## DEPARTMENT OF MEDICINE

# EMERGENCY DEPARTMENT

# GENERAL GUIDELINES

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# MESSAGE FROM THE INCHARGE EMERGENCY DEPARTMENT

The Emergency department has seen a surge in the number of patients in the last several years. The limited space in which the Emergency Department is situated at times is overwhelmed with the number of patients coming through it. In order to deal with the patient, load it was essential to organize the patient flow through the Emergency department. A focused & relentless effort was needed to overcome the hurdles in the path to improving the working environment of the Emergency Department.

In the past several years a great momentum was added to such efforts. Triage was established for the first time. 24-hour presence of Surgical, Medical and Cardiology on call & onsite presence was ensured for the first time. This period also saw the beginnings of onsite phlebotomy services for seriously sick priority 1 patients. Recently the recruitment of new Emergency Medical officers has added to the specialized work force working in the Emergency Department.

I along with the Chairman Department of Medicine take pride in saying that our Emergency Department has now been put on the right path towards achieving excellence in patient care. Our dream of establishing a truly '' patient centered '' Emergency Department now seems realizable.

While giant leaps have been made there is still a long way to go. Establishing a new reception counter, a dedicated stroke unit along with a walk in clinic are our next immediate objectives. The new pre-printed Emergency Triage & treatment slip shall redefine our patient management pathways.

The following set of rules & regulations have been a result of our uncompromising & relentless efforts targeted towards a single purpose of making our Emergency Department a place where the patients can be treated with dignity by a team of professional medical staff.

I sincerely hope that my team shall match my and Dr Imran Khan's enthusiasm in receiving and implementing these set of guidelines and make our endeavors a success story.

*Dr. Abdul Majid Khan*

*In charge Emergency Department*

# EMERGENCY DEPARTMENT: COMBINING PATIENT CENTREDNESS, EFFICIENCY IN CARE DELIVERY, AND TRAINING OF JUNIOR DOCTORS.

## FOREWORD

The process of developing a system has to be and of necessity ought to be an evolutionary process. A system which evolves has the resilience to withstand any difficulties it inevitably shall come across. An evolutionary process cuts off the rough edges and brings out a product that is best suited for the local environment. Hence, a highly efficient and intelligent system which is capable of independent survival can only come at the end of an evolutionary process. I understand this concept well and do not aim to create a system which might seem efficient on paper but is disconnected to the realities on the ground. I would like to emphasize that these are small steps towards developing an efficient system. I am not proposing any revolutionary or earth-shaking changes. The only revolution I am proposing is a revolutionary new way of thinking! These small steps shall set in motion some concepts that shall in time materialize into an efficient emergency department that would be patient centered and professionally satisfying to the trainees who rotate through it.

*Imran khan*

*Chairman Medicine & Allied Specialties*

## WHY REFORM?

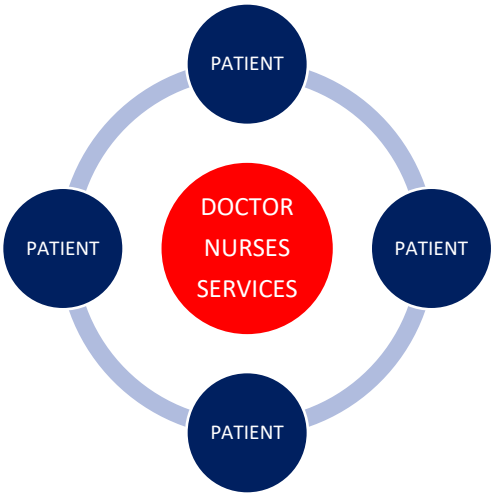
The emergency department is a place of great uncertainty for the patients. The patients not only present with symptoms but they also present with fear, pain, frustration and confusion. A professionally and efficiently run emergency department can go a long way in comforting distressed patients.

In its current working environment, our Emergency Department has not reached a ‘’patient centered’’ status. Lack of proper triage results in delays in recognition of acute life threatening emergencies. There is no system to segregate acute emergencies like cardiac arrests, status asthmaticus, trauma etc from less emergent patients. Nor is there a mechanism to spread out such unselected emergency patients into time and space. Lack of prioritization results in overcrowding of patients which adversely affects patient management. Lack of proper referral notes, Stat Antibiotic injections without proper indications, and inadequate and hastily performed patient assessments with hardly any patient examination etc are all direct results of lack of proper patient pathways and overcrowding. Instead of calling the on-call teams to assess patients on the ED floor, the patients are sent to wards for opinions. Sometimes a patient could roam around the hospital all night without being admitted. The patients and general public perceive this as indifference on the part of doctors and nurses. We as caregivers are losing trust and respect among the general public. More over the junior doctors who rotate through the ED learn the same work ethics that they are exposed to. The need to reform the emergency department is essential for us as caregivers not only to help the suffering humanity but also to regain the respect and trust of the general public. Above all we need to break this vicious circle of unprofessionalism begetting unprofessionalism.

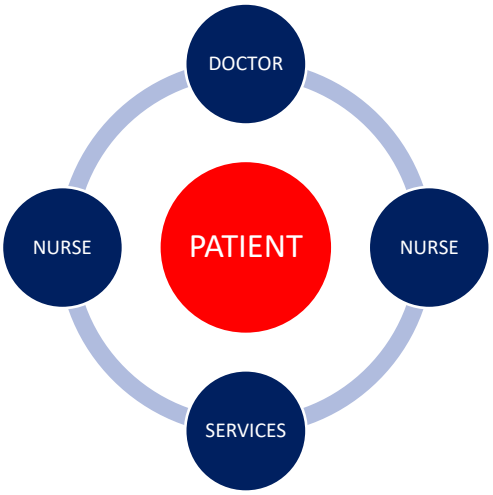
## INTRODUCTION & BASIC PRINCIPLES.

1. The emergency department first and foremost must be ‘’patient centered’’. A patient centered system keeps the patient in the middle with all services coming to the patient as opposed to the patient looking for or running after services. (Fig 1)
2. The emergency department should be able to cope with the patient load in an efficient and timely manner. In order to do that the emergency patient load must be spread out in ‘’ Time ‘’ and ‘’ Space ‘’.(Fig 2)
3. The junior staff’s patient handling should be supervised so that their needs of continued professional development are met.

## PATIENT CENTRED SYSTEM. (Fig 1)




**PATIENT AT THE PERIPHERY.**




**PATIENT AT THE CENTER.**

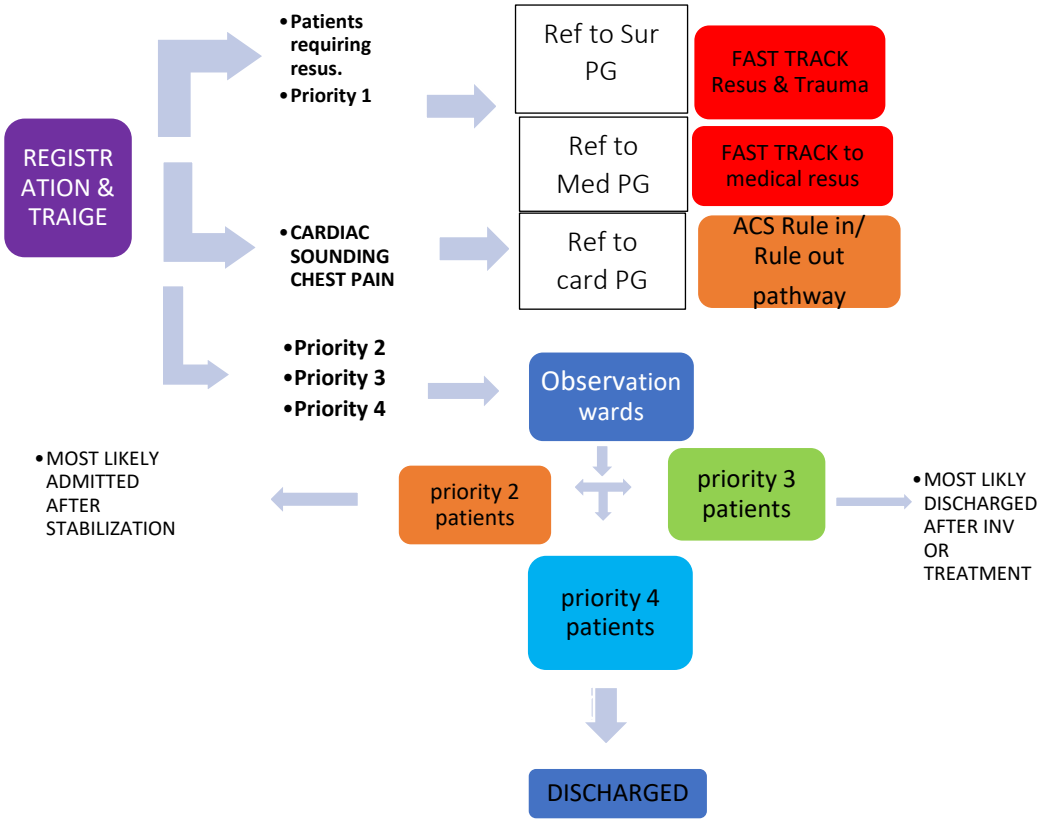

REGISTRATION & TRAIGE
•Patients requiring resus.
•Priority 1
Ref to Sur PG
FAST TRACK Resus & Trauma
Ref to Med PG
FAST TRACK to medical resus
•CARDIAC SOUNDING CHEST PAIN
Ref to card PG
ACS Rule in/ Rule out pathway
•Priority 2
•Priority 3
•Priority 4
Observation wards
•MOST LIKELY ADMITTED AFTER STABILIZATION
priority 2 patients
priority 3 patients
•MOST LIKLY DISCHARGED AFTER INV OR TREATMENT
priority 4 patients
DISCHARGED

**Fig 2.**

## BASIC STATISTICS AVAILIBILITY AND DEFICIENCIES

From 1st Jan 2017 to 30 Dec 2017 **340216** patients attended the ED. This comes to roughly about 900 to 1000 patients on a daily basis. To provide emergency services to these patients we have the following services available/not available in our ED.

| SERVICES | NUMBER/AVAILABILITY | COMMENTS |
|---|---|---|
| REGISTRATION COUNTER | PRESENT | LOW QUALITY |
| BEDS | 24 | 12 bedded ward & 2 six bedded chambers |
| MEDICAL RESUS UNIT | 4MONITORED COUCHES | NEEDS IMPROVEMENT |
| SURGICAL RESUS | 4 UNMONITORED COUCHES | NEEDS IMPROVEMENT |
| TRIAGE UNIT | PRESENT | NEEDS IMPROVEMENT |
| CMOS | 16 2 PER SHIFT | NOT AVAILABLE |
| HOUSE OFFICERS | 6 | |
| NURSES | 10 | INADEQUATE |
| WARD BOYS | 2 | INADEQUATE |
| ECG TECHNICIANS | PRESENT | INADEQUATE |
| DISPENSERS | PRESENT | INADEQUATE |
| FACILITATORS | PRESENT | INADEQUATE |
| PT WAITING ROOM | NOT PRESENT | UNDER CONSTRUCTION |
| CHEST PAIN UNIT | NOT PRESENT | PLANNED |
| STROKE UNIT | NOT PRESENT | PLANNED |
| PAGER SYSTEM | NOT IN USE | PLANNED |
| ON CALL TEAM INVOLVEMENT | PROGRESS MADE | NEEDS IMPROVEMENT |
| VENTILATOR FACILITY | NOT PRESENT | PLANNED |
| PORTABLE CXR | PRESENT | |
| ULTRASOUND | AVAILABLE | IMPLEMENTATION OF PROTOCOL NEEDED |
| 24 HOUR PHLEBOTOMY | INADEQUATE | NEEDS IMPROVEMENT |
| PLASTER ROOM | NOT PRESENT | PLANNED |
| PHARMACY | PRESENT | MEDICINE DISPENSATION NEEDS IMPROVMENT |
| DESK TOP COMPUTERS | PRESENT | MORE NEEDED |

## PATIENT FLOW THROUGH THE ED (FIG 2)

Fig 2 shows the general flow of patients through the ED.

## REGISTRATION

The ED registration counter is currently situated at the front of the ED. The registration window is small and does not fulfil our requirements fully. We have a plan to construct a new Registration counter. Currently however we shall continue to use the same counter.


The registration counter shall be manned by a senior personnel from the IT department who would not only register patients but also do a quick visual & symptom survey. The patients with the following symptoms or appearance shall be directed straight to the Medical or Surgical Resus bypassing Triage. The attendant shall be asked to take the patient directly inside to the respective Resus bay while one of the attendants shall stay back to complete the registration process:

## PATIENTS WHO NEED IMMEDIATE ATTENTION

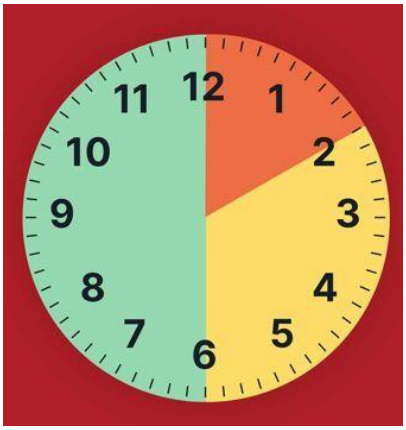
1. Unconscious patient.(Medical Resus)
2. Stab wound patient. (Surgical Resus)
3. Fire arm injury patient.(Surgical Resus)
4. Patient who is severely short of breath.(Medical Resus)
5. Patient who is visibly in distress due to any reason.(Medical Resus)

The patients who on visual survey appear stable and well with the following symptoms shall be directed towards the walk in clinic:

1. Cough without hemoptysis
2. Sore throat
3. Back ache
4. Leg pain but walking without support
5. Rash or itching
6. Red Eye (without history of trauma or foreign body)

All other patients shall be directed towards the Triage counter.
All patients must be registered and the emergency slip should be issued which should include patient's demographics etc. Please see the following page for Ayub Teaching Hospital booking, triage, and treatment slip.

## TRIAGE.




The next step would be triage. The main task of triage is to assign the urgency with which a particular patient must be seen by the onsite teams. This has to be done in a very short time by an experienced casualty medical officer. The relevant information shall be entered into the appropriate spaces. The only officer authorized to fill the first part of the ED slip shall be the Emergency Medical officer. The Emergency Medical officer must sign and stamp the slip before further movement of the patient. An unsigned, un-stamped and poorly filled slip shall not move further.

The triage should be done by a team of one nurse, one House officer and one Senior Emergency medical officer.

Seriously ill patients requiring immediate attention eg out of hospital cardiac arrest shall bypass registration and triage and go directly to medical or surgical resus.(see above)

As a result of triage the patients should be categorized into 4 categories:

1. Patients with Life threatening illnesses but not requiring resus. (priority 1)
2. Patients with conditions likely to become serious or requiring admission. (Priority 2)
3. Patients likely to be discharged after a key investigation or treatment (Priority 3)
4. Patients who are ambulatory and look well can be discharged from triage at the discretion of the Emergency Medical Officer, or sent to walk in clinic or advised to go to an appropriate OPD. (Priority 4)

   Ayub Medical Teaching Institute 5 level triage system is reproduced below.

   The Emergency Medical officer in his discretion can write treatment and ask the patient to follow up in the appropriate OPD. The notes should be well written with proper examination.

Pateint Name…….Add…….

Father's Name……..MRN……DOB…….

Chief Complaints……

Examination:General……..Pulse……..

Abdomen…… SpO2……..

Cardiovascular……Temp……

Respiratory……

CNS…….MEDICOLEGAL STATUS…….

AVPU: ……**A**LERT……..**V**ERBAL……**P**AIN…….**U**NRESPONSIVE……(Encircle)

PRIORITY…….Immediate……P1(10 min)……P2 (30 min)……P3 (60 min)……P4(2 hours)……( Encircle)

PLAN/Referral to……..

INVESTIGATIONS ORDERED……

Send to……Medical Resus……Surgical Resus……Observation ward……..Discharge…. (Please Encircle)

Treatment : 1……2……

3.....4.....5.....

Sign & Stamp By CMO…….

NAME…… TIME……

BPREVISED TRAUMA SCORE

| GCS | SBP | R R | VALUE |
|---|---|---|---|
| 13-15 | >89 | 10-29 | 4 |
| 9-12 | 76-89 | >29 | 3 |
| 6-8 | 50-75 | 6-9 | 2 |
| 4-5 | 1-49 | 1-5 | 1 |
| 3 | 0 | 0 | 0 |

PRIMARY ONCALL TEAM NOTES:

Sign & Stamp……

NAME…… TIME…..

Notes from the Secondary Referral Team if any:

Sign & Stamp……

NAME……TIME…

(use back page for additional notes and treatment for home)

**AYUB MEDICAL TEACHING INSTITUTE EMERGENCY 5 LEVEL TRIAGE SYSTEM**

| CATEGORIES | SYMPTOMS | AREA OF ED | TREAT WITH IN |
|---|---|---|---|
| **RESUSCITATION (IMMEDIATE RESPONSE INDICATED)**<br><br>SUSPECTED LIFE THREATENING MEDICAL CONDITIONS<br><br>OR SEVERE AGGRESSIVE VOILENT BEHAVIOUR<br><br>LIFE OR LIMB THREATENING TRAUMA<br><br>PATIENTS BROUGHT IN ON STRECHERS<br><br>OR IN AN AMBULANCE<br>SOME CATEGORIES CAN BYASS TRIAGE AND GO DIRECTLY TO RESUS | 1.UNCONSCIOUS OR GCS < 9.<br>2.UNRESPONSIVE<br>3.SUSPECTED CARDIAC ARREST<br>4.SUSPECTED RESPIRATORY ARREST<br>5.ONGOING SEIZURES<br>6. SEVERE AGGRESSIVE BEHAVIORAL DISORDER<br>7.RESPIRATORY DISTRESS (RESP RATE > 30 OR <10).<br>8.SPO2 < 80 REGARDLESS OF SYMPTOMS<br>9. BLOOD PRESSURE OF < 80 SYSTOLIC REGARDLESS OF SYMPTOMS<br>10. SUSPECTED TENSION PNEUMOTHORAX<br>11. HEMORRHAGIC SHOCK (BP LESS THAN 80 SYSTOLIC) SECONDARY TO FIREARM INJURY, STAB WOUND, MAJOR TRAUMA, LONG BONE FRACTURE.<br>12. HEAD INJURY<br>13. SPINAL INJURY<br>14. MAJOR BURNS<br>15. ELECTROCUTION | MEDICAL RESUS<br><br>SURGICAL RESUS | **IMMEDIATE**<br>TRIAGE TO RESUS IMMEDIATELY OR GO DIRECTLY TO RESUS<br>BY PASS RECEPTION (1,2,3,4,7, STABBING, FIRE ARM INJURY MAJOR TRUAMA MAJOR BURNS, SPINAL INJURY ) |
| **P1**<br>**(URGENT RESPONSE INDICATED)**<br><br>POTENTIALLY LIFE THREATENING CONDITIONS<br><br>OR IN SEVERE PAIN REQUIRING URGENT ATTENTION<br><br>PATIENTS BROUGHT IN ON STRETCHERS<br><br>OR IN AN AMBULANCE | 1. SPO2 >80 to 90 REGARDLESS OF SYMPTOMS<br>2.SEVERE CARDAIC CHEST PAIN WITH SWEATING &PALOR(ECG DONE & ASSESED IN LESS THAN 10 MIN)<br>3.UNILATERAL WEAKNESS (STROKE) OF LESS THAN 3 HOURS<br>4.BLOOD PRESSURE OF MORE THAN 180/120 WITH HEADACHE OR VOMITING OR BLURRED VISION OR GCS < 13OR CHEST PAIN OR SHORTNESS OF BREATH AT REST (SUSPECTED HYPERTENSIVE EMERGENCY)<br>5. SEVERE HEADACHE WITH VOMITING.<br>6.HEART RATE OF >150 OR < 50 REGARDLESS OF SYMPTOMS.<br>7. BLOOD PRESSURE OF LESS THAN 90 SYSTOLIC BUT MORE THAN 80 SYSTOLIC.<br>8.TRANSFER FROM OTHER HOSPITALS WITH RESUSCITATED CARDAIC OR RESPIRATORY ARREST OR HIGH RISK ECG, BROAD COMPLEX TACHYCARDIA, SVT, HYPERKALEMIA, BRADYCARDIA, CHB, AFIB WITH VENT RATE OF >120.<br>9. DRUG OVERDOSE PATIENTS.<br>10. PATIENTS WITH HEAMOPTYSIS<br>11. POST ICTAL<br>12. SEVERE PAIN WITH DISTRESS ANYWHERE IN THE BODY<br>13. SHOCK RESPONSIVE TO TREATMENT WITH NO OTHER INJURIES.<br>14. BLUNT ABDOMINAL TRAUMA.<br>15. SEPTIC SHOCK PREVIOUSLY TREATED IN PERIPHERY.<br>16.DELAYED PRESENTATION OF PERITONITIS.<br>17. SEVERE ACUTE PANCREATITIS WITH SYSTEMIC COMPLICATIONS<br>18. OBSTRUCTED STRANGULATED HERNIA.<br>19.ACUTE INTESTINAL OBSTRUCTION.<br>20.GRADE IV HEMORROIDS/ PR BLEED.<br>21.VITALLY STABLE TRAUMA AND FIREARM INJURY.<br>22. SEVERE PAIN WITH DISTRESS<br>23. URINARY RETENTION. | MEDICAL RESUS<br><br>SURGICAL RESUS | **10 MINUTES** |
| **P2**<br>**(SEMIURGENT RESPONSE INDICATED)** | 1HIGH GRADE FEVER WITH PRESERVED CONSCIOUS LEVEL AND NO RESPIRATORY DISTRESS BUT WITH WEAKNESS & LETHERGY.<br>2. UNILATERAL WEAKNESS OF> 4 HOURS.<br>3.COUGH WITH HEAMOPTYSIS BUT NO RESPIRATORY DISTRESS.<br>4. SHORTNESS OF BREATH WITH RESP RATE > 22 BUT < 30 & OR SPO2 OF 90 TO 93%.<br>5. HISTORY OF SYNCOPE AT HOME BUT NOW CONSCIOUS WITH NORMAL VITALS. | | **30 MINUTES** |

| | | | |
|---|---|---|---|
| CONDITIONS LIKELY TO BECOME SERIOUS OR REQUIRING ADMISSION | 6.PROBABLE CARDAIC CHEST PAIN WITH NO SWEATING OR PALOR(ECG DONE & ASSESED IN LESS THAN 10 MIN WITH NO STEMI)<br>7.BLOOD PRESSURE OF 180/120 WITH NO SYMPTOMS AND INTACT CONSCIOUS LEVEL<br>8. ABDOMINAL PAIN WITH VOMITING AND/ OR DIARRHOEA WITH PULSE RATE >100 AND OR BP OF < 110/70 BUT MORE THAN 90 SYSTOLIC. OR WHEN DIFFRENTIAL INCLUDES AORTIC ANEURYSM OR ECTOPIC PREGNANCY OR ACUTE ABDOMEN.<br>9. DIABETIC FOOT<br>10. SUSPECTED DVT<br>11. SUSPECTED ACUTE PANREATITIS<br>12.SUSPECTED ACUTE CHOLECYCTITIS<br>13. SUSPECTED ACUTE CHOLANGITIS.<br>14. SUSPECTED ACUTE APPENDICITIS<br>15. DECUBITOUS ULCERS.<br>16. SUSPECTED SUBACUTE INTESTINAL OBSTRUCTION.<br>17. STABLE BLUNT ABDOMINAL TRAUMA NEEDING OBSERVATION.<br>18. PATIENTS WITH KNOWN CANCER REQUIRING SURGICAL INTERVENTION.<br>19. LARGE ABCESS.<br>20. ANY OTHER REASON FOR SUSPECTED ACUTE ABDOMEN NOT COVERED ABOVE.<br>21. ANIMAL INSECT OR SNAKE BITE (OTHERWISE STABLE) | OBSERVATION WARD<br><br>OBSERVATION WARD | |
| **P3**<br><br>**NON URGENT RESPONSE REQUIRED**<br><br>LIKELY TO BE DISCHARGED AFTER A KEY INVESTIGATION OR INITIAL TREATMENT AND FOLLOW UP ARRANGED IN THE OUTPATIENTS.<br><br>OR ADMISSION AT THE DISCRETION OF THE ONCALL TEAM | AMBULATORY PATIENTS INCLUDING<br>1.UNCONTROLLED BLOOD PRESSURE PATIENTS OF LESS THAN 180/120 AND NO SYMPTOMS.<br>2.UNCONTROLLED BLOOD SUGARS WITH NO SYMPTOMS<br>3. FEBRILE PATIENTS WITH NO HEADACHE OR RESPIRATORY DISTRESS OR LETHERGY<br>4. NON CARDIAC CHEST PAIN WHO LOOK STABLE ON INITIAL SURVEY.<br>5DIARRHOEA OR VOMITING PATIENTS WITH NO SIGNS OF CIRCULATORY SHOCK AND BP OF 110/70 OR MORE.<br>5. ADBOMINAL PAIN WITH NO SIGNS OF DISTRESS AND BP 110/70 OR MORE.<br>6. SWOLLEN RED INFLAMMED JOINT.<br>7. MODERATE PAIN ANYWHERE IN THE BODY.<br>8. MESENTERIC LYMPHADENITIS.<br>10. URINARY TRACT INFECTION.<br>11. NONSPECIFIC ABDOMINAL PAIN.<br>12. ANAL FISSURE.<br>13. GRADE I-III HEMORROIDS.<br>14.BILIARY COLIC<br>15.URETERIC COLIC.<br>16. LIMITED SUPERFICIAL BURNS.<br>17. INFECTED WOUNDS/MICROABCESSES.<br>18. TRAUMA PATIENTS NEEDING TETANUS PROPHYLAXIS & WOUND WASH ONLY. | OBSERVATION WARD<br><br>OBSERVATION WARD | **1 HOUR** |
| **P4**<br><br>**NONURGENT RESPONSE WITH LIKELY DISCHARGE AFTER REASSURANCE** | ALL OTHER PATIENTS | DISCHARGE FROM TRIAGE OR DIRECTED TO WALK-IN CLINIC OR OUTPATIENTS FROM RECEPTION OR WAIT IN THE WAITING AREA | **2 TO 3 HOURS** |

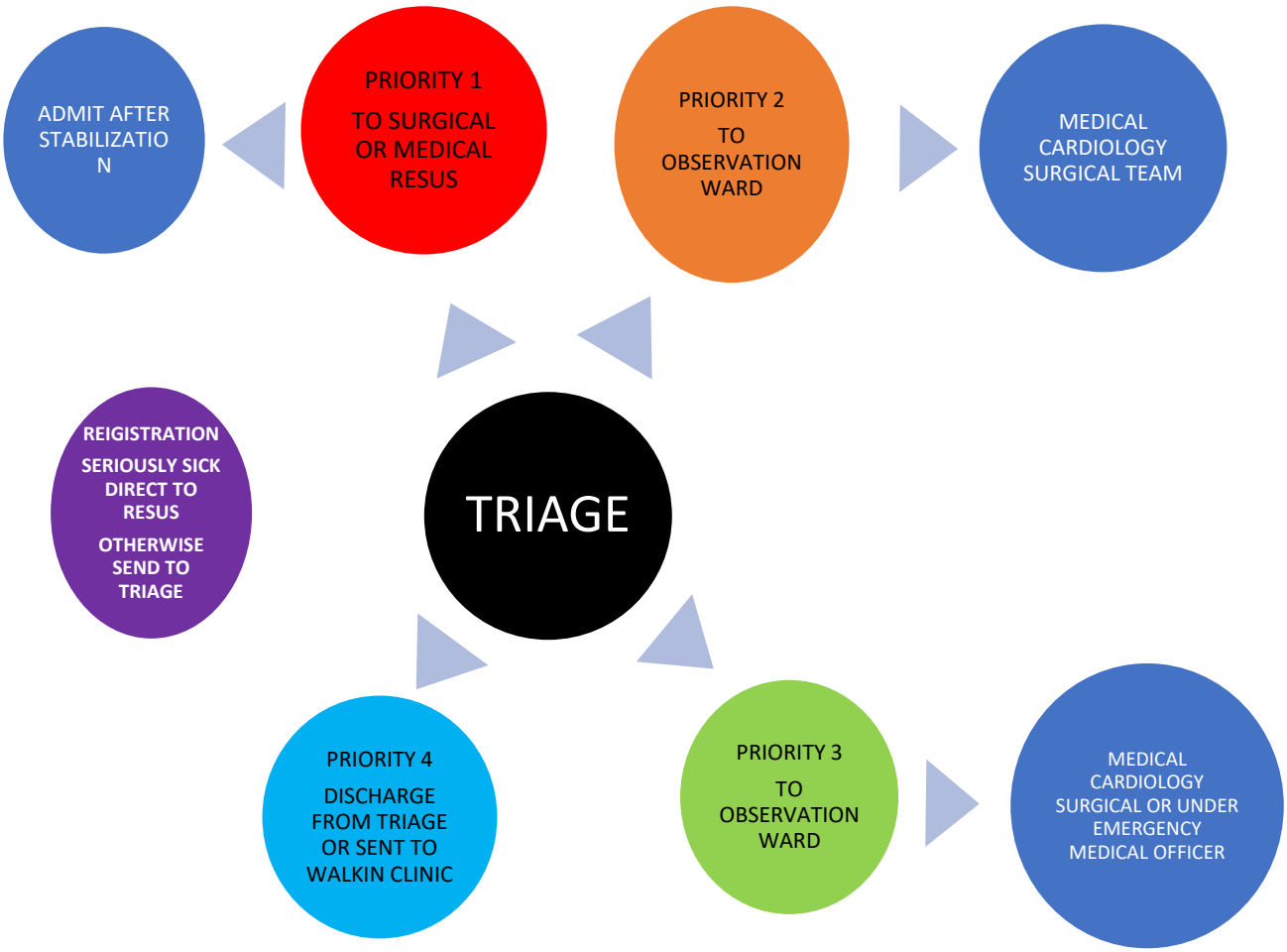



**FIG 3. FLOW DIAGRAM OF 5 LEVEL TRIAGE SYSTEM**

## PRIORITY 1 PATIENTS

Patients with life threatening illnesses shall be **fast tracked** to the '' Medical Resus'' or Surgical Resus as the case maybe. These will be typically those patients who have severe distressful symptoms or whose illness on a quick review would seem to be life threatening. There could be instances where a surgical emergency might land in the Medical Resus and vice versa. If this occurs the nurses of the respective resus unit shall inform the other unit and if there is space the patient can be immediately shifted. Some examples are given below;

1. Short of breath and in distress.
2. Unconscious or semiconscious with any additional symptoms.
3. Chest pain with palor and sweating.
4. Patients brought on stretchers or by Ambulance.
5. Conscious but pale & low BP with any additional symptoms..
6. Major trauma.
7. SaO2 less than 90 mm of Hg.
8. Seizures.
9. Strangulated Hernia
10. Blunt Abdominal truama

Please see detailed description of priority 1 patients above. These patients must go to the triage desk straight away. The Emergency Medical officer shall quickly assess these patients, enter the relevant information in the triage slip, sign & stamp and send them to Medical or Surgical resus. The PGRs from the Medical Team, Surgical Team and Cardiology Team shall receive the patient and take over their further assessment and management. The Medical, Surgical or Cardiology PGR shall see these patients with in 10 minutes. Chest pain patients with sweating and distress shall go to resus and have their ECGs within 5 minutes of arrival in the resus. They will not go to the ECG bay. The ECG machine shall be taken to the patient's bedside. Once ECG confirms ST elevation or any life threatening diagnostic ECG changes such patient shall be referred to CCU once it is confirmed that a bed is available in the CCU.

## PRIORITY 2 PATIENTS

Priority 2 patients shall comprise of those patients who are likely to deteriorate with in the next one hour or shall most likely require admission. Such patients shall be visually assessed by a smart and sensitive registration staff. If the triage area is free such patients can be sent to Triage area. (Once we have a waiting area )Some Priority 2 patients could wait in the waiting area and wait for the triage to be freed up (for example patients with syncope but now recovered). Once assessed the Emergency Medical Officer shall fill up the appropriate spaces on the ED slip, assign priority, assign which team shall take over further assessment and treatment, and send such patients to the observation ward. The nurse shall receive such patients and start treatment or send investigations if any has been prescribed by the Emergency medical officer as documented in the ED slip. The nurse shall put the patient ED SLIPS into the appropriate shelf (see later in details of individual units) and shall inform the Medical or Surgical or Cardiology PGR that a priority 2 patient has arrived in the observation unit. These patients shall be seen by the respective PGR within 30 minutes. Examples of such patients include :

1. Head ache
2. Head injury who are conscious but had a history of unconsciousness.
3. Febrile illness in pregnant ladies or in those who are very young or very old.
4. Abdominal pain but not in distress with low BP but not in shock
5. Recovered from an episode of loss of consciousness.
6. Diarrhoea & vomiting with BP less than 110/70
7. Acute bilateral lower leg weakness

8. Acute unilateral upper & lower limb weakness
9. Uncontrolled Hypertension but no suspicion of malignant hypertension.
   For full details please see above.
10. Chest pain patients who are not sweating and are not in distress
11. Suspected acute appendicitis
12. Suspected acute pancreatitis

See the detailed description of priority 2 patients above.

Patients with cardiac sounding chest pain and who are stable and not in distress would also be treated as priority 2 and should have an ECG within 5 minutes of arrival in the ECG BAY and referred to the Cardiology PGR on duty in the ED. If the Patient has a clear ST segment elevation or diagnostic ECG changes he/she should go to the Medical Resus and his/her priority shall be changed to priority 1. Such a patient shall be referred to CCU once it is confirmed that there is a bed available in CCU. All other patients with chest pain who are stable and have nondiagnostic ECGs shall enter the **SUSPECTED ACS DIAGNOSTIC PATHWAY.** Such patients shall be retained in the Observation ward until a dedicated chest pain unit is functional.

## PRIORITY 3 PATIENTS

These will be those patients who can be seen by the ED team and are likely to be discharged home (or admitted) after a short stay either after a key investigation or a quick treatment. Some examples are given below;

1. Falls after excluding a fracture.
2. Minor injuries after a tetanus shot and dressing.
3. Diarrhoea & vomiting after urea & electrolyte check.
4. Pleuritic chest pain after d-dimer and CXR.
5. Productive cough of a few days duration after FBC and CXR.
6. Leg pain after d-dimer.
7. Ureteric Colic
8. UTI

If appropriate these patients can either be sent back to the waiting room (once we have a waiting room) pending the results of investigations or be kept in the observation ward if there are beds available. These patients could be undifferentiated and not referred to any team but be retained in the ED under the supervision of the Emergency medical officer. The Emergency medical officer could in his discretion refer these patients to the Medical or Surgical or Cardiology PGR. If so such patients shall be seen by the respective PGR in 1 hour. The nurse should have kept the ED slip of such patients in the appropriate shelf and would inform the respective PGR that a category 3 patient is waiting to be seen.

## PRIORITY 4 PATIENTS

These will be typically those patients who do not need any investigation and who should more appropriately be seen in a specialized OPD or Walk in clinic. Some of such patients ideally would have been sent to the walk in clinic at the registration desk. But if they do come through, they should be reassured and should be referred to an appropriate OPD with a referral letter. Some examples are given below.

1. Back ache
2. Red eye
3. Recurrent headaches
4. Uncontrolled HTN

5. Recurrent epigastric pain
6. Cough of a few days duration
7. Patients who are already diagnosed and under follow up such as CCF not in major distress or uncontrolled DM.

These patients can be discharged directly from triage after reassurance with a referral letter to the appropriate OPD or can be offered to wait in the waiting area (once waiting area is operational) or Observation ward for the appropriate team to see him or her. The minimum waiting time for this category shall be 2 hours.

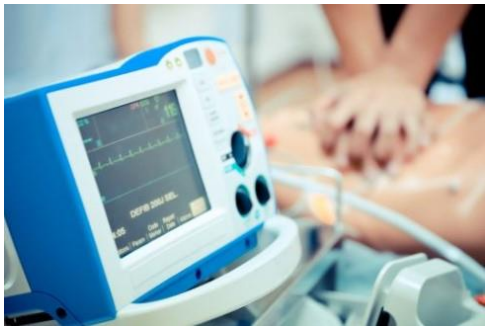
**DETAILS OF THE INDIVIDUAL ED UNITS**

The following paragraphs describe the working and the staffing details of the individual ED units;

**MEDICAL RESUS**

The Medical Resus unit should be staffed by the Medical PGR, Cardiology PGR, at least 3 nurses, and should have at least 6 monitored treatment beds. There should be the following support staff/equipment available 24 hours a day;

1. ECG technician& ECG machine.
2. Portable CXR
3. Cardiac monitor fixed and portable.
4. Defibrillator with external pacing capability
5. Ventilator and endotracheal intubation tray.
6. 2 ward boys 24 hours a day.
7. 4 facilitators (trolley & wheel chair personnel)
8. Sanitation staff.
9. ABGs Machine.
10. Landline Telephone.
11. 2 Desk top computers
12. Phlebotomist



There should be a hotline or mobile phone numbers written clearly on a board of the following persons in the Medical Resus.

1. CCU Nursing Counter.
2. Anesthetic Reg on call.
3. Medical ICU Nursing Counter.
4. Gastro PG on call
5. Peads PG on call.
6. Pulmo PG on call.
7. Psych PG/MO on call.
8. Radiology MO on call.

After (or while ongoing) immediate assessment and resus, the appropriate unit shall be called to make a bed available. The Medical PG or Cardiology PGR can call any of the above mentioned on duty staff for help or for opinion. Answering to the Medical resus's call by telephone or in person will be mandatory. Under no circumstances shall a patient be sent to a unit for opinion.IV access should have been established and routine bloods

should have been sent on arrival as per the on duty PGR recommendations. If the patient needs to be transferred with a high risk of deterioration he/she should be transferred by the hospital staff with the doctor and nurse and where appropriate on oxygen and a monitor. The admitting doctor would typically have informed his ward to be prepared to receive the patient. Under no circumstances should the patient be moved during CPR. All resus activities should happen in the resus & trauma unit before moving the patient to the ward/CCU/ICU. The attendants will not be asked to take the patient to the ward. The patient will under no circumstances be referred to the admitting team without their involvement. The patient once referred onwards by the Emergency medical officer shall not be referred back to the ED.

## SURGICAL RESUS

Surgical resus shall be staffed by a Surgical PGR and at least 3 nurses and should have 6 monitored high quality beds. The following staff/equipment should be present in the surgical resus at all times;

1. Dressing/OT/Orthopedic technician.
2. Radiographer with a portable digital CXR Machine.
3. Abdominal Ultrasound.
4. Surgical TMO
5. 6 monitored high quality beds
6. Defibrillator with external pacing capability
7. Ventilator and endotracheal intubation tray.
8. 2 ward boys 24 hours a day.
9. Facilitators (trolley & wheel chair personnel)
10. Sanitation staff.
11. Nursing staff X 3
12. Land line phone.
13. Two desk top computers
14. Phlebotomist

The following numbers must be displayed in the surgical resus and updated every day.

1. Medical ICU nursing counter
2. ICU Medical officer on call.
3. Anesthetic Reg on call.
4. ENT PGR on call or ENT UNIT ON CALL NURSING COUNTER
5. EYE PGR on call or EYE UNIT ON CALL NURSING COUNTER
6. Plastic surgery Reg or MO on call.
7. Orthopedics PGR on call.
8. Urology PGR on call.
9. Thoracic surgery MO on call.
10. Cardiac /Vascular surgery MO on call.
11. Neurosurgery PGR on call.

Patients referred to Surgical Resus would be completely taken over by the Surgical PGR on duty. A patient requiring multidisciplinary input shall remain in the surgical resus and all teams shall be called to assess the patient. Under no circumstances shall a patient be moved from the surgical resus to a ward for opinion.

In case of a disaster like an earthquake, road or air crash or a bomb blast the senior Emergency medical officer can declare all ED units as **''RESUS & TRAUMA UNITS''**

**THERE SHOULD BE A DISASTER DRESS REHERSAL EVERY 6 MONTHS.**

## OBSERVATION WARD

The Observation ward shall have at least 12 beds. The patients in the Observation ward would typically be

1. Priority 2 or 3 patients
2. Unreferred patients kept for a key investigation or a treatment.
   The nurse in charge of the observation unit shall inform the surgical PGR or the Medical PGR that a priority 2 or 3 patient has been sent to the observation unit. The Medical PGR or the Surgical PGR would typically be based in the resus rooms. The patients with chest pain going down the ACS diagnostic pathway shall also be admitted to the observation unit (see below for the ACS Diagnostic Pathway).The Medical, Surgical, and Cardiology PGRs shall be responsible for the patients referred to them by the Casualty Medical Officer. Further treatment, admission, discharge and follow up shall be arranged by the PGRs. The unreferred patients shall be the sole responsibility of the Casualty Medical officer until referred onwards.

## SUSPECTED ACS DIAGNOSTIC PAHWAY:

1. Admitted to the observation ward with cardiac sounding chest pain and equivocal ECG findings.
2. The nurse will draw blood for the investigations including C-Tn I & note the time of sending investigations.
3. The patient should have a C-Tn I on admission and then at 3 to 4 hrs after the commencement of chest pain.
4. Patient should have an ECG every 15 -20 minutes.
5. Further progress of the patients shall go along 4 possible pathways as shown in fig 4.

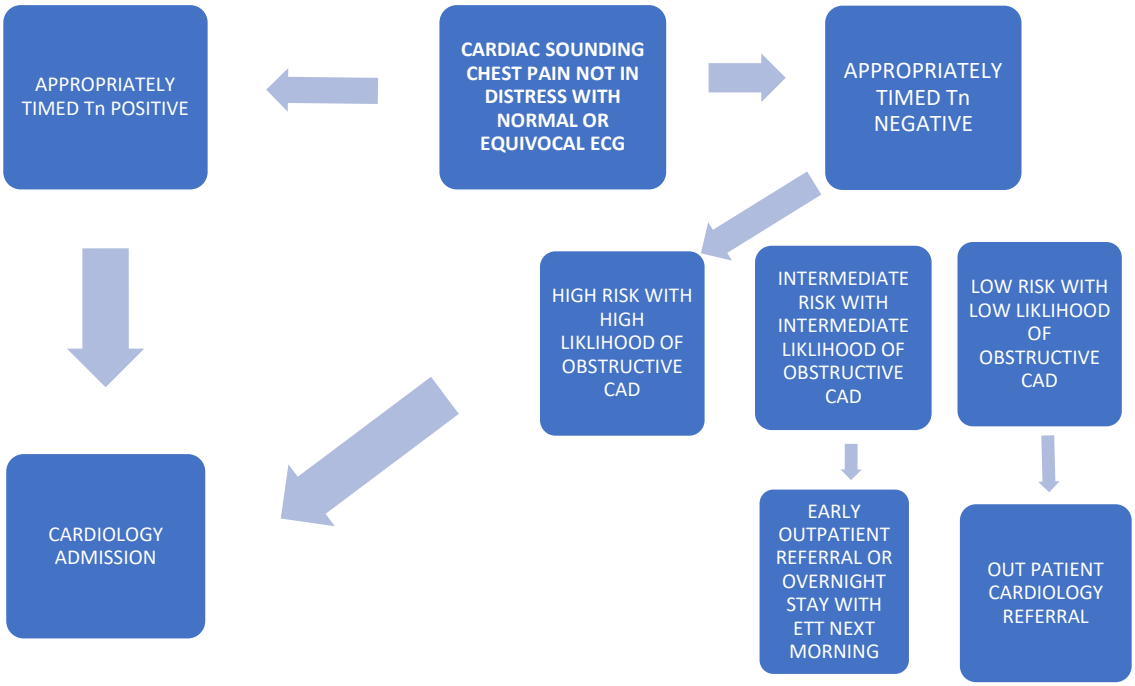



Fig 4.

The following staff/equipment must be available in the observation ward:

1. Nurses at least 4.
2. Ward boy
3. Trolley and wheel chair facilitation staff.
4. Wall fixed shelves labeled: PRIORITY 2, PRIORITY 3, PRIORITY 4.(FIG 5)
5. 2 Desk top computers.
6. Landline Telephone

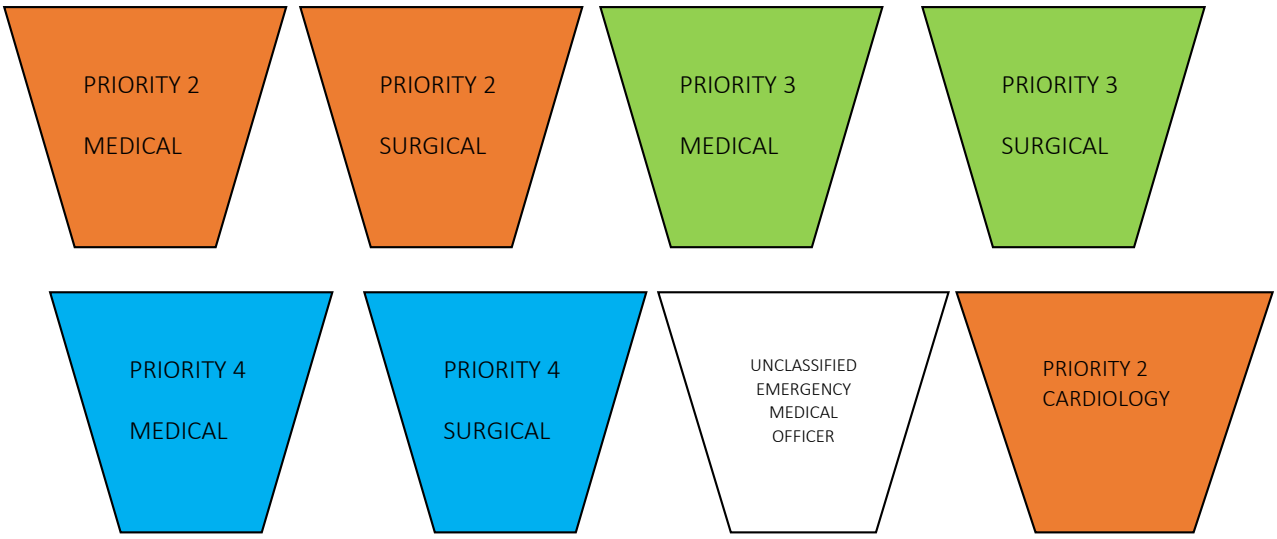



FIG 4. Appropriate priority slips shall go into their respective shelves.

## OTHER PROPOSED FACILITIES/STAFF IN THE EMERGENCY DEPARTMENT

## DOCTOR'S COMMON ROOM

There should be a doctor's break room where an electric kettle and a fridge and a microwave must be available. The doctors can take a 15 min break every 2 hours.(Former Room 14 is our proposed site for the common room)

## DOCTOR'S OFFICE

There should be a common office where a desk top computer and a printer must be available. There should be an internet connection. This office should be used by doctors for typing referral letters or checking online investigation results or getting help from medical literature for treating patients. (The DMS office is our proposed site for the common room. DMS office must be transferred elsewhere)

## SECURITY ARRANGEMENT

The entrance to the emergency must be closed at all times and cannot be used as a thorough fare. There must be a one patient one attendant policy for wheel chair bound and ambulatory patients and one patient two attendants for trolley bound patients.

## WARD BOYS & FACILITATORS

The number of ward boys & facilitators must be increased to facilitate the smooth running of the ED.

### DUTIES & RESPONSIBILITIES OF THE EMERGENCY MEDICAL OFFICERS.

1. The Emergency Medical officer shall be the overall in charge of his shift and make sure all individual units are working properly by physically being present on the floor.
2. The Emergency Medical officer when on duty shall be based in the triage area and shall lead the triage team along with the nurse and a house officer.
3. The Emergency Medical officer shall along with his/her team, triage patients, put proper notes, assign priority and refer patients to the on call teams.
4. The Emergency Medical officer shall ensure timely assessment, discharge or referral of patients.
5. The Emergency Medical officer shall make sure that the patients once referred onwards shall become the responsibility of the on call team and under no circumstances can the patient be referred back to the Emergency.
6. The Emergency Medical officer shall be responsible for all such patients who are under observation and who have not been referred onwards.
7. The Emergency Medical officer shall make sure that all the equipment in the ED is in working order and promptly report if any equipment is not working.
8. The Emergency Medical officer shall make sure that all staff assigned to the shift is present. If not he should promptly report this to the on duty DMS.

## DUTIES AND EXPECTATIONS FROM THE PGR.

1. The PGR shall report to his/her duty on time.
2. Cardiology, Medical and surgical PGRs shall be physically on duty in the ED 24 hours a day 7 days a week.

3. The PGR shall not leave his place of duty without informing the Emergency Medical Officer.
4. The PGR shall be bound to go to the Emergency Department if called to see a patient.
5. The PGR shall not refuse to see any patient who has been referred to him/her.
6. The PGR shall not refer the patient back to the Emergency Department once the patient has been referred to him or her.
7. The PGR on duty in the ED shall not refer a patient to a unit outside the ED for opinion. All Medical, Surgical teams & Allied specialties shall go to the Emergency Department if asked for an opinion.
8. Answering the Emergency call by phone or in person shall be mandatory for the PGR if called from the Emergency Medical Officer or Surgical, Medical or Cardiology PGR.
9. PG shall not unnecessarily hold patients in the Emergency Department for investigations. A patient who is likely to be admitted should be sent to the wards without waiting for the results of investigations. The investigations if sent from the Emergency can be followed up in the wards.
10. The PG shall not send any patient outside the premises of the hospital for Echo, Abdominal Ultrasound or Doppler or CT scan. All such investigations shall be done within the hospital. The Cardiology PGR can be consulted if an Echo is immediately required or it can be done after admission or as outpatients. Exceptions can only be made if the CT scan or Ultrasound is out of order and if and only if it is safe to do so and it will result in a major treatment decision.

## SUMMERY OF GENERAL RULES AND REGULATIONS FOR SMOOTH RUNNING OF ED

1. The only authorized person to fill the first part of ED slip shall be the Emergency Medical officer. No other person or doctor from a different department can write or sign the first part of the ED slip.
2. The ED slip cannot move further without the sign and stamp of the Emergency Medical officer. The time of sign and stamp must be entered.
3. The ED slip shall not be issued for the purpose of '' investigations '' or ''admission '' or any other purpose.
4. The ED slip shall not be issued to a patient who himself or herself is not present on the registration counter.
5. A patient once referred onwards to the Medical or surgical on call team cannot come back to the ED nor can he/she be referred back to the Emergency Medical Officer. The Emergency Medical Officer is authorized to call the second on call or the consultant in case the on-call team sends a patient back to the Emergency services.
6. No patient shall be referred to ED from any OPD or ward for IV injections or Analgesia.
7. Under unusual circumstances an exception can be made e.g. where an unstable patient is booked in an OPD or if a patient becomes unstable while waiting for his turn. Such a patient can be sent to the ED. Basic life support protocols should be applied and Ideally the ED triage nurse should be informed that such a patient is on his or her way to the ED.
8. Priority 3 or 4 patients if referred from the ED to the OPD must have well written ED notes. It must be made clear to such patients that the same day OPD consultation cannot be guaranteed since most OPDs stop booking patients at a particular time so that the patients already booked can be finished.
9. The patient referred to a Medical or surgical team by the Emergency Medical officer shall become the sole responsibility of the referred team. If the primary team needs a sub specialty opinion in the ED then the primary team must arrange that by calling that particular subspecialty to the ED. The Emergency Medical officer shall not be asked to arrange a sub specialty opinion. The Emergency Medical Officer in his discretion can ask multiple teams to have a look at a particular patient.

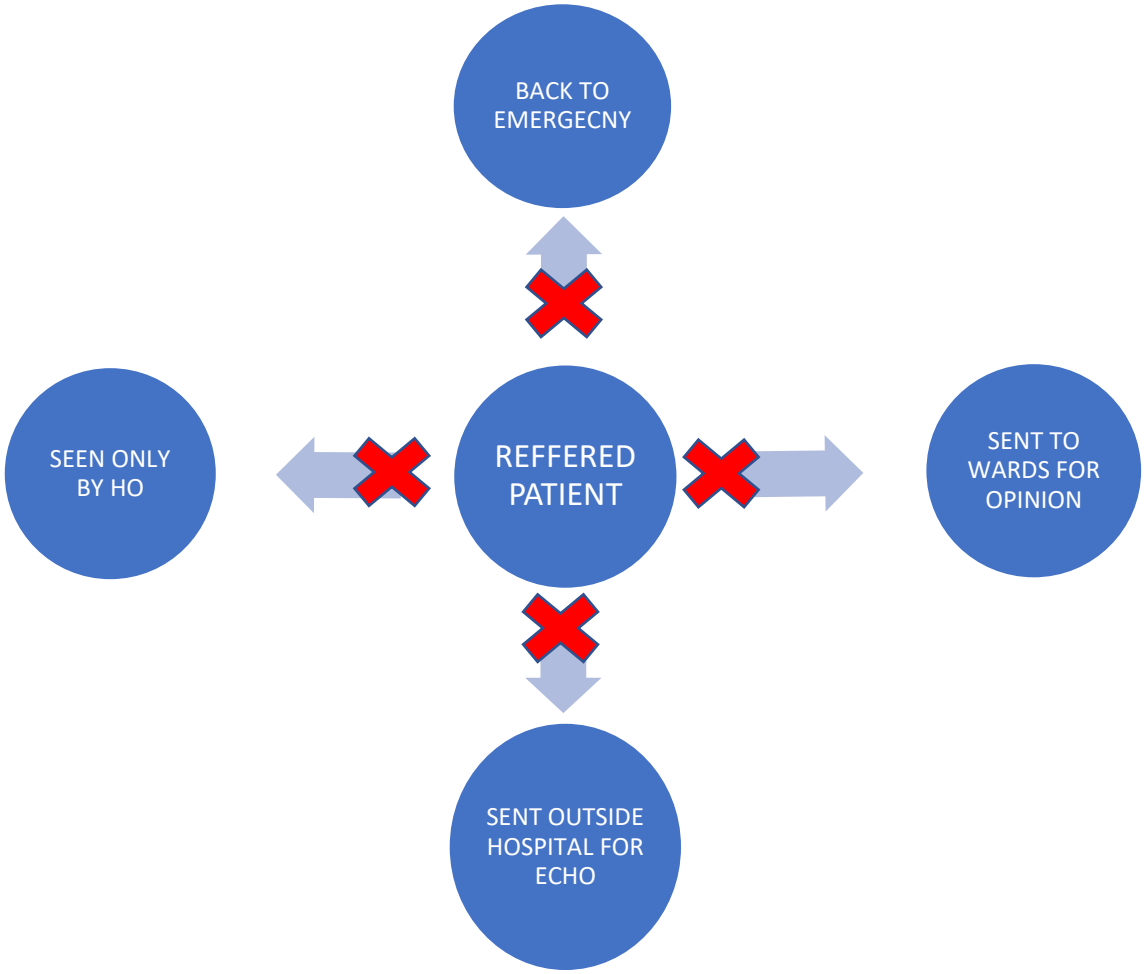



FIG 5

10. In case a patient needs input from multiple teams such as poly trauma, the main surgical team must be responsible for all decisions and final destination of such patients. The Department of Emergency shall not tolerate a situation where a patient is not accepted by any team and the patient is left on the ED floor. The Emergency Medical officer in his discretion can ask either the primary team or any sub specialty involved in the care of such patient to admit such a patient. His decision shall be final.
11. The units who shall be physically present on the ED floor shall be Medical on call, Surgical on call and Cardiology.
12. The patient shall leave the ED floor either for admission or after discharge or any imaging investigation. The patient shall not be sent to any unit for opinion. The patient sent to a particular unit shall be for admission. The Emergency department shall be a one-way street. The unit on call shall not be allowed to send such a patient back to ED even if in the opinion of the ward PG it was a wrong referral. The back & forth ‘’ ping pong ‘’ movement of patients shall be strongly discouraged. In case of an ‘’ arguably ‘’ wrong referral the only options open to the units are to admit such patient and write a consult to the ‘’ appropriate unit ‘’ or transfer to the ‘’ appropriate unit ‘’ through personal requests to the colleagues in the other unit.
13. The emergency medical officer shall be expected to be in the triage area while on duty and to supervise the working of all the units. The emergency Medical officer shall be expected to be involved in the treatment of all patients ‘’ hands on ‘’ .

14. The House officer in the ED shall be supervised at all times and shall not be allowed to independently write on the ED slip. The House officer is not authorized to sign and stamp the ED SLIP on behalf of the Emergency Medical Officer.
15. Sub lingual Nifidipine, IV Lasix or Sub lingual Captopril shall not be used for uncontrolled hypertension.
16. Finally the culture of '' STAT ANTIBIOTICS '' or unnecessary '' IV Analgesia '' or '' IV Infusions '' which unnecessarily increase the work load of the ED shall stop forth with.

## POSTSCRIPT

The distribution of work over space and time is the key to efficiency and organization. Every unit in the ED will work individually as well as a part of a well organized team. This new design of ED ensures that every patient gets the level of care his or her condition requires. It also ensures that none of the staff gets over-worked and exhausted. Crucially it ensures that the resus activities promptly happen immediately on entering the ED. The involvement of medical and surgical on call teams ensures that unnecessary admissions are curtailed; the patient does not go to the wrong team and becomes a ping pong ball. Above all, the wards and especially the CCU can be alerted before hand to receive a new patient.