

PROJECT:-

**TIME MOTION AND ELEMENT
STUDY FOR DESIGNING A UNIQUE
CRITICAL CARE FLOW SHEET**

**GUIDED BY-
DR. C. RAMESH**

**SUBMITTED BY-
WASEEM FAROOQ**

OBJECTIVE-

PRIMARY OBJECTIVE:

- To make a unique critical care flow sheet.

SECONDARY OBJECTIVES:

- To bring uniformity in all the critical care flow sheets used in icu's.
- To remove certain extra documents in order to increase nursing efficiency.

TIME MOTION STUDY:

Study time- 204 Hours

Number of Nursing staff of the ICU's – 30

Study type - Descriptive study (Observational)

Sampling technique- Convenience sampling.

Study Tool: Prepared a tool in which divided the time slots in five minute segments.

ELEMENT STUDY:

Sample size- 45 live ICU charts

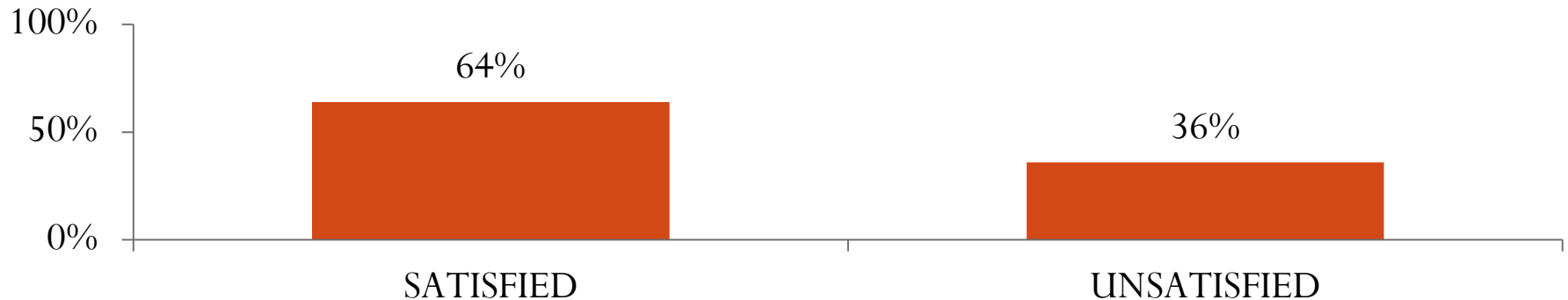
Study type- Exploratory study

Sampling technique- Convenience sampling.

Study Tool- All the elements of ICU charts (unfilled new) were numbered and the compliance was checked from the ICU charts(filled).

Rationale : Questionnaire was prepared and feedbacks were taken from the nurses.

ARE YOU SATISFIED WITH THE PRESENCE OF ICU CHART?

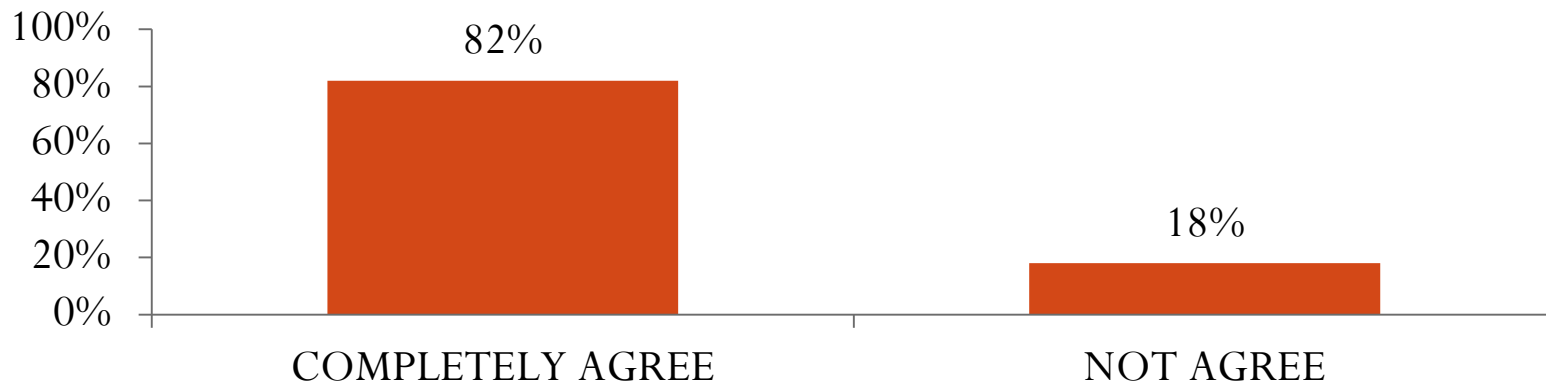


DO YOU AGREE THAT FILLING UP THE ICU CHARTS TAKE MOST OF YOUR TIME?

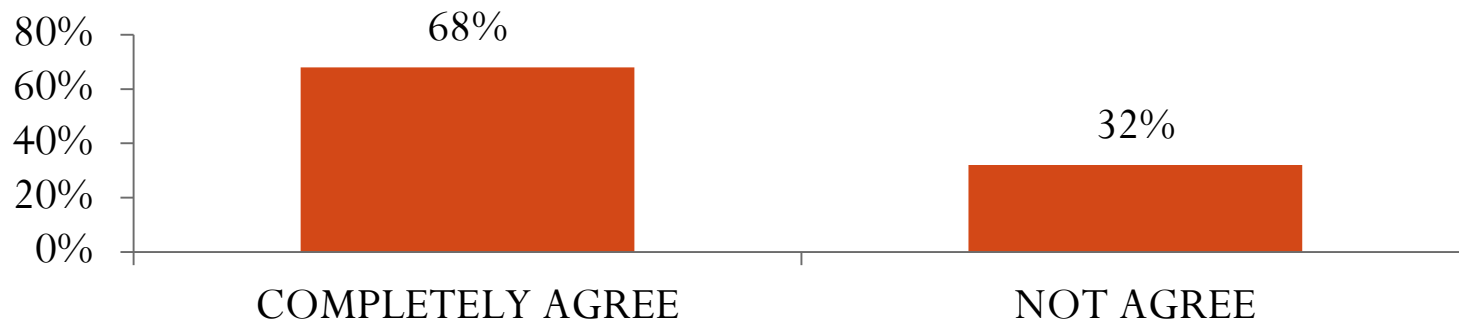


Continue -

DO YOU AGREE THAT IT REQUIRES MODIFICATION?

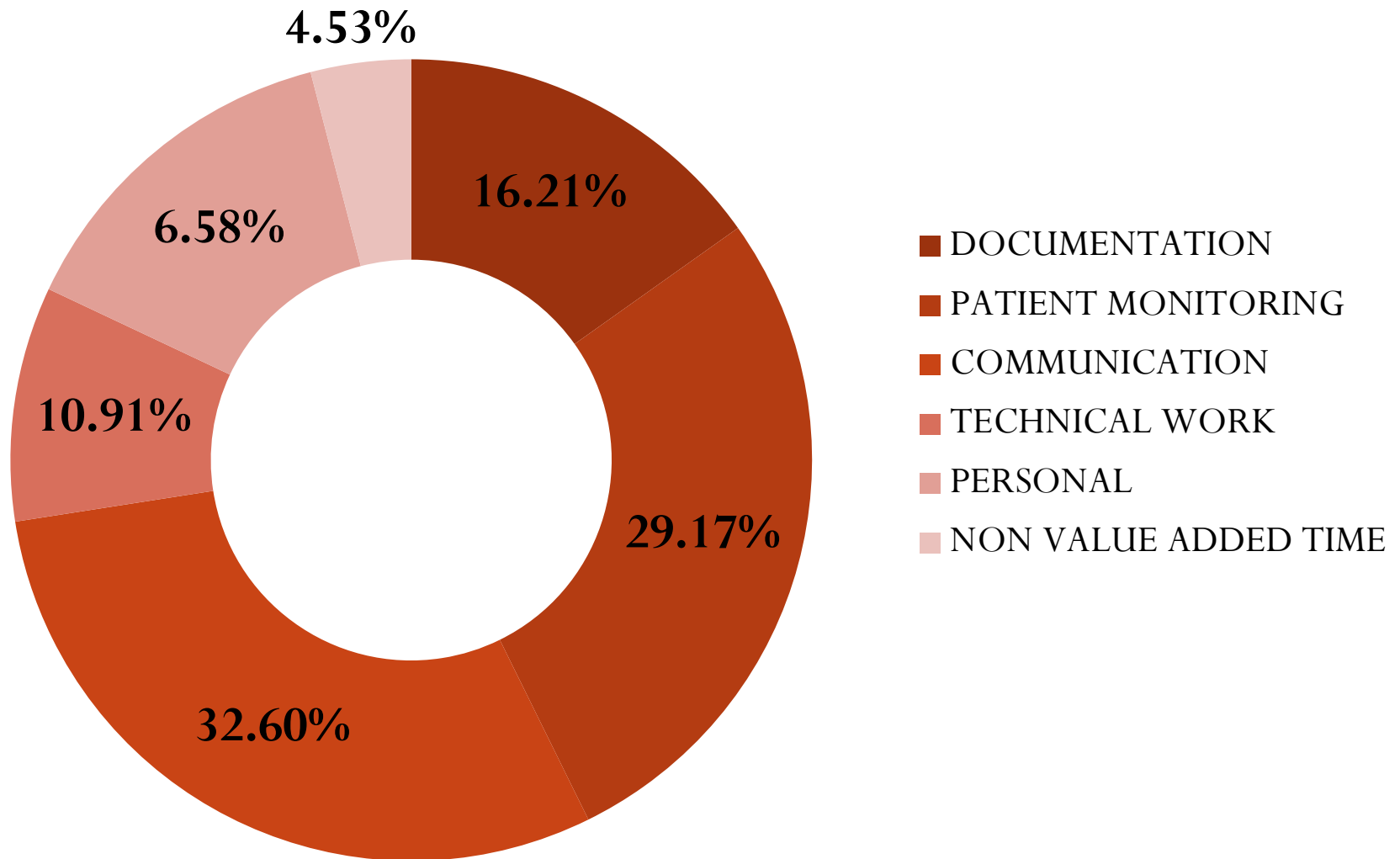


DO YOU AGREE THAT THERE SHOULD BE ONLY ONE ICU CHART FOR ALL ICU'S?



FINDINGS:

Time motion study findings



TIME MOTION STUDY ANALYSIS:

- 16.21% of the total time (considering all the shifts) of nursing staff goes in the documentation procedure.
- In 16.21% of Documentation time 6.63% time goes to fill the CCFS sheet and 8.75% time for extra documentation.
- Non value added time accounts for about 4.53%.

ELEMENT STUDY:

	NO.OF ELEMENTS NOT FILLED	PERCENTAGE OF ELEMENT NEVER FILLED	PERCENTAGE OF ELEMENTS IRRELEVANTLY FILLED	NO.OF ELEMENTS IRRELEVANTLY FILLED	
MICUI&II, CCU,HDU (144 EL.)	34	100%	55%	5	MICU I&II, CCU,HDU (144 EL.)
	11	95%	50%	7	
	8	90%	45%	5	
	5	85%	100%	3	
	4	80%	80%	6	
SICU I&II (162 EL.)	4	75%	70%	13	SICU III&IV (150 EL.)
	3	70%	60%	1	
	28	100%	80%	10	
SICU III&IV (150 EL.)	1	60%	60%	10	NGW (136 EL.)
	12	100%			
	4	90%			
	5	80%			
	12	70%			
	11	60%			
	31	100%			
	13	80%			
NGW (136 EL.)	4	60%			

ELEMENT STUDY ANALYSIS:

After doing a thorough analysis of element study, we observed-

- There were some elements which were never filled.
- Some elements were irrelevantly filled.
- The format of some elements was not according to the requirement.
- Some needed elements were missing.

IDENTIFICATION OF THE ROUTE CAUSE

- 16.21% of the time of nursing staff goes in documentation procedure.
- Non value added time accounts for about 4.53%.
- Some elements of the icu charts go unfilled , some are irrelevantly filled,
- Some columns in icu charts are repeated.
- Some of them are not according to requirement or their formats are not relevant.
- Some columns are missing which are essential e.g. reference doctor column, sliding scale.
- Some extra documents are being unnecessarily used.

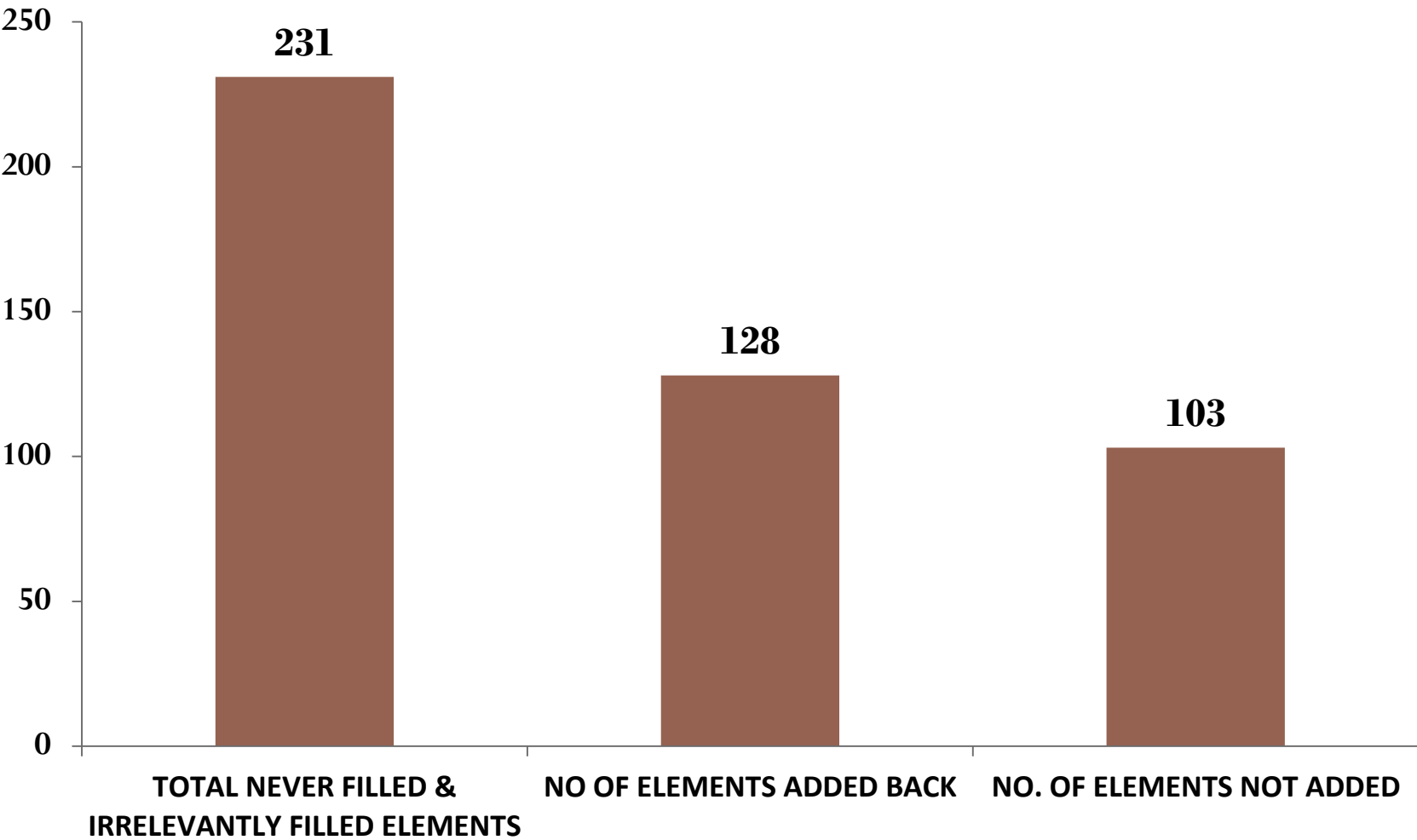
POTENTIAL SOLUTIONS

- Modification of all the icu charts by removing unnecessary columns and adding necessary columns.
- Try to reduce documentation time.
- Try to increase patient monitoring or bed side time.
- Adding some useful columns in the icu charts itself so that some extra documents can be reduced. It will also be cost effective.
- Cost can also be reduced by making a unique critical care flow sheet (only one) used in all the ICU's and adding necessary columns to it which would reduce some extra documents.

BEST SOLUTION

Draft only one icu chart added all necessary components of all the ICU'S to it and then making it universal. Asking for inputs and feedback and putting it into force.

COMPLIANCE OF NEWLY DESIGNED CHART 44.58%



Cost Analysis Assumption

CHARTS (CCFS)	COST/CHARTS	QUANTITY/MONTH	TOTAL COST FOR ONE MONTH
CCFS FOR MICU 1&2, CCU,HDU	5.54	1900	10526
CCFS FOR SICU 1 &2 (CTVS)	5.54	520	2880.8
CCFS FOR SICU 3 & 4	5.54	600	3324
CCFS FOR NEURO GEN. WARD	5.54	650	3601
TOTAL CCFS COST			20331.8
FORMS	COST/100 FORMS	QUANTITY/MONTH	TOTAL COST FOR ONE MONTH
NURSING CARE PLAN	61.11	30	1833.3
SHIFT HANDOVER CHECK LIST	46	18	828
PRESSURE SORE CARE SHEET	49.59	13	644.67
PHYSICAL RESTRAINT SHEET	46	7	322
TOTAL FORMS COST			3627.97
		OVERALL COST	23959.77
UNIQUE CCFS	5	3670	18350
SAVE AMOUNT 23959.77-18350 5609.77 PER MONTH			
% SAVING		23.41%	

Man Hour Analysis Assumption

INCASE OF EXPERIENCED STAFF	TIME (MIN)
AVERAGE TIME TO FILL CCFS/SHIFT	23.9
AVERAGE TIME TO FILL OTHER DOCS./SHIFT	31.5
TOTAL TIME/SHIFT	55.4
TIME THAT CAN BE SAVED AFTER IMPLEMENTATION OF NEW CHART/ SHIFT	4.9
TIME THAT CAN BE SAVED ONCE THE DOCUMENTS ARE REMOVED/ SHIFT	10.08
TOTAL TIME SAVED/SHIFT	14.98
NET TIME/SHIFT FOR DOCUMENTATION	40.42
% OF TIME SAVED/SHIFT FROM DOCUMENTATION	27.04%
CURRENT AVERAGE BEDSIDE TIME/SHIFT	105
INCREASE BEDSIDE CARE TIME VIA REDUCING THE DOCUMENTATION	119.98
% INCREASE IN BED SIDE CARE TIME	12.49%
INCASE OF NEW STAFF	TIME (MIN)
TIME TAKEN TO FILL CCFS BY NEW STAFF	40
TIME TAKEN TO FILL OTHER DOCS.BY NEW STAFF	50
TOTAL TIME TAKEN BY NEW STAFF	90
TIME THAT CAN BE SAVED AFTER IMPLEMENTATION OF NEW CHART/ SHIFT	10
TIME THAT CAN BE SAVED ONCE THE DOCUMENTS ARE REMOVED/ SHIFT	20
TOTAL TIME SAVED/SHIFT	30
NET TIME/SHIFT FOR DOCUMENTATION	60
% OF TIME SAVED/SHIFT FROM DOCUMENTATION	33%
CURRENT AVERAGE BEDSIDE TIME/SHIFT	99.15
INCREASE BEDSIDE CARE TIME VIA REDUCING THE DOCUMENTATION	129.15
% INCREASE IN BED SIDE CARE TIME	30%

Scope of the Project

- ❑ Further time and motion study required to find out how much time will save during documentation by nursing staff with new unique critical care flow sheet.
- ❑ This will also give us the time which adds in bed side care of the ICU's patient.

REFERENCES

Marcelo Lopetegui, P.-Y. Y. (2014). Time motion studies in healthcare: What are we talking about? *Journal of Biomedical Informatics* , 292-299.

Sachiko Shimizu, R. T. (2011). Nursing Business Modeling with UML: From Time and Motion Study to Business Modeling, Modern Approaches To Quality Control. *InTech* .

Zhihua Tang, J. M. (2006). A Time-Motion Study of Registered Nurses' Workflow. *AMIA Symposium Proceedings* , 759-763.

Ann Hendrich, M. P. (2008). A 36-Hospital Time and Motion Study: How Do Medical-Surgical Nurses Spend Their Time? *The Permanente Journal* , 25-34.

M. Abbey Mphil, G. C. (2012). Understanding the work of intensive care nurses: A time and motion study. *Australian Critical Care* , 13-22.