

Mapping the nurse's needs in Inpatient Installation of Ibnu Sina Gresik Hospital

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Abstract. Adequate nursing care is essential for health care quality and safety. The nurse is an important human resource for health in the hospital, as nursing care are performed for 24 hours. Quality, effective and efficient nursing care can be achieved if supported by the number of nurses who meet the needs. Therefore, the planning of the number of nurse's needs to be done well in order to obtain effective and efficient manpower. This study aims to identify nursing needs in inpatient installation of Ibnu Sina Gresik Hospital. The study was conducted at the inpatient installation of Ibnu Sina Gresik hospital during January-April in 2016. 8 inpatient rooms observed included Angrek, Bougenvil, Cempaka, Dahlia, Flamboyan, Gardena, Heliconia and Wijaya Kusuma. The calculation of the nurse's needs based on the patient category is more effective because it takes into account the effective hours of the nurse. The calculation of the nurse's needs at the inpatient installation shows an unbalanced distribution. There are rooms that still lack a nurse such as Angrek, Dahlia, Flamboyan, Gardena and Heliconia. But there is also a room that excess nurses such as Bougenville, Cempaka and Wijaya Kusuma. This study recommends that surplus nurses in some rooms may be redistributed to a room that is understaffed.

Keywords: nurses's need, hospital, health care, mapping, human resources for health

1. INTRODUCTION

Hospitals have a mission to provide quality health care and affordable by the community in order to increase the public health status. By therefore hospitals in the region are required to improve management, develop sources of financing themselves, in order to autonomously seek to improve the quality of service and empower all potentials including human resources for health because the quality of service is highly dependent on human resource capability.

Nursing care are an integral part of hospital, so the importance of health service, even Huber reported that 70% of the hospital's health workers were nurses. As for Gillies estimated that about 75% of staff in the hospital were nurses, and 60-70% of the total budget used to pay nurses. Therefore nurse staff planning, especially in determining the number of nurse's needs to be managed in the best way possible for effective and efficient nursing care.

Quality of nursing care can achieve optimal results when the load existing nurse work and resources have equal proportions. Currently, the quality of nursing service is still not satisfactory and still influenced by various problems including the planning and procurement of nurses as sub system of national healthcare system. Based on research WHO, some countries in Southeast Asia including Indonesia found facts that nurses working in hospitals underwent an increase in workload and still do experienced a shortage of nurses.

This is because the role of nurse yet well defined, nurse skills are lacking and most nurses burdened with non nursing tasks. On the other hand nursing service is the service provided by professional nurses to the patient in accordance with the needs of patients during hospitalization, so there is a close relationship between the nurse and the patient as the recipient of the nursing service, the patient hospital admission is not without consideration, in this case the patient is admitted to the hospital has high hopes that he will be well cared for and able to return home with a state of cure as usual.

Nursing staff planning is an organic function of management that is the basis or starting point of a particular execution activity in an effort to achieve organizational goals. A common problem in organizations namely the lack of numbers and types of personnel required, lack of competence (knowledge, skills, attitudes and values) of the nurses as well limited funds from the hospital so as not can add and maintain human resources they need. Accuracy in planning, selection, management and human resources development becomes the key to hospital success to develop.

2. METHOD

This study is descriptive research with cross sectional design. The study was conducted at the inpatient installation of Ibnu Sina Gresik hospital during January 2016. 8 inpatient rooms observed

included Anggrek, Bougenvil, Cempaka, Dahlia, Flamboyan, Gardena, Heliconia and Wijaya Kusuma. This study involves all inpatient nursing staff in filling questionnaires and analyzing secondary data from employment information.

3. RESULTS AND DISCUSSION

Analysis of Anggrek Room

Anggrek room is a treatment unit that has a capacity of 30 beds. Today, the number of nursing staff reach 15 nurses (2 persons from bachelor degree and 13 persons from diploma degree). Meanwhile, nurses in Anggrek room also assisted by 1 person from graduate student in senior high school.

- a. Analysis of number of patients per day based on average BOR
- $$\begin{aligned} \text{BOR in Anggrek room} &= 57.93\% \\ \text{Average patients were treated per day} &= \text{Beds} \times \text{average BOR} \\ &= 30 \times 57.93\% \\ &= 17 \end{aligned}$$

- b. Analysis of number of patients per day based on classification
- The classification of patients in Anggrek room is children with an average of 4.5 hour/patient/day maintenance hours.

Calculation of nurses by patient classification (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{17 \times 4.5}{7} \\ &= 10.9 \\ \text{Loss day} &= \frac{(52+12+14) \times 10.9}{286} \\ &= 2.97 \\ \text{Non-nursing jobs} &= \frac{(10.9+3.42) \times 25}{100} \\ &= 3.58 \\ \text{Total requirement} &= 10.9 + 2.97 + 3.58 \\ &= 17.45 = 17 \text{ nurses} \end{aligned}$$

So the analysis of Anggrek room based on the classification of the patient (Ministry of Health, 2012) is a number of 17 nurses. Currently in the Anggrek room there are 15 nurses there are, so less 2 persons.

Analysis of Bougenvile Room

Bougenvile room is a treatment unit with a capacity of 29 beds. The number of midwives in Bougenvile room is currently 24 persons (4 persons

from bachelor degree and 20 persons from diploma degree). The bougenvile room is a maternity treatment room that has two rooms, namely treatment room and action room/VK. The treatment room has a capacity of 20 beds and the action room has 6 beds. BOR in Bougenvile room is 40.64%. The average patient treated per day in the room per day is 18 persons with the most category is post op section secaria patient. While the average - per day birth is 4 persons. In addition to the act of delivery, in the VK room is also done curettage action and other small actions.

- a. Analysis of number of patient action space/VK per day by patient classification (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{4 \times 4}{7} \\ &= 2.28 \\ \text{Loss day} &= \frac{(52 + 12 + 14) \times 2.28}{286} \\ &= 0.62 \end{aligned}$$

$$\begin{aligned} \text{Non-nursing jobs} &= \frac{(2.28+0.62) \times 25}{100} \\ &= 0.7 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 2.28 + 0.62 + 0.7 \\ &= 3.6 = 4 \text{ nurses} \end{aligned}$$

- b. Analysis of number of patient room treatment per day by patient calcification (Ministry of health, 2012)

$$\begin{aligned} \text{Total workforce} &= \frac{18 \times 4}{7} \\ &= 10.29 \\ \text{Loss day} &= \frac{(52+12+14) \times 10.29}{286} \\ &= 2.81 \end{aligned}$$

$$\begin{aligned} \text{Non-nursing jobs} &= \frac{(10.29+0.62) \times 25}{100} \\ &= 3.28 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 10.29 + 2.81 + 3.28 \\ &= 16.38 = 16 \text{ midwives} \end{aligned}$$

Total power requirement in action room/VK and care room is $4 + 17 = 21$ persons. Analysis of bougenvile room based on patient classification (Ministry of Health, 2005) is 21 midwives. Currently in the bougenvile room there are 24 midwives, so the midwife in the Bougenvile room is currently excessive in the standard count of Ministry of Health in 2005.

Analysis of Cempaka Room

Cempaka room is a treatment unit that has a capacity of 29 beds. The number of nurses in Cempaka room is 17 people (2 persons from bachelor degree, 14 persons from diploma degree, 1 person from graduate of senior high school in health), also assisted by 5 graduate students in senior high school.

- a. Analysis of number of patients per day based on average BOR

$$\begin{aligned} \text{BOR in Cempaka room} &= 93.99\% \\ \text{Average patients were treated per day} \\ &= \text{Beds} \times \text{average BOR} \\ &= 29 \times 93.99\% \\ &= 16.79 = 17 \end{aligned}$$

- b. Analysis of number of patients per day based on classification (Ministry of Health, 2005)

The classification of patients in Cempaka room is patients with an average of 3.5 hour/patient/day maintenance hours.

- c. Calculation of nurses by patient classification (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{17 \times 3.5}{7} \\ &= 8.5 \end{aligned}$$

$$\begin{aligned} \text{Loss day} &= \frac{(52+12+14) \times 8.5}{286} \\ &= 2.32 \end{aligned}$$

$$\begin{aligned} \text{Non-nursing jobs} &= \frac{(8.5+2.32) \times 25}{100} \\ &= 2.7 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 8.5 + 2.32 + 2.7 \\ &= 13.52 = 14 \text{ nurses} \end{aligned}$$

So the analysis of Cempaka room based on patient classification (Ministry of Health, 2005) is 14 nurses. Currently in the Cempaka room there are 17 nurses there are, so the amount of energy is still the remaining 3 persons.

Analysis of Dahlia Room

Dahlia room is a treatment unit that has a capacity of 30 beds. The number of nurses in Dahlia room currently is 16 nurses (5 persons from bachelor degree and 11 persons from diploma degree), also assisted by 2 graduate student in senior high school.

- a. Analysis of number of patients per day based on average BOR

$$\text{BOR in Dahlia room} = 79.69 \%$$

Average patients were treated per day

$$\begin{aligned} &= \text{Beds} \times \text{average BOR} \\ &= 30 \times 79.69 \% \\ &= 23.9 = 24 \end{aligned}$$

- b. Analysis of number of patients per day based on classification (Ministry of Health, 2005)

The classification of patients in Dahlian room is patients with an average of 4 hour/patient/day maintenance hours.

- c. Calculation of nurses by patient classification (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{24 \times 4}{7} \\ &= 13.7 \end{aligned}$$

$$\begin{aligned} \text{Loss day} &= \frac{(52+12+14) \times 13.7}{286} \\ &= 2.32 \end{aligned}$$

$$\begin{aligned} \text{Non-nursing jobs} &= \frac{(8.5+2.32) \times 25}{100} \\ &= 3.4 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 13.7 + 2.32 + 3.4 \\ &= 19.42 = 19 \text{ nurses} \end{aligned}$$

So the analysis of Dahlia room personnel according to the classification of patients (Ministry of Health, 2005) is a number of 19 nurses. Currently in the Dahlian room there are 16 nurses there, so the number of personnel is still less 3 persons.

Analysis of Flamboyan Room

The Flamboyan room is a VVIP class that has a capacity is 22 beds. The total staff is 19 nurses (3 persons from bachelor degree and 16 persons from diploma degree such as midwives/nurse). In addition to nurse, Flamboyan room is also assisted by 1 person from graduate student in senior high school.

- a. Analysis of number of patients per day based on average BOR

$$\begin{aligned} \text{BOR in Flamboyan room} &= 84.96\% \\ \text{Average patients were treated per day} \\ &= \text{Beds} \times \text{average BOR} \\ &= 22 \times 84.96\% \\ &= 18.7 = 19 \end{aligned}$$

- b. Analysis number of hours patient care per day dependency level (Ministry of Health, 2005)

The Flamboyan room is a VIP and VVIP class consisting of many cases, child, surgical, internal medicine and midwifery. So it is more appropriate if calculated based on the level of dependence of the patient. Due to VIP and VVIP class, in Flamboyan room is the patient with maximum nursing care so that the average of treatment hours is 6.16 hours/patient/day (Ministry of Health, 2005).

- c. Based on dependency level of patient (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{19 \times 6.16}{7} \\ &= 16.7 \end{aligned}$$

$$\begin{aligned} \text{Loss day} &= \frac{(52+12+14) \times 16.7}{286} \\ &= 4.55 \end{aligned}$$

Non-Nursing Jobs

The number of nursing staff working on non-nursing jobs such as making patient details go home, room cleanliness, cleaning of patient's utensils, etc. is estimated at 25% of the nursing service hours.

$$\begin{aligned} \text{Non-Nursing Jobs} &= \frac{(16.7 + 4.55) \times 25}{100} \\ &= 5.3 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 16.7 + 4.5 + 5.3 \\ &= 26.5 = 27 \text{ nurses} \end{aligned}$$

So the analysis of Flamboyan room management according to the classification of patients (Ministry of Health, 2005) is a number of 27 nurses. Currently in the Anggrek room there are nurses there are 19 persons, so the amount of energy is still less than 8 persons.

Analysis of Gardena Room

Gardena room is a treatment unit that has a capacity of 21 beds. The number of nurses in Gardena room is 15 nurses (1 person from bachelor degree and 14 persons from diploma degree), also assisted by 1 persons graduate student in senior high school.

- a. Analysis of number of patients per day based on average BOR

$$\begin{aligned} \text{BOR in Gardena room} &= 93.4\% \\ \text{Average patients were treated per day} &= \text{Beds} \times \text{average BOR} \\ &= 21 \times 93.4\% \\ &= 19.6 = 20 \end{aligned}$$

- b. Analysis number of hours patient care per day dependency level (Ministry of Health, 2005)

The classification of patients in Gardena room was internal medicine patients with an average 4 hour/patient/day treatment hour

- c. Based on dependency level of patient (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{20 \times 3.5}{7} \\ &= 10 \end{aligned}$$

$$\begin{aligned} \text{Loss day} &= \frac{(52+12+14) \times 10}{286} \\ &= 2.7 \end{aligned}$$

$$\begin{aligned} \text{Non-nursing jobs} &= \frac{(16.7 + 4.55) \times 25}{100} \\ &= 5.3 \end{aligned}$$

$$\begin{aligned} \text{Total requirement} &= 10 + 2.7 + 3.2 \\ &= 15.9 = 16 \text{ nurses} \end{aligned}$$

So Gardena room empirical analysis according to patient classification (Ministry of Health, 2005) is 16 nurses. Currently in the gardena room there are 15 nurses there, so the number of personnel is still less than 1 person.

Analysis of Heliconia Room

Heliconia Room is a treatment unit that has a capacity of 30 beds. The number of nurses in the Heliconia room is currently 17 nurses (2 persons from bachelor degree and 15 persons from diploma degree), also assisted by 1 person from graduate student in senior high school.

- a. Analysis of number of patients per day based on average BOR

$$\begin{aligned} \text{BOR in Heliconia room} &= 73.21\% \\ \text{Average patients were treated per day} &= \text{Beds} \times \text{average BOR} \\ &= 30 \times 73.21\% \\ &= 22 \end{aligned}$$

- b. Analysis number of hours patient care per day dependency level (Ministry of Health, 2005)

The classification of patients in the Heliconia room is an internal medicine patient (pulmonary) with an average 3.5 hour/patient /day treatment hour.

- c. Based on dependency level of patient (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{22 \times 3.5}{7} \\ &= 10.5 \end{aligned}$$

$$\begin{aligned} \text{Loss day} &= \frac{(52+12+14) \times 10.5}{286} \\ &= 2.86 \\ \text{Non-nursing Jobs} &= \frac{(10.5+2.86) \times 25}{100} \\ &= 3.34 \\ \text{Total requirement} &= 10.5 + 2.86 + 3.34 \\ &= 16.7 = 17 \text{ nurses} \end{aligned}$$

So the analysis of Heliconia room powerhouse according to patient classification (Ministry of Health, 2005) is 17 nurses. Currently in the Heliconia room there are 15 nurses there, so the number of personnel is still less 2 persons.

Analysis of Wijaya Kusuma Room

Wijaya Kusuma room is a treatment unit that has a capacity of 21 beds. The number of nurses in Wijaya Kusuma room is currently 16 nurses (2 persons from bachelor degree and 14 persons from diploma degree), also assisted by 1 person from graduate student in senior high school.

d. Analysis of number of patients per day based on average BOR

$$\begin{aligned} \text{BOR in Heliconia room} &= 87.05\% \\ \text{Average patients were treated per day} &= \text{Beds} \times \text{average BOR} \\ &= 21 \times 87.05\% \\ &= 18.3 \end{aligned}$$

e. Analysis number of hours patient care per day dependency level (Ministry of Health, 2005)
The classification of patients in the Wijaya Kusuma room is an internal medicine patient (pulmonary) with an average 3.5 hour/patient /day treatment hour.

f. Based on dependency level of patient (Ministry of Health, 2005)

$$\begin{aligned} \text{Total workforce} &= \frac{18.3 \times 3.5}{7} \\ &= 9.2 \\ \text{Loss day} &= \frac{(52+12+14) \times 9.2}{286} \\ &= 2.5 \\ \text{Non-nursing jobs} &= \frac{(9.2+2.5) \times 25}{100} \\ &= 2.9 \\ \text{Total requirement} &= 9.2 + 2.5 + 2.9 \\ &= 14.6 = 15 \text{ nurses} \end{aligned}$$

So the Wijaya Kusuma room empowerment analysis according to the patient classification (Ministry of Health, 2005) is 15 nurses. Currently in Wijaya Kusuma room there are nurses there are 16 persons, so the amount of energy is still remaining 1 person.

From the calculation of the needs of nurses in the inpatient installation from Ibnu Sina Hospital, There are rooms that still lack a nurse such as Anggrek, Dahlia, Flamboyan, Gardena and Heliconia. But there is also a room that excess nurses such as Bougenville, Cempaka and Wijaya Kusuma. This study recommends that surplus nurses in some rooms may be redistributed to a room that is understaffed.

Table 1 Mapping of nurse in inpatient installation from Ibnu Sina Gresik Hospital

Room	Available	Need	(-)	(+)
Anggrek	15	17	2	-
Bougenville	24	21	-	3
Cempaka	17	14	-	3
Dahlia	16	19	3	-
Flamboyan	19	27	8	-
Gardena	15	16	1	-
Heliconia	15	17	2	-
Wijaya Kusuma	16	15	-	1

4. CONCLUSION

Human resources in inpatient installation of Ibnu Sina Hospital in the determination of nursing level has not included the requirements of education level and work experience as per the guidelines of professional career development of nurses. The analysis of nurse's needs indicates if there is excess of nurse staff in Bougenville, Cempaka and Wijaya Kusuma. And there are flaws in the Anggrek, Dahlia, Flamboyan, Gardena, and Heliconia.

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