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PROCEEDINGS OF THE 2ND INTERNATIONAL SYMPOSIUM OF PUBLIC HEALTH

Achieving SDGs in South East Asia: Challenging and Tackling of Tropical Health Problems

Editors:
I Wayan Gede Artawan Eka Putra
Agung Dwi Laksono
Yulis Setiya Dewi
Nikmatur Rohmah and
Darrimiya Hidayati

Organized by
Faculty of Public Health, Universitas Airlangga

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FOREWORD

The point of Sustainable Development Goals (SDGs) has been determined in the consistent meeting in all countries. The health sector position is one of the key components in achieving the indicators. Special attention to the health sector focuses on community nutrition, national health systems, access to reproductive health and family planning and sanitation and clean water.

Based on that, Southeast Asian countries are seen as important part in formulating strategic and policy efforts to improve the effectiveness and efficiency of achieving the various goals of the SDGs. Therefore, the Doctoral Program of Health Science, Faculty of Public Health, Universitas Airlangga held The 2nd International Symposium of Public Health. This remarkable event is in collaboration with Faculty of Medicine, Widya Mandala Catholic University Surabaya and Magister Program of Public Health, Jember University. It's an honour to present **"Achieving SDGs in South East Asia: Challenging and Tackling of Tropical Health Problems"**.

We have tried to give our best contributing of our knowledge in the field of public health especially our contribution to help the problems on tropical health, health equity and quality of health care, clinical and community relationship to enhance public health, emerging and re-emerging diseases, nutrition-enhancing as strategic investment, global strategy framework for food security and nutrition, environmental and occupational health and mental health for achieving SDGs in South East Asia.

The aim of this symposium is to disseminate knowledge and share it to the public, especially in the scientific community, such as academics and practitioners in the field of health. The symposium focusing on formulation of policy recommendations for related parties to accelerate the achievement of the target of SDGs in the field of health. The results of this symposium are also expected to be an input for policy makers, from various levels in formulating programs to accelerate the SDGs goals' achievement. This international symposium will help us, to grasp and share more knowledge especially in public health science.

At last, we would like to ackowledge for all parties which are provide the valuable materials as well as financial support for the successful symposium. As chair of organizing committee, I would also like to say deep thank you for all committees; my colleagues, and also students in faculty of Public Health Universitas Airlangga, who have been working to be part of a solid team and amazing committee.

I am looking forward to seeing you at ISoPH in the near future.

Rachmad Suhanda
Chairman of the Committee

CONTENTS

PAPERS

FULL PAPERS

Epidemiology of Measles in the Gresik District of Eastern Java Province from 2014 to 2016

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Keywords: Measles, epidemiology, Gresik.

Abstract: Gresik is one of the districts in East Java that has been heavily burdened with the measles virus. In 2016, there was a significant increase in measles cases (IR: 12.91/100,000 population) compared to 2015 (IR: 3.74/100,000 population), and a measles outbreak was declared. Epidemiological analysis will help the Gresik District Health Office to understand situation of measles and strengthen measles prevention and control program. This was a descriptive study. We analyzed surveillance data of measles in Gresik from 2014 through to 2016. During this time period, there were 248 cases of measles. The majority of cases occurred in the age group of 1 to 5 years old (41.53%) and with an unknown immunization status (55.24%). The second measles immunization coverage remained low in 2014 (26.39%) and 2015 (55.82%). In 2016, there were two measles outbreaks, with 5 cases in the first outbreak and 9 cases in second outbreak. We recommend expanding cooperation across organizations and strengthen recording and reporting system of measles so that no immunization status remains unknown. Improving socialization about the importance of second measles immunization in the community needs to be done along with further research related to public acceptance of measles immunization in the Gresik district.

1 INTRODUCTION

Fundamentally, health development is an effort made by all components of the Indonesian nation to raise awareness, willingness, and healthy living capability for everyone to attain the highest degree of public health, as well as investment for the development of human resources that are socially and economically productive. The success of health development is largely determined by the continuity of the program and sector efforts, and sustainability of the efforts that have been carried out by the previous period (Ministry of Health of the Republic of Indonesia, 2015).

Gresik is one of districts with a high measles burden in East Java. In 2016 there was a significant increase of measles cases (IR: 12.91/100,000 population) compared to 2015 (IR: 3.74/100,000 population), and a measles outbreak was declared (East Java Provincial Health Office, 2017).

Epidemiological analysis will help the Gresik District Health Office to understand the situation of measles and strengthen the measles prevention and control program.

2 METHODS

This was a descriptive study. We analyzed surveillance data of measles in Gresik from 2014 through to 2016. The study was conducted in January and February, 2017.

The secondary data is from BPS (Statistic Central Agency) on Population and Labor of the Gresik District from 2013 to 2016, and the profile of the Public Health Office in the Gresik district from 2013 to 2016, is, among others, the form of measles recapitulation from 2014 to 2016, recapitulation form of immunization coverage from 2013 to 2015, UCI village (Universal Child Immunization) recapitulation form from 2013 to 2016, recapitulation form of advanced immunization coverage in the years from 2013 to 2016, and form of PD3I (Disable Prevention by Immunization) recapitulation from 2013 to 2016. This data is then used to describe the problem of measles that occurred in Gresik district.

Kaimudin, A., Hidajah, A. and Kartika, B.
Epidemiology of Measles in the Gresik District of Eastern Java Province from 2014 to 2016.
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3 RESULTS

Measles is a disease caused by the *Morbili* virus, which spreads out through sneezing droplets and coughing from the patient. The initial symptoms of the disease are fever, redness, cough, red eye (*conjunctivitis*), which then cause a rash throughout the body (East Java Provincial Health Office, 2015).

Gresik is one of districts with a high measles burden in the Java province. In 2016, there was a significant increase in measles cases (Incident Rate: 12.91 / 100,000 population) compared to 2015 (Incident Rate: 3.74 / 100,000 population), 2014 (Incident Rate: 2.98 / 100,000 population) and an outbreak occurred in 2016.

The following is an overview of the incidence of measles cases in Gresik district during the period from 2014 through to 2016 :

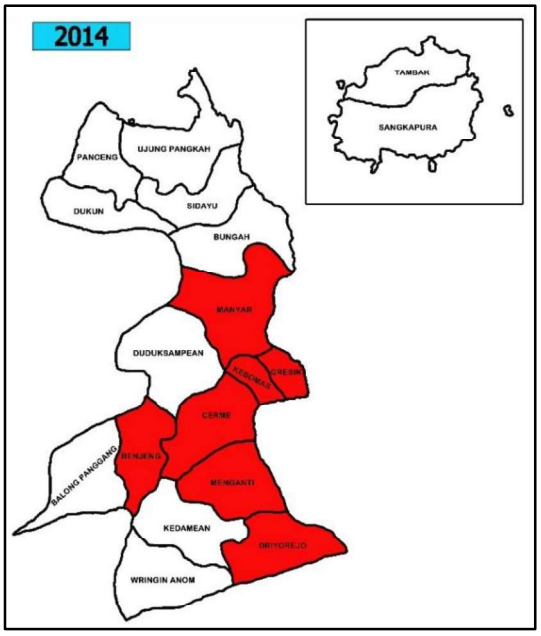

Figure 1: Distribution of measles cases map in 2014.

In 2014, the incidence of measles occurred in seven subdistricts among others, e.g. Driyorejo, Menganti, Benjeng, Cerme, Kebomas, Gresik and Manyar with an incidence rate of 2.98 / 100,000 population. Most cases of measles occur at the ages from 6 to 15 years (37.84%) with 86.49% having an unknown immunization status.

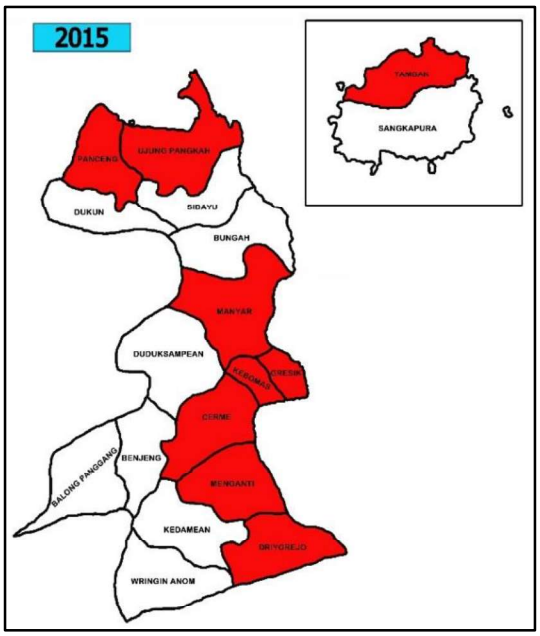

Figure 2: Distribution of measles cases map in 2015.

In 2015, the incidence of measles increased from the previous year to be nine subdistricts with an incidence rate of 3.74 / 100,000 population. Most cases of measles occur in the age group from 1 to 5 years old (44.68%) with a 78.72% unknown immunization status. Benjeng is a subdistrict where cases of measles were found in 2014, although in 2015 there was no measles cases, while other subdistricts are still finding cases of measles. Some subdistricts which had not previously found cases of measles in 2014 did find cases of measles in 2015, such as District Panceng, Ujung Pangkah and Tambak.

Immunization status and nutritional status are two of the risk factors for the measles disease. In addition, under the age of five years is a group susceptible to measles and complications often occur such as diarrhea and bronchopneumonia (Ministry of Health of the Republic of Indonesia, 2017). The results showed that there was a relationship between immunization status (OR=28.89%) and nutritional status (OR=5.37%) on the measles disease (Suardiyasa, 2008).

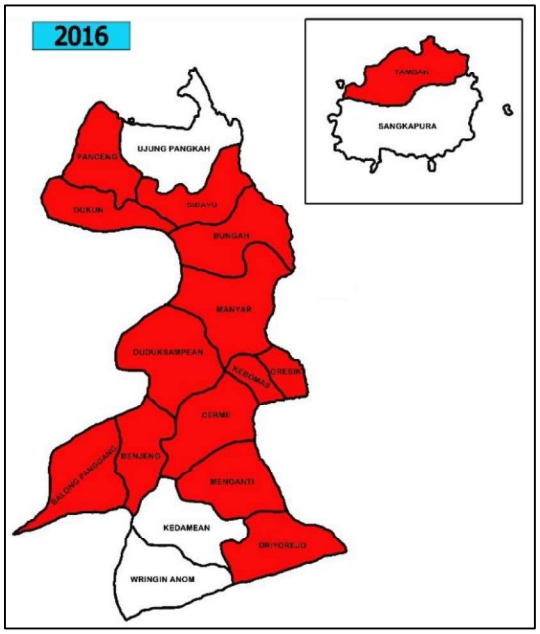

Figure 3: Distribution of measles cases map in 2016.

In 2016, the incidence of measles increased from the two previous years to 14 districts with an Incidence Rate of 12.91 / 100,000. Most cases of measles were in the ages from 1 to 5 years old (44.51%) and 41.46% with an unknown immunization status. Almost all of the 18 districts have found cases of measles. Wringin Anom, Kedamean and Sangkapura districts are districts where no measles cases were found during the period from 2014 to 2016.

The spread of measles cases during the period from 2014 to 2016 meant that as many as 248 cases of measles were recorded. In 2014, measles cases occurred in seven subdistricts with 37 cases, while in 2015, as many as 47 cases occurred in nine subdistricts and finally, in 2016, as many as 164 cases occurred across fourteen subdistricts.

Table 1: Measles cases by immunization status in the Gresik district.

Immunization Status	Number of Measles Cases			Total	%
	2014	2015	2016		
Yes	5	10	87	102	41.13
No	0	0	9	9	3.63
Unknown	32	37	68	137	55.24
Total	**37**	**47**	**164**	**248**	**100.00**

It is known that a total of 164 cases were found in 2016, and as many as 5.49% of these were not immunized, 53.05% were immunized and 41.46% had an unknown immunization status.

Table 2: Immunization coverage and UCI (Universal Child Immunization) village in the Gresik district.

Immunization Measles Coverage and UCI Village	% of Immunization Coverage and UCI (Universal Child Immunization) Village			
	2013	2014	2015	2016
First Immunization Measles	107.16%	108.04%	110.76%	99.70%
Second Immunization Measles	Not available	26.39%	55.82%	101.04%
BIAS (Bulan Imunisasi Anak Sekolah)	Not available	Not available	99.80%	99.60%
UCI (Universal Child Immunization)	93.04%	93.54%	84.49%	95.22%

The second measles immunization coverage in the Gresik district was still low in 2014 (26.39%) and 2015 (55.82%). The majority of cases of measles occur in the age group from 1 to 5 years old (41.53%) with an unknown immunization status (55.24%).

Table 3: Number of measles cases in age groups in the Gresik district.

Age	Number of Measles Cases			Total	%
	2014	2015	2016		
< 1 year	1	6	8	15	6.05
1 - 5 year	9	21	73	103	41.53
6 - 15 year	14	14	65	93	37.50
> 15 year	13	6	18	37	14.92
Total	**37**	**47**	**164**	**248**	**100.00**

The increase of measles cases in the Gresik district occurred in the age group for 1 to 5 years old, the age group for 6 to 15 years old and the age group above 15 years old. In 2014, the percentage of measles cases at the age from 1 to 5 years is 23.32%, the age from 6 to 15 years is 37.84% and for the ages above 15 years, it is 35.14%. In 2015, the incidence in the ages from 1 to 5 years increased by 44.68%, the ages from 6 to 15 years decreased by 29.79% and the age above 15 years fell back to 12.77%. However, in 2016, the presentation of cases of measles at the ages from 1 to 5 years was 44.51%,

which is a slight decrease from the previous year, the ages from 6 to 15 years has increased again by 39.63% and the age above 15 years has decreased from the previous year by 10, i.e., 98% (Health Office of Gresik District, 2016).

4 DISCUSSION

Measles cases were found in 19 Community Health Centers from a total of 32 Public Health Centers in the Gresik district by 2016. According to WHO (World Health Organization), if one measles case is found in a region, there may be between 17 and 20 cases in the field on the high vulnerable population (Department of Health, 2002 in Nyoman et al., 2012). This is because the period of transmission lasts from the first day before the appearance of prodromal symptoms, usually four days before the onset of a rash up to four days after the onset of the rash although only minimally after the second day of the presence of the rash (Chin, 2000 in Risma, 2015).

Regarding the 19 Community Health Centers in the case of measles, there was one Community Health Center that found clinical measles cases of 14 cases out of a total of 19 cases, and two outbreaks, 5 cases in the first outbreak and 9 cases in the second outbreak, at the Community Health Centers are declared as outbreaks of measles. According to WHO, there is certainly a measles outbreak if there are two positive specimens of measles (IgM) from the laboratory examination on the measles suspect and the outbreak will have expired if no cases occur within 2 incubation periods of the last case (Ministry of Health of the Republic of Indonesia, 2011). The coverage of complete basic immunization at Community Health Centers reached 107.27% while the second measles immunization coverage was only 46.69% in 2015. Measles outbreaks are likely to occur even if the immunization coverage is high due to the accumulation of vulnerable children because they are not immunized and added 15 % of children without immunity (Directorate General of PP and PL, 2012).

It is known that out of a total of 164 cases found in 2016, as many as 5.49% were not immunized, 53.05% were immunized and the immunization status of 41.46% of the cases were unknown. Data collection needs to be done for each family by name and the complete address in each house to know the immunization status of the children, to discover if the number of children under five is in accordance with the immunization service and to find out how many people rejected immunization. In addition, it is useful for the midwives related to the recording and reporting of immunization services to pay attention to the details of the cohort book records, as this is still being recorded and reported in a cohort book at one Public Health Center not in accordance with the immunization service. It is also good to validate immunization coverage data at the village level periodically.

The second measles immunization coverage in the Gresik district was still low in 2014 (26.39%) and 2015 (55.82%). This is a sign that people have not all realized the benefits of immunization to their health. In addition, the healthcare workers' socialization needs to be improved. Several studies have found that maternal age, race, education, and socioeconomic status affect immunization coverage, and parents' opinions about vaccines also affect their children's immunization status. If adequate education is given, then immunization issues will not be an obstacle to immunization programs (Ali, 2003). Therefore, the confidence of society in the immunization program must be maintained, or else it can lead to a decrease in immunization coverage.

Increasing the frequency of socialization at the village level is one way to increase the immunization coverage. In socialization activities, the participation of the community is needed to improve the successful implementation of the immunization program. Participation of the community in this case is the where the individuals, families and the general public become responsible for the health of themselves, their family, or public health in the neighborhood where they live. In addition, it is necessary to approach the community leaders and influential religious leaders to help the process of socialization in the community.

This needs to be cooperated in a cross-sectoral manner, such as the Ministry of Religious Affairs to minimize public fears about halal or haram vaccines, considering that there are still some community groups who refuse immunization for various reasons. More research needs to be done regarding community assumptions about the immunization program. Cooperation with the Ministry of Education can also be done with the publication of special educational books about measles for teachers and students. Cross-organizational cooperation with PIK (Center for Information and Counseling) under the auspices of BKKBN (National Population and Family Planning Board) or NGOs (Non Government Organizations) engaged in health for a wider dissemination of information to the public.

Conducting training to each cadre in providing information of health or socialization about the early signs and symptoms of measles to the community by using *flipchart* media in order to report cases faster at the community level. The advantages of using *flipchart* media are that it:

- is cost saving;
- is more practical;
- can be used anywhere if away from the flow of electricity or electrical outages;
- can be easier to remember the material taught;
- can be used in any innovative learning method.

Administering a counseling session to the community and school children (elementary, junior high school and high school) would be a good idea. Elementary schools can use *flipchart* media, so that the students can imagine and understand better, and not feel bored with the material delivered. According to research conducted on teachers and students in the Semambung Sidoarjo Primary School, the model of learning by using *flipchart* media can improve student learning outcomes (Pratiwi, 2013). Junior and senior high schools can also use *flipchart* media, and the distribution of leaflets and posters in each school talk about the dangers of measles and how to prevent it. Meanwhile this can be done for the community by the distribution of leaflets, giving explanations using *flipchart* media, posting posters in public places such as the village hall, and having banners / billboards in each village about the process of measles disease and how to prevent it.

Counseling of measles through mass media such as radio, local newspapers, Facebook, Twitter, Instagram also needs to be done to reach all levels of society. Based on data from the Ministries of Communication and Information, it is known that there are currently 63 million internet users in Indonesia. By these numbers, 95% of the population use the internet to access social networks. Indonesia is ranked as the fifth largest Twitter user in the world. Other than Twitter, another social network known in Indonesia is called Path, which is used by a total of 700,000 users, 10 million use User Line, Google+ has 3.4 million users and Linkedlin has 1 million users (Ministry of Communication and Information of the Republic of Indonesia, 2013). By utilizing technological advances, one of these media can be used for counseling to all levels of society.

5 CONCLUSIONS

The number of measles cases in Gresik is still increasing every year. We recommend expanding cooperation across organizations and strengthening recording and reporting systems of measles, so that no immunization status is unknown. Improving socialization about the importance of the second measles immunization in the community and further research related to the public acceptance of measles immunization in the Gresik district also needs to be done.

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