specialists on call
- iv. Facilities of minor surgical operations/procedures will be provided by the minor operation theatre functioning in the Emergency Department. These include dressing, stitching, incision and drainage, application of Plaster of Paris (POP) etc. All outdoor and indoor patients requiring the same will be attended here
- v. Administration of Intravenous infusion/injections etc.

The EMO/CMO will examine the patient and if the patient is suffering from minor ailment then will advise treatment on clinical note sheet as well as ER admission slip and send the patient to Charge Nurse for injection (if needed), after which patient is sent home and the clinical note sheet will be taken by the Charge Nurse. If the patient needs admission, he/she will be referred to the concerned Medical/Surgical unit for admission in ward/ICU. The referred patient will be attended by the MO/PGR of the concerned specialty (Medical/Surgical). The House Officer of the concerned unit will follow and carry out the instructions of the MO/PGR. The MO/PGR/SR of the concerned unit will write down the treatment plan on the clinical note sheet and sign it.

No treatment plan will be written on the E.R. slip which is to be kept with the patient for final disposal. The investigations will be ordered by the CMO/MO/PGR/SR and House Officer is responsible to send

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

these investigations to the Lab/Radiology department. If the patient is admitted in the ward, both E.R. slip and clinical note sheet will be attached with the admission documents. The patients will be managed in the emergency as per the following SOPs:

- i. In case of serious patients, the treatment plan should be discussed with the consultant on call
- ii. If the patient is discharged/expired after treatment the clinical note sheet will be kept as record in the Emergency Room and the Head Nurse/Charge Nurse of Emergency Room is responsible to keep this record
- iii. In case of expiry of the patient EMO/CMO/PGR will prepare the death certificate and sign it and will also write down the death summary in the death register of Emergency Department
- iv. The treatment of discharged patients should be written on the Emergency Room slip, duly signed by the EMO/CMO and handed over to the patient for follow up
- v. No House Officer is allowed to discharge the patient without the knowledge of SR/PGR after approval of primary consultant
- vi. Dispenser on duty in the Emergency Room is responsible for the entry of these patients in the Master / duty sister Register

## TRAINING

The Director Emergency /Registrar In-charge Emergency Department will ensure continuous training of the emergency staff on improving their professional skills, proper handling of the patients, patients safety, infection prevention and control. The trainings should also cover management of stress/anxiety, and improving their communication skills. The ward master will ensure that the staff deputed in the Emergency Department is physically fit, efficient and energetic. This staff will not be changed without the concurrence of the Director Emergency / Registrar In-charge Emergency. The training of the staff in the Emergency Department will essentially include the following:

- i. Cardio-Pulmonary Resuscitation (CPR)
- ii. The management of Acute Emergencies
- iii. Admission documentation procedures
- iv. Medico-Legal Policy
- v. Quality Standards and indicators

The ward master will ensure that all ward helpers available in the hospital are once rotated for duty to the Emergency Department so as to be properly trained on stretcher bearer duties.

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

#### Code Blue Team

- i. MO Anesthesia
- ii. MO Medicine
- iii. MO cardiology
- iv. Nursing Supervisor
- v. ECG Technician
- vi. Bio-Medical Technician



## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

vi.	Sucker Machine Manual	10
vii.	Sucker Machine Electric	2
viii.	Peak flow meter	2
ix.	Weighing machine	2
x.	IV stands	12
xi.	Stretchers	4
xii.	Wheel chairs	10
xiii.	Cardiac Monitors	4
xiv.	Sheller Monitor	1
xv.	Pulse Oximeter	4
xvi.	Electricity Generator (stand by)	1

#### Power Failure

Ideally, in case of power failure, the power generator should automatically switch on so as to maintain un-interrupted power supply to the sophisticated medical devices, like ventilators, anesthesia machines, etc. In case otherwise, the electric generator will be switched on promptly.

#### Code Blue

In case of any emergency, the concerned Ward Nurse will press CODE Blue **NO. 0000**

On intimation from the concerned area nurse, the telephone operator will announce "code blue" three times, loudly and clearly. When "Code Blue" is announced all physicians in that building will respond. However, 2 medical officers i.e. MO medicine of the area and MO anesthesia will stay at site. Any other responding physician will leave once these two people are present.

First physician (any department, any level) arriving will conduct the CPR till the MO Medicine of the area, Registrar Medicine, or the Consultant in Medicine arrives, in which case most senior of the three will be supervising and conducting the CPR. This person will be responsible for giving all orders, others can suggest but would not give direct orders. Following SOPs will be observed:

- i. To avoid overcrowding it is recommended that people not in CPR team unless directly involved in patient care, should leave the area.
  - ii. ECG technician will stay till end of CPR.
  - iii. Cardiac massage, breathing and defibrillator etc. will be the responsibility of only following person once they arrive:
    - a. MO Medicine of the area
    - b. MO Anesthesia
    - c. Nurse Incharge of the area
    - d. Assistant Nurse of the area
- A. Supply of medicine, oxygen supply, suction apparatus, CVP Line, intubation equipment etc., will be the responsibility of Nursing Supervisor. The nursing team will think forward and will ensure continuous supply and replenishment of medicine and supplies if running out of stock.
  - B. IF after 15 minutes of efforts the CPR result is poor and the patient does not respond even after 20-30 minutes, the CPR shall be discontinued and the telephone operator will declare "Code Blue Over" on microphone as advised by the CPR team leader.

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

#### Code Blue Team

- i MO Anesthesia
- ii MO Medicine
- iii MO cardiology
- iv Nursing Supervisor
- v ECG Technician
- vi Bio-Medical Technician
- vii Ward Master
- viii Security In-charge

#### Triage Categories

As soon as the patient is rushed into the Emergency Department of the hospital, the Head Nurse or a senior charge nurse assigned as "Triage Nurse" for the shift shall immediately assess the patient empirically in line with standard Triage protocol.

#### a. Immediate Resuscitation

Patients who need treatment immediately or within two minutes are categorized as having a life-threatening condition. Most of them would have arrived in the Emergency Department by ambulance and would probably be suffering from a critical medical condition, serious injuries or may have sustained a cardiac arrhythmia / cardiac arrest.

#### b. Emergency

Patients who need to be treated within 10 minutes are categorized as having an imminently life-threatening condition. This group of patients includes those suffering from a critical illness or are very severe pain e.g. chest pain, difficulty in breathing and fractures etc.

#### c. Urgent

This group of patients requires treatment within 30 minutes and is categorized as having a potentially life-threatening condition. These include patients suffering from severe illnesses, bleeding heavily from cuts/wounds, have major fractures, or are dehydrated.

#### d. Semi-Urgent

Patients in this group are having a potentially serious condition with less severe symptoms or injuries, such as a foreign body in the eye, sprained ankle, migraine or earache etc. and need to be treated within one hour.

#### e. Non-Urgent

This category includes patients who have a less urgent condition and need to have treatment within two hours. This includes those having minor illnesses or symptoms which may have been present for more than a week such as rashes or minor aches and pains.

#### Notes and Evaluation

- EMOs /CMOs are primarily responsible for managing patients in Emergency.
- Referred patients should be seen within 10 minutes of referral by CMO.



## **Hospital Emergency Departments**

### **Operational Model for Public and Private Sector (first referral facilities)**

- The Charge Nurse will immediately check vitals before digging through old record, lab results and old discharge.
- Summary and old charts.
- Proper documentation of symptoms.
- Management and diagnosis will be done for every patient. Serious patients should be immediately seen and resuscitated. Procedure of referral and consultation will proceed side by side. Monitoring notes should be properly maintained including fluids given and output of patient.

### **Admissions from the Emergency Department**

- Duty registrar should decide all admission through ER.
- After assessment and patient's examinations complete admission orders including drug Prescription should be written clearly and immediately.
- Duty registrar will inform nursing staff for stat labs immediately or carry out by himself.
- Notes on history and examination file should be completed before shifting to In-Patient.
- Complete shifting notes shall be recorded before shifting the patient to the ward.
- Paramedic staff should accompany every admitted patient during shifting to the ward.
- In case of serious patient, concerned MO of the department should accompany the patient.
- Before shifting, inform the ward staff on call.
- If beds are not available in wards, retain patients in ER till arrangement are made, If required discuss with consultant on call or Registrar ER.

### **Discharge from the Emergency Department**

- No patient should be discharged without being evaluated by the duty registrar.
- Keep in mind pending labs issued; and results awaited.
- Communicate with all involved parties for smooth discharge.
- Give clear instructions regarding medicines schedule/side effects/precautions
- Clear instruction regarding Restrictions on activities/travel/diet in Urdu/local language make sure by repetition that Patient can repeat/recall your instructions. Write discharge diagnosis clearly.
- Notes should include chief complaints and history of present illness, hospital stay, course, name of examining doctor, Hospital Medical Record Number /provisional and secondary diagnosis and Procedures. The discharge certificate should also mention follow-up plan/condition on discharge and attach diet chart if required.



## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

### Transfer of Patient to other Hospital

#### Patient Transfer to Other Facilities

- Once decision is made to transfer the patient to the other hospital for management, contact the concerned doctor/staff there first on telephone and discuss the case in detail and request to make sure the bed is available for the patient.
- Note down the contact person's name and designation.
- Provide detailed notes on the referral slip.
- Provide ambulance preferably by the hospital through coordination with DMS/CMO, and if patient is serious, a doctor allied staff should accompany while transportation.
- Ambulance should be equipped with resuscitation equipment.

#### Death / Expirations/Receive Dead

- On being called to pronounce death the doctor must perform certain steps.
- On arrival to bed site observe for respirations, auscultate for heart sound, palpate for carotid pulse, and check pupil and corneal reflex.
- Complete death notes on progress sheet and fill death certificate as early as possible.

#### SOP for Medico-Legal Cases

The private or trust hospitals do not deal with medico legal cases per se. However, in the circumstances where a patient presents with life threatening condition and delaying and/or referral to any other hospital will endanger the life or result in the death of the patient, the hospital ER will provide care to the patient that is essential for continuity of life. However, once the treatment is no more required for continuity of life and patient is stable, he may be referred to other Government health services for medico legal formalities.

With immediate effect, no Medico-Legal case will be admitted in the hospital without Medico Legal Certificate (MLC).

#### Medico legal cases:

- i Poison
- ii Fire arm injury
- iii Burn cases
- iv RTA
- v Physical Assault
- vi Rape
- vii Sexual Assault
- viii Fight

#### Occupational Risks

Standard barrier nursing and isolation techniques should be employed in cases of patients with infectious communicable diseases. These measures include:

- Gloves
- Masks
- Careful needle/sharp object handling
- Prophylaxis in cases of exposure if indicated (e.g. Meningococcemia).
- In case of mishap/exposure, event should be reported to consultant on call, immediately.

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

#### Accountability

In case of an incident, a committee comprising of consultants will review the entire case in detail and decide about warning/penalty as the case may be.

#### Ethical Issues

Best interest of the patient should be watched, in case of conflict or confusion, issues should be discussed with consultant on call.

#### Confidentiality of Patient's Data

Patient's record and data should be kept confidential to watch his/her interests and diagnosis/prognosis should not be discussed with attendants without permission of patient/close attendant.

#### Senior Consultation

On call consultant/senior registrar should be contacted on phone if required by the registrar on call. If he/she may request to see the patient, then on call consultant should try to attend the patient personally at the earliest or within 1 hour of the request.

#### Consultations from Other Departments / Urgent Scans

Consultants and scans should be decided by the duty registrar and call to the respective department should be written with clear indications, exact questions to be observed and urgency of the consultation.

#### Record Keeping

- ER register shall be filled properly with composite diagnosis or relevant differential for every patient.
- Duty registrar will sign register at the end of duty, and to be counter-signed by covering consultant for that day before morning meeting.
- Record of consultations provided to other department should be kept in the registrar.
- Death notes for patients who expired in ER should be written in the ER register immediately after the event.

#### Drugs and Investigations

List of drugs and lab profile available in hospital for ER patients should be available to each shift of ER staff.

#### BLS/ACLS Training

House officers and registrar should be trained in BLS/ ACLS before performing duties in E.R.

#### Dress Code

Dress should be conservative and modest and no informal clothing (jeans and T-shirts for males), party wears or excessive jewelry (for females) should be allowed, during duty hours.

Every doctor should wear neat and clean overall, with properly displayed ID card or name plate.

#### Medicines

- a. Sufficient stock of life saving medicines will be kept in the medicine trolley of the ER.
- b. Stock utilized will be recouped immediately and on regular basis.
- c. Controlled medicines will be demanded on a daily basis so as to recoup the stock utilized in the previous 24 hours.

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

#### Transport

- a. The following will be available at MER and will move under orders of the EMO/ CMO I/C MER:
  - i. Ambulances for transporting the patients.
  - ii. The drivers employed on 8 hourly shifts.
- b. When moving to collect the specialist the driver will be issued a duty slip bearing his/her residential address and telephone number.
- c. On return to the hospital this duty slip with the mileage covered will be put up to Manager Administration.

#### Patient Kit and Belongings

In case there is no attendant with the patient at the time of his admission then an inventory of his personal belongings will be made and the belongings will be kept in the hospital pack store and a receipt will be issued to the patient. In the event that the patient is unconscious, delirious or of unsound mind and there is no attendant with him the Nursing Supervisor will make an inventory of his personal belongings in the presence of a medical officer.

#### Paediatric Emergency

Paediatric emergency is divided into three portions

- a. Reception and waiting area
- b. Screening and examination area
- c. Causality area/Short stay

It should preferably be covered by two doctors in each shift i.e. Medical Officer/FCPS/MCPS Trainee. One doctor covering the screening clinic and the other one taking care of patient for admission/short stay and for procedures.

- **Wearing of white coat** with hospital I.D card is mandatory.
- **Medical Officer/FCPS/MCPS Trainee** must reach well in time in emergency ward to take proper over of short stay/Causality area cases.
- **Consultants** coverage time is from 8.00 am to 8.00 am.
- **Patients arrival** time must be mentioned on the ER card.
- **Short stay/ Causality area** cases should remain admitted for not more than or up to 3 hours. Patient needing prolonged stay should be advised admission by the ER doctor.
- **Doctor must carry** a red marker, pocket book, stamp, and stethoscope.
- **All Trainees (FCPS/MCPS), Medical officer** are supposed to be in in emergency department during their duty hours in emergency.
- **ER doctors** is supposed to run the screening clinic, complete the admission procedure, including detail history and physical examination of the child, blood sampling and initial management plan.
- **Before deciding** to admit the patient, doctor should be able to assess the socioeconomic status, reminding parents about hospital charges.
- **In case of any help** needed from the seniors (Consultants, Sr. Registrar, Registrar) all are available physically or by telephonic to help in diagnosing and managing the patient)
- **Critically sick patients** are always on priority.



## **Hospital Emergency Departments**

### **Operational Model for Public and Private Sector (first referral facilities)**

- **Medical Officer/FCPS/MCPS Trainee** must inform every critical situation and seriousness of patient to the Sr. Registrar/Registrar on call.
- **Critically sick patients** must be escorted by the doctor, staff nurse and ward helper to avoid the mishaps occurring on the way.

Page 85 of 113

## Hospital Emergency Departments

Operational Model for Public and Private Sector (first referral facilities)

### Anaphylactic and drug reactions, asphyxia, electric shock and drowning

Following catastrophic situations demand immediate and proper systematic interventions / treatment:

- a. Complete cerebral anoxia over 4 minutes will cause permanent damage and beyond 6-8 minutes will cause death.
- b. Cessation of normal circulation causes rapid cyclic deterioration which is characterized by hypoxia, lactic acidosis and hypercarbia. Pre-existing heart disease, electrolyte imbalance, medication or anesthetics may precipitate the collapse.
- c. The reflex vagus-induced arrests secondary to stimulation of the esophagus and tracheobronchial tree and similar arrest may occur during rectal and proctoscopic examination.
- d. Pre-anesthetic doses of atropine may have worn off by the end of a long (4 hour) operation and may make the patient more susceptible to the complication
- e. Electrolyte imbalance, mainly hyperkalemia either from endogenous or exogenous sources, is critical. The ration of ionized serum calcium to potassium and their antagonistic actions on the myocardium are important during massive transfusion of banked blood as it is high in potassium as well as calcium-binding citrate.
- f. Other causes of cardiac arrest include; pulmonary emboli, electrocution or any cause of hypoxia.
- g. Primary ventilatory failure is caused by hypoxia, central nervous system or spinal cord trauma and respiratory depression from narcotics.



## Hospital Emergency Departments

Operational Model for Public and Private Sector (first referral facilities)

### Management of Cardiopulmonary Arrest

#### a. Emergency Measures (A for Airway)

- i. Begin treatment if there is no obtainable blood pressure or pulse for 10 seconds
- ii. Place patient in supine position on a hard surface (metal or plastic tray under the chest)
- iii. Establish a clear airway
  - a. Clean out mouth and pharynx (manually or by suction)
  - b. Tilt head back and pull chin forward.
  - c. Insert an oropharyngeal airway or endotracheal tube, if necessary.

#### b. Establish Ventilation (B for Breathing)

- i. Mouth-to-mouth: A handkerchief may be interposed between the operator's mouth and patient.
- ii. Use "Ambu" bag and mask.
- iii. Provide an adequate tidal volume in accordance with the optimal chest excursion rate as under:
  - a. Adult-12 times per minute.
  - b. Children-20 times per minute.
  - c. Infants-30 times per minute.
  - d. Ventilate adults until chest expands to beyond normal size.
  - e. Children require less force, approximately that needed to inflate an ordinary toy balloon.
  - f. Infants are given only short puffs.

#### c. Closed Chest Cardiac Compression (C for Circulation)

##### i. Anatomic Considerations:

Pressure on the sternum compresses the heart and reduces the sizes of the thoracic cavity. This forces blood out of the ventricles and expels air from lungs. On release, blood flows into the large veins of the chest and into the atria and air enters the lungs.

##### ii. Method

- a. Patient remains in a supine position on a hard surface such as a tray or the floor, if necessary.
- b. The heel of the right hand with the heel of the left on top is placed on the lower third of the sternum just above the xiphoid.
- c. Firm pressure is applied downward and body weight brought forward to secure sufficient pressure. The sternum should move 4-6 cm, toward the vertebral column in adults. The force is transmitted directly to the heart behind the sternum. DO NOT exert pressure on rib cage or epigastrium.
- d. Hands should be quickly removed after each placement of pressure to allow intrathoracic venous fillings and the lungs to expand.
- e. Rate of pressure application should be 80 times per minute, slightly faster in children and infants. Also, the force applied must be moderated to fit the elastic

## Hospital Emergency Departments

### Operational Model for Public and Private Sector (first referral facilities)

properties of the thoracic cage. All that is needed is simple first and middle finger compression in the newborn infant.

- f. Observations for the signs of restoration of flow include a full carotid or femoral pulse, constricted pupils, return of skin color, spontaneous ventilation and movements.
- g. A systolic blood pressure of 60-80 mm Hg can be obtained if cardiac compression is correctly performed.
- h. The ratio of lung inflation (mouth-to-mouth breathing) to cardiac compression should be 1:5 when there is an assistant, and 2:15 (lung to heart) before help arrives.

#### d. Ventricular Fibrillation

- i. Immediately upon recognition of ventricular tachycardia or fibrillation, a sharp precordial thump with the closed fist is delivered as this important first maneuver is sometimes effective by depolarizing the myocardium and allows for a normal rhythm to develop
- ii. If ineffective, electrical defibrillation is performed in which after applying conductive jelly the defibrillation paddles are firmly placed on the chest, one over the upper sternum and the other to the right of the lower sternum (cardiac apex)
- iii. Only capacitor discharge (DC) defibrillators should be used, AC defibrillation is hazardous and may cause serious burns
- iv. The meter is set at about 400 watt-seconds (joules), all attendants are instructed to stand clear of the bed or supporting structures, the ECG machine must be turned off if it is not internally grounded during counter-shock
- v. Considerably less voltage is applied to children or to the exposed heart
- vi. Secure an electrocardiographic tracing as soon as possible and continue specific therapy as indicated by the tracing
- vii. Give epinephrine or isoproterenol and sodium bicarbonate as these drugs strengthen the contractions and permit easier defibrillation

**Annex-I****Triage Sheet**

Patient Name:.....

Age.....Gender: M F

Chief complaints:.....

Date.....Time of Arrival.....

**Part 1: Triage Early Warning Score (TEWS)**

Triage Parameter	Measured Value	TEWS Score
Mobility		
Respiratory Rate		
Heart Rate		
Blood Pressure		
Temperature		
AVPU		
Trauma		

TEWS Score:.....

Initial Triage Colour: RED ORANGE YELLOW GREEN BLUE

**Part 2: The Discriminator List**

1. Does the patient need to be triaged to a higher colour based on the discriminator list? Yes NO

2. What was the discriminator?.....

**Part 3: Final Triage Colour:**

RED ORANGE YELLOW GREEN BLUE



**Annex-II****Code Blue Feed Back Form**

Patient Name: \_\_\_\_\_ MR#: \_\_\_\_\_ Date: \_\_\_\_\_  
 Age/Sex: \_\_\_\_\_ Department: \_\_\_\_\_  
 Time \_\_\_\_\_

1. Code blue announced at (Time) \_\_\_\_\_
2. Code blue announced twice \_\_\_\_\_
3. Code blue announced thrice \_\_\_\_\_
4. Code blue team arrival times \_\_\_\_\_
5. ICU on duty MO /SR \_\_\_\_\_
6. ICU on duty Nurse \_\_\_\_\_
7. Dept. on duty Doctor \_\_\_\_\_
8. Dept. on duty H/N, S/N \_\_\_\_\_
9. Shift supervisor \_\_\_\_\_
10. Security \_\_\_\_\_
11. Ward boy/Ward helper \_\_\_\_\_
12. Cleaner \_\_\_\_\_
13. Cardiac board placed \_\_\_\_\_
14. Resuscitation initiated @ \_\_\_\_\_
15. CPR Done \_\_\_\_\_
16. Oxygen attached \_\_\_\_\_
17. Intubated \_\_\_\_\_
18. Medicines given Yes No
19. Total Resuscitation time \_\_\_\_\_
20. Code ended @ \_\_\_\_\_
21. Patients response \_\_\_\_\_
22. Code Blue team Leader \_\_\_\_\_

**REMARKS**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Shift supervisor Name: \_\_\_\_\_

**Annex-III****Resuscitation Form**

Patient name: \_\_\_\_\_ Age/Sex: \_\_\_\_\_ MR NO \_\_\_\_\_

Diagnosis: \_\_\_\_\_ Department: \_\_\_\_\_ Bed. \_\_\_\_\_  
No: \_\_\_\_\_

Attending consultant: \_\_\_\_\_

Time of arrest: \_\_\_\_\_ Date of arrest: \_\_\_\_\_ Time resuscitation start: \_\_\_\_\_

Time resuscitation end \_\_\_\_\_ Resuscitated by (Dr/Nurse Name) \_\_\_\_\_

Total Duration Resuscitation: \_\_\_\_\_ Type of Arrest: \_\_\_\_\_

Drugs / IV fluids	Time	Route	sign	Remarks
Others: DC shocks Intubation				
Ventilation				

Result patient: Revived: Yes / No Expired: \_\_\_\_\_ Disposal to: ICU / Morgue

1. Attending Doctor Name (ICU) \_\_\_\_\_ Signature: \_\_\_\_\_

2. Attending Doctor Name (MO/SR from Deptt) \_\_\_\_\_ Signature: \_\_\_\_\_

## Annex-IV

### Equipment and Supplies

This is not an exhaustive list and is rather, a tentative list based on common, minimal needs of 1st or 2nd referral Hospital. The Essential list of basic equipment and supplies needed for effective running of such an Accident & Emergency Department are listed below:

Capital Outlays
Resuscitator bag valve and mask (adult)
Resuscitator bag valve and mask (paediatric)
Oxygen source (cylinder or concentrator)
Mask and Tubings to connect to oxygen supply
Light source to ensure visibility (lamp and flash light)
Stethoscope
Suction pump (manual or electric)
Blood pressure measuring equipment
Thermometer
Scalpel # 3 handle with #10,11,15 blade
Scalpel # 4 handle with # 22 blade
Scissors straight 12 cm
Scissors blunt 14 cm
Oropharyngeal airway (adult size)
Oropharyngeal airway (pediatric size)
Forceps Kocher no teeth 12-14 cm
Forceps, artery
Kidney dish stainless steel appx. 26x14 cm
Tourniquet
Needle holder
Towel cloth
Waste disposal container with plastic bag
Sterilizer
Nail brush, scrubbing surgeon's
Vaginal speculum
Bucket, plastic
Drum for compresses with lateral clips
Examination table
Wash basin
Renewable Items
Suction catheter sizes 16 FG
Tongue depressor wooden disposable
Nasogastric tubes 10 to 16 FG
Batteries for flash light (size C)
Intravenous fluid infusion set
Intravenous cannula # 18, 22, 24
Scalp vein infusion set # 21, 25
Syringes 2ml
Syringes 10 ml
Disposable needles # 25, 21, 19
Sharps disposal container



Capital Outlays
Capped bottle, alcohol based solutions
Sterile gauze dressing
Bandages sterile
Adhesive Tape
Needles, cutting and round bodied
Suture synthetic absorbable
Splints for arm, leg
Urinary catheter Foleys disposable #12, 14, 18 with bag
Absorbent cotton wool
Sheeting, plastic PVC clear 90 x 180 cm
Gloves (sterile) sizes 6 to 8
Gloves (examination) sizes small, medium, large
Face masks
Eye protection
Apron, utility plastic reusable
Soap
Inventory list of equipment and supplies
Best practice guidelines for emergency care
Supplementary equipment for use by skilled health professionals
Laryngoscope handle
Laryngoscope Macintosh blades (adult)
Laryngoscope Macintosh blades (paediatric)
IV infuser bag
Magills Forceps (adult)
Magills Forceps (paediatric)
Stylet for Intubation
Spare bulbs and batteries for laryngoscope
Endo-tracheal tubes cuffed (# 5.5 to 9)
Endo-tracheal tubes un-cuffed (# 3.0 to 5.0)
Chest tubes insertion equipment
Crico-thyroidectomy

## Annex-V

### Essential Medicines

A tentative list of Essential medicines based on common, minimal needs of 1<sup>st</sup> or 2<sup>nd</sup> referral Hospital needed for effective running of such an Accident & Emergency Department are listed below:

1. 50% Dextrose	2. Hydrocortisone
3. Adrenaline	4. IM Glucagon
5. Nor-adrenaline	6. Insulin
7. Anti snake venom serum	8. IV calcium Gluconate
9. Aspirin	10. IV Dopamine
11. Atropine	12. IV Fluid - all type
13. Anti Tetanus Serum	14. IV Frusemide
15. Dextran/ voluven	16. IV KCl
17. Diazepam	18. IV Vit K
19. Dobutamine	20. Labetalol
21. Etomidate	22. Lignocaine
23. Fresh Frozen Plasma	24. 10% xylocaine spray
25. Gelofusin	26. Magnesium Sulphate
27. Group O neg whole blood	28. Mannitol
29. Heparin	30. Midazolam
31. Hydralazine	32. Morphine
33. Naloxone	34. Phenylephrine
35. Nitroglycerine	36. Propofol
37. Oral Rehydration Salt (ORS)	38. Salbutamol
39. Oxygen supply	40. Sodium bicarbonate
41. Pethidine	42. Suxamethonium

## Annex-VI

## The CTG discriminator list (adult version)

(Cape Triage Score)

Colour		Yellow
TEWS		3 - 4
Target time to treat		Less than 60 min
Mechanism of injury		
Presentation		Haemorrhage - controlled
		Dislocation - finger or toe
		Fracture - closed
		Burn - other
		Abdominal pain
		Diabetic - glucose over 17 (no ketonuria)
		Vomiting - persistent
		Pregnancy and trauma
		Pregnancy and PV bleed
Pain		Moderate
	Scoring health care professionals' discretion	

ADULT TRIAGE SCORE							
Mobility				Walking	With help	Stretcher/immobility	
RR		Less than 9		9 - 14	15 - 20	21 - 29	More than 29
HR		Less than 41	41 - 50	51 - 100	101 - 110	111 - 129	More than 129
SBP	Less than 71	71 - 80	81 - 100	101 - 199		More than 199	
Temp		Less than 35		35 - 38.4		38.5 or more	
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive
Trauma				No	Yes		
Over 12 years/older than 150 cm							



## Annex-VII

## Children Triage Score (3-12 Years, 96-150CM) TEWS

	3	2	1	0	1	2	3	
Mobility				Walking	With Help	Stretcher/Im mobile		Mobility
RR	Less than 15	15-16		17-21	22-26	27 or more		RR
HR	Less than 60	60-79		80-99	100-129	130 or more		HR
Temp		Cold or Under 35		35-38.4		Hot or Over 38.4		Temp
AVPU		Confused		Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma

3 to 12 years old/96 to 150 cm tall

## Children (3-12 Years, 96-150CM) Discriminatory List

COLOUR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	0-2
Target time to treat	Immediate	Less than 30 mins	Less than 60 mins	Less than 2 hours	Less than 2 hours
Mechanism of injury					
Presentation	Drooling	Inability to swallow			
		Shortness of breath			
		Stridor			
	Seizure – Current	Wet vomit			
		Hemorrhage – controlled	Hemorrhage – Uncontrolled		
		Stroke – Ischemic			
	Burn – face / inhalation	Fast neuroglycopenic			
		Unilateral decreased pupillary response			
		Exhaustion			
		Dehydration			
		Dislocation – other joint	Dislocation – finger of toe		
		Fracture – compound	Fracture – closed		
		Burn – over 10%			
		Burn – electrical			
		Burn – circumferential			
		Burn – chemical	Burn – other		
	Hypoglycemia – glucose less than 3	Respiratory/Overdose	Abdominal pain		
		Diabetic – glucose over 11.1 & ketonuria	Diabetic – glucose over 17 (no ketonuria)		
		Dehydration	Inappropriate history		
Pain		PR bleeding	Inappropriate history		
		Severe	Moderate		
	Senior Healthcare Professional's Discretion				

## Annex-VIII

## Infant Triage Score (&lt;3yrs, &lt;95CM) TEWS

	3	2	1	0	1	2	3	
Mobility				Normal for Age		Stretcher/Im mobile		Mobility
RR	Less than 20	20-25		26-39		40-49	50 or more	RR
HR	Less than 70	70-79		80-130		131-159	160 or more	HR
Temp		Cold or Under 35		35-38.4		Hot OR Over 38.4		Temp
AVPU				Alert	Reacts to Voice	Reacts to Pain	Unresponsive	AVPU
Trauma				No	Yes			Trauma
Younger than 3 years / smaller than 95 cm								








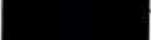



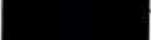



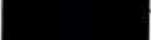
## Infant (&lt;3yrs, &lt;95CM) Discriminatory List

COLOUR	RED	ORANGE	YELLOW	GREEN	BLUE
TEWS	7 or more	5-6	3-4	0-2	DEAD
Target time to treat	Immediate	Less than 10 mins	Less than 60 mins	Less than 240 mins	
Mechanism of injury		High energy transfer			
	Dracing = Stridor	Shortness of breath			
		Wheeze			
		Hemorrhage - Uncontrolled	Hemorrhage - Uncontrolled		
	Seizure - Current	Seizure - Postictal			
		Focal neurology acute			
		Level of consciousness reduced			
		Floppy infant			
		Purpura			
		Dislocation - other joint	Dislocation - finger of toe		
Presentation		Fracture - compound	Fracture - closed	ALL OTHER PATIENTS	DEAD
		Burn - over 10%	Unable to weight bear		
	Burn - face / inhalation	Burn - electrical	Burn - other		
		Burn - circumferential			
		Burn - chemical	Abdominal pain		
	Hypoglycemia - glucose less than 3	Poisoning / overdose			
		Dehydration	Vomiting - persistent		
			Not feeding		
			Not urinating		
			Inappropriate history		
			Prolonged or uninterrupted crying		
Pain		Severe	Moderate	Mild	
	Senior Healthcare Professional's Discretion				







## Annex-IX

### Examples of Triage systems and Triage Scoring Systems internationally in vogue

Scoring System	Countries /regions								
<p>The "Triage Revised Trauma Score or TRTS" ,</p>	Western Europe								
<p><b>The Injury Severity Score (ISS)</b></p> <p>Score based on severity of injury to the human body from 0 to 75 is assigned into the following categories:</p> <p style="margin-left: 40px;">A: Face / neck / head B: thorax / abdomen C: extremities / external / skin</p> <p>Each category is scored from 0 to 5, using the abbreviated injury scale (from un-injured to the critically injured) which is then squared and summed to create the ISS. A score of 6 for un-survive-able can also be used for any of the three categories and automatically set the score to 75 regardless of other scores</p>	Developed in Maryland, USA and internationally used to determine severity of trauma and probability of mortality								
<p><b>United Kingdom</b></p> <p>In the UK, Smart Incident Command System is the commonly used triage system, where casualties are graded from Priority 1 (needs immediate treatment) to Priority 3 (can wait for delayed treatment), with an additional Priority 4 (expectant, where patients are likely to die even with treatment). However, only senior medical authority can assign and pronounce such category.</p> <ul style="list-style-type: none"> <li>•  <b>Dead</b> – patients with trauma score 0 to 2 &amp; are beyond help</li> <li>•  <b>Priority 1</b> – patients who have a trauma score of 3 to 10 (RTS) and need immediate attention</li> <li>•  <b>Priority 2</b> – patients with trauma score of 10 or 11, can wait for transport to definitive medical attention</li> <li>•  <b>Priority 3</b> – patients who have a trauma score of 12 (maximum score) and can be delayed before transport from the scene</li> </ul>	United Kingdom								
<p><b>Finland:</b></p> <p>Triage is performed by a paramedic or an emergency physician using the four level scale given as under:</p> <table border="1" style="margin-left: 40px;"> <tr> <td></td><td>Can wait</td></tr> <tr> <td></td><td>Has to wait</td></tr> <tr> <td></td><td>Cannot wait</td></tr> <tr> <td></td><td>Lost</td></tr> </table>		Can wait		Has to wait		Cannot wait		Lost	Finland
	Can wait								
	Has to wait								
	Cannot wait								
	Lost								



<p><b>France</b> The Pre-hospital triage is undertaken in France by using the following four level scale</p> <table border="1"> <tr> <td>DCD</td><td>Deceased</td></tr> <tr> <td>UA</td><td>Urgence absolute</td></tr> <tr> <td>UR</td><td>Urgence relative</td></tr> <tr> <td>UMP</td><td>Medical – psychological urgency (lightly wounded or just psychologically shocked)</td></tr> </table>	DCD	Deceased	UA	Urgence absolute	UR	Urgence relative	UMP	Medical – psychological urgency (lightly wounded or just psychologically shocked)	France		
DCD	Deceased										
UA	Urgence absolute										
UR	Urgence relative										
UMP	Medical – psychological urgency (lightly wounded or just psychologically shocked)										
<p><b>Germany</b> The Preliminary assessment is done by the first ambulance crew on scene, and then by the first doctor arriving the scene. At the treatment facility, a 90 second full body assessment is done followed by triage as per following classification:</p> <table border="1"> <tr> <td>T 1</td><td>Acute danger for life : immediate transport and immediate treatment</td></tr> <tr> <td>T2</td><td>Severe Injury (constant observation, early transport and rapid treatment)</td></tr> <tr> <td>T3</td><td>Minor or no injury : treatment when practical</td></tr> <tr> <td>T4</td><td>No or small chance of survival: observation &amp; Analgesia</td></tr> <tr> <td></td><td>Deceased : (injuries not compatible with life) - identification</td></tr> </table>	T 1	Acute danger for life : immediate transport and immediate treatment	T2	Severe Injury (constant observation, early transport and rapid treatment)	T3	Minor or no injury : treatment when practical	T4	No or small chance of survival: observation & Analgesia		Deceased : (injuries not compatible with life) - identification	Germany
T 1	Acute danger for life : immediate transport and immediate treatment										
T2	Severe Injury (constant observation, early transport and rapid treatment)										
T3	Minor or no injury : treatment when practical										
T4	No or small chance of survival: observation & Analgesia										
	Deceased : (injuries not compatible with life) - identification										
<p><b>United States of America</b> First responders could be police, fire rescue, paramedics, or community individuals with disaster training, trained to perform first aid, by using basic lifesaving and rescue techniques.</p> <ul style="list-style-type: none"> <li>  <b>Immediate:</b> The casualty requires immediate medical attention and will not survive if not treated soon. Any compromise to the casualty's respiration, hemorrhage control, or shock control could be fatal.         </li> <li>  <b>Delayed:</b> The casualty requires medical attention within 6 hours. Injuries are potentially life-threatening, but can wait until the immediate casualties are stabilized and evacuated.         </li> <li>  <b>Minimal:</b> "Walking wounded," the casualty requires medical attention when all higher priority patients have been evacuated, and may not require stabilization or monitoring.         </li> <li>  <b>Expectant:</b> The casualty is not expected to reach higher medical support alive without compromising the treatment of higher priority patients. However, care should not be abandoned, as they would deserve time and resources available after Immediate and delayed patients have been treated.         </li> </ul>	United States of America										

<p><b>Canada</b></p> <p>(Started as triage by Primary Care level paramedics, in Victoria General Hospital, Nova Scotia, Canada )</p> <p><b>Canadian Triage and Acuity Scale (CTAS)</b></p> <p>This model is being used by paramedics and emergency room nurses for routine emergencies, and allows for pre-arrival notifications, too. This model contemplates categorization of all incoming patients by using both injury and physiological findings, and ranks by severity from 1 (highest) to 5 (lowest). The system is not being used for mass casualties.</p> <table><tr><th>Level</th><th>Description</th><th>Should be seen within:</th></tr><tr><td>1</td><td>Resuscitation</td><td>0 minutes</td></tr><tr><td>2</td><td>Emergency</td><td>15 minutes</td></tr><tr><td>3</td><td>Urgent</td><td>30 minutes</td></tr><tr><td>4</td><td>Less urgent</td><td>60 minutes</td></tr><tr><td>5</td><td>Non-urgent</td><td>120 minutes</td></tr></table>	Level	Description	Should be seen within:	1	Resuscitation	0 minutes	2	Emergency	15 minutes	3	Urgent	30 minutes	4	Less urgent	60 minutes	5	Non-urgent	120 minutes	<p>Canada</p>
Level	Description	Should be seen within:																	
1	Resuscitation	0 minutes																	
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4	Less urgent	60 minutes																	
5	Non-urgent	120 minutes																	
<p><b>The Australian Triage Scale (ATS) formerly National Triage Scale</b></p> <p>The scale ranges from level 1 (most critical) to level 5 (least critical or non-urgent, with assigned priorities as under:</p> <table><tr><th>Level</th><th>Description</th><th>Should be seen within:</th></tr><tr><td>1</td><td>Resuscitation</td><td>0 minutes</td></tr><tr><td>2</td><td>Emergency</td><td>10 minutes</td></tr><tr><td>3</td><td>Urgent</td><td>30 minutes</td></tr><tr><td>4</td><td>Semi-urgent</td><td>60 minutes</td></tr><tr><td>5</td><td>Non-urgent</td><td>120 minutes</td></tr></table>	Level	Description	Should be seen within:	1	Resuscitation	0 minutes	2	Emergency	10 minutes	3	Urgent	30 minutes	4	Semi-urgent	60 minutes	5	Non-urgent	120 minutes	<p>Australia and New Zealand</p>
Level	Description	Should be seen within:																	
1	Resuscitation	0 minutes																	
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<p><b>Simple Triage And Rapid Treatment (S.T.A.R.T)</b></p> <p>Being very simple, even the emergency personnel with little training can use.</p> <p>Triage separates the injured into four groups:</p> <ul style="list-style-type: none"><li>• The <i>expectant</i> who are beyond help</li><li>• The injured who can be helped by immediate transport</li><li>• The injured whose transport can be <i>delayed</i></li><li>• Those with <i>minor</i> injuries who need help less urgently</li></ul> <p>Triage also sets priorities for evacuation and transport as follows:</p> <p><i>Deceased</i> are left where they fell. These include those who aren't breathing and repositioning their airway efforts were unsuccessful.</p> <ul style="list-style-type: none"><li>• <b>Immediate or Priority 1 (red)</b> evacuation by Airlift if available or <u>ambulance</u> as they need advanced medical care at once or within 1 hour. These people are in critical condition and would die without immediate assistance.</li><li>• <b>Delayed or Priority 2 (yellow)</b> can have their medical evacuation delayed until all immediate people have been transported.</li></ul>	<p>California Emergency Workers in earthquakes (community emergency response teams)</p>																		



<p>These people are in stable condition but require medical assistance.</p> <ul style="list-style-type: none"> <li>• <b>Minor or Priority 3 (green)</b> are not evacuated until all immediate and delayed persons have been evacuated. These will not need advanced medical care for at least several hours.</li> </ul> <p>Continue to re-triage in case their condition worsens. These people are able to walk and may only need bandages and anti-septic.</p>	
<p><b>Jump Start (pediatric) Triage</b></p> <p>This Mass Casualty Incidents (MCI) triage tool is a variation of the S.T.A.R.T model, designed for triaging children from infancy to eight years of age.</p>	
<p><b>Hospital (in-patients) Triage Systems</b></p> <p>On arrival of the patient in the Emergency, as a first step, the hospital triage nurse would assess the patient, so as to determine priority for admission in the emergency and for treatment.</p> <p>In every larger, tertiary care hospital having a significant patient flow into the Emergency Department, there should be a well-defined process of decision making regarding admission and discharge/referral (internal and /or external) in the Emergency Department. There should be a process owner body or team to manage available bed strength that may include Head Nurse of the floor, and the senior internal medicine specialist (full time Emergency Physician). The team should have a defined process and a well-considered operational plan, so as to facilitate the emergency room physicians and nurses towards deciding which patients have been stabilized and can be transferred, and simultaneously which / how many requests for new admissions can be accommodated.</p> <p>Decision regarding admission or referral is made by the Emergency Room Physician, by also considering available bed space and hospital's capacity. Similar decision making is done by the surgical, orthopedic and neurosurgical (if available) teams in the Emergency Department.</p>	
<p><b>Conventional Classification of the Triage process</b></p> <ul style="list-style-type: none"> <li>• <b>Black/ Expectant:</b> These are the patients so severely injured that they will die of their injuries in hours or days. Examples include large area burns, lethal radiation dose, severe trauma to head or chest, or in life threatening medical crisis, that are unlikely to survive (cardiac arrest, septic shock etc.)</li> <li>• <b>Red/Immediate:</b> Such patients cannot wait, and require immediate surgery or other life-saving intervention, and have first priority for</li> </ul>	



treatment, or transport to the advanced facility level. Such patients are likely to survive with immediate treatment.

- **Yellow / Observation:** Such patients are stable for the moment, but require watching by trained persons and frequent re-triage.
- **Green / Wait:** (Walking wounded) these are the patients requiring doctors' care in several hours or days, but not immediately. Examples include soft tissue injuries, fracture of small bones (not a compound fracture).
- **White/ dismiss:** (walking wounded) such patients may have minor injuries where first-aid and home care would suffice and the injuries may include scrapes, minor burns or superficial cuts.

## Referral Guidelines

### Annex-X

## GUIDELINES FOR REFERRAL / TRANSPORT OF CRITICALLY ILL / INJURED PATIENTS

### Preamble

As per the internationally accepted Standard Operating Procedures (SOPs), referral is a process whereby the healthcare provider of a health facility seeks assistance of healthcare providers having better expertise and higher-level facilities to take over the responsibility to manage the particular clinical condition of the patient. Typically the health facilities where patients are referred from other facilities are supposed to have better infrastructure, more qualified human resource and advanced technology for diagnosis and management of patients requiring specialized care. While referral of patients in need of specialist advice from a general practitioner to a specialist clinic or hospital is a norm, referral of critically ill patients from one health facility to the other is an issue of concern. The referral therefore, need to be regulated in order to ensure safety of the patient during transit, and upon arrival at the place of referral.

The Public Sector Healthcare system in Pakistan comprises of primary, secondary, and tertiary level healthcare facilities. The Primary health care facilities include basic health units (BHUs), rural dispensaries, mother and child health centers (MCHCs) and the rural health centers (RHCs). These facilities are manned by essential staff to provide preventive and promotive healthcare bedside, treatment of minor ailments. The services are delivered through facility-based staff supported by outreach teams. Secondary level healthcare facilities, include District Headquarter (DHQ) and Tehsil headquarter (THQ) hospitals, which provide specialized care on both outpatient and in-patient basis in addition to the primary healthcare package. The DHQ and THQ hospitals also take referrals not only from the RHCs /BHUs but also from the private healthcare providers/ healthcare facilities. Tertiary care health facilities are mainly located in mega cities and are affiliated with undergraduate and postgraduate teaching and research institution. Secondary and tertiary care facilities are generally open on 24/7 basis and provide specialized and super specialized healthcare to the patients directly approaching these facilities as well as to the referrals from the public and private sector.

Although the Government is the largest single provider of the healthcare services, the private sector, has emerged in a big way during the three decades by establishing small, medium and mega private hospitals in addition to the clinics of general practitioners (GPs). The private sector facilities, providing varied range of healthcare have grown as for-profit business ventures over the years particularly in the peripheral districts. Most of these for-profit facilities except for those located in metropolitans however, are generally deficient in terms of infrastructure, qualified human resource and equipment required for providing specialized healthcare and handling complications of medical problems.

The poorly equipped and inadequately manned peripheral health facilities would more often, initially, accept any incoming patient, and would attempt definitive treatment / procedure, e.g. normal vaginal delivery, or an appendix surgery etc. However, during the subsequent course of treatment, in case of complications, the treating person would try to shift the patient in a precarious condition, by making a hasty referral to the nearest (often a public sector) secondary level healthcare facility. The secondary level facility in turn, would refer such cases to the nearby tertiary care facilities including the provincial capital. As such, insufficient backup facilities, inadequately qualified and trained human resources,



## Referral Guidelines

and lack of facilities for 24/7 critical care at such peripheral health facilities is the most common reason of referrals.

Referring patients from lower level to the higher-level facilities for specialized care to the patients and for handling the complicated cases is a common practice both, in public as well as private sector. Major bulk of referrals is however, made to the tertiary care hospitals in the public sector. Since neither the catchment area of the public and private sector facilities is prescribed, nor the referral pathway is defined, the referrals are made based on the discretion of the referring facilities or sometimes based on the choice of the patients/ families. The referral should be an important tool to ensure continuity of care provided to the patients by ensuring access to relevant services for physical, psychological and social needs through all the stages of referral process. All referrals to higher-level facilities for specialized care, whether for the critically sick or the elective cases, should contain essential documentation regarding the disease condition. The documentation should inter-alia cover the preliminary assessment, treatment provided, lab investigations performed and the pertinent information regarding the referral facility along with the purpose of referring. In case, the referred patient needs medical care during transportation that should be accordingly managed.

Following guidelines need to be practiced by all healthcare facilities both, public and private in letter and spirit while referring the patients:

- i. A typical referral would require stabilizing the patient, informing the patient's family, identifying the need for a nursing escort (if so required), identifying a caregiver, and prepare for the transport.
- ii. The referral documents must contain patient's identity, medical details and the general condition.
- iii. The Injured Persons (Medical Aid) Act, 2004 explains "injured person" as a person injured due to traffic accident, assault or *any other cause who is in need of an immediate treatment*. The Act (in terms of Section 6) further *provides that an injured person shall not be shifted from a hospital until he is stabilized or the requisite treatment is not available in such hospital and while shifting him to another hospital, the doctor concerned shall complete the relevant documents with regard to the clinical conditions of the patient and hand over such documents to the concerned doctor of the receiving hospital.*
- iv. Such record referred above shall be maintained by the referring hospital as well as the receiving hospital and the In-charge of the hospital shall be responsible for ensuring that such record is kept in a safe custody where it cannot be tampered with; provided that where necessary an injured person shall not be shifted unless he is accompanied by a doctor of the referring hospital.
- v. Section 5 of the Punjab Emergency Service Act, 2006 empowers Rescue Service to arrange transport (transport vehicle or ambulance) where necessary for carrying persons requiring emergency medical treatment to the nearest hospital emergency or healthcare unit having such arrangements. Section 17 of the said Act also enables the Emergency Officer or the Rescuer to administer such life safety procedures as are consistent with their training and competence.
- vi. The Minimum Service Delivery Standards (MSDS) prescribed by the Punjab Healthcare Commission, under its regulatory framework, provide clear mechanism and SOPs regarding



## Power Failure: SOPs to ensure patient safety in the wake of power failure

### Annex-XI

#### Power Failure and SOPs to ensure patient safety in the wake of power failure

<b>Reports of intraoperative power failure.</b> Abbreviations: OR – operating room; PACU – post-anesthesia care unit; ESU – electrosurgical unit; ICU – intensive care unit; CABG – coronary artery bypass graft; CPB – cardiopulmonary bypass; ACT – activated clotting time; TOF – train-of-four; TIVA – total intravenous anesthesia				
Year	Scenario	Root Cause	Outcomes	Recommendation
2010	Complete loss of power on two consecutive days 9 operations in progress Outage lasted 13 minutes on day 1 and 9 minutes on day 2	Fault within the switching panel that controlled whether the hospital used municipal power or emergency generator power Unclear if generators worked	Anesthesia monitors failed and “clinical monitoring” was used until portable transport monitors arrived Video towers and imaging systems failed Surgical lights, ventilators, gas delivery systems and CPB continued because of built-in batteries	An uninterruptible power supply system for the OR should be installed as this would allow at least one hour of power in the ORs in order to complete ongoing procedures Staff should be familiar with power requirements of equipment
2010	Partial hospital power failure with loss of power to emergency (generator) system 8 operations in progress, including a craniotomy, Whipple procedure, and kidney transplant Outage lasted 15 minutes	During construction of a phase loss relay in main hospital circuit become dislodge, simulating loss of municipal power A critical branch transfer switch then connected hospital power to an emergency generator that was disabled for servicing “Red outlets” that were supplied by generator lost power		

## Power Failure: SOPs to ensure patient safety in the wake of power failure

2005	<p>Complete loss of hospital power Emergency generators failed in wing of hospital with operating room, but functioned elsewhere Complex oral and maxillofacial operation in progress Outage lasted days</p>	<p>Multistate power outage (Northeast blackout of 2003)</p>	<p>Room lights failed Anesthesia machine display and monitors worked, but ventilator bellows could not be seen in the dark TIVA initiated. Patient ventilated with self-inflating resuscitation bag and tank oxygen Once portable lights confirmed normal bellows function and pipeline gas supply, anesthesia machine resumed ventilation with volatile agent Operation was suspended, patient was left intubated and transported to PACU Operation completed the next day in a different building which had generator power</p>	<p>Anesthesiologists have a critical leadership role in the OR during crisis. Clear communication and thoughtful planning are key to avoiding panic Daily equipment checks should include flashlights and batteries in every room The battery life of anesthesia equipment should be determined Consider resuming spontaneous ventilation under anesthesia as a safety precaution in case anesthesia machine battery fails<sup>7</sup></p>
2001	<p>Complete loss of hospital power 3 operations in progress: ankle fusion, pelvic extenteration, and radical neck dissection Outage lasted &gt;1 week, requiring evacuation of all hospital patients</p>	<p>Fire in electrical vault Electricity still supplied to building by municipal power but unable to be distributed throughout hospital Main and backup generators destroyed by fire</p>	<p>Flashlight used for light source in ORs Anesthesia machines continued to function on battery Wall suction failed and portable suction unit used Electrosurgical units failed and battery-powered bipolar eye electrosurgical units and vessel ligation were used to achieve hemostasis Automated drug supply cabinets failed All operative procedures were near completion and incisions were closed</p>	<p>Create emergency staffing plan that identifies specific staff member responsibilities and roles Battery operated ESUs and suction should be available Perform mock disaster drills quarterly Pharmacy services should have a plan to ensure availability of medications to operating rooms Flashlights and paper intraoperative records should be available in ORs<sup>8</sup></p>

## Power Failure: SOPs to ensure patient safety in the wake of power failure

2000	<p>Complete loss of hospital power</p> <p>Both emergency generators failed</p> <p>Carotid endarterectomy in progress</p> <p>Outage lasted 30 minutes</p>	<p>Construction workers accidentally drove a steel pile through the hospital's main incoming power cables</p> <p>The first generator did not start at all. The second generator started, but was quickly overloaded and then failed</p>	<p>Room lights failed except for one light with a back-up battery</p> <p>Anesthesia machine ventilator continued to function</p> <p>Patient monitors failed, including gas analyzer and capnography. Surgeon watched pulsations of the carotid artery until a portable monitor was available</p> <p>Capnography and agent monitoring remained unavailable</p> <p>The case was aborted, and the patient was taken to the ICU</p>	<p>Emergency generator planning should take into account the load placed on one generator in case a second generator fails<sup>9</sup></p>
1995	<p>Complete loss of hospital power</p> <p>Ongoing cardiac case with patient on CPB</p> <p>Outage lasted 53 minutes</p>			
1993	<p>Operating room loss of power. No mention of other hospital areas</p> <p>Ongoing laparotomy</p> <p>Emergency generators worked for approximately 3 minutes, then failed</p> <p>Outage lasted 45 minutes</p>			



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## PUNJAB HEALTHCARE COMMISSION

No. PHC/CG&OS/2022/ 2-0

Dated: 14<sup>th</sup> December, 2022

The Secretary,  
Specialized Healthcare and Medical Education Department,  
Government of the Punjab,  
Lahore.

**Subject: Guidelines for Hospital Emergency Departments-Recommendations of the Consultative Meeting of the Experts held on 28<sup>th</sup> June, 2022**

Kindly refer to this office earlier communication issued vide NO.PHC/CG&OS/2022/652 dated 19<sup>th</sup> July, 2022 whereby certain consensus based recommendations of the experts concluded in the meeting for developing Hospital Emergency Guidelines held on 28<sup>th</sup> June, 2022 were forwarded to the Specialized Healthcare and Medical Education Department, for consideration so as to improve quality of healthcare and patient safety in the emergency care.

2. The Sub-Committee of the Emergency Experts in its subsequent meeting held on 2<sup>nd</sup> December, 2022 has made recommendations to prescribe the following Minimum / Mandatory Requirements to be complied by all the Hospitals (public and private):

- (i). At least 10% of the total bed strength to be allocated in the Hospital Emergency Department
- (ii). In the Emergency Departments of multi-specialty Tertiary care / Teaching hospitals and Secondary referral (DHQ level+) facilities with 24-hour availability of specialist cover, the following services should be made available in Emergency Departments:
  - a. Primary care of burn patients in Emergency
  - b. Paediatric Surgery / primary trauma care for children
  - c. Integrated Diagnostic (Lab & Radiology) services to be accessible to the emergency patients
  - d. Maintaining Electronic Medical Records
  - e. Appointment of dedicated staff including doctors having post-graduate qualification in Emergency Care (FCPS Emergency Medicine or equivalent), with incentivized pay package and career structure
  - f. Similar incentivized service structure for nurses having post-graduate qualification and training in ICU, CCU & Accident & Emergency nursing, etc., and working in such areas
- (iii). Emergency Department should be so located to be easily accessible from Entry Point without any physical barriers / obstructions; and allowing hassle free movement of the patient through trolley/stretcher/hospital bed, or wheelchair
- (iv). The facilities in the Emergency Department should be integrated with diagnostic and support services of the hospital, to provide easy access for staff and the patients
- (v). There should be dedicated staff (Doctors, Nurses & allied) allocated for emergency department, and must be trained in life saving skills as applicable (ACLS/ATLS/ ALSO /BLS etc.)
- (vi). The duty roster of the staff for each shift must be displayed in the emergency department preferably on LCD






## PUNJAB HEALTHCARE COMMISSION

- (vii). Duty Roster of Medical, Nursing & Allied staff on duty in the Emergency should provide for adequate overlap in time for smooth handing over and taking over of patients, that must be documented, and verifiable.
- (viii). Minimum set of dedicated equipment as per the declared scope of service by the hospital administration should be available in the Emergency Department
- (ix). Physical Environment and infrastructure should be so designed to allow for smooth and unobstructed, safe movement of patient for the purpose of shifting, referral or discharge, for the purpose of diagnostic tests or procedures
- (x). The Emergency Department should have easy access to public utility area, i.e., waiting room, toilets, etc.
- (xi). The physical environment should provide segregated utility area with sufficient privacy, to the medical and nursing staff for refreshment / changeover, with permitted bathroom break period (e.g., 20 minutes each during six hours duty)

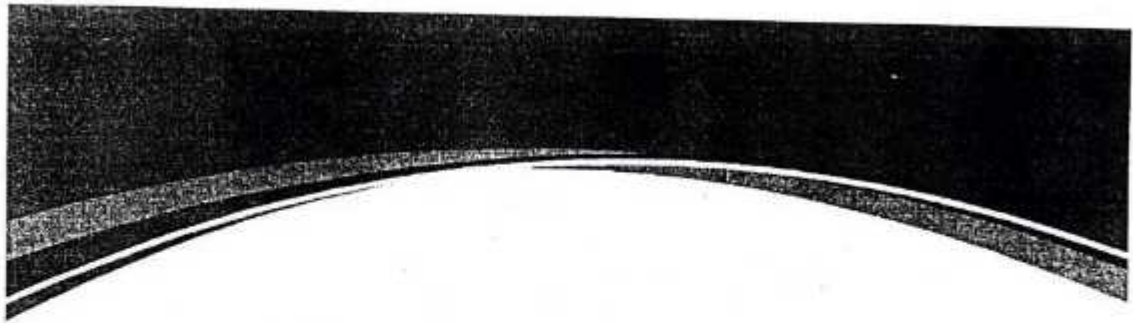
4. In view of the aforesaid, the Commission would, urge the Specialized Healthcare and Medical Education Department to take appropriate action on the above referred recommendations, so that quality of healthcare and patient safety particularly in the emergency care can be optimized. In the first instance, it is proposed to:

- (1). Allocate reasonable number of paid post-graduate trainee slots for FCPS Emergency Medicine on yearly basis in leading hospitals of Punjab, recognized for FCPS training by the CPSP
- (2). Initiate nine months short course/diploma in emergency medicine for doctors
- (3). Identify already qualified FCPS Emergency Medicine doctors working in the Health Department and assign them the responsibility to work as Emergency In-charge / specialist in hospital emergency medicine
- (4). Initiate a comprehensive three weeks hands-on training programme for a batch of mid-level to senior level nurses for training them as "Triage Nurses" to be assigned in selected public sector hospital emergency departments on pilot basis.

  
 Chief Executive Officer, PHC

CC:

- 1. The Secretary I&C, S&GAD, Government of the Punjab
- 2. The Secretary, P&SHC Department, Lahore
- 3. The Director General Health Services Punjab, Lahore
- 4. The Director General Nursing Punjab, Lahore



# **Assessment of Emergency Medical Services of Large Hospitals of Lahore**



**Punjab Healthcare Commission**

*Striving for Quality Healthcare in Punjab*

**December 2022**



## Contents

1	Introduction and Background .....	1
2	Purpose of the Assessment .....	1
3	Methodology .....	2
3.1	Literature review .....	2
3.2	Assessment Tool .....	2
3.3	Inspections .....	3
3.4	Data management .....	3
4	Findings .....	3
4.1	Physical Infrastructure .....	3
4.2	Essential Equipment .....	5
4.3	Essential Medicines .....	6
4.4	Emergency Department Staff .....	7
	Table-5: Emergency Department Staff .....	7
4.5	Staff Training .....	8
4.6	Services Provided in ED .....	8
4.7	Consultants' Visits & Monitoring .....	10
4.8	Availability of ED SOPs & their Implementation .....	10
4.9	Maintenance of Patient Record .....	12
4.10	Blood Transfusion Services .....	12
4.11	Firefighting Arrangements .....	13
4.12	Waste Management System .....	13
4.13	Operation Theater Facilities .....	13
4.14	Diagnostic Services .....	14
	Annexure A: Check List for Assessment of Emergency Department .....	15



## Acronyms

A&E	Accident and Emergency
ACLS	Advance Cardiac Life Support
BCLS	Basic Cardiac Life Support
CCU	Cardiac Care Unit
EMO	Emergency Medical Officer
EMS	Emergency Medical Services
ED	Emergency Department
ICU	Intensive Care Unit
MSDS	Minimum Service Delivery Standards
OT	Operation Theater
P&SHD	Primary and Secondary Healthcare Department
PALS	Pediatrics Advanced Life Support
SOPs	Standard Operating Procedures
W.P	Writ Petition

## 1 Introduction and Background

Emergency Medical Care is an important component of health care system. However, it is ignored in many third world countries including Pakistan. Emergency care can make a significant contribution in reducing avoidable deaths and disabilities.

As regulator of the healthcare services, the Commission is mandated to develop and enforce standards through Registration and Licensing of the Healthcare Establishments. As far as the specific provisions relating to the Emergency Services in Hospitals are concerned, the Minimum Service Delivery Standards (MSDS) for Category-I hospitals (having more than 50 beds) lay due emphasis on delivering emergency services in accordance with law, with the objective to ensure patient safety. More particularly, Standard-3 requires that the Emergency Services are guided by Policies, Procedures and Applicable laws and Regulations. As such, the hospitals need to have an Emergency Care Policy and plan, covering the administration of the emergency area including triage, waiting times, admission/registration, legal reporting requirements, discharge and patient transfer. Standard further requires that the Emergency Department (ED) should be appropriately staffed and must have Emergency Medical Officers (EMOs) depending upon the patient load of the HCE in each shift of 8 and a half hours, with half hour overlap of duties for handing/taking over the charge.

A large number of patients attend Accident and Emergency (A&E) Departments in tertiary care hospitals every year, far more than those who come into contact with any other hospital service. Some of these people are acutely ill or injured and need immediate, sometimes life-saving treatment. Many, whose condition is not so serious, require urgent assessment and treatment for their injury or sickness. Others are not seriously ill and may not need any treatment at all. For these reasons Emergency Medical Services (EMS) have a high public profile and are viewed by many as an essential service.

The neglect of the government-provided EMS and consequent poor quality has resulted in a situation where the public has little confidence in these services. Privately provided EMS also suffers from serious quality problems.

## 2 Purpose of the Assessment

The instant assessment has been carried out in view of the order dated 02.12.2022 passed by the Honourable Lahore High Court, Lahore in W.P No. 75490/2022. In view thereof, the Punjab Healthcare Commission conducted an assessment of the Emergency Departments of 17 large hospitals (6 public and 11 private) of Lahore.

### 3 Methodology

The assessment was a cross sectional survey where teams from PHC inspected selected 17 tertiary care hospitals of Lahore. In the selected hospitals, information was collected pertaining to the emergency services. The list of the selected hospitals inspected is as under:

**Table-1:** List of Hospitals Included in the Assessment

Sr.#	Hospital	Sector
1	Services Hospital	Public
2	Lahore General Hospital	Public
3	Jinnah Hospital	Public
4	Mayo Hospital	Public
5	Sir Ganga Ram Hospital, Lahore	Public
6	Children Hospital, Lahore	Public
7	Central Park Teaching Hospital	Private
8	Ch. Muhammad Akram Teaching & Research Hospital, Lahore	Private
9	Surgimed Hospital, Lahore	Private
10	Fatima Memorial Hospital, Lahore	Private
11	Doctors Hospital & Medical Center, Lahore	Private
12	Hameed Latif Teaching Hospital, Lahore	Private
13	Shalamar Hospital, Lahore	Private
14	Farooq Hospital, West Wood, Lahore	Private
15	Omer Hospital, Lahore	Private
16	National Hospital & Medical Center, Lahore	Private
17	Avicenna Hospital, Lahore	Private

This assessment was performed in two parts: (a) office work, review of literature, questionnaire development, data processing, formulation of recommendations and (b) field work, inspecting the EDs of hospitals.

#### 3.1 Literature review

The existing information and documents were reviewed and analyzed which included the legal and regulatory framework on emergency services; MSDS of PHC and the guidelines issued to the hospitals by the P&SHD among other relevant documents.

#### 3.2 Assessment Tool

Specific tool was prepared, to collect necessary information during the inspection of the hospitals (**Annexure-A**). The same covered all the aspects in the delivery of quality emergency services mainly focusing on the following areas (in ED):

- Physical Infrastructure
- Essential Equipment
- Essential Medicines
- Staff



- Staff Training
- Services Provided
- Consultants' Availability and Monitoring
- SOPs and their Implementation
- Patients' Record
- Blood Transfusion Services
- Firefighting Arrangements
- Waste Management
- Operation Theater Services
- Diagnostic Services

The inspection teams were properly trained on the above tool to ensure quality data collection.

### 3.3 Inspections

Inspections were conducted in order to gather relevant information on emergency services. In addition to collection of information through the tool, documents were also reviewed as evidence e.g. duty roster, training record of staff etc. A team of 10 experienced PHC surveyors completed the inspections from 6<sup>th</sup> to 9<sup>th</sup> of December, 2022.

### 3.4 Data management

Arrangements were made for daily submission of data from the field through a google sheet which was cleaned and entered in real time. The following report has been prepared based upon analysis of the aforesaid data.

## 4 Findings

The findings are being presented area wise with summary of overall compliance and with public private split where necessary. This short description is followed by status of full compliance %age for each parameter assessed in a tabulated form.

### 4.1 Physical Infrastructure

Physical infrastructure of ED was assessed on 39 parameters, details available in the table below. Many of the parameters were found deficient particularly to mention are: sufficient (10% of the total hospital beds) allocation of emergency beds, separate washroom facility for male and female more so in private sector, patients' computerized record, firmly sealed electrical wires, dedicated entry for ambulance and patient transport and availability of HEPA filters.

As regards allocation of 10% of total hospital beds or more in ED, only 7 of the visited 17 hospitals fulfilled this criterion mostly so in public hospitals (5 out of visited 6). HEPA filters

availability was the least compliant component i.e. only one in each private and Public sector hospitals. The facility of separate washrooms for males and females was available in all the public hospitals and 64% of the private hospitals but the number of washrooms was less than was considered appropriate in most of the visited hospitals. ED patients' computerized record was found in 59% hospitals. Only one third of the total Public sector hospitals had all electrical wires firmly sealed. Dedicated entry for ambulance and patient transport was not available in almost half of hospitals.

**Table-2: Physical Infrastructure**

Sr. No.	Parameter	Compliance %		
		Public	Private	Overall
1	ED Beds allocation is at least 10 % of the total hospital beds	83%	18%	41%
2	Dedicated Areas for Stretchers & Wheel Chairs Available	100%	82%	88%
3	Functional stretchers are 10 % of the ED beds	83%	82%	82%
4	Functional Wheel Chairs 10 % of the ED beds	100%	91%	94%
5	At least 2 Porters deployed for 10 stretchers & 10 wheel chairs	33%	73%	59%
6	Porters available at the time of visit	100%	91%	94%
7	Porters are identifiable	83%	91%	88%
8	Safe transportation of the patients from entrance to ED	100%	82%	88%
9	Non slippery and safe ramp Available at the ED entrance	100%	91%	94%
10	Reception/Registration Desk Available	100%	91%	94%
11	Staff Available at the Reception/Registration Desk	83%	91%	88%
12	Janitorial staff is available 24/7	100%	91%	94%
13	Staff is polite with the patients	100%	91%	94%
14	ED Patients Record is IT-based	67%	55%	59%
15	A functional air conditioning system is available	100%	91%	94%
16	HEPA filters are available	17%	9%	12%
17	All Electrical Wires Firmly Sealed	33%	82%	65%
18	Floor surface is intact	100%	91%	94%
19	Floor surface is clean	83%	91%	88%
20	Anti-Fly / Mosquitoes / Rodents Measures Available	83%	73%	76%
21	Clean Beds Linen Available	100%	91%	94%



22	Washrooms Available	100%	82%	88%
23	Washrooms are clean	83%	82%	82%
24	Separate Washrooms for Male and Female	100%	64%	76%
25	# of Washrooms for Males	17%	9%	12%
26	# of Washrooms for Females	17%	9%	12%
27	Hand Washing Facility along with soap in ED	67%	82%	76%
28	Sufficient PPEs Available	83%	73%	76%
29	Waiting Area having enough sitting arrangements for Patients & Attendants Available	83%	82%	82%
30	Separate Area for Resuscitation of Critically Ill Patients	100%	73%	82%
31	Resuscitation Area is Equipped with Functional Essential Equipment	100%	82%	88%
32	Parking Facility Available	100%	91%	94%
33	Sign boards indicating emergency department.	83%	82%	82%
34	Separate Parking Facility Available for -			
34.1	Ambulance	100%	82%	88%
34.2	Patients	83%	82%	82%
34.3	Staff	83%	82%	82%
35	General Cleanliness of the ED	83%	91%	88%
36	Backup Electricity Supply Available	100%	91%	94%
37	Functional CCTV Cameras for Each Section of Patients Areas Available (Y/Insufficient/N)	100%	91%	94%
38	Security staff is available 24/7	100%	91%	94%
39	Ambulance Arrangements for Patients Transfer Available	100%	91%	94%
39.1	Own Ambulance Arrangement	83%	91%	88%
39.2	Ambulance Services Outsourced	33%	9%	18%
40	Dedicated Entry of Ambulance and Patient Transport	67%	45%	53%

#### 4.2 Essential Equipment

For effective service delivery in ED availability of Thirteen (13) items was checked. However, none of the visited hospitals had all 13 items available. It was observed that the private sector ED was better equipped as compared to public sector, particularly regarding the Cardiac Monitors, Nebulizers, Emergency tray, Ambu bag, Adult Laryngoscopes with



different size blades, and even Airways. On the other hand, the availability of ventilators and defibrillators was better in public hospitals than private hospitals. In private hospitals, more than half were found compliant having at least 10 out of these 13 items while in public hospitals 8 items were available in 50% of hospitals.

**Table-3: Essential Equipment**

Sr. #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	At least 2 Ventilators	83%	18%	41%
2	At least 1 Monitor for 2 ED Beds	0%	64%	41%
3	At least 2 Defibrillator	100%	64%	76%
4	At least 1 Nebulizer with Accessories for 5 ED Beds	33%	36%	35%
5	At least 1 Emergency Tray for 20 ED Beds	50%	91%	76%
6	At least 1 Suction Machine for 10 ED Beds	50%	64%	59%
7	At least 1 Ambu bag for 20 ED Beds	67%	91%	82%
8	At least 1 ECG Machine for 20 ED Beds	17%	91%	65%
9	At least 1 Laryngoscope with blades, for Adults for 20 ED Beds	50%	82%	71%
10	At least 1 Laryngoscopes with blades, for Children for 10 ED Beds	17%	0%	6%
11	At least 1 Endotracheal Tube for 10 ED Beds	100%	91%	94%
12	At least 1 set of Airways of different sizes for Adults for 5 ED Beds	100%	91%	94%
13	At least 1 set of Airways of different sizes for Children for 10 ED Beds	83%	91%	88%

#### 4.3 Essential Medicines

Availability of 18 items was checked which are considered essential to be available at all times in any functional ED. Most of the items were available in all visited hospitals except Aminophylline injections (71%), emergency Inhalers (71%), Calcium Gluconate Injections (88%), Magnesium Sulphate Injections (94%) and KCL Injections (82%).

**Table-4: Essential Medicine**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Adrenaline Injections	100%	91%	94%
2	Dopamine Injections	100%	91%	94%
3	Atropine Injections	100%	91%	94%
4	Steroid Injections	100%	91%	94%
5	Aminophylline	67%	73%	71%

6	Anti-histamine Injections	100%	91%	94%
7	Emergency Inhalers	67%	73%	71%
8	Diazepam Inj	100%	91%	94%
9	Analgesic Inj	100%	91%	94%
10	IV Fluids	100%	91%	94%
11	Calcium Gluconate Inj	83%	91%	88%
12	Magnesium Sulphate Inj	100%	91%	94%
13	25% Dextrose Waters	100%	91%	94%
14	Hemacil / Plasma Expander Infusions	100%	91%	94%
15	KCL Inj	100%	73%	82%
16	Medication administration is documented (Y/N)	100%	91%	94%
17	5 Rights of medication administration are implemented(Y/N)	100%	91%	94%
18	Central Oxygen Supply System (Y/N)	100%	91%	94%

#### 4.4 Emergency Department Staff

ED In-charge were notified in less than a third of the hospitals (33% in Public and 18% in Private). Same was the case with the ED in charge qualified in Emergency Medicine. HR deficiency is quite evident from below table. The availability of at-least one doctor per 10 ED beds was observed only in half of the public hospitals while availability of at-least one nurse per 5 ED beds was evident in all the public and almost all private hospitals. The consultants were found to be on call in ED in more than 73% of the visited hospitals.

**Table-5: Emergency Department Staff**

Sr. #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	ED In charge Notified	33%	18%	24%
2	ED In charge Qualified in Emergency Medicine	33%	18%	24%
3	24/7 Consultant Cover Available	100%	55%	71%
4	Consultants are on duty	83%	55%	65%
5	Consultants are on Call	100%	73%	82%
6	24/7 Medical Coverage Available	100%	91%	94%
7	At least one Doctor per 10 ED beds	50%	64%	59%
8	Duty Roaster of Doctors Available	100%	91%	94%
9	Doctors available as per Duty Roaster	100%	91%	94%
10	At least one nurse per 05 ED beds	100%	82%	88%
11	24/7 Nursing Coverage Available	100%	91%	94%
12	Duty Roaster of Nurses Available	100%	91%	94%



Sr #	Indicator	Compliance Hospitals %		
		Public	Private	Total
13	Nurses available as per Duty Roaster	100%	91%	94%
14	Duty Roaster of Paramedical Staff Available	100%	64%	76%
15	Paramedical Staff Available as per Duty Roaster	100%	64%	76%

#### 4.5 Staff Training

Major gaps were identified in the training of ED staff in Emergency SOPs, clinical management protocols, Basic Cardiac Life Support (BCLS) and Advance Cardiac Life Support (ACLS), Advance Trauma Life Support (ATLS) and Pediatric Advance Life Support (PALS). The compliance is significantly higher in public sector hospitals as compared to private ones. Doctors and nurses were not trained in Emergency SOPs in around one third of the visited hospitals.

**Table-6: Staff Training**

Sr #	Indicator	Compliance Hospitals %		
		Public	Private	Total
1	Doctors trained on Emergency SOPs	67%	64%	65%
2	Doctors trained on Emergency Management Clinical Protocols / Guidelines	50%	45%	47%
3	Doctors trained on BCLS	67%	45%	53%
4	Doctors trained on ATLS	50%	45%	47%
5	Doctors trained on ACLS	50%	45%	47%
6	Doctors trained on PALS	67%	55%	59%
7	Nurses trained on Emergency SOPs	67%	64%	65%
8	Nurses trained on Emergency Management Clinical Protocols / Guidelines	67%	45%	53%
9	Nurses trained on BCLS	67%	45%	53%
10	Nurses trained on ATLS	50%	36%	41%
11	Nurses trained on ACLS	67%	27%	41%
12	Nurses trained on Pediatrics Advanced Life Support	67%	27%	41%

#### 4.6 Services Provided in ED

The availability of 9 services was assessed including Surgery, Medicine, Cardiology, Gyne & Obs, Pediatrics, Orthopedics, Neurosurgery, Burn and 24/7 Pharmacy Services. Most of these services were available at all the visited hospitals except Burn emergency which was



available in only 41% of the visited hospitals. Consultants' coverage was found to be considerably lower in private hospitals.

**Table-7: Services Provided in ED**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Surgical Emergencies Entertained	100%	91%	94%
1.1	Consultant Coverage Available	100%	55%	71%
1.2	Consultant on Duty	100%	45%	65%
1.3	Consultant on Call	100%	73%	82%
	Monthly Average Data Available	100%	64%	76%
2	Medical Emergencies Entertained	100%	91%	94%
2.1	Consultant Coverage Available	100%	91%	94%
2.2	Consultant on Duty	100%	45%	65%
2.3	Consultant on Call	100%	82%	88%
	Monthly Average Data Available	100%	82%	88%
3	Cardiac Emergencies Entertained	50%	91%	76%
3.1	Consultant Coverage Available	50%	45%	47%
3.2	Consultant on Duty	50%	36%	41%
3.3	Consultant on Call	50%	73%	65%
	Monthly Average Data Available	50%	55%	53%
4	Gyn & Obs Emergencies Entertained	67%	91%	82%
4.1	Consultant Coverage Available	50%	55%	53%
4.2	Consultant on Duty	50%	45%	47%
4.3	Consultant on Call	67%	73%	71%
	Monthly Average Data Available	67%	55%	59%
5	Pediatric Emergencies Entertained	83%	91%	88%
5.1	Consultant Coverage Available	83%	64%	71%
5.2	Consultant on Duty	83%	45%	59%
5.3	Consultant on Call	83%	73%	76%
	Monthly Average Data Available	83%	64%	71%
6	Orthopedic Emergencies Entertained	83%	91%	88%
6.1	Consultant Coverage Available	83%	64%	71%
6.2	Consultant on Duty	83%	55%	65%
6.3	Consultant on Call	83%	64%	71%
	Monthly Average Data Available	83%	45%	59%
7	Neurosurgical Emergencies Entertained	67%	82%	76%
7.1	Consultant Coverage Available	67%	45%	53%
7.2	Consultant on Duty	67%	27%	41%
7.3	Consultant on Call	67%	64%	65%

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
	<i>Monthly Average Data Available</i>	67%	36%	47%
8	Burn Emergencies Entertained	50%	36%	41%
8.1	<i>Consultant Coverage Available</i>	33%	9%	18%
8.2	<i>Consultant on Duty</i>	0%	9%	6%
8.3	<i>Consultant on Call</i>	33%	9%	18%
	<i>Monthly Average Data Available</i>	33%	0%	12%
9	Monthly Average Data Available	100%	91%	94%
10	24/7 Pharmacy Services Available	100%	91%	94%

#### 4.7 Consultants' Visits & Monitoring

Documented System for On Call Consultants' Availability was present in all public sector hospitals and only in around half of the private hospitals. Monitoring visits of ED by the hospital administration and Nursing Superintendent were also assessed and found very low, more so in private hospitals. Further, the daily visit of concerned Professor to ED was also checked in the Public sector hospitals and was found missing in half of the hospitals.

**Table-8: Consultant's Visits and Monitoring**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Documented System for On Call Consultants Available	100%	55%	71%
2	A System to for Call Consultants is Implemented	83%	55%	65%
3	Documentary Evidence of On call Consultants Availability within notified Time	83%	45%	59%
4	Daily visit of concerned professors to ED is documented(for public hospitals only)	50%	-	24%
5	Daily monitoring visit of hospital administration is documented	67%	18%	35%
6	Daily monitoring visit of nursing superintendent/matron is documented	17%	18%	18%
7	Attendance register/mechanism is available	100%	91%	94%

#### 4.8 Availability of ED SOPs & their Implementation

SOPs for Emergency Department include those regarding admission, triage and discharge of the patients, taking consent from them, diagnostic services, surgical procedures, ICU/CCU, continuous training of ER staff, management of medico-legal cases, patient record and



transfer or referral of the patients. The inspection of the documentation and implementation of these SOPs presented a diversified picture. The continuous training of staff stands at lowest in the public hospitals evident only in one third while 73% in private hospitals complied with this parameter. On the other hand, documented SOPs for consent taking were available in only 36% in private hospitals and 67% in public ones. SOPs for ICU/CCUs are present in all the public hospitals and only in three private hospitals. The policy for handling an unidentified dead body exists and is implemented in four out of six public and only three of the visited 11 private hospitals. Clinical Protocols/ guidelines for Emergency Management were available in half of the public and 82% private hospitals. Implementation of Triage process was slightly better with 83% in public and 73% in private hospitals. Information regarding how to lodge Complaint is displayed in all but one public hospital while only in less than a third of the private hospitals. The SOPs for patient assessment and care were available in all the public and almost all private hospitals inspected while those for management of medico-legal cases and patient record were available in all the public hospitals and 73% and 91% of private hospitals respectively.

**Table-9: Availability of ED SOPs & their Implementation**

Sr.#	Indicator	Compliant Hospitals %		
		Public	Private	Total
	Emergency Department SOPs available on following areas:			
1.1	Admission / Registration	83%	91%	88%
1.2	Triage	83%	73%	76%
1.3	Initial Screening	67%	91%	82%
1.4	Patient Assessment & Care	100%	91%	94%
1.5	Consent	67%	36%	47%
1.6	Clinical Laboratory & Radiology Services	83%	45%	59%
1.7	Operating / Procedure Room	67%	45%	53%
1.8	ICU/ CCU	100%	27%	53%
1.9	Patients Discharge	50%	82%	71%
1.10	Continuous Training of ER Staff	50%	73%	65%
1.11	Management of Medico legal Cases	100%	73%	82%
1.12	Patients Record	100%	91%	94%
1.13	Patient transfer from emergency department to inpatient areas or to another organization	100%	91%	94%
2	Unknown/Unidentified dead bodies handling SOPs are available	67%	27%	41%
3	Emergency Management Clinical Protocols/ guidelines Available	50%	82%	71%
4	Emergency Department SOPs Implemented	83%	73%	76%
5	Triage process implemented	67%	73%	71%



Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
6	Information regarding how to lodge Complaint is displayed	83%	64%	71%

#### 4.9 Maintenance of Patient Record

Patient record was not complete and accurate in half of the public hospitals while it was complete and accurate in all but one private hospital. Same is the finding regarding the patient discharge record while the patient referral system and record was available in all the public hospitals and in ten of the 11 private hospitals. The findings were also found consistent with those for the SOPs for patient referral record maintenance in ED.

**Table-10: Maintenance of Patient Record**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Complete and Accurate Patients Record Available	50%	91%	76%
2	Patients Discharge Record available	50%	91%	76%
3	Patients Referral System Available	100%	91%	94%
4	Patients Referral Record Available	100%	91%	94%

#### 4.10 Blood Transfusion Services

All the public hospitals had facilities for transfusion services having valid License from PBTA or MOUs while only one of the 11 visited private hospitals did not fulfill this criterion. Also the transfusion of blood and blood products were being documented in all the public hospitals however, the same was less than a third in private hospitals.

**Table-11: Blood Transfusion Services**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Blood Transfusion Services Available	100%	91%	94%
2	PBTA License / MoU Available	100%	91%	94%
3	Transfusion of blood and blood products are documented	100%	64%	76%

#### 4.11 Firefighting Arrangements

Firefighting equipment, a very important component for the safety of hospital staff and the patients was found available in all the public and 73% of the private hospitals while the safe exit plan was displayed in a third of the public and 55% of private hospitals. Same was the finding as regards the training of staff for the use of firefighting equipment.

**Table-12: Firefighting Arrangements**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Fire Fighting Equipment Available	100%	73%	82%
2	Safe Exit Plan Displayed	67%	55%	59%
3	Staff is Trained on Using Fire Fighting Equipment	67%	55%	59%

#### 4.12 Waste Management System

The waste management was assessed on the parameters including availability of color coded waste bins, practice of segregation in the infectious and non-infectious waste, proper collection of waste and availability of waste baskets for non-infectious waste for every two beds. The first two criteria were met in all but one public hospital. The color coded waste bins were available in all but one private hospitals and the segregation was practiced in 9 of the 11 private hospitals inspected.

**Table-13: Waste Management System**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Waste is Segregated	83%	82%	82%
2	Color coded waste bins are available	83%	91%	88%
3	Waste is Properly Collected	100%	82%	88%
4	Waste Baskets for non-infectious waste for every two Bed Available	67%	82%	76%

#### 4.13 Operation Theater Facilities

Emergency OTs were available in all the public hospitals while only two private hospitals had separate emergency OTs. Documentation of delay in surgery was practiced only in a third of the visited hospitals. Documentation of anesthesia notes with a slight improvement remained at an overall 47%. Most importantly, the policies to prevent adverse events like wrong site, wrong patients and wrong surgeries were documented and implemented in only around half of the facilities.



**Table-14: Operation Theatre Facilities**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Emergency OT available	100%	18%	47%
1.1	OT Swab Culture Reports available	100%	27%	53%
1.2	Cleaning & Disinfection Record available	67%	27%	41%
1.3	Separation b/w Clean & Dirty Areas available	67%	27%	41%
1.4	Sufficient sterilized surgical sets are available	83%	27%	47%
1.5	Sterilization Validation Record available	33%	27%	29%
2	If No, arrangements for Emergency Surgeries available	17%	64%	47%
3	Anesthesia assessment & monitoring is documented	33%	55%	47%
4	Operative procedure are documented	67%	64%	65%
5	Reasons of delay in operative procedures are documented	33%	36%	35%
6	Documented policies and procedures exist and implemented to prevent adverse events like wrong site, wrong patients and wrong surgeries	50%	55%	53%
7	Any specimen removed during surgeries for histopathology is documented	50%	55%	53%

#### 4.14 Diagnostic Services

Public hospitals demonstrated better results against assessment for integrated diagnostic services acquiring 100% availability of portable X ray, ultrasound, CT arrangements and 24/7 lab services in comparison with the private sector (73%). As far as MRI is concerned 5 out of 6 visited public hospitals and only 4 out of 11 private hospitals had these arrangements.

**Table-15: Diagnostic Services**

Sr #	Indicator	Compliant Hospitals %		
		Public	Private	Total
1	Portable X-Ray Available	100%	73%	82%
2	Portable Ultrasound Available	100%	73%	82%
3	CT Arrangements Available	100%	73%	82%
4	MRI Arrangements Available	83%	36%	53%
5	24/7 Lab Services Arrangements Available	100%	91%	94%



## Annexure A: Check List for Assessment of Emergency Department

Hospital: \_\_\_\_\_ PHC Registration No. \_\_\_\_\_

Address: \_\_\_\_\_

District: \_\_\_\_\_ Contact #: \_\_\_\_\_

MS/ CEO/Administrator Name: \_\_\_\_\_ Cell #: \_\_\_\_\_

Owner Name: \_\_\_\_\_ Owner Cell #: \_\_\_\_\_

Public / Private: \_\_\_\_\_ Licensing Status: PL/RL \_\_\_\_\_

Total # of Hospital Beds \_\_\_\_\_ Total # of Emergency Beds \_\_\_\_\_

Sr #	Indicator	Response	Remarks
<b>A</b>	<b>Physical Infrastructure</b>		
1	% of ED Beds		
2	Dedicated Areas for Stretchers & Wheel Chairs Available (Y/N)		
3	# of Functional stretchers		
4	# of Functional Wheel Chairs		
6	Porters available at the time of visit (Y/N)		
7	Porters are identifiable (Y/N)		
8	Safe transportation of the patients from entrance to ED (Y/N)		
9	Non slippery and safe ramp Available at the ED entrance (Y/N)		
10	Reception/Registration Desk Available (Y/N)		
11	Staff Available at the Reception/Registration Desk (Y/N)		
12	Janitorial staff is available 24/7 (Y/N)		
13	Staff is polite with the patients (Y/N)		
14	ED Patients Record Manual or IT-based or No Record (Y/N)		
15	A functional air conditioning system is		

Sr #	Indicator	Response	Remarks
	available(Y/N)		
16	HEPA filters are available (Y/N)		
17	All Electrical Wires Firmly Sealed (Y/N)		
18	Floor surface is intact(Y/N)		
19	Floor surface is clean (Y/N)		
20	Anti-Fly / Mosquitoes / Rodents Measures Available (Y/N)		
21	Clean Beds Linen Available (Y/N)		
22	Washrooms Available (Y/N)		
23	Washrooms are clean(Y/N)		
24	Separate Washrooms for Male and Female (Y/N)		
25	# of Washrooms for Males		
26	# of Washrooms for Females		
27	Hand Washing Facility along with soap in ED (Y/N)		
28	Sufficient PPEs Available (Y/insufficient/ N)		
29	Waiting Area having enough sitting arrangements for Patients & Attendants Available (Y/N)		
30	Separate Area for Resuscitation of Critically Ill Patients (Y/N)		
31	Resuscitation Area is Equipped with Functional Essential Equipment (Y/N)		
32	Parking Facility Available (Y/N)		
33	Sign boards indicating emergency department. (Y/N)		
34	Separate Parking Facility Available for - (Y/N)		
34.1	Ambulance		
34.2	Patients		
34.3	Staff		
35	General Cleanliness of the ED (Y/N)		
36	Backup Electricity Supply Available (Y/N)		
37	Functional CCTV Cameras for Each Section of Patients Areas Available (Y/Insufficient/N)		
38	Security staff is available 24/7 (Y/N)		
39	Ambulance Arrangements for Patients Transfer Available (Y/N)		
39.1	Own Ambulance Arrangement (Y/N)		
39.2	If yes # of Ambulances		
39.3	Ambulance Services Outsourced (Y/N)		
40	Dedicated Entry of Ambulance and Patient		

Sl. #	Indicator	Response	Remarks
	Transport (Y/N)		
<b>B</b>	<b>Essential Equipment</b>		
41	Availability of Essential Medical Equipment		
41.1	# of Ventilators		
41.2	# of Monitors		
41.3	# of Defibrillator		
41.4	# of Nebulizers with Accessories		
41.5	# of Emergency Trays		
41.6	# of Suction Machines		
41.7	# of Ambu bags		
41.8	# of ECG Machines		
41.9	# of Laryngoscopes with blades, for Adults		
41.10	# of Laryngoscopes with blades, for Children		
41.11	# of Endotracheal Tubes		
41.12	# of Airways of different sized for Adults		
41.13	# of Airways of airways for Children		
<b>C</b>	<b>Essential Medicines</b>		
42	Essential Medicines Available (Y/N)		
42.1	# of Adrenaline Injections		
42.2	# of Dopamine Injections		
42.3	# of Atropine Injections		
42.4	# of Steroid Injections		
42.5	# of Aminophylline		
42.6	# of Anti-histamine Injections		
42.7	# of Emergency Inhalers		
42.8	# of Diazepam Inj		
42.9	# of Analgesic Inj		
42.10	# of IV Fluids		
42.11	# of Calcium Gluconate Inj		
42.12	# of Magnesium Sulphate Inj		
42.13	# of 25% Dextrose Waters		
42.14	# of Hemacil / Plasma Expanders Infusions		
42.15	# of KCL Inj		
43	Medication administration is documented (Y/N)		
44	5 Rights of medication administration are implemented(Y/N)		
45	Oxygen Supply System (Y/N)		
45.1	Central Oxygen Supply		
45.2	Oxygen Cylinders		
<b>D</b>	<b>Emergency Department Staff</b>		
46	ED In charge Notified (Y/N)		



Sr #	Indicator	Response	Remarks
46.1	<i>Is ED In charge Qualified in Emergency Medicine (Y/N)</i>		
47	24/7 Consultant Cover Available (Y/N)		
48	24/7 Medical Coverage Available (Y/N)		
49	Duty Roaster of Doctors Available (Y/N)		
50	Doctors available as per Duty Roaster (Y/N)		
51	24/7 Nursing Coverage Available (Y/N)		
52	Duty Roaster of Nurses Available (Y/N)		
53	Nurses available as per Duty Roaster (Y/N)		
54	Duty Roaster of Paramedical Staff Available (Y/N)		
55	Paramedical Staff Available as per Duty Roaster (Y/N)		
<b>E</b>	<b>Staff Training</b>		
56	<i>Doctors trained on Emergency SOPs (Y/N)</i>		
57	<i>Doctors trained on Emergency Management Clinical Protocols / Guidelines (Y/N)</i>		
58	<i>Doctors trained on Basic Cardiac Life Support (Y/N)</i>		
59	<i>Doctors trained on Advanced Trauma Life Support (Y/N)</i>		
60	<i>Doctors trained on Advance Cardiac Life Support (Y/N)</i>		
61	<i>Doctors trained on Pediatrics Advanced Life Support (Y/N)</i>		
62	<i>Nurses trained on Emergency SOPs (Y/N)</i>		
63	<i>Nurses trained on Emergency Management Clinical Protocols / Guidelines (Y/N)</i>		
64	<i>Nurses trained on Basic Cardiac Life Support (Y/N)</i>		
65	<i>Nurses trained on Advanced Trauma Life Support (Y/N)</i>		
66	<i>Nurses trained on Advance Cardiac Life Support (Y/N)</i>		
67	<i>Nurses trained on Pediatrics Advanced Life Support (Y/N)</i>		
<b>F</b>	<b>Services Provided in ED</b>		
68	Surgical Emergencies Entertained (Y/N)		
68.1	<i>Consultant Coverage Available (Y/N)</i>		
68.2	<i>Consultant on Duty (Y/N)</i>		
68.3	<i>Consultant on Call (Y/N)</i>		
69	Medical Emergencies Entertained (Y/N)		

Sr #	Indicator	Response	Remarks
69.1	Consultant Coverage Available		
69.2	Consultant on Duty (Y/N)		
69.3	Consultant on Call (Y/N)		
70	Cardiac Emergencies Entertained (Y/N)		
70.1	Consultant Coverage Available (Y/N)		
70.2	Consultant on Duty (Y/N)		
70.3	Consultant on Call (Y/N)		
71	Gyn & Obs Emergencies Entertained (Y/N)		
71.1	Consultant Coverage Available (Y/N)		
71.2	Consultant on Duty (Y/N)		
71.3	Consultant on Call (Y/N)		
72	Pediatric Emergencies Entertained (Y/N)		
72.1	Consultant Coverage Available (Y/N)		
72.2	Consultant on Duty (Y/N)		
72.3	Consultant on Call (Y/N)		
73	Orthopedic Emergencies Entertained (Y/N)		
73.1	Consultant Coverage Available (Y/N)		
73.2	Consultant on Duty (Y/N)		
73.3	Consultant on Call (Y/N)		
74	Neurosurgical Emergencies Entertained (Y/N)		
75.1	Consultant Coverage Available (Y/N)		
76.2	Consultant on Duty (Y/N)		
77.5	Consultant on Call (Y/N)		
75	Burn Emergencies Entertained (Y/N)		
78.1	Consultant Coverage Available (Y/N)		
78.2	Consultant on Duty (Y/N)		
78.3	Consultant on Call (Y/N)		
	24/7 Pharmacy Services Available (Y/N)		
<b>G</b>	<b>Consultants Visits &amp; Monitoring</b>		
76	Documented System for On Call Consultants Available (Y/N)		
77	A System to for Call Consultants is Implemented (Y/N)		
78	Documentary Evidence of On call Consultants Availability within notified Time (Y/N)		
79	Daily visit of concerned professors to ED is documented(Y/N)(for public hospitals only)		
80	Daily monitoring visit of hospital administration is documented(Y/N)		
81	Daily monitoring visit of nursing superintendent/matron is documented(Y/N)		
82	Attendance register/mechanism is		



Sr #	Indicator	Response	Remarks
	available(Y/N)		
<b>H</b>	<b>SOPs / Policies / Protocols Availability &amp; Implementation</b>		
83	Emergency Department SOPs Available on Following Areas:		
83.1	Admission / Registration (Y/N)		
83.2	Triage (Y/N)		
83.3	Initial Screening (Y/N)		
83.4	Patient Assessment & Care (Y/N)		
83.5	Consent (Y/N)		
83.6	Clinical Laboratory & Radiology Services (Y/N)		
83.7	Operating / Procedure Room (Y/N)		
83.8	ICU/ CCU (Y/N)		
83.9	Patients Discharge (Y/N)		
83.10	Continuous Training of ER Staff (Y/N)		
83.11	Management of Medico legal Cases (Y/N)		
83.12	Patients Record (Y/N)		
83.13	Patient transfer from emergency department to inpatient areas or to another organization (Y/N)		
84	Unknown/Unidentified dead bodies handling SOPs are available(Y/N)		
85	Emergency Management Clinical Protocols/ guidelines Available (Y/N)		
86	Emergency Department SOPs Implemented (Y/N)		
87	Triage process implemented (Y/N)		
88	Information regarding how to lodge Complaint is displayed (Y/N)		
<b>I</b>	<b>Patients Record</b>		
89	Complete and Accurate Patients Record Available (Y/N)		
90	Patients Discharge Record available (Y/N)		
91	Patients Referral System Available (Y/N)		
92	Patients Referral Record Available (Y/N)		
<b>J</b>	<b>Blood Transfusion Services</b>		
93	Blood Transfusion Services Available (Y/N)		
94	PBTA License / MoU Available (Y/N)		
95	Transfusion of blood and blood products are documented (Y/N)		
<b>K</b>	<b>Fire Fighting Arrangements</b>		
96	Fire Fighting Arrangements		
96.1	Fire Fighting Equipment Available (Y/N)		



Sr #	Indicator	Response	Remarks
96.2	Safe Exit Plan Displayed (Y/N)		
96.3	Staff is Trained on Using Fire Fighting Equipment (Y/N)		
<b>L</b>	<b>Waste Management System</b>		
97	Waste Management System		
97.1	Waste is Segregated(Y/N)		
97.2	Color coded waste bins are available(Y/N)		
97.3	Waste is Properly Collected (Y/N)		
97.4	Waste Baskets for non-infectious waste for every two Bed Available (Y/N)		
<b>M</b>	<b>Operation Theatre Facilities</b>		
98	Emergency OT Available (Y/N)		
98.1	OT Swab Culture Reports Available (Y/N)		
98.2	Cleaning & Disinfection Record Available (Y/N)		
98.3	Separation b/w Clean & Dirty Areas Available (Y/N)		
98.4	Sufficient sterilized surgical sets are available(Y/N)		
98.5	Sterilization Validation Available (Y/N)		
99	If No, Arrangements for Emergency Surgeries Available (Y/N)		
100	Anesthesia assessment & monitoring is documented(Y/N)		
101	Operative procedure are documented(Y/N)		
102	Reasons of delay in operative procedures are documented(Y/N)		
103	Documented policies and procedures exist and implemented to prevent adverse events like wrong site, wrong patients and wrong surgeries(Y/N)		
104	Any specimen removed during surgeries for histopathology is documented (Y/N)		
<b>N</b>	<b>Diagnostic Services</b>		
105	Integrated Diagnostic Services		
105.1	Portable X-Ray Available (Y/N)		
105.2	Portable Ultrasound Available (Y/N)		
105.3	CT Arrangements Available (Y/N)		
105.4	MRI Arrangements Available (Y/N)		
105.5	24/7 Lab Services Arrangements Available (Y/N)		

1.

Directions:

Emergency Focal Person Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Cell #: \_\_\_\_\_

Signatures: \_\_\_\_\_

PHC Team Lead Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Date of Visit: \_\_\_\_\_

Signatures: \_\_\_\_\_

- Approval of guidelines for ED
- Dissemination.
- HR for PHC
- Oversight Committee.