The Key Solution for Quality Improvement of Patient Safety in the Intensive Care Unit: A Quality Assurance Study at Budhi Asih Hospital, Jakarta, Indonesia

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Abstract: The management of Intensive Care Unit (ICU) patients need a high standard of service and collaborative inter-multidisciplinary therapy. Every issue in the quality of service in the ICU is very essential. Therefore, a comprehensive analysis is required to improve the quality of care and patient safety. This qualitative study was conducted in November 2017 at Budhi Asih Hospital, Jakarta. Data was taken through general observation and systematic review. We used Standard Operating Procedure, indicator, and target from the Hospital as the basic standard for ICU service. All data were analyzed using a quality assurance method. The decision for the main issue have been made through IxTxR method, and the ambiguity of paramedic was chosen. The cause of the problem then identified by fishbone diagram and prioritized by IxTxR method, and obtained that integrated patient development sheet has not filled complete enough by the doctors. The solution was determined by (MxIxV)/C method, using printed media such as banner and pamphlet as a reminder for the doctors, and evaluated by the qualitative method. We conclude that Intervention by applying printed media was effective as a reminder for the doctor to fill integrated patient sheet more complete and to help decrease paramedic ambiguity in performing medical instructions.

1 INTRODUCTION

Intensive Care Unit (ICU) is an independent part of the hospital that be equipped with a special and important device in order to observe, care, and treat the patient in acute or injured condition, patient with complication, patient with a life-threatening condition or potentially life-threatening with the expected reversible condition. Patients in ICU are patients with an expected reversible condition that need to be observed strictly and post undergo the invasive procedure with deterioration risk (Kemenkes RI, 2010).

In Indonesia, type C hospital or higher as a referral service provider must have an ICU with professional service and patient safety. There are several Standard Operating Procedures (SPO) and protocols in service organizing that include various criteria and service guideline such as facility, medical service technique, patient disposition flow, human resources in ICU, et cetera. SOPs and protocols also affect patient prognostic, length of stay, and nosocomial infection prevention. Pertaining to that, appropriate therapy, communication among medical staff, and complete Integrated Patient Development Sheet have significant roles in the ICU service. However, these criteria might have not well implemented in several settings due to a few conditions, which are really crucial to the patient's safety. Build upon that, the aim of this study is to improve the quality of care and patient safety in ICU. Authors realized the need to perform further review so that service quality in the ICU of Budhi Asih Government Hospital can be improved, so the medical service in the ICU can always meet a high standard and comprehensive procedure (Kemenkes RI, 2010).

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2 METHODS

This quality assurance is held from November 1st to November 10th, 2017 at the ICU of Budhi Asih Hospital, Jakarta, Indonesia**.** Targets in this quality assurance were paramedic, the doctor in charge, and medical staff of the ICU. Study staff collected data by observing the facility, and all 25 paramedics and 15 doctors who were in charge through the 3 weeks of the study. Authors also analyzed the SOPs (Kemenkes RI, 2010), program indicator and achievement in the ICU (official webpage RSUD Budhi Asih, 2019), and performed a deep interview to find the problems that were not stated in the SOPs. All data were then compared with national and international standard. Problem identification was created to list the problems. All of the problems list formulated using a scoring system to determine the priority issue.

The priority of problem is determined from the calculation with several components, such as importance (I), technical feasibility (T), and resources availability (R) or IxTxR method (Departemen Ilmu Kesehatan Komunitas Fakultas Kedokteran Universitas Indonesia, 2017). Problem with the highest score is selected to be the priority of the problem. Importance shows how important to solve the problem. There are several components that affect the value of importance; Prevalence (P) which is determined from the exact prevalence of the problem or gap between target indicator and achievement, Severity (S) shows how bad is the impact if the problem is not solved immediately. Then, Rate of increased (RI) shows how fast the problem would increase if the problem is not solved. Degree of unmet need (DU) shows the magnitude of the people desire that is not fulfilled if the problem is not solved. Social benefit (SB) shows the magnitude of benefits to society. Public concern (PB) shows the magnitude of public concern or interest in the problem if the problem is solved. The last one is Political climate (PC) that shows the current political condition that can be a support of problem-solving.

3 LITERATURE REVIEW

3.1 Quality Assurance

Based on the International Standard Organization (ISO), the definition of quality assurance is "all those planned and systematic actions necessary to provide adequate confidence that a product and service will satisfy given requirement for quality". Quality assurance is important to identify the problem in quality services and find the available resources with measurable implementation (Departemen IKK FKUI, 2017).

The purpose and benefits of quality assurance are to improve service quality and patient satisfaction and also assisting the organization or institution of the service provider through quality improvement. The implementation of good quality assurance requires the active participation of the parties service providers. Assessment of output must be thorough, objective and relevant. Thus, the result will give significance to real change and perceived by the providers. Ultimately, the evaluation of the target implementation of the solution should also be appraised appropriately (Departemen IKK FKUI, 2017).

The steps done in the process of making a quality assurance are identification of the problems and list the priority, look for the cause of the problems use the fishbone diagram and determine the priority, identify alternative solution and determine the priority, conduct an intervention and evaluate according to the target set (Departemen IKK FKUI, 2017).

3.2 Integrated Patient Development Sheet

Integrated patient development sheet is inner sheet completeness of a status containing all patient development records, which may be starting at the inpatient room, ER, or outpatient clinic. This sheet is filled by all health personnel involved in patient care. Record of the progress of patients data (follow up data) can be written by S-O-A-P method, namely: S (subjective), O (objective), A (assessment), P (planning) which contains the current complaints, results of physical examination, analysis of the problems or a diagnosis of the disease, and patient care and management plans, respectively (Karniasih, 2019).

In addition to this method, there are also methods namely ADIME (Assessment, Diagnosis, Intervention, Monitoring, and Evaluation) and the DART method (Description, Assessment, Response, and Treatment) (Departemen IKK FKUI, 2017).

This sheet has a very important role as a media bridging communication between the parties involved in patient care. It also contains important data to evaluate the effectiveness of therapy and record any medical history received from the patient.

Incomplete or error entry of the sheets can lead to a fatal effect on the patient's therapy and the patient's prognosis (Karniasih, 2019; Puspita, 2019).

3.3 Media Socialization

Media is defined as a tool or means of communication. Media socialization is all parties which are the mediator or means of socializing or disseminating certain things. Some forms of media socialization among others family, social community, place of education, work environment, and mass media (KBBI, 2019)

The use of mass media later become more effective because of technology development. The mass media is divided into two: print media and electronic media. The print media includes banners, tabloid, magazines, etc. The use of banners or pamphlets as printed media are aimed to give information easily that can be seen by many people and lasting longer in the target area.

3.4 Profile of Budhi Asih Government Hospital

Budhi Asih is a type B hospital with non-teaching category, in accordance with the Decree of the Minister of Health of the Republic of Indonesia Number: 434 / Menkes / SK / IV / 2007.8 Hospital located at Jalan Dewi Sartika, Cawang III No. 200, Jakarta Timur, DKI Jakarta.

4 RESULTS AND DISCUSSION

4.1 Problem Identification

Identification of problems for quality assurance in the ICU of Budhi Asih Government Hospital was through data assessment, field observations, paramedical interviews, and discussions with field supervisors. There was also ICU indicators in the Budhi Asih Government Hospital.

Table 1: ICU Indicators Budhi Asih Government Hospital.

No.	Indicator	Target	Achievements
1.	Readmission of patients within <72 hours	≤3%	0 %
2.	Nosocomial events in ICU	≤10%	3%
3.	Doctor in charge visit	≥ 75%	100%

According to the data from field observations, paramedical interview, and discussion with the supervisor, there were some problems occurring in the ICU of Budhi Asih Government Hospital: the ambiguity of paramedics in carrying out medical instructions, transition room of the ICU, and human resource management of the ICU nurses.

4.1.1 The Ambiguity of Paramedics in Carrying Out Medical Instructions

There are some factors that influence the ambiguity of paramedics in running medical instructional: doctor in charge does not conduct routine patient visits, irregular schedule of doctor in care visits, short time of patient visits, the writing of medical instructions is too short and does not describe the patients condition completely, did not read another review instruction from other departments, and did not read back to the post from doctor in charge from other department.

4.1.2 Transition Room of the ICU

Based on the technical implementation of Intensive Care Unit (ICU) at the hospital by the Ministry of Health Republic Indonesia mentioned that in the structure of ICU, it is necessary to have transition room that is separated from the patient care room (Kementrian Kesehatan RI, 2010). Based on field observations, there was no effective transition room with room restrictions and clear access in the ICU of Budhi Asih Government Hospital.

4.1.3 Human Resource Management of the ICU Nurses

Based on the standards for ICU in the United Kingdom, each patient in the ICU must be treated by one ICU nurse. It aims to monitor the patient's progress and implementation of medical instruction more carefully and precisely. Based on field observation and interview to the ICU heads, it was found that the numbers of ICU nurses in Budhi Asih Government Hospital were sufficient.

4.2 Selection the Priority of Problem

Table 2: Selection Priority of Problem.

Problem	I								T	R	Sum
	P	S	RI	DU	PB	SB	PC	Sum			
The ambiguity of paramedics in carrying out medical instructions	5	5		3	5	5		23	5	5	575
Human resource management of ICU nurses	5	4		3	5	4		21	3	3	189
Transition room	3	3		3	2	2		13	3	2	78

Abbreviations and acronyms:
I = Importance
P = Prevalence
S = Severity
RI = Rate of increase
DU = Degree of unmet need
PB = Public concern
SB = Social benefit
PC = Political climate
T = Technical feasibility
R = Resources availability

4.3 Identification Cause of Problem

Table 3: Identification Cause of Problem.

Man	• Limited od human resources; • Doctor in charge handle more than one patients; • Nurses sometimes have to observe more than one patient.
Method	• Write, Read, and Confirmation method between doctor on duty and nurse had not gone well; • The communication mechanism regarding medical instruction between the doctor in charge and the nurse had not gone well; • Doctor's writing in integrated patient development sheet is hard to read
Money	• Limited funds for training of ICU nurses • Limited funds for procurement completeness status
Material	• Cardex sheets are not practical
Planning	• Unpredictable time visit of a doctor in charge • Commitment for meetings between the doctor in charge and nurses
Organizing	• Collaboration between department • There is no SOP on mandatory meetings to discuss the case of ICU patients • Human resources management of ICU nurses • There is no SOP about communication between department
Actuating	• There are no regular meetings at least every week to discuss ICU patients • The incomplete and unclear integrated patient development sheet filling by the doctor in charge • Difficult to confirm the treatment of the patient to the doctor in charge
Controlling	• There is no routine evaluation of filling integrated patient development sheet • There is no evaluation of SOP from RSUD Budhi Asih

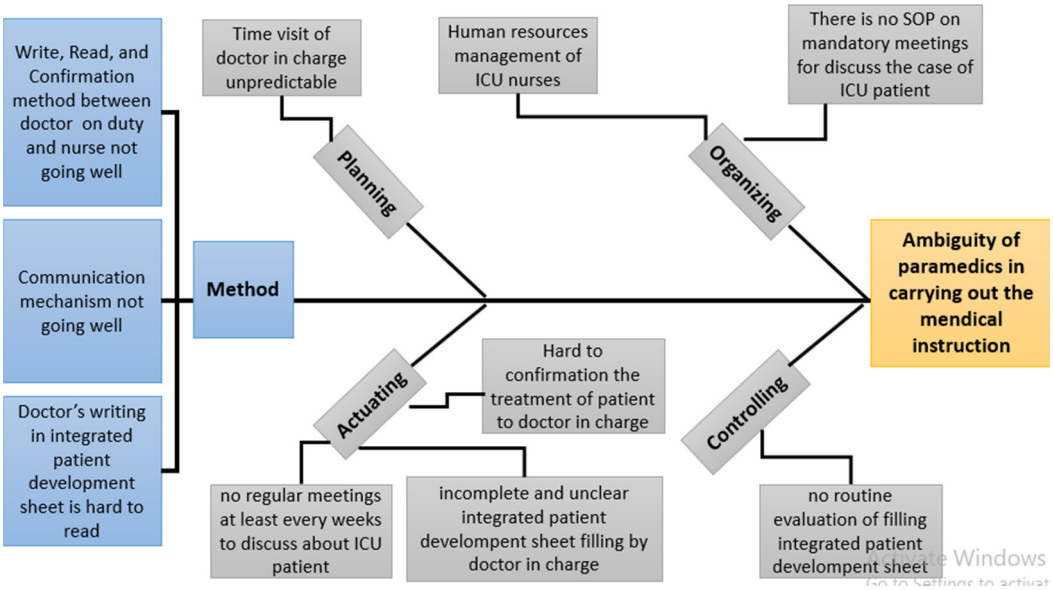

Figure 1: Chart the Cause of Problem.

4.4 Selection the Priority of the Cause of the Problem

Table 4: Selection of the Priority of the Cause of Problem.

Problem	I								T	R	Summary (I x T x R)
	P	S	RI	DU	PB	SB	PC	Sum			
No weekly meetings to discuss the case of ICU patients	5	3	4	2	2	3		19	3	2	114
The incomplete and unclear integrated patient development sheet filling by the doctor in charge	4	5	5	3	2	5		24	5	5	600
Doctor on duty had other busyness	3	2	3	4	3	3		18	2	2	72
Lack of nurses	2	2	2	1	3	3		13	1	1	13

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4.5 Selection the Priority of Problem Solution

Table 5: Selection of the Priority of Problem Solution.

Problem	M	I	V	C	Summary ((M x I x V) / C)
Socialization of integrated patient development sheet through formal meetings	3	4	2	3	8
Use banners or pamphlets as a reminder to fill an integrated patient development sheet	4	5	3	4	15
Integrated patient development sheet evaluation periodically	4	2	4	3	10,6

Abbreviations and acronyms:
M = Magnitude
I = Importance
V = Vulnerability
C = Cost

The intervention was held between November 6th and November 11th, 2017 by putting the banner and pamphlets on the table of each bed in the ICU of Budhi Asih. We hoped by reading the banner when entering the ICU room and the pamphlets on the table of each bed, the physician in charge would fill the 'Integrated Patients Development Sheet' well, clearly, and completely. These are very important to do, as stated in the Standard Operation Procedure (SOP) of Budhi Asih hospital regarding the importance of effective communication, and according to the World Health Organization (WHO) about patient safety. Therefore, ICU in Budhi Asih hospital was able to perform WHO standardized patient care, especially in medication safety and effective communication.

Table 6: Evaluation Results of Intervention Using Banner and Pamphlet About Integrated Patient Development Sheet at ICU Budhi Asih hospital.

Questions	Response									
	1	2	3	4	5	6	7	8	9	10
Physician in charge read the banner and pamphlet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Duration of a physician in charge read the banner and pamphlet	< 1 minute	< 1 minute	< 1 minute	1-5 minutes	< 1 minute	< 1 minute	1-5 minutes	< 1 minute	< 1 minute	< 1 minute
The banner and pamphlet are easy to understand	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The banners and pamphlet help the paramedics to perform the instructions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The instructions from a physician are charge is better, clearer and more complete	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

We evaluated the intervention by using questionnaires to the paramedics (Table 6). The responders said that all physicians read the banner and pamphlets with duration time about less than one minute to five minutes. All the responders agreed that the banner and pamphlets were relatively easy to understand, helped them perform the medical instructions, and the instructions from the physician were better, clearer and more complete. Some physicians also filled the 'Integrated Patient Development Sheet' by themselves, while they previously did not. The hospital management also agreed to multiply the banner and pamphlets so this method could be adapted to other units.

In consideration of time available during the study, we did not perform the quantitative evaluation on the 'Integrated Patient Development Sheet' before and after the intervention. We also have some other considerations: the amount of patient in ICU Budhi Asih hospital is unpredictable and changed over time. In the case of limited numbers of patients, we also had limited time for observation. On the other hand, not all patients fitted our inclusion criteria that every patient should have been visited by at least two different physicians in charge.

The quantitative evaluation of 'Integrated Patient Development Sheet' was done by comparing the completeness of the form before and after the intervention, whether any improvement of the 'Integrated Patient Development Sheet' percentage that has been filled well, clearly and completely. We also compared the ambiguity level of paramedics before and after the intervention. Our aim was to achieve a better quality of written instructions in the 'Integrated Patient Development Sheet'. Less or no ambiguity level from paramedics was also one of our goals. With that, hopefully, Budhi Asih Government Hospital could fulfill all of the requirements in the SOP.

5 CONCLUSION

We found that banner and pamphlets as a reminder to the doctors in charge to fulfill the Integrated Patient Development Sheet are the key solution to improve the quality of patient safety in the ICU room of Budhi Asih Government Hospital. The banner and pamphlets should be distributed to more units other than the ICU. Furthermore, there should also be a routine evaluation of 'Integrated Patient Development Sheet' and ambiguity of the paramedics in performing medical instructions written on.

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