

# Problems in Poor Paediatric Pneumonia Case Findings in Sumenep

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**Abstract:** Sumenep is one of the districts in Indonesia with various geographical features. This district not only has a mainland, but also remote archipelago. The number of paediatric pneumonia cases is high in Sumenep, while new case findings are still low. The remote conditions between regions mean that the healthcare workers are limited when it comes to actively finding new cases of pneumonia which will lead to delayed treatment. This study has analysed the factors that inhibit health workers in remote areas when it comes to performing pneumonia case finding. This is an observational analytic research study with a cross-sectional design. The samples in this study are 21 *Puskesmas* (public health centres) across Sumenep located in 18 mainland sub-districts and 9 island sub-districts. This study shows that a lack of knowledge is the only responsible factor that affects the health workers' performance in finding new cases of pneumonia ( $p=0,029$ ;  $\beta=0,148$ ). Surprisingly, limited upgrading skills for health workers and the high workload is that often complained about does not significantly influence performance.

## 1 INTRODUCTION

The World Health Organization denoted that there are at least 151.8 million incidents of pneumonia in individuals under five in developing countries as well as 4 million cases in developed countries every year. Almost 10% are severe pneumonia that needs hospitalisation. This forgotten killer of children has increased in Indonesia. Even though prompt treatment is a success when it comes to combating the disease, it cannot always be done due to the low number of new case findings. In order to improve prompt treatment, the Indonesian Ministry of Health has forced primary healthcare workers to actively find new cases of paediatric pneumonia. Through this active method of case finding, health workers will sweep every corner of their coverage area to identified suspected children. Geographical problems then existed that obstruct the active case finding.

East Java, as the province with largest population in Indonesia, is also haunted by high paediatric pneumonia. There is only one district in East Java that has successfully reached the target of paediatric pneumonia case finding. Moreover, with the various geographical features, Sumenep faces challenges in finding new cases across its remote

archipelago region. The coverage of the new case finding method of paediatric pneumonia was only 7.59% in 2015.

Sumenep and other remote areas in Indonesia have an experienced health worker shortage. There is enough evidence that geographic location is related to the high retention of health workers in remote areas (Russell et al., 2013). Other studies by Gross et al. (2012) have also explained that health workers in remote areas tend to experience weak health infrastructure and health system failures. This condition refers to the high work load. Moreover, a study by Mkoka et al. (2015) showed that health workers in remote areas potentially have low motivation to work because they feel abandoned and lost within the unsupportive system that they serve, and the difficult working and living environments.

The difficult access to the coverage area and the high risk of poor employee retention makes it possible to decrease the *Puskesmas*' performance not only in relation to paediatric pneumonia case finding but also other *Puskesmas* tasks. This study analyses how knowledge, upgrading skill experience, motivation and workload will impact the *Puskesmas* performance in the context of paediatric pneumonia case finding.

## 2 METHOD

This is an observational analytic study with a cross sectional design. The data collection was conducted from July to August 2016. The population in this research study were *Puskesmas* (Primary healthcare facility in sub district level) in Sumenep, which amounted to 30 *Puskesmas*. The sample population of this study was selected based on a stratified random sampling technique resulting in 24 *Puskesmas*. The sample was proportionally based on the criteria of the geographical condition of the *Puskesmas*. It selected 17 *Puskesmas* located in the mainland, 3 *Puskesmas* in remote islands, and 4 *Puskesmas* in the highly remote islands. Unfortunately, 1 *Puskesmas* in remote areas and 2 *Puskesmas* in very remote areas were excluded from the research sample due to high storms causing the researcher to not be able to safely reach the location of the *Puskesmas*.

The respondents consist of 5 people each *Puskesmas* have a job as a pneumonia program manager. The technical officers consist of doctor, midwife, nurse, and health promotion officer at the *Puskesmas*. The knowledge, upgrading of skills and experience, work motivation, and workload were calculated on average to represent the condition of the *Puskesmas*. A multiple linear regression test was used to find the influence between the independent variables with the achievement of the *Puskesmas*' performance in relation to new case finding.

## 3 RESULT AND DISCUSSION

The Sumenep region consists of not only land, but also islands. The land area is approximately as large as 1.146.93 square kilometres (54.79%) consisting of 17 districts. Although called 'the land' overall, there is still a small island in this region. The archipelago of Sumenep covers 946.53 square kilometres (45.21%) which includes 126 inhabited and uninhabited islands in 9 districts. Many islands in Sumenep are still anonymous.

The access to health services in Sumenep is highly correlated with the provision of health facilities. Sumenep already has hospitals, *Puskesmas* and private clinics as well as several other health facilities. *Puskesmas* are the primary healthcare facility managed by the District Health Office to ensure that every person even in the more remote areas of Sumenep will be able to access qualified primary healthcare. The development of *Puskesmas* in each sub-district is expected to improve the health

status of people not only through curative but also through preventative actions.

Unfortunately, the availability of health workers at the *Puskesmas* in Sumenep is still very limited. With a large and difficult to reach area, there are only 43 general practitioners (GPs) available with ratio of 4.29 GPs per 100,000 populations. This ratio is still far below the ideal ratio of 40 GPs per 100,000 populations. The ratio of nurses also only reaches 38.43 per 100,000 populations, below the ideal ratio of 117.5 nurses per 100,000 populations. The midwife ratio also reaches only 51.04 per 100,000 populations, which means that it is still under the ideal 100 per 100,000 population.

### 3.1 Factors of new case finding performance

The *Puskesmas* performance in relation to the new finding of cases of paediatric pneumonia is still low. The majority of *Puskesmas* only can reach new case findings no more than 30% per month. The low achievement of new case discovery finding means that prompt treatment for patients cannot be done earlier. Many cases that should be able to be treated precisely in the earlier phases are instead found in the later stages. The *Puskesmas* performance in paediatric pneumonia case finding is the result of teamwork specially formed to tackle the paediatric pneumonia in Sumenep. The team consists of 5 health workers who have their respective duties according to their scientific fields. The team consists of a program manager, doctor, midwife, nurse, and health promotion officer.

This study shows that the majority of the team's knowledge about pneumonia and its prevention is still low. Only 8 teams in *Puskesmas* have good knowledge about pneumonia case finding activities. The low knowledge of the *Puskesmas* officer in performing the task potentially ruins the performance of the case finding task. Knowledge is fundamental and important, and must be owned by someone before doing a certain job. Moreover, the lack of knowledge is on what is meant by infant pneumonia (47.6%). Most health workers are also unable to answer correctly about how to calculate the estimated cases of paediatric pneumonia (81.0%). Table 1 shows the tendency of this low knowledge in the *Puskesmas* performance.

Table 1: *Puskesmas* factors of new case finding performance

	Case Finding Performance				Total	
	Poor		Good		n	%
Knowledge	n	%	n	%	n	%
Poor	1	100	0	0	1	100
Moderate	12	100	0	0	12	100
Good	6	75	2	25	8	100
Skills upgrading						
Never	10	90.9	1	9.1	11	100
Less	7	100	0	0	7	100
Enough	2	66.7	1	33.3	3	100
Work motivation						
Low	10	83.3	2	16.7	12	100
Moderate	7	100	0	0	7	100
High	2	100	0	0	2	100
Workload						
High	12	92.3	1	7.7	13	100
Medium	4	80	1	20	5	100
Low	3	100	0	0	3	100

Upgrading the skills in the case finding of paediatric pneumonia is assumed to improve the *Puskesmas* performance. The majority of officers on all of the existing teams in the *Puskesmas* revealed that there are only limited upgrading skills related to paediatric pneumonia case finding that are available. Supposedly if an officer has attended the training, then the officer is more skilled at executing their tasks in relation to case finding. The intensity of the upgrading of the skills given to officers is still low. Almost all of the team members at each *Puskesmas* in Sumenep have not participated in training related to the activities associated with paediatric pneumonia case finding. This situation may prevent the *Puskesmas* from achieving the established performance targets.

In addition to the knowledge and skills of the team of *Puskesmas* in performing their duties, team performance can also be influenced by the motivation of the officers to find new cases of paediatric pneumonia. Most of the teams (12 teams) have low motivation to do with finding new cases of paediatric pneumonia. More than half of the *Puskesmas* are not performing well due to the low motivation of the team members in making new case discoveries.

This study also analysed how the workloads of the team members was related to carrying out the task of finding cases of paediatric pneumonia. The limited number of health personnel in Sumenep has caused many health workers to have multiple tasks

associated with their other jobs in the *Puskesmas*. Team members not only do their job of finding the cases of pneumonia, but also keep doing their other duties in *Puskesmas*. The low motivation of the health officers makes sense according to this high workload. They could be thinking that by identifying new cases, it will multiply their workload.

The results showed that the workload owned by the team tends to be high (13 *Puskesmas*). The majority of the team members (85.7%) have duplicate tasks within the organisation. This can disrupt the officers' concentration on the new case finding. The health workers (76.2%) stated that the additional tasks prevented them from finding new cases of paediatric pneumonia. Unclear task distribution is also a problem for 61.9% of *Puskesmas*. This is also exacerbated by the large number of *Puskemas* whose team members have tasks to do that do not fit their role.

### 3.2 The main problem

The result of multiple linear regression between knowledge, upgrading skills, motivation and the workload of *Puskesmas* with the performance of pediatric pneumonia case finding in Sumenep showed that only knowledge significantly influences the data ( $p = 0,029$ ;  $\beta = 0,148$ ). The better the health officers' knowledge is, the more it will improve the officers' performance on paediatric pneumonia case finding. Upgrading skills, motivation and workload does not significantly influence the performance.

Table 2: Multiple linier regression result

	p	$\beta$
Knowledge	0,029	0,148
Skills upgrading	0,569	0,071
Motivation	0,393	0,890
Workload	0,880	0,041

Teams in *Puskesmas* consist of various health workers with different professional backgrounds. Sun et al. (2017) explained that a team with diverse members will trigger different skills and knowledge needed for optimal individual and team learning. It will improve the innovations at both individual and team levels. Therefore *Puskesmas* should have a better chance to perform innovative case finding. Our results show that while both knowledge and the opportunity for upgrading skill are poor in Sumenep, it creates no leverage to enhance team diversity to generate more innovative performance.

This study show that knowledge is the entry point of upgrading skills to influence the *Puskesmas* performance. Due to the poor knowledge of the

health workers, even intensive upgrading skill cannot improve performance. It means that the health workers should be provided good knowledge first, thus influencing their performance. Health workers could feel that the limited opportunities for them to participate in upgrading their skills will worsen their motivation to do case finding actively. Careful consideration should be given to risk reduction strategies, enhanced vaccination coverage, improved management of hypoxaemia and antibiotic stewardship (Nguyen et al. 2017).

The low motivation of health workers in performing case finding does not significantly affect the *Puskesmas* performance. Working in difficult mountainous and rural environments with limited resources coupled with little opportunity to practice in order to maintain and develop professional competencies with poor supervision will demotivate health workers when it comes to doing and showing their best performance (Thi Hoai Thu et al., 2015). This has happened in Sumenep. The various geographical features of Sumenep hinders the health workers when it comes to case finding. Limited resources related to performing case finding worsen the situation as well. The possibility of why motivation not significantly influenced by performance is due to the fact that health workers could be already adapting to the bad work environment.

On the other hand, Jaskiewicz & Tulenko (2012) revealed that the productivity of health workers is determined by where they work. The work environment should be managed well to enable the health workers to perform their tasks. Their study also explained that a manageable workload, clear organised tasks, reasonable geographic distance to cover, supplies and equipment, supportive supervisor, and community acceptance can allow them to function better, leading to better performance. Workload in this study also does not significantly influence the case finding performance.

In the other hand, government collaboration with the community agencies should be evaluated. Ortiz (2011) mentioned that rates of well-child services and preventive care improve with collaborative efforts among government and community agencies and physician offices. These findings imply that intervention should include how to manage this collaboration effectively.

## 4 CONCLUSION

The performance of the *Puskesmas* when it comes to finding new cases of paediatric pneumonia in Sumenep is influenced by the knowledge of its

health care workers. Poor knowledge of health workers in Sumenep worsen by the limited upgrading skills that is available. Health workers, through the limited opportunity for experiencing training to upgrade their skills, seems to experience an erosion of their professional competencies and development. It is also coupled with the difficult geography of their respective coverage area.

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