Public Health Center Emergency Referral Quality Analysis: Based on National Standard

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Article Info	ABSTRACT
  Corresponding Author: Priyo Sasmito Lecturer of Ichsan Satya University, Tangerang, Indonesia Email: priothegreat2 @gmail.com	The referral quality will affect the outcome of referred patients. The quality of emergency referrals from the Public Health Center (PHC) in Banten Province has not been examined. This study aims to analyze the quality of emergency referrals from PHC and the factors that influence it. Observational analytics with a retrospective approach to a PHC in Banten Province, Indonesia. The reference data for March-May 2023 is taken consecutively. Data on the demographics of referrers and referral cases are recorded. The quality of referrals is analyzed using national personal referral standards. A total of 52 referral cases were involved in the study. Referrals were made by nurses with an average age of 28.2 years with a range of 23-43 years, men (38/73.1%), and with diploma education (30/57.7%). Most of the referring nurses have a valid Basic Life Support (BLS) certificate (46/88.5), are non-civil servants, and work for an average of 3.3 years. Most of the referred cases are surgical (28/53.8) and urgency cases (32/61.5). Forty-four referral cases (84.6%) did not meet national referral standards. The referring nurse's educational background and the urgency of the case had a significant relationship with the quality of referrals with p values $< \alpha$ values of 0.05 (0.000 and 0.000 respectively). There was no significant relationship between referral quality and patient/family satisfaction. Conclusion: Most PHC's emergency referrals to hospital emergency departments (ED) have not complied with national standards. There was a significant relationship between the education of the referring nurse and the level of urgency of the case with the quality of PHC referrals. There is no relationship between referral quality and patient/family satisfaction. National technical guidelines for individual referrals for emergency cases are needed. *Keywords:* Public Health Center (PHC), referral quality, emergency, Emergency Department (ED), national standard

1. INTRODUCTION

Emergencies are daily health problems. Over time, emergencies that were previously dominated by infectious diseases are now dominated by non-infectious diseases. Lifestyle changes cause a high level of degenerative diseases and all forms of emergencies. Even now death from coronary heart disease and degenerative diseases is the leading cause of death in Indonesia [1]. Likewise with trauma cases. The development of various modes of transportation, sports, and other outdoor activities has also had an impact on increasing trauma emergencies. Mortality due to traffic

accidents in 2009 was 19979 people even greater than the earthquake in Yogyakarta in 2006 (5778 people) [2]. In an emergency, first aid from the nearest health facility is necessary. The practical competence of primary health workers in managing emergency patients is important [3].

The Public Health Center (PHC) is the nearest and most familiar health facility to the community, regardless of economic and social status. Since the implementation of the National Health Insurance, PHC has become the primary facility for obtaining health and administrative services [4]. In case of an emergency, PHC is among the first health facilities visited, especially for individuals who live far from the hospital [5]. One of the basic emergency skills that health workers must have is to make qualified referrals. Some studies say that referral quality affects patient outcomes and patient satisfaction [6]. Therefore, PHC as one of the primary health facilities must have the ability to make qualified referrals.

Emergency referrals are different from outpatient referrals. In emergency referrals, the speed and accuracy of referrals are factors that determine mortality and morbidity [7], [8]. Outpatient referrals have a fairly loose time to be able to determine the diagnosis and subsequent actions. Emergency referrals require more complex actions and preparations. Stabilization, pre-referral communication, and preparation for patient transportation are some of the things that are not found in outpatient referrals [4]. In addition, accurate information should be collected in the fastest time possible. So, all forms of patient data obtained by previous health facilities are important for health workers at the next level [9], [10]. Therefore, quality and standard-compliant emergency referrals should be an obligation for referral organizers.

However, the quality of primary healthcare referrals in countries with limited resources is still not satisfactory as reported by various developing countries [11], [12], [13], [14]. This is a major concern, as the quality of referrals has a direct impact on patient outcomes. If referrals are not up to the required standard, it can harm the referred patients [8], [11], [15]. Moreover, healthcare services that do not meet the required standards can also lead to legal action [16], [17], [18].

Personal referral standards have been set by the Indonesian Health Ministry since 2012. So far, the quality of emergency referrals from PHC in remote areas in Indonesia has not been examined. Therefore, this study aims to analyze the quality of PHC referrals and the factors that influence them in a PHC in Banten Province, Indonesia. So, it is expected to be one of the references in efforts to improve the quality of PHC referrals.

2. METHOD

This study is an analytical observational study with a retrospective approach. The sample in this study is an emergency referral from a PHC in Banten Province from March 2023 to May 2023. The cases studied were adult medical and surgical cases referred to using PHC ambulances. Referrals of pregnant women and children were excluded from the study. Samples that meet the criteria are then taken supporting data consisting of referring data, and case data. Referring data consists of age, gender, educational background, BLS certificate status, employment status, and length of employment. Case data consists of the type of case and the type of urgency of the case.

The outcomes measured are the quality of referrals and the level of patient/family satisfaction after referrals. The quality of referrals is assessed based on the conformity of the referral process with the standards set by the government in Health Ministry Rules No.001/2012 concerning the Personal Referral Health Services Standard consisting of 15 standards [4]. Data is taken secondarily from a copy of the referral letter. The referral that has met 15 standard criteria, is categorized into groups "Fulfill National Standards". Referrals that do not meet these 15 criteria are categorized into groups "Not Fulfilling National Standards". Data on patient/family satisfaction is taken from the patient satisfaction survey filled out during the referral process. The data obtained were analyzed univariate and bivariate. Univariate analysis is presented in tabular form. The relationship between variables was analyzed using the Spearman test and Fisher Exact test.

This research received permission and approval from the Independent Review Board on 17 March 2023 (No. 870/166/PKM-TNR/2023). All respondents (referring nurses) were adequately informed about the study and had signed informed consent before data collection. Respondents who decide not to continue the study are not subject to penalties.

3. RESULTS AND DISCUSSION

RESULT

Fifty-two referral cases were included in the study. Referrals are made by nurses with an average age of 28. 2 years with a range of 23-43 years, male (38/73.1%), with diploma background (30/57.7%). Most of the referring nurses have a valid BLS certificate (46/88.5), are non-civil servants, and work for an average of 3.3 years. Most of the cases referred are surgical cases (28/53.8) and generally are cases of urgency (32/61.5) (Table 1).

Table 1. Characteristics of the samples (N=52)

Variable	Result
Referrer age (n/%) (years)	
Mean ±SD (range)	28.2±5.6 (23-43)
<26	24/46.2
26-35	22/42.3
36-45	6/11.5
Referrer gender	
Male	38/73.1
Female	14/26.9
Referrer education	
Diploma	30/57.7
Bachelor/RN	22/42.3
Referrer BLS status	
Upgraded	46/88.5
Not upgraded	6/11.5
Referrer employment status	
Government employee	18/34.6
Non-Government employee	34/65.4
Referrer length of work (years)	
Mean ±SD (range)	3.3 ± 2.6 (1-12)
0-5	45/86.5
>5	7/13.5
Case classification	
Medical	24/46.2
Surgery	28/53.8
Case urgency	
Emergency	20/38.5
Urgency	32/61.5

abbreviation: RN = Registered Nurse

The data obtained were then analyzed using the Spearman Test on nominal data and the Fisher Exact Test on ordinal data to see the relationship of each variable with reference conformity with national reference standards. Then we analyzed the relationship between referral quality and patient satisfaction.

Table 2. Factors correlated with referral quality (N=52)

Variables	Category	Fulfill National standard* (Score 15) (n/%)	Not fulfilling National standard (score < 15)	p-value
Referrer Age (years)	<26	0/0.0	25/48.1	0.840
	26-35	8/15.4	13/25.0	
	36-45	0/0.0	6/11.5	
Referrer gender	Male	7/13.5	31/59.6	0.423
	Female	1/1.9	13/25.0	
Referrer educational background	Diploma	0/0.0	30/57.7	0.000**
	Bachelor/RN	8/15.4	14/26.9	

Referrer BLS certificate	Upgraded	8/15.4	38/73.1	0.573
	Not upgraded	0/0.0	6/11.5	
Referrer Employment Status	Government employee	1/1.9	17/32.7	0.236
	Non-government employee	7/13.5	27/51.9	
Referrer length of work (years)	0-5	8/15.4	37/71.2	0.905
	>5	0/0.0	7/13.5	
Case classification	Medical	5/9.6	19/36.5	0.446
	Surgical	3/5.8	25/48.1	
Case urgency	Emergency	8/15.4	12/23.1	0.000**
	Urgency	0/0.0	32/61.5	
Patient/Family Satisfaction	Satisfied	8/15.4	38/73.1	0.577
	Not Satisfied	0/0.0	7/13.5	

* Based on National Personal Referral Health Services Standard [19]
**Significant (2-tailed)
abbreviation: RN, Registered Nurse; BLS, Basic Life Support.

Based on the results of statistical calculations in Table 2, only 8/15.4% of references were found following the standard, while the remaining 44/84.6% still did not meet the national reference standard. The referring nurse's educational background and the urgency of the case had a significant relationship with the quality of the referral with a p-value < an α value of 0.05. However, there was no significant relationship between referral quality and patient/family satisfaction.

Furthermore, the researcher analyzed the relationship between the education of the referring nurse and the level of urgency of the case. Statistical calculations using the Fisher Exact Test show a significant relationship with a p-value of 0.000 (< α 0.05). This shows a relationship between the level of education of the referring nurse and the level of urgency of the case. Emergency cases tend to be referred by nurses with a higher level of education (Bachelor / Registered Nurse). Researchers also analyze the implementation of individual referral standards as presented in Table 3.

Table 3. Implementation of the standard (N=52)

No.	Reference standard	Implementation (n/%)
1	Patients have received initial aid/stabilization	52/100.0
2	The patient/family has been informed about the patient's illness and condition	52/100.0
3	The patient/family has been informed of the reason for the referral and the purpose of the referral	52/100.0
4	Referrals have obtained family consent	52/100.0
5	The officer has made pre-reference communications	52/100.0
6	Bringing a reference letter	52/100.0
7	A referral letter containing the completeness of the patient's clinical resume	28/53.8
8	The referring officer monitors the patient's condition during the transportation process	20/38.5
9	The monitoring process during the transportation process is documented	10/19.5
10	Handover of patients with referral officers has been carried out	52/100.0
11	Officers master basic life support techniques	46/88.5
12	Resuscitation tools available during referral	20/38.5
13	Emergency medicines available during referral	20/38.5
14	Oxygen available in the ambulance	20/38.5
15	Communication tools available	52/100.0

Based on Table 3, it is known that the standards that have not been fully implemented in emergency referral from PHC are the completeness of the referral letter, monitoring during the referral, monitoring documentation during the trip, BLS skills of the referring nurse, resuscitation equipment, emergency medicine, and oxygen availability in

the ambulance. Communication tools in this study researchers assume in various forms, both radio medical, and mobile phones.

DISCUSSION

The quality of PHC referrals in Indonesia in this study was measured based on individual referral standards based on laws and regulations. The vast majority (84.6%) of emergency referrals from PHCs still do not meet national referral standards. Although no studies have analyzed the quality of these emergency referrals, this figure is low. Even though the quality of referrals affects patient outcomes. Suboptimal referrals will adversely affect the outcome of referred patients [20]. In addition, health services that are not up to standard in addition to potentially causing patient/family dissatisfaction can also cause lawsuits [6].

Some national referral standards have not been fully implemented in emergency referrals from PHC. Referral standards that have not been implemented properly are the completeness of referral letters, monitoring during referrals, monitoring documentation during the trip, BLS skills of referring nurses, resuscitation equipment, emergency medicine, and oxygen availability in ambulances. Generally, countries with limited resources also experience the same thing. This was also experienced by developed countries 1 decade ago [8], [11], [12].

Some of the required standards can be improved by PHC such as completing referral letters following existing standards, always upgrading BLS training for health workers, doing observation during the referral process and documenting it in referral letters, and always checking the readiness and completeness of ambulances regularly. These actions should be outlined in the Standard Operating Procedures (SOPs) of the Referral Process in PHC [5], [21]. PHC can also create a better and easier-to-fill reference letter template equipped with an observation/monitoring sheet during the transfer process[22], [23], [24]. According to a study in Norway, referral letter templates can improve the quality of referrals from primary health facilities [25]. Education and the existence of sharing forums between primary care facilities and referral facilities will be able to improve the gap between PHCs and hospitals to improve the quality of referrals and improve patient outcomes [8], [26].

According to researchers' observation, PHC has tried to meet emergency tools and drugs according to ability. If referring to other existing rules on emergency devices and medicines, these drugs and equipment are not fully available and provided in PHC [27]. For example, some breathing equipment, and airways are available in a lack of quantities. As a result, emergency equipment that should be carried when referring is not always carried except under certain conditions[28]. For example, an adult Bag Valve Mask (BVM) is generally only available 1 unit at PHC. So, it is only carried out when it will refer patients who need it or are predicted to need it. Likewise, oxygen and emergency drugs are not always available except in certain cases that require oxygen supplementation. Such as in cases of respiratory failure or patients with decreased consciousness, emergency drugs are also prepared only when needed.

Based on ambulance technical guidelines, some equipment is not available in PHC. Tools that are important for life support such as laryngoscope sets, Laryngeal Mask Airway (LMA), and even Automated External Defibrillator (AED) are not found in PHCs [29]. Some devices may be too advanced for PHCs, but standard resuscitation devices such as LMAs and AEDs should be available in PHCs and ambulances [4], [27]. Policies related to ambulances and referrals should be in line with each other. Therefore, according to researchers, there is a need for a review related to referrals and ambulance policy.

The patient's condition, which is considered quite stable before being referred, does not rule out the possibility of worsening during the transfer process. Some emergency cases come with symptoms that are not typical and do not appear to be emergencies. For example, cases of gastrointestinal bleeding both traumatic and non-traumatic. Generally, there are no typical complaints at the beginning. However, the patient's condition can deteriorate rapidly [30], [31]. Likewise, the case of Acute Coronary Syndrome (ACS), especially in diabetic patients. These patients present with atypical complaints such as heartburn or discomfort around the chest. The absence of an ECG in PHC further exacerbates this situation. Patients with inferior infarctions will quickly become in shock and unconscious if they do not get adequate help immediately [32], [33]. Therefore, referral standards must be carried out completely even if the patient's condition is considered stable enough.

Some of the information we receive from PHC nurses, it is not uncommon for cardiac arrest or unpredicted worsening to occur while being referred. Due to the incomplete emergency equipment and medicines, ambulances are forced to find the nearest health facility they pass through to ask for help before arriving at the destination hospital or carrying out resuscitation efforts as much as possible. Resuscitation efforts that are not properly prepared will certainly produce results that are not optimal [3].

Some of the factors that affect the quality of PHC referrals found in this study are the educational background of the referring nurse and the level of urgency of the referred case. Nurses with lower educational backgrounds tend to make substandard referrals. This is following previous research that the level of education of a health worker affects the quality of referrals made [25]. Another factor that affects the quality of referrals is the level of urgency of the referred cases. The referral process in emergency cases tends to be following existing standards. The level of education of the referring nurse and the level of urgency of the case are interconnected. Difficult or emergency cases in PHC are generally handled by nurses with a higher level of competence. So, in addition to the need for high referral quality standards, emergency cases are generally accompanied by nurses with a higher level of education.

In this study, there was no significant relationship between the quality of referrals and patient/family satisfaction. This is different from the results of previous studies which stated a relationship between referral quality and patient satisfaction [6], [11]. This is possible due to the process of taking satisfaction surveys carried out at the time of referral. In this condition, patients/families tend to focus on health problems that are currently faced. In addition, the culture of Indonesian people tends to feel hesitant to say things that are not good. So that patients/families tend to fill out surveys with the option "satisfied". This is also a weakness in this study.

National technical guidelines for emergency referrals are required

Adult referrals are different from referrals for infants and pregnant women who already have systematic technical guidelines. The referral for pregnant women has explained in detail what must be prepared during the referral from before leaving to after the patient handover process. Referrals for pregnant women and infants also have an emergency pre-referral communication network that has been carried out nationally in Indonesia [34], [35]. Although there are rules governing it, in adult referrals there are still things that have not been regulated in detail, especially in emergency cases. Emergency referrals are different from outpatient referrals who have plenty of time to review the problems faced by patients. In emergency cases, speed and accuracy of action are priorities because they can affect patient outcomes. Therefore, national technical guidelines on emergency referrals are needed. This technical guideline can be a reference for the referral process both from primary health facilities and health facilities above to carry out a quality referral process [14], [20], [36], [37]. Some important things that researchers underlined to improve the quality of emergency referrals are referral letter standards, emergency tools and drugs, and pre-referral communication and tools.

Limitation

Some limitations of this study include the difficulty of obtaining valid patient/family satisfaction data. Because the referral process generally occurs in hectic conditions, the patient's family tends to fill out the question form with "satisfaction" to speed up the data collection process. The small number of samples involving one location is also a limitation of the study. More research is needed to confirm the results of this study in larger, multicenter studies to be generalized more broadly. Further research that analyzes the relationship between referral quality and referred patient outcomes can be one study that deserves to be developed.

4. CONCLUSION

Most emergency referrals from PHC still do not meet national referral standards. The referring nurse's educational background and the urgency of the case have a significant relationship with the quality of referrals. This study found that there was no significant relationship between referral quality and patient/family satisfaction. Referral standards that have not been fully carried out in emergency referral from PHC are the completeness of the referral letter, monitoring during the referral, monitoring documentation during the transportation, BLS skills of the referring nurse, resuscitation equipment, emergency drugs, and oxygen availability in the ambulance. A National technical guideline for personal referral of emergency cases is needed.

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