Devika TH

by Devika Th

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ACKNOWLWDGEMENT

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I also take this opportunity to extend heartfelt gratitude to others who directly or indirectly helped me, by providing necessary information required for the successful completion of the project.

Dr Devika Thukral

ABSTRACT

The study title is "Severity and Outcome of Patients admitted in Medical ICU in a tertiary care hospital in western UP India- A Retrospective Study" Healthcare services in India are mainly in metros, whereas India is representative of mainly rural India by population. Healthcare services are neglected in rural area in terms of services and in research. Patients are often referred to metros. We do not have the figure of Case mix and severity of disease burden of the rural society. This study will help us in identifying the different disease spectrum in the community. **Objectives are** to evaluate the severity and outcome of patients admitted in MICU and the study will explore: Case mix of Patients admitted in medical ICU, Average length of stay of patients admitted in ICU **and** Mode of payment**. Study population:** We have gathered patients from our neighbouring areas and these patients where directly admitted in hospital through emergency and ward. It is a retrospective – randomized study from 01-06-18 to 31-03-19.The study is undertaken with the guidance and active participation of ICU Team. This study **Includes:** All adult patients admitted in MICU within the age range i.e. 18-90yrs**,**Directly admitted patients from community and Referred patient from community hospital **Excludes**: Medico-legal cases**,** Patients outside the fixed age range i.e. between 18-90 years**,** Leaving Against Medical Advice(LAMA) and Referred patients(either from metro cities or from tertiary care hospital)**.**We have evaluated the

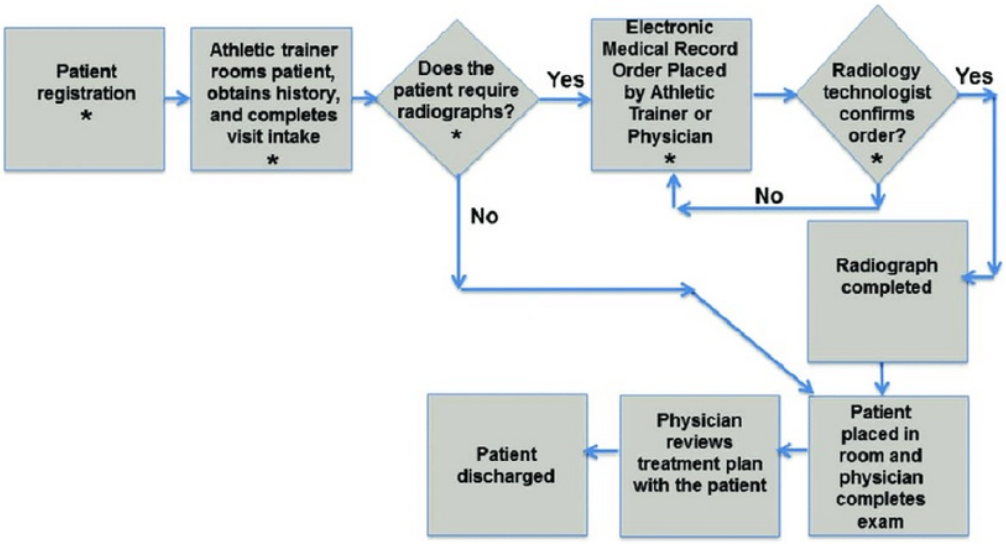
AGE RANGE	Total no. of patients	Total discharge	Total LAMA	Total mortality	Sevearity (Apache)	% of Mortality
18-30	97	26	38	13	4.60	13%
31-50	108	25	56	10	7.18	9%
51-70	214	48	97	34	6.55	15%
>70	99	20	47	20	14.65	20%

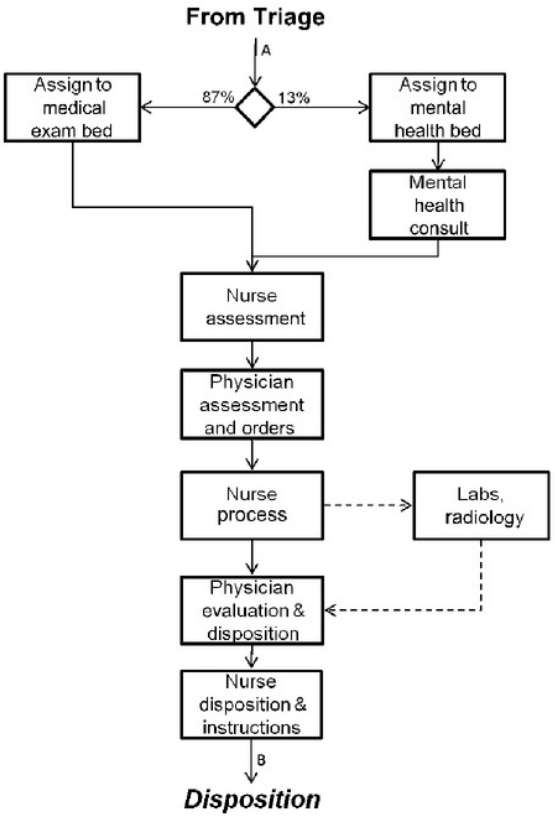
severity measuring APACHE score within 24 hrs. of hospital admission, and outcome is measured as 30 days mortality. We follow up the discharge patient till 30th day after getting discharge from hospital. Case mix is defined as primary problem (anatomical and physiological as the patient was admitted in MICU. They are as follows (Tropical Fever, Pneumonia,ARDS,Septic Shock/MODS,CKD,CAD/Acute LVF, Oncological Emergency, UTI,DM2,COPD/Bronchial Asthma and other diseases.**Result:Total percentage of Male and Female is 62.9% and 37% respectively, Average Length of Stay is 8.73,mean apache is 8.55,all three mode of payments were observed like Panel,TPA and Cash and they were 32%,4% and 64%.**

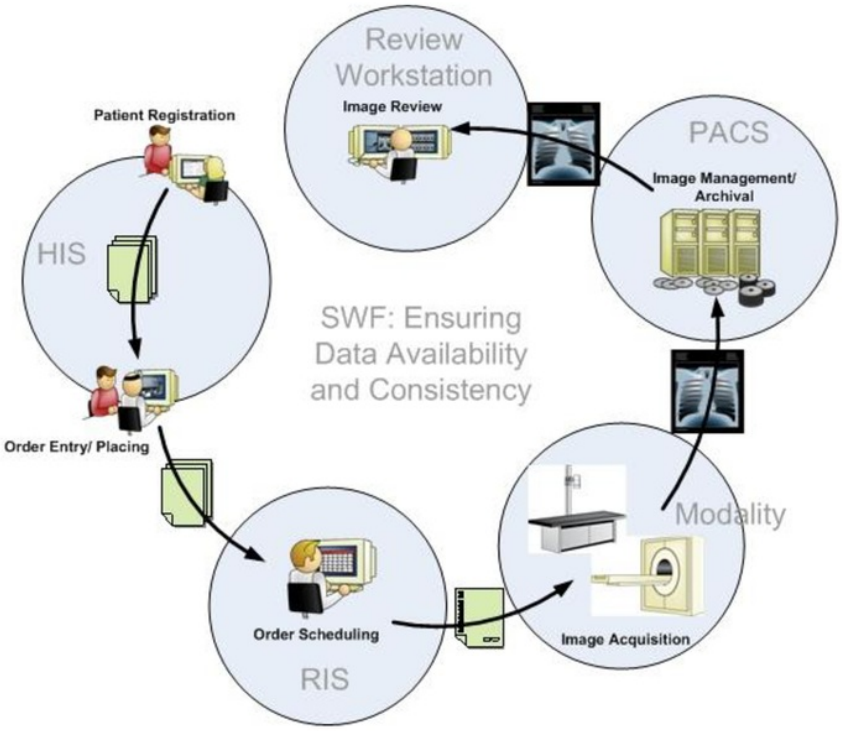
Conclusion: Its very surprising that there is huge variation of male and female in our community who were treated in MICU. LAMA is a huge problem in this community, due to various reasons. Of course siting explanation is financial which may indicate lower socio economic status.

OBSERVATIONAL LEARNING:

Process in Radiology Department Patients flow:





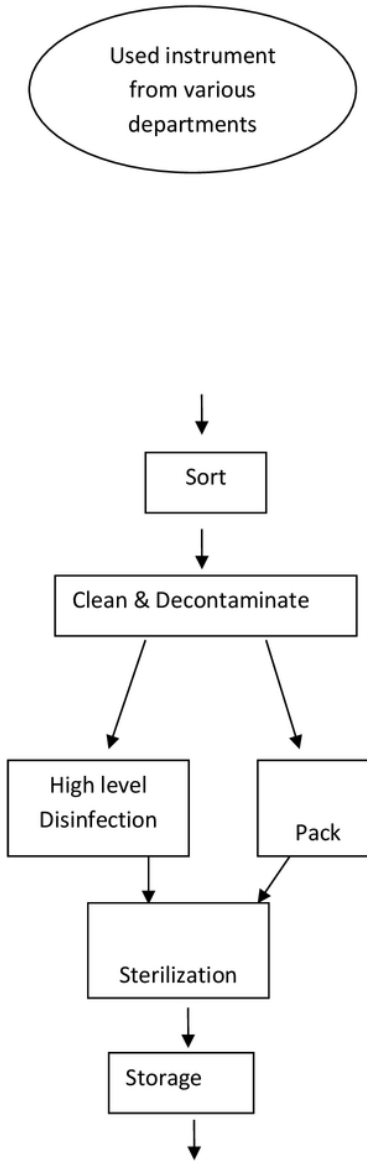


Description:-

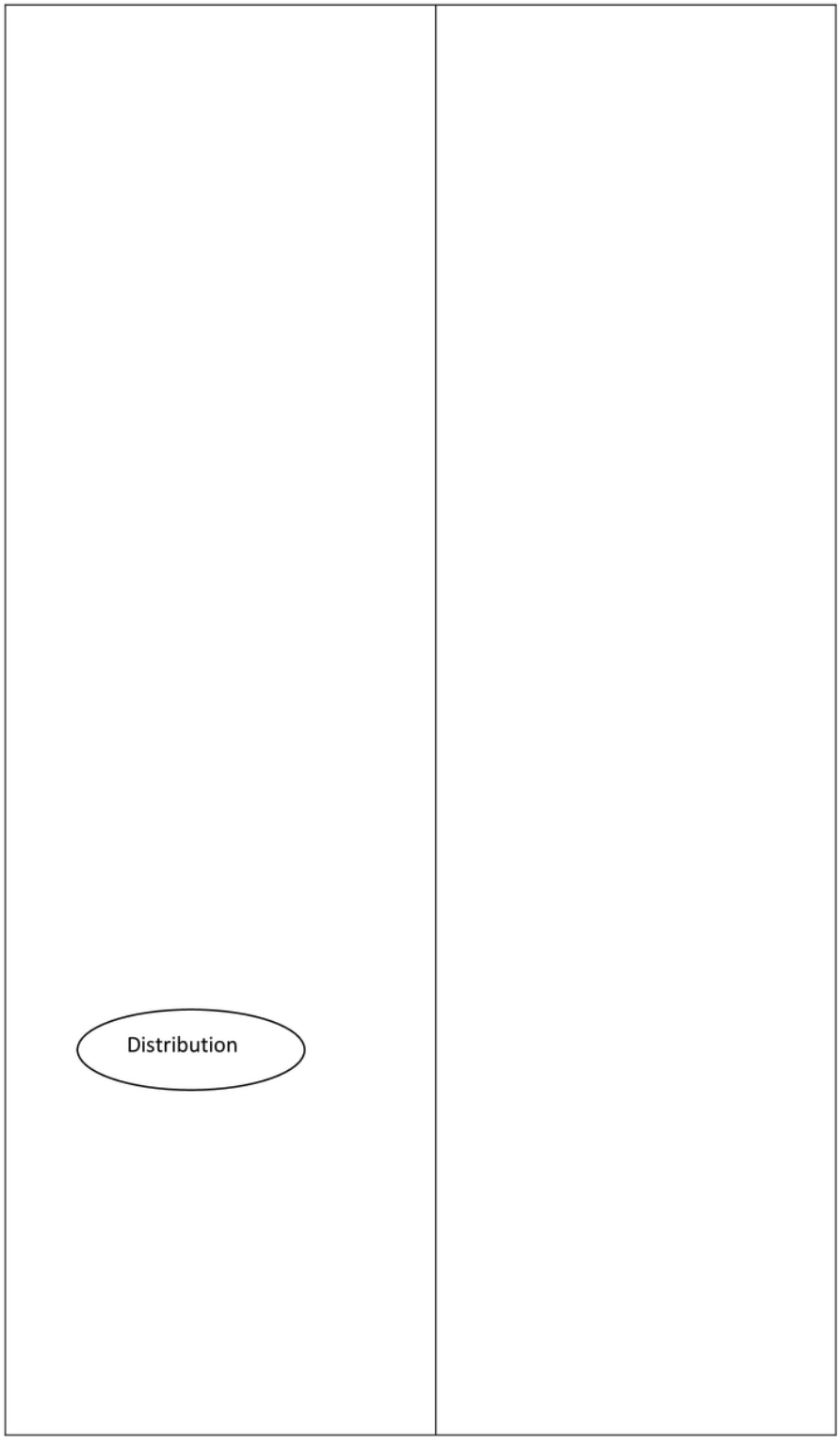
- The process starts in Radiology department with the registration of the Patient. After the Registration we place the entry in the system.
- Then order gets scheduled as per requirement.
- We call the patients and match the identity like UHID NO, Name, Age, Gender and job description.
- We do the job in image acquisitions with relevant machine, once it is finished patients gets dispatched to OPD or IPD with GDA staff / Nursing staff or both.
- After the modality we place the image and data to image management archival, then images and data gets analyzed by the concern Doctor and makes the report on it.
- Finally we submit the report to the concerned department.

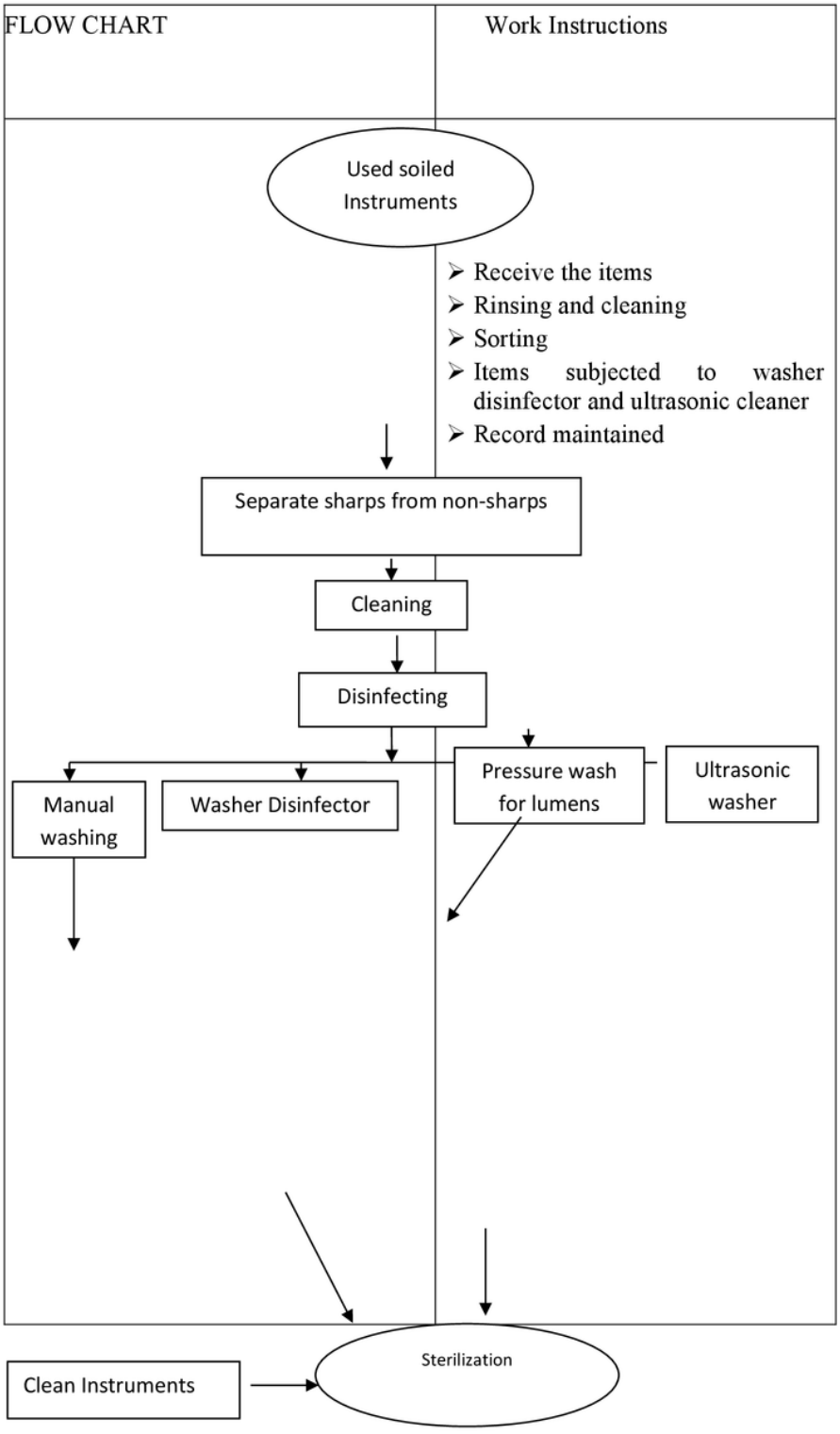
Note : - The process has been explained in the above chart and diagrams.

Process in CSSD Department Patients flow:



- Receive the items
- Rinsing and cleaning
- Sorting
- Items subjected to washer disinfector and ultrasonic cleaner
- Record maintained
- Receive goods subjected to cleaning
- Check for dryness, functionality defects, breakages etc.
- Assemble appropriately
- Counting made and record maintained.
- Packing & Labelling done
- Linen packs kept separately
- Indicators are arranged / placed
- Sterilization carried out (Autoclave / ETO)
- Equipment are checked & maintained
- Record maintained.
- Items received from sterilizer(s)
- Checked for indicator colour change and wetness
- Biological indicator result.
- Items stored on racks
- Items issued based on indent requested
- Records maintained (load register, issue register etc.)


Distribution

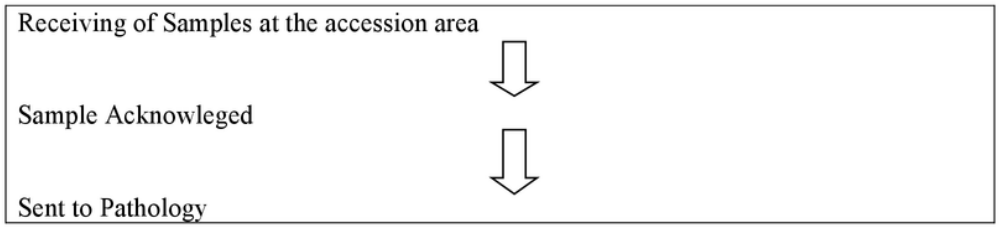

FLOW CHART
Work Instructions
Used soiled Instruments
Receive the items
Rinsing and cleaning
Sorting
Items subjected to washer disinfector and ultrasonic cleaner
Record maintained
Separate sharps from non-sharps
Cleaning
Disinfecting
Manual washing
Washer Disinfector
Pressure wash for lumens
Ultrasonic washer
Clean Instruments
Sterilization

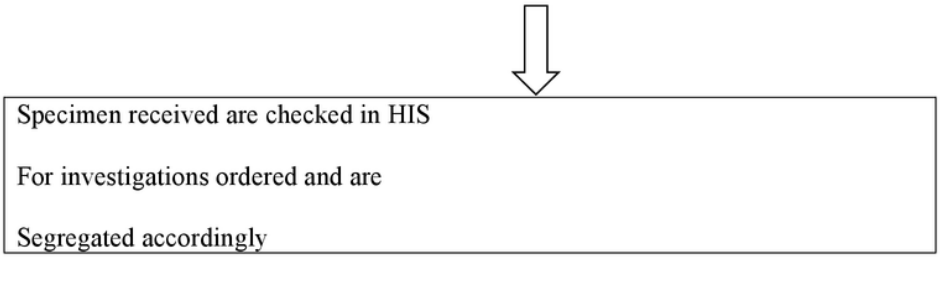
Process in CSSD Department Patients flow:

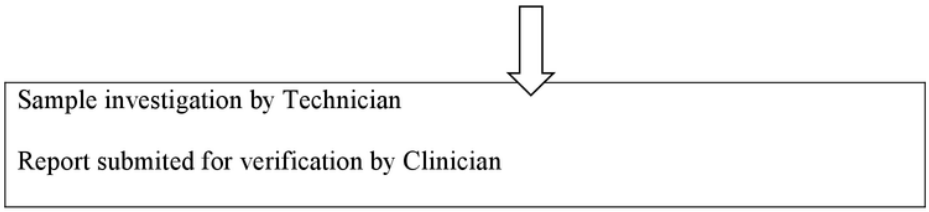
- Process in CSSD department starts with receiving the used soiled instruments . we receive it from different departments and mention it in the receving register.
- Then we rinse and cleen it with water and keep to dry properly. And Check breakage or functionally defects.
- Once it is dryed we do sorting in respect of sharp and nonsharps. And mention in the respective record book.
- After that we segrigate the instruments in respect of disinfector and ultrasonic cleaner. Here we check the devices with colour indicator protocol.
- Then finally cleaned instruments gets sterilized. Again we update it in our record book.
- After that we do the packing of instruments and send to dispatch section.

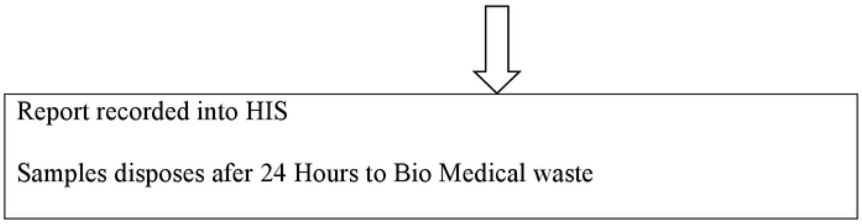
Process in Laboratory Department Patients flow:

Work Flow In Laboratory:-





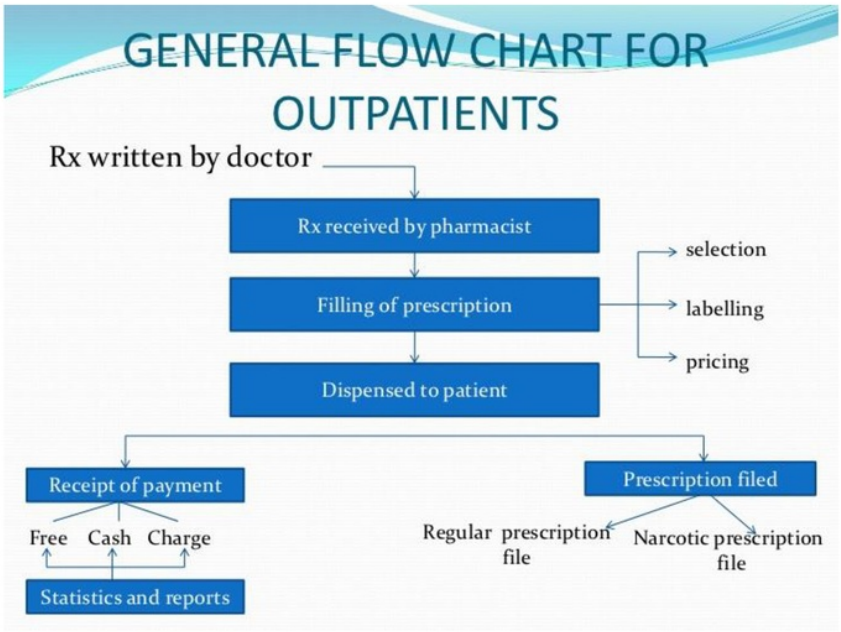


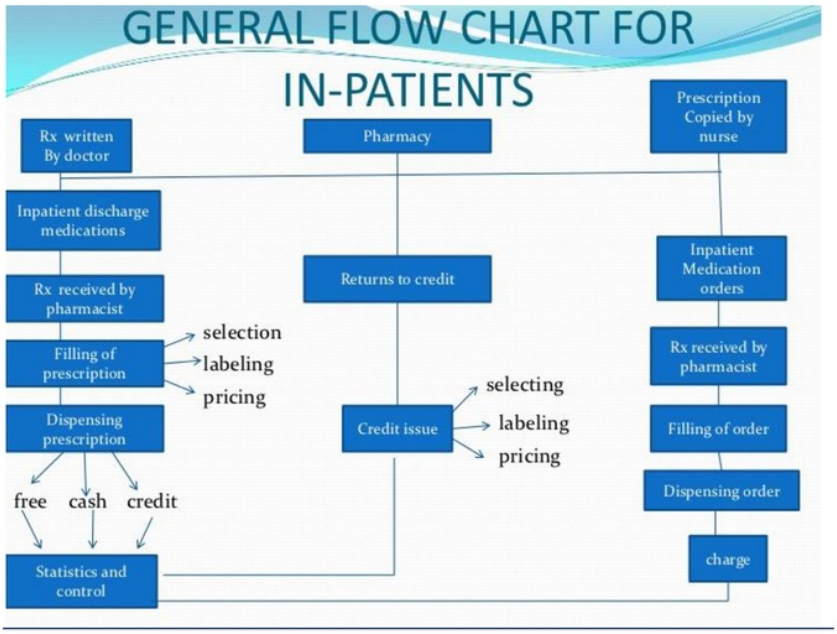


Explanation:-

- In Laboratory job starts with sample receving at accession area.
- We collect the samples and record it in Record book and sent it for sorting or segrigation.
- As per requirement we keep it stored and technicians do the investigation and make the report .
- Report gets analyzed by the clinician and then we send it to the concern department.
- Finally the sample disposes to Bio Medical Waste.

Process in Pharmacy Department Patients flow:



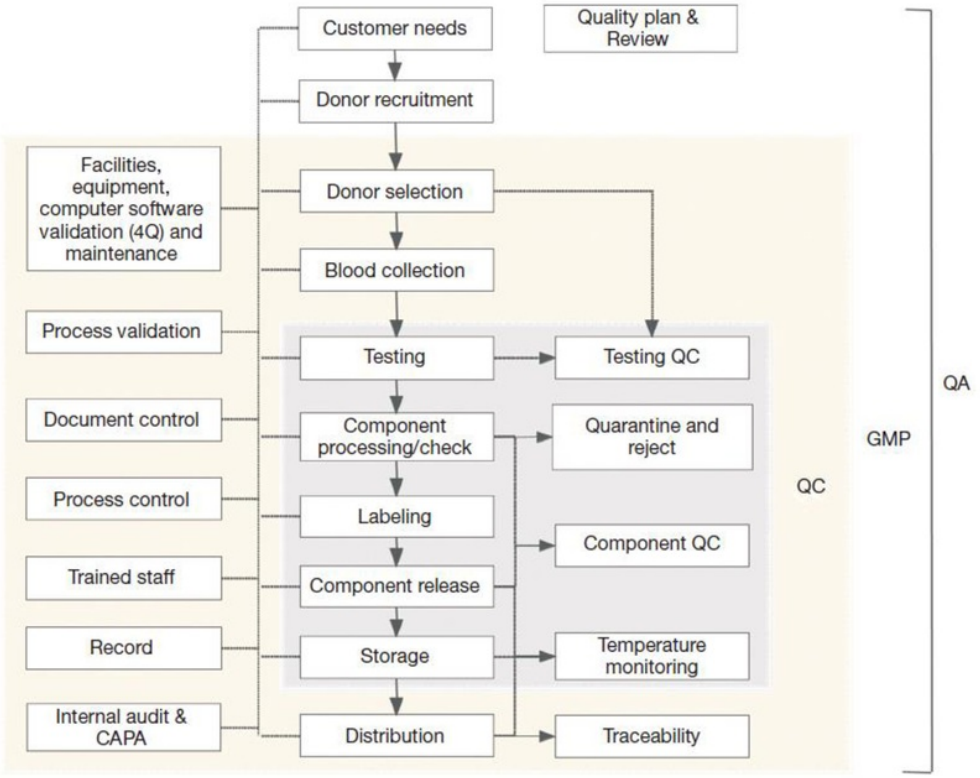


Explanation:-

In Pharmacy we have two sections of patients flow . 1) OPD patients & 2) IPD patients.

- For OPD patients we give medicine to patients or attendents direct demand on Pharmacy counter once they show the prescription.
- Receiving the prescription we do filling of prescription that stands for selection of medicine, labeling and pricing of the medicine.
- After that we do the billing of the medicine either in cash, credit or free. And put it in record.
- Then segrigate the prescription to regular prescription file or Narcotic prescription file.
- For IPD patients we get the copy of prescription by nurse .
- Receiving the prescription we do filling of prescription that stands for selection of medicine, labeling and pricing of the medicine.
- After that we do the billing of the medicine to the name of patient with verification of patient's UHID. And put it in statistics and control.
- Then segrigate the prescription to regular prescription file or Narcotic prescription file.

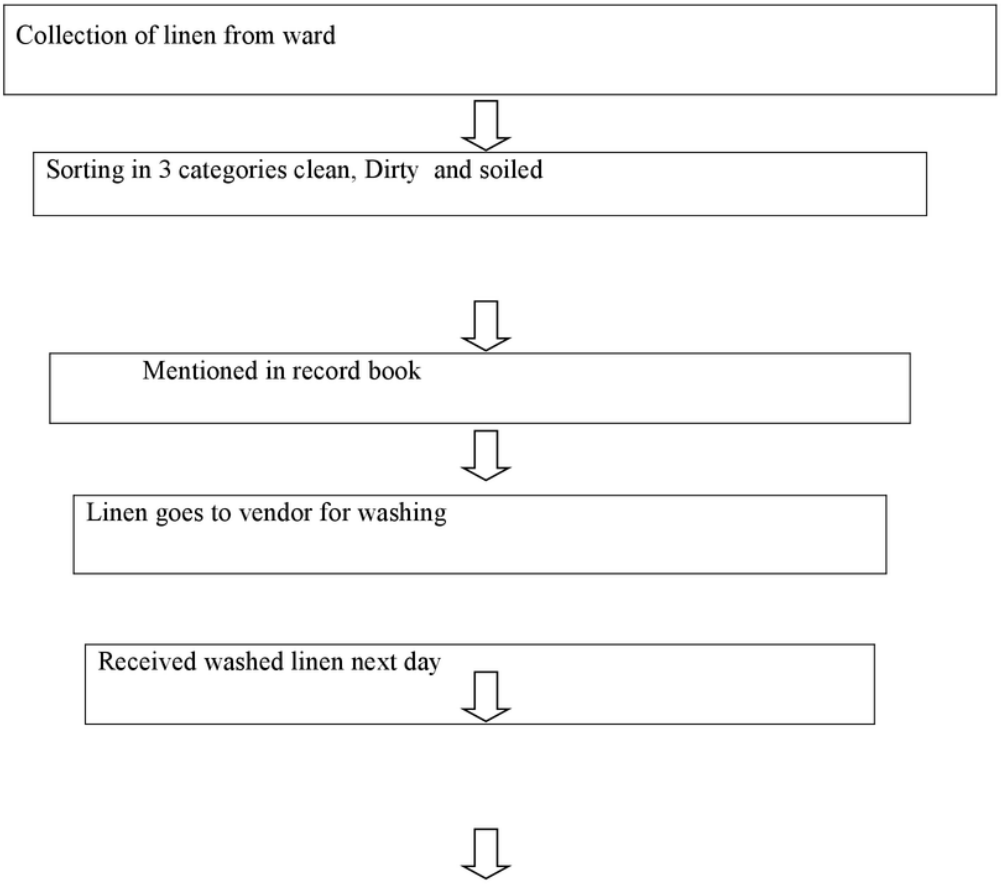
Process in Blood Bank Department Patients flow:



Explanation:-

- Once we get the reqirement of the blood from different department such as Emergency, operation theater or IPD we do the donar recruitment and then donor selection.
- We do selection of the donor after testing and find ok on all parameters.
- Then do blood collection from donor. Send it for component processing.
- Then do the labeling of the collected blood and component release.
- After it we store it in the storage. And it goes for distribution to the required department. And record it.

Process of Laundry Department

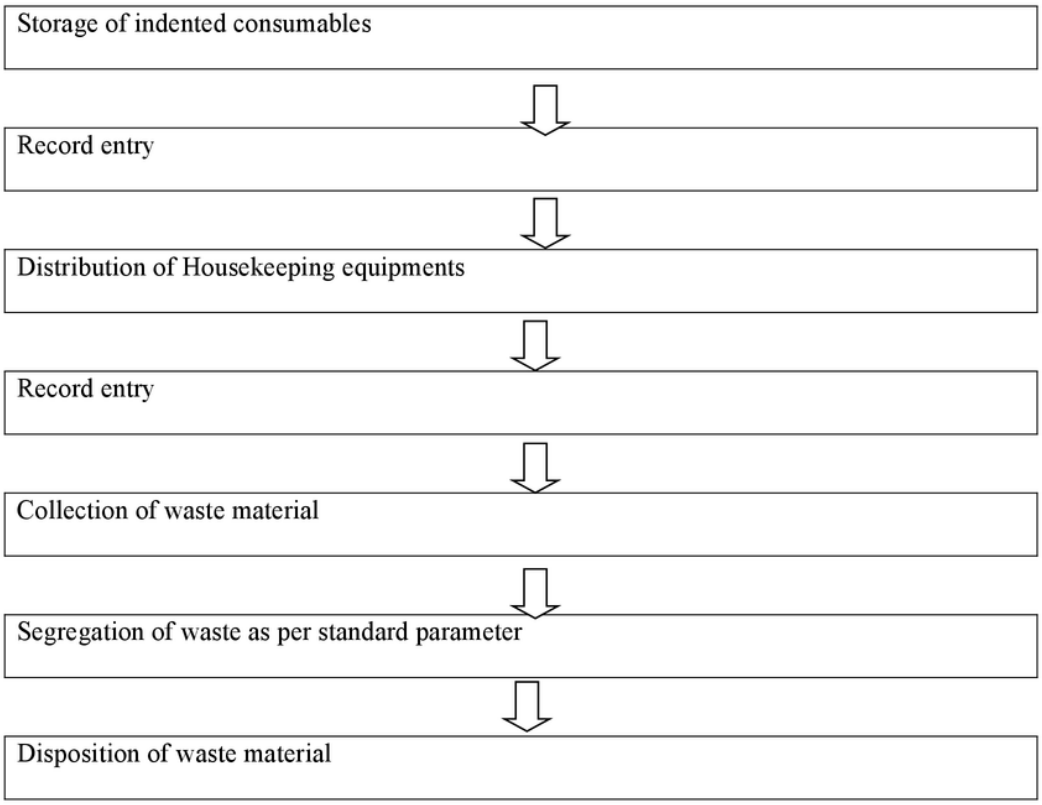


Stock checking and stored

Explanation

- Here the job of the laundry department starts once there is discharge of the patients.
- We remove the linen and categories in 3 division clean, Dirty and soiled.
- All the linen after sorting in DU gets counted and recorded in record.
- After the record entry we handover the linen to the outsourced vendor and take receipt of it.
- Next day we receive the washed linen from vendor and do counting and keep updated in the record book.
- We do the bed ready with fresh linen in 30 minutes of turnaround time.

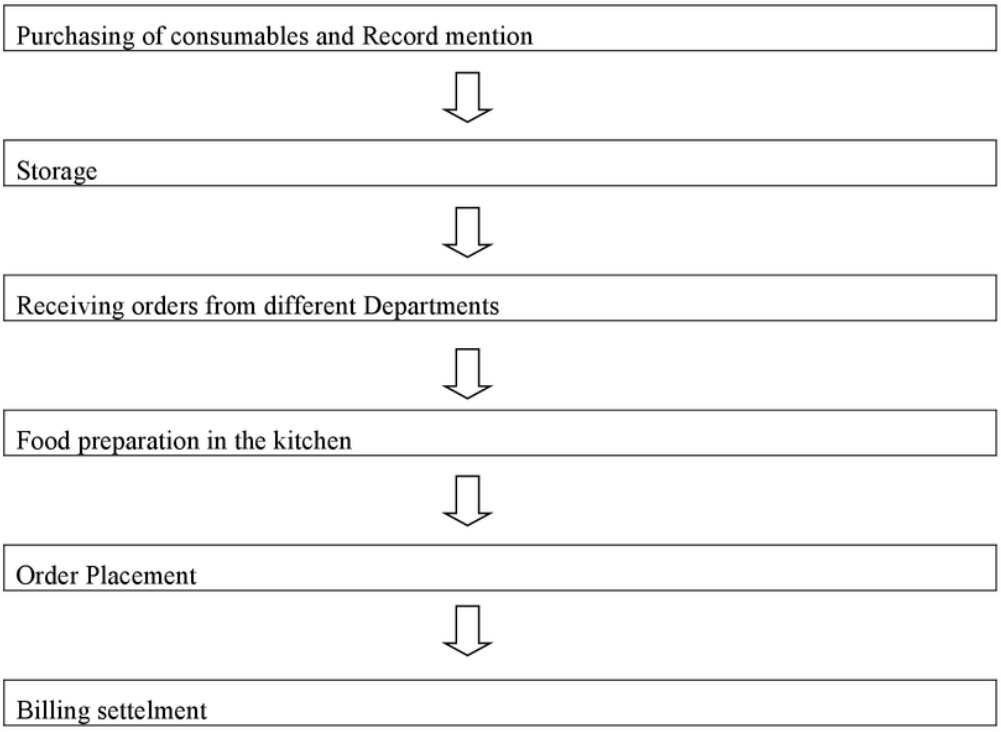
Process of Housekeeping Department work flow



Explanation

- First of all we store the indented consumables as per requirements and make a record in the record book.
- Then every morning do the distribution of consumables as per requirements to the working staffs and record it in the register.
- We do the cleaning and collect the waste material from different departments.
- Then segregate the waste material in different color garbage bags as per standard parameters.
- Dispose all the waste material to the disposal van provided by the vendors.

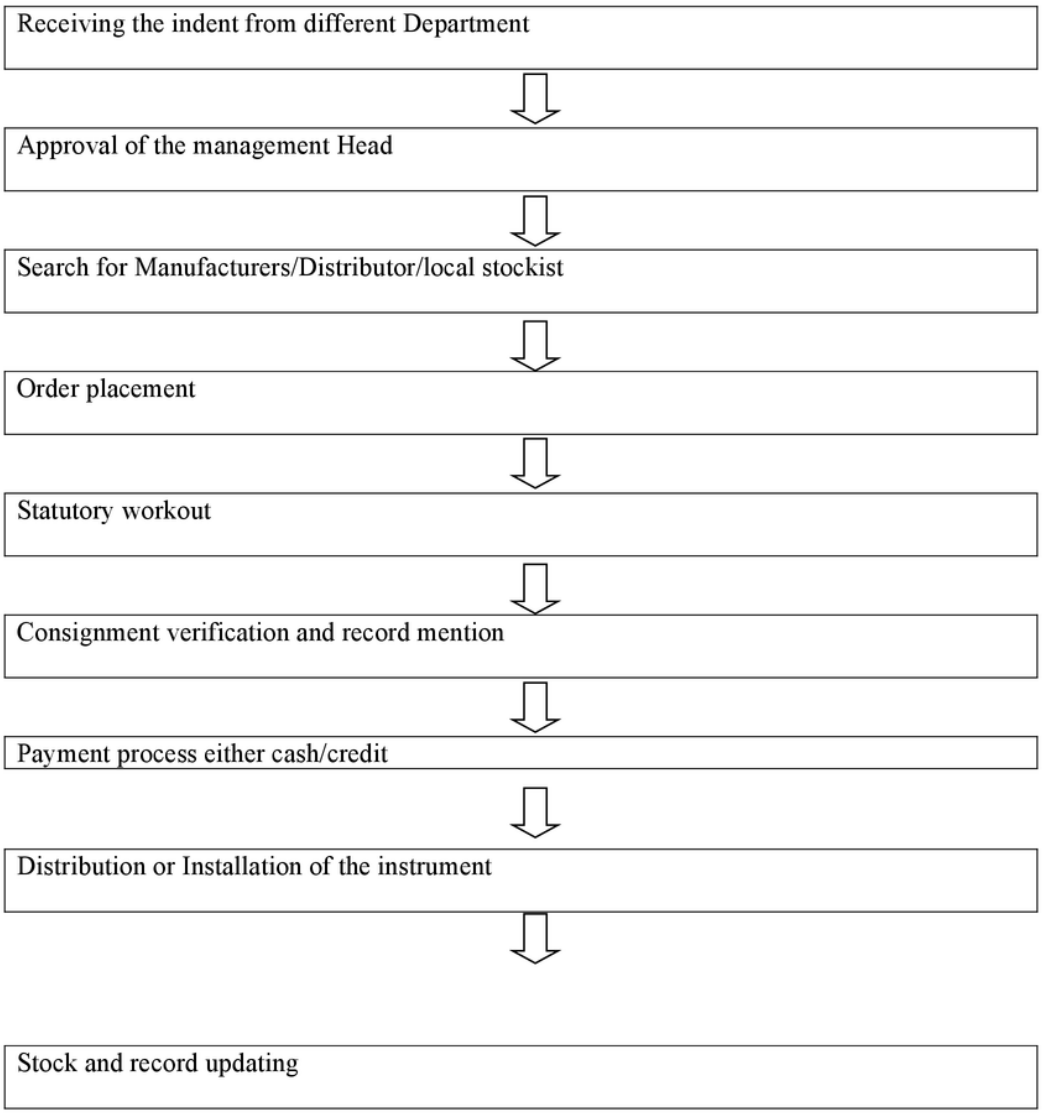
Process of Food and Beverage Department work flow



Explanation

- First of all we purchase and do storage of the consumables and record in the register book.
- Then we receive the food orders for different patients with concern of dietician. We register the name of the patients with UHID number and bed number of the perticular department.
- Send the request of order to prepair the food in the kitchen.
- Then deliver the food to the patients on given time.
- After that we do the billing for the service to the patients account for free, cash or credit. And mention to the record.

Process of Supply and Chain Management Department work flow



Explanation

- Our job starts once we get the indent for any instrument or requirement.
- As we get the indent or request we take the approval of head of the management.
- After the approval we look for the best manufacturer or service provider. And place the order.
- Here we take care of some statuary process if needed like license or any other legal documentation.
- Once we get the consignment we do the verification of the instrument like breakage or functional defects etc.
- Then installation or distribution done by concerned team members.
- After all this we do the stock and record updating.

PART-B

DESSERTATION REPORT

"Severity and Outcome of Patients admitted in Medical ICU in a tertiary care hospital in western UP India- A Retrospective Study"

INTRODUCTION

HEALTH CARE SERVICE IN INDIA.

There are multiple factors including lifestyles that influence the burden of disease. The burden of communicable diseases has been declining. The focus of the Government is to provide accessible, affordable and accountable quality healthcare facilities to all sections of society especially the marginalized sections in the country.

Study Variables

The APACHE II score is made of 12 physiological variables and 2 disease-related variables. Within the study period, 87% of all ICU patients had all 12 physiologic measurements available. The worst physiological variables were collected within the first 24 hours of ICU admission. The "worst" measurement was defined as the measure that correlated to the highest number of points. The study did not continually calculate an APACHE II scores beyond the first 24 hours of ICU admission. The APACHE II score ranges from 0 to 71 points; however, it is rare for any patient to accumulate more than 55 points.

LIMITATIONS

- This study is a retrospective study, to get the 100% appropriate outcome we need to do this prospective too. It is a single centred study that is confined to single hospital that's why it's difficult to predict about the most dominant cases in a specific area that is semi urban area of U.P. To validate the study we need more number of patients.
- This study doesn't include medico legal cases which has a higher percentage in this area.
- APACHE score is calculated manually by the nurses which may not be a well reflection of APACHE score. It may not represent the severity of ICU.
- We didn't calculated APACHE score for LAMA patients and there were significant number of LAMA in the organization.

RESEARCH METHODOLOGY

Objective of the study:

Primary Objective- The primary objective of the study is to evaluate the severity and outcome patients admitted in MICU.

Secondary objectives: The study will explore:

-Case mix of Patients admitted in medical ICU.

-Average length of stay of patients admitted in ICU

-Mode of payment

Study population: We have gathered patients from our neighboring areas and these patients where directly admitted in hospital through emergency and ward.

Study Period- It is a retrospective study for which the data is collected of the patients admitted in medical ICU from 01-06-18 to 31-03-19.

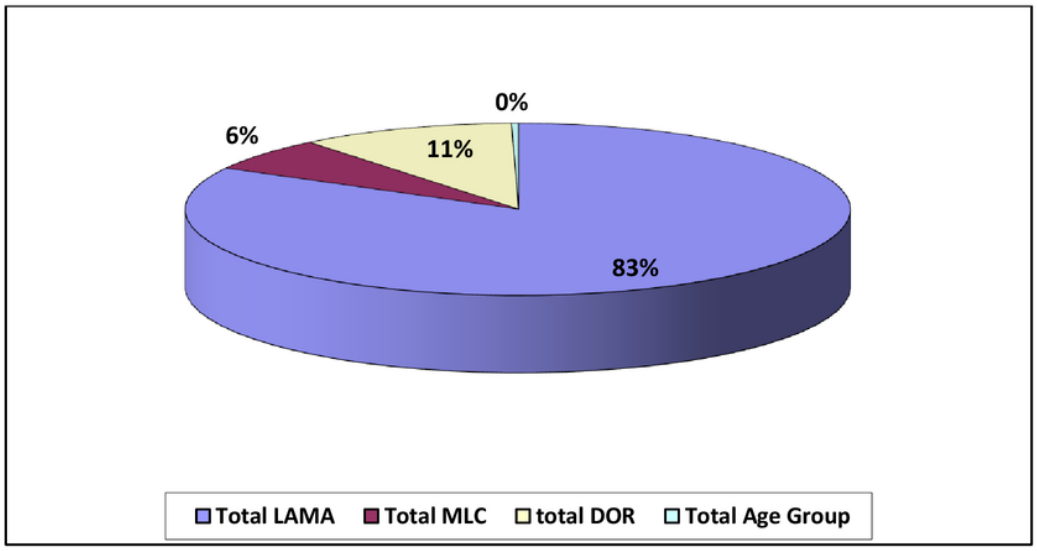
Research Design-The study is undertaken with the guidance and active participation of ICU Team. As it is a retrospective non-randomized study, data will be collected from all the adult patients admitted in medical ICU from 0-06-18 to 31-03-19.

This study Includes:

- All adult patients admitted in MICU with in the age range i.e. 18-90yrs
- Directly admitted patients from community
- Referred patient from community hospital

DATA ANALYSIS

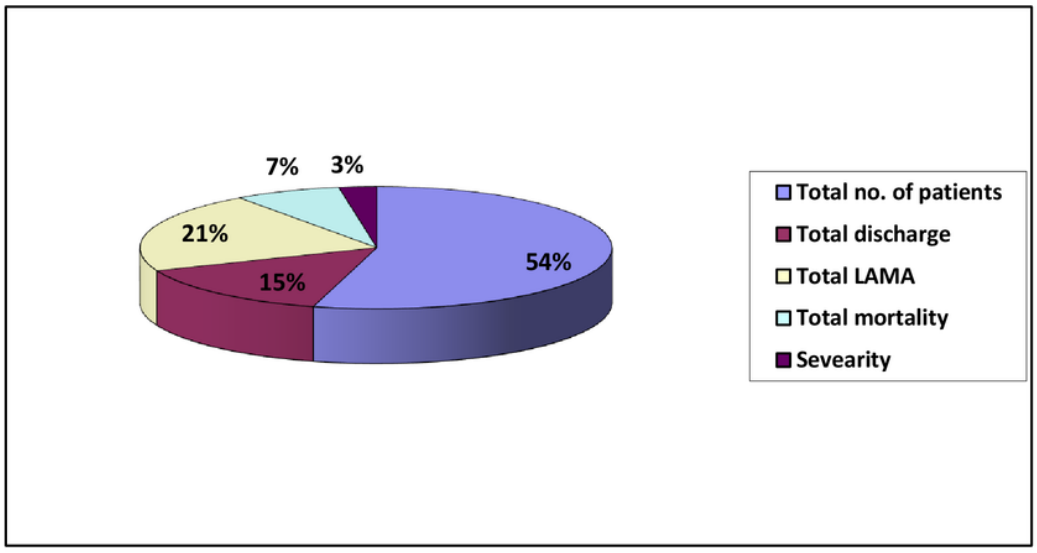
Total no. of patients were observed – 518
Out of which we have exclusion criteria that is –
total LAMA – 238
Total MLC- 18
Total DOR- 30
Total Age Group- 1



AGE RANGE	Total no. of patients	Total discharge	Total LAMA	Total mortality	Sevearity (Apache)	% of Mortality
18-30	97	26	38	13	4.60	13%
31-50	108	25	56	10	7.18	9%
51-70	214	48	97	34	6.55	15%
>70	99	20	47	20	14.65	20%
				Mean apache	**10.55**	

We had similar findings with other ICUs of tertiary hospitals in our study we had 97% patients in the age range of 18 – 30 yrs with mean apache of 6.7. However the mortality is not correlating with the apache in this age group. We had 13% mortality with the apache of 6.6 in the middle age group.

We had significant number of patients who are older more than 30 yrs with hogh apache 16.65 and mortality is 20%.



Total % of gender:

Male- 62.9%

Female-37%

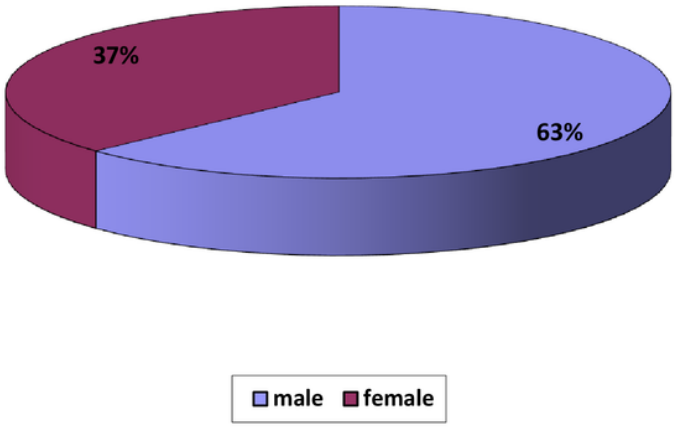
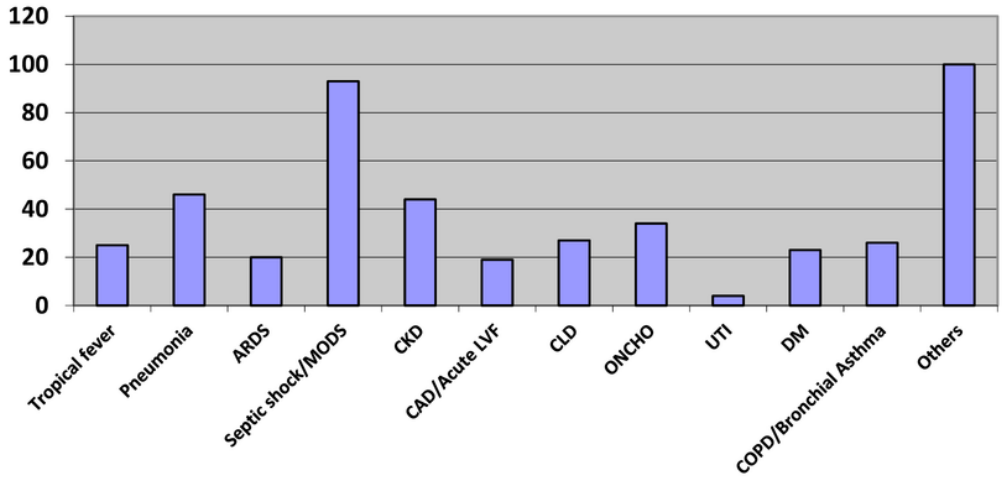


TABLE OF CASE MIX

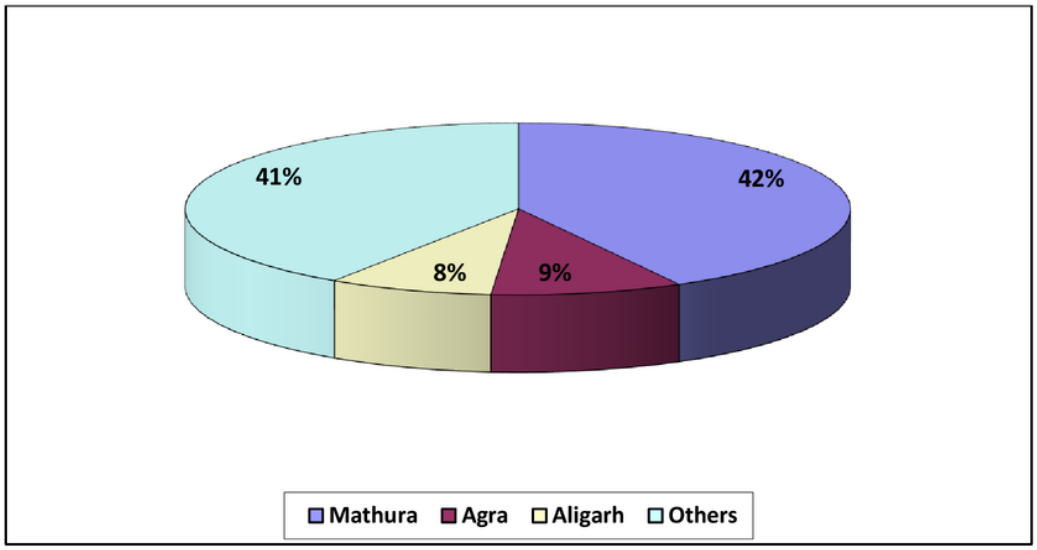
Types of cases observed	Tropical fever	Pneumonia	ARDS	Septic shock/MODS	CKD	CAD/Acute LVF	CLD	ONCHO	UTI	I
Total no. Of cases seen	25	46	20	93	44	19	27	34	4	2
% of cases	5%	10%	4.3%	20%	9.5%	4.1%	6%	7.3%	0.9%	5



All type of cases are seen in this study however pre dominantly respiratory illness landed up with the septic shock. Ther are significant number of patients who are having chronic illness and we have quit high number of geriatric patients in our ICUs.

PRE- DOMINANT POPULATION IN THE HOSPITAL

Area	Total No. Of patients
Mathura	95
Agra	21
Aligarh	18
Others	92

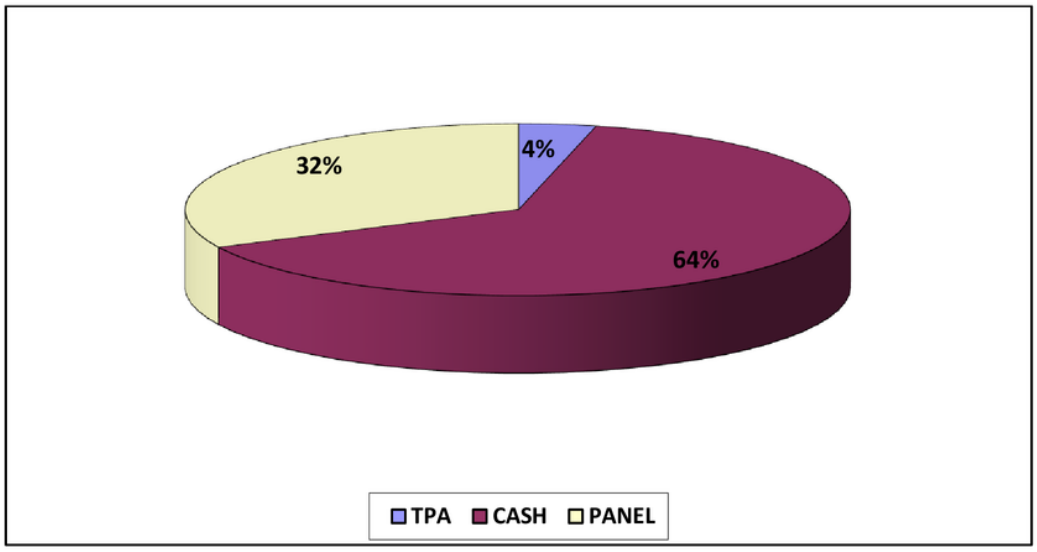


As we can see from the pie chart that the only multispecialty being situated in a semi urban area like Mathura had covered the all-around areas populations.

MODE OF PAYMENT:

In our hospitals we had a higher number of cash patients which is a positive point if we see as an administrator of the hospital.

Types of payment	Total no. Of patients	%
TPA	16	4%
CASH	274	64%
PANEL	138	32%



2) Average Length of Stay – 8.73

Average length of stay is calculated for the stay of patients in the hospital not only for the ICUs. However in hospital it is 8.73% which is quit acceptable.

DISCUSSION

We had similar findings with other ICUs of tertiary hospitals in our study we had 97% patients in the age range of 18 – 30 yrs with mean apache of 6.7. However the mortality is not correlating with the apache in this age group. We had 13% mortality with the apache of 6.6 in the middle age group.

We had significant number of patients who are older more than 30 yrs with hogh apache 16.65 and mortality is 20%.

The characteristics of prolonged ICU stay would be useful, if some factors could be modified. These factors should include process of care, active relevance of ICU physicians, and length of hospital stay before ICU admission. And so patients with long length of stay and thus high costs can be identified early [3, 4].

In intensive care units to measure disease severity they use many scoring systems consisting of various parameters. APACHE II is one of this scoring systems. APACHE II scoring system is considered to show good correlation with the risk of mortality and hospital-acquired infections. We did not use APACHE scoring systems because our aim is not to predict the mortality; in this study we want to predict prolonged length of stay.

Our study showed a significantly increased length of stay in patients with cardiovascular system diseases, multiple diseases, nervous system diseases, and cerebrovascular diseases. In a prospective study by Wong et al., for patients in ICU, the most common reasons for admission were neuromuscular weakness, pneumonia, multiple traumas, and septic shock, in this order. Respiratory arrest, cardiac arrest, congestive heart failure, postoperative mechanical ventilation, airway protection or obstruction, and chronic obstructive pulmonary disease were the next most common indications for ICU admission in these patients.

And in one study, postoperative patients' length of stay in ICU was shorter than that of patients admitted to the ICU for other reasons. Similarly our study showed that length of stay was significantly higher in patients not operated on than in patients operated on.

Making changes in any of the medical factors about illness which affect length of stay needs expert medical skills. And also psychological, social, and institutional factors have effect on

ICU length of stay. When a specialized team consisting of a physician and a clinical nurse specialist works in ICU, the length of stay would be shorter. But we did not study this area.

The study showed that when urea, creatinine, and sodium values increase, in parallel the length of stay increases. This means that physicians should pay attention to kidney injury and rehydration.

Also there are social and psychological factors that affect the length of stay, but we want to emphasize the medical factors.

CONCLUSION

It's very surprising that there is huge variation of male and female in our community who were treated in MICU. LAMA is a huge problem in this community, due to various reasons. Of course siting explanation is financial which may indicate lower socio economic status.

RECOMMENDATIONS

Hospital administration should also focus on the causes of LAMA along with the government.

There is a paradoxical result in the younger age group so this age group should be focused more.

If proper protocol with guidelines could be formulated for the diagnostic investigations in a particular medical condition, then this would be helpful for the further reduction of the costs.

More studies should be conducted for cost-effective analysis to know the real perspective in terms of a number of life-years gained.

ANNEXURES

JHid	Patien Name	Age	Gender	Address	Rate ontract	Corporate ompany ame	DIAGNOSIS	DATE OF ADMISSION IN ICU	TEMP©	ARTERIAL RESSURE mmHg)	HEART ATE min)	RESPIRATORY RATI min)

	HCO3	ARTERIAL	Na /l)	K /l)	SERUM NINE	HEMATOCRI	WBC(%)	GCS	CHRONIC H EM	TOTAL AL POINT	MORTALITY IN AL	SURGERY

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