Why is the Coverage of Pneumonia Case Detection on Children under Five Years-Old Still Considered as Low in Sleman?

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Abstract

Pneumonia is one of the deadliest diseases for children under five years-old throughout the world. In Indonesia, pneumonia is the second deadliest disease after diarrhea. In 2015-2016, the Coverage of pneumonia case detection on children under five years-old increased from 22.33% to 36.06% but it had not achieved the detection target (>85%). A program evaluation needs to conduct, consequently. The evaluation aims to observe the implementation of pneumonia investigation program on children under five years-old in Sleman in 2016. The evaluation used a descriptive design performed in June-July 2017. The research subject was the program of Upper Respiratory Infection (ISPA, Infeksi Saluran Pernapasan Akut) implemented in community health centers (puskesmas, pusat kesehatan masyarakat). Twenty respondents as the sample were chosen by using the purposive sampling technique. The surveillance evaluation employed the input, activities, and output. The instruments were structural questionnaires and checklist sheets. The analysis result was presented in forms of tabulation and narration. From the input facet, 100% respondents have not had any special trainings related to pneumonia. 55% respondents have interlocking jobs with the longest service time of three years or more (75%). 70% respondents are able to show ARI Soundtimer. There are only 10% respondents holding the media of communication, information, and education (KIE, Komunikasi, Informasi, dan Edukasi) in forms of flipchart and leaflet; while 100% respondents admit that they have no stamp seal of URI. The proses facet displays that 100% respondents do not arrange any plan. The case investigation is only passive (100%). 80% respondents do socialization of case management and only 15% respondents perform a home visit. 100% respondents have not held trainings for responsible people, alert villages, and private midwives. From the output facet, the scope of case investigation is still low (36.06%).The implementation of pneumonia case investigation program on children under five years-old has been well executed but there are still weaknesses. Hence, public health offices (dinas kesehatan) should improve their human resources by arran ging a training program, equalize the use of breath counting tool and make MoU with all health services to report pneumonia cases. Community health centers are recommended to arrange plans, actively attempt to discover pneumonia cases, and train the responsible people, centers for pre-and postnatal health care (posyandu, pos pelayanan terpadu), or midwives related to the subject of pneumonia.

Keywords: program evaluation, pneumonia, descriptive

Introduction

URI (ISPA, *Infeksi Saluran Pernapasan Akut*) is one of diseases frequently suffered by children. Of all cases occurring, 7-13% cases were categorized as serious and demanded further actions of treatment. URI is one of major diseases with a high patient visit in community health centers (40-60%) and hospitals (15-30%). One of concerned URI diseases is

pneumonia suffered by children under five years old. Pneumonia is an acute infection attacking the alveoli caused by various microorganisms; such as fungi, viruses, and bacteria (Ministry of Health, 2016).

Pneumonia is the deadliest disease for children under five years-old in all over the world (WHO & UNICEF, 2013). In Indonesia, pneumonia is the second highest disease causing death after diarrhea and there are 83 children under five dead every day (Ministry of Health, 2010). Pneumonia contributed 16% deaths of children under five in 2015 (Ministry of Health, 2016). The data from UNICEF reveal that among six deaths of children under five, one death was caused by pneumonia with the detail number of deaths was 920,000 each year, 2,500 each day, 100 each hour, and one each 35 seconds (UNICEF, 2017).

Indonesia reaches a higher number of death caused by pneumonia as much as 0.16 if compared to the death of children under five as much as 0.08% in 2014. Data by the Fundamental Health Research (Riskesdas, *Riset Kesehatan Dasar*) in 2007 indicate that pneumonia is the second deadliest disease for children under five (13.2%) after diarrhea (17.2%). One attempt conducted by the government to control this disease is by increasing the number of pneumonia case investigation on children under five (Health Profile of Indonesia, 2016)

By appliying a target of pneumonia sufferer investigation, in 2013-2014 10% children under five assumed for suffering pneumonia in Sleman did not show any significant increase that meant it was still only 4-5%. However, in 2015-recent, by employing the assumption of case incident as much as 4.32%, the result of Fundamental Health Disease in 2013 displays an improvement (Health Profile of Sleman, 2016). Although the target of sufferer investigation in 2015 is less than previous years, up to these days the target has not been achieved. The scope of pneumonia investigation on children under five indicated an improvement from 22.33% to 36.06% in 2015-2016, yet the percentage had not reached the target of investigation (>85%). Such background unfolds the importance of having a program of pneumonia investigation evaluation in 2016 in Sleman.

Objectives

General Objectives

To observe the implementation of URI controlling program especially the pneumonia investigation on children under five in 2016 in Sleman.

Specific Objectives

To figure out the input, activities, and output of the implementation of pneumonia investigation in Sleman.

To figure out weaknesses of the implementation of URI program, especially the pneumonia investigation in Sleman.

To improve the implementation of URI program, especially the pneumonia investigation in Sleman.

Stakeholder Involvement

This program evaluation involves stakeholders of Sleman that are:

The head of control and eradication (P2, *Pengendalian dan Pemberantasan*) and the head of control and eradication section as the policy maker in the regency level.

URI programmers of Public Health Office of Sleman

The head of community health center of Sleman

URI programmers of community health center of Sleman

Officers involved in the pneumonia case investigation on children under five.

Methodology

The evaluation was conducted by implementing a descriptive design in June-July 2017. The research subjects were the managers of URI program in community health centers. The sample consisting of twenty respondents was taken by using the purposive sampling technique. The surveillance evaluation was executed by utilizing inputs (force, fund, partnership, infrastructure, and support), activities (planning, implementation, monitoring, and evaluation), and outputs (Silverman, B.,

2009). The data were primary and secondary data. The instruments were in forms of structural questionnaires and checklist sheets. The research result was presented in forms of tabulation and narration.

Findings

Respondents' Characteristics

The data analysis conducted in this program evaluation system was by analyzing each variable descriptively and the result was presented in forms of tabulation and narration. The data were gathered by conducting interviews by utilizing structural questionnaires given to pneumonia programmers in community health centers. The community health centers that became the analysis units were the Community Health Center of Prambanan, Kalasan, Mlati 1, Mlati 2, Tempel 2, Depok 3, Gamping 2, Minggir, Tempel 1, Turi, Cangkringan, Pakem, Ngemplak 2, Gamping 1, Godean 2, Depok 1, Moyudan, Godean 1, Seyegan, and Berbah. The distribution based on respondents' characteristics is shown in Table 1:

Table 1. The Distribution of Respondents' Characteristics of Age, Sex, and Education of in Sleman

Respondents' Characteristic	*Number*	*Percentage (%)*
Age		
21-30 years-old	*3*	*15.0*
31-40 years-old	*4*	*20.0*
41-50 years-old	*6*	*30.0*
51-60 years-old	*7*	*35.0*
Sex		
Male	*5*	*25.0*
Female	*15*	*75.0*
Current Education		
Senior high school/collaborative education unit/equivalent graduate	*3*	*15.0*
Diploma III of Nursery/Midwifery	*15*	*75.0*
Bachelor of Nursery/Midwifery	*2*	*10.0*

Table 1 shows that the age group with the most URI programs is the age group of 51-60 years-old, occupied by seven respondents (35.0%) and dominated by fifteen female respondents (75.0%). Education at the level of Diploma III of Nursery/Midwifery achieved by fifteen respondents possesses the largest portion (75.0%).

Input Aspect

Inputs involving force, funding, infrastructure, partnership, and supports in forms of logistic aspects are needed to support the improvement of pneumonia investigation. The result of input evaluation is as follows:

Force

Table 2. The Distribution of Respondents' Force Availability, Training Participation, Interlocking Position, Number of Interlocking Assignments, and Service Time in Sleman

Force	*Number*	*Percentage (%)*
Force availability		
Yes	*20*	*100*
No	*0*	*0*
Training Related to Pneumonia		
Yes	*0*	*0*
No	*20*	*100*
Interlocking Position		
Yes	*20*	*100*
No	*0*	*0*
Number of Interlocking Assignments		
≤3 interlocking assignments	*9*	*45.0*
>3 interlocking assignments	*11*	*55.0*

Service Time		
≤ 3 years	*15*	*75.0*
> 3 years	*5*	*25.0*

Table 2 displays that every community health center hires responsible officers as program holders. The interviews reveal the fact that all officers (100%) did not participated in any special training related to pneumonia in 2016. All program holders have an interlocking position with the highest number of interlocking assignments is more than three, had by eleven people (55.0%) and the most service time is three years or more, had by fifteen people (75.0%).

Funding

The result of interviews indicate that there is no specific funding available for pneumonia controlling activities. The funding is taken from the funding for another program.

Partnership

The result of interviews also reveal that for activities of pneumonia controlling on children under five, they have established a partnership/cooperation yet still limited to a cross-program partnership/cooperation. The partnership/cooperation is in forms of investigation and reporting of pneumonia cases on children under five.

Infrastructure

An ill child under five is generally treated in polyclinic (BPU, *Balai Pengobatan Umum*), the unit of Maternal and Neonatal Health (KIA, *Kesehatan Ibu dan Anak*) and special units for children under five. The distribution of departments responsible in performing checkups for ill children under five in community health centers is shown by Table 3.

Table 3. The Distribution of Departments Responsible to Perform Checkups for Children under Five-Years Old in Community Health Centers of Sleman

Community Health Center	*Department for Checkups*			*Doctor Availability*	
	Polyclinic	*Unit of Maternal and Neonatal Health*	*Units for Children under Five Years-Old*	*Yes*	*No*
Prambanan	√			√	
Kalasan		√		√	
Mlati 1		√			√
Mlati 2	√			√	
Tempel 2	√			√	
Depok 3	√			√	
Gamping 2	√			√	
Minggir	√			√	
Tempel 1	√			√	
Turi		√			√
Cangkringan	√			√	
Pakem	√			√	
Ngemplak 2	√		√	√	
Gamping 1	√			√	
Godean 2		√			√
Depok 1	√			√	
Moyudan		√			√
Godean 1		√			√
Seyegan	√			√	
Berbah		√		√	

Table 3 displays that there are twelve community health centers performing checkups for children under five in the general examination office (BP, *Badan Pemeriksaan*), seven community health centers performing checkups in the department of maternal and neonatal health, and one community health center facilitated by a special chamber for performing the checkups.

Logistic Availability

The result of checking the logistic (ARI Soundtimer) availability found in the field is presented in Table 4.

Table 4. The Distribution of Availability and Eligibility of ARI Soundtimer in Sleman

Community Health Center	*Availability ARI Soundtimer*		*Eligibility of ARI Soundtimer*	
	Yes	*No*	*Yes*	*No*
Prambanan	√		√	
Kalasan	√			√
Mlati 1	√		√	
Mlati 2		√		
Tempel 2		√		
Depok 3	√		√	
Gamping 2	√		√	
Minggir	√		√	
Tempel 1	√		√	
Turi		√		
Cangkringan	√			√
Pakem		√		
Ngemplak 2	√		√	√
Gamping 1	√			√
Godean 2	√		√	
Depok 1	√		√	
Moyudan	√			√
Godean 1	√			√
Seyegan		√		
Berbah		√		

Table 4 shows that of twenty community health centers where interviews and observations were conducted, there are fourteen community health centers (70%) facilitated with ARI Soundtimer. Of those fourteen community health centers, there are nine community health centers equipped with ARI Soundtimers (64.3%) that can still be operated.

Table 5. The Distribution of Medicine Availability; Guide Book; Media of Communication, Information, and Education; and Media of Recording and Reporting

Logistics	*Number*	*Percentage (%)*
Medicine		
Availability of pneumonia medicine	*20*	*100*
Guide Book		
URI controlling	*20*	*100*
URI management	*20*	*100*
Media of Communication, Information, and Education		
DVD video	*0*	*0*
Poster, leaflet, flipchart, etc.	*2*	*10.0*
Media of Recording and Reporting		
URI stamp seal	*0*	*0*
Daily registration book	*20*	*100*
Monthly reporting form	*20*	*100*

Logistics	*Number*	*Percentage (%)*
IMCI (Integrated Management of Childhood Illness) (MTBS, Manajemen Terpadu Balita Sakit) form	*20*	*100*

Table 5 displays that all community health centers facilitate their clients with guide books of URI controlling and management. Nevertheless, logistic tools for the media of maternal and neonatal health have not been provided by all community health centers. Only Community Health Center of Tempel 2 and Pakem provide the media of maternal and neonatal health in forms of leaflet and flipchart. All community health centers are reported for not holding the URI stamp seal. The register book is still combined with the registration book of maternal and neonatal health since those community health centers have not attempted to make a separated registration book for pneumonia cases. Furthermore, all community health centers have made monthly IMCI forms.

Activity Aspect

The result of activity process evaluation related to pneumonia on children under five in Sleman is as follows:

Activity Planning

After being interviewed, all programmers stated that they had not made any planning for pneumonia programs; such as conducting problem analyses, identifying and determining planning objectives, arranging PoA (Planning of Action), and planning logistics and budgets for the pneumonia controlling activities themselves.

Activity Execution

Table 6. The Distribution of Respondents Based on the Execution of Pneumonia Controlling Activities on Children under Five Years-Old in Sleman

Activity Execution	*Number*	*Percentage (%)*
Planning	*0*	*0*
Case investigation		
Active	*0*	*0*
Passive	*20*	*0*
Socialization of standard management	*16*	*80.0*
Early detection of pneumonia cases and clusters	*20*	*100*
Immediate case management in accordance with the standards	*20*	*100*
Management of severe pneumonia case in accordance with the standards	*11*	*55.0*
Home visit for cases with impossibilities in revisiting	*3*	*15.0*
Referring severe pneumonia cases to hospital	*5*	*25.0*
Gradual reporting within 24 hours after detecting pneumonia cluster cases	*0*	*0*
Performing monthly recording and reporting	*20*	*100*
Presenting and analyzing data in forms of table, chart, map, etc.	*0*	*0*
Collecting, analyzing, interpreting data, and taking controlling actions	*0*	*0*
Broadcasting information through workshop coordination	*20*	*100*
Counselling the risks of communication, information, and education	*20*	*100*
Arranging a regular, cross-program meeting		
Arranging a regular, cross-program meeting to monitor the program progress and problem solving	*20*	*100*
Coordination with the heads of sub-district, neighborhood, hamlet, or related instance to investigate and control any risk factors	*0*	*0*
Train the responsible people, alert villages, pre- and postnatal health cares, and private midwives in order to familiarize them with pneumonia and conduct preventive attempts	*0*	*0*
Monitoring and evaluation	*20*	*100*

Table 6 shows that the investigation of pneumonia case on children under five is still passively conducted. The case investigation is only performed when the patient goes to community health center. There are four community health centers (20%) whose program holders do not perform socializations of standard management that are Community Health Center of Kalasan, Mlati 1, Pakem, and Depok 1. Relevant information has been distributed by all community health centers yet still limited on a cross-program distribution. The early detection of pneumonia and cluster as well as the early case management have been conducted by all community health centers.

There are three community health centers (15%) whose officers performed home visits that are Community Health Center of Depok 3, Tempel 1, and Tempel 2; whereas there are five community health centers (25%) that have suggested severe pneumonia cases being referred to hospitals that are Community Health Center of Prambanan, Depok 3, Gamping 2, Tempel 1, and Godean 2. All community health centers have made monthly recording and reporting but gradual reporting within 24 hours after the detection of pneumonia case has not been made by all community health centers. Besides, data analysis and interpretation have not been conducted as well.

Specific counselling related to communication, information, and education/risky communication of pneumonia has not been executed indeed but simple counselling during activities of pre- and postnatal health care has been arranged. A cross-sector cooperation to investigate the controlling of risk factors and trainings for the responsible people, alert villages, private midwives, and pre- and postnatal health cares to recognize symptoms of pneumonia and preventive attempts of pneumonia suffered by children under five have not been built and arranged due to unavailable fund.

Output Aspect

The coverage pneumonia case detection under five years-old in 2016 in Sleman was only 36.06%. The percentage has not reached the target determined for Sleman.

Discussion

The target of pneumonia case investigation on children under five in Sleman is still considered as low. To figure out the causes, the research analyzed the aspects of input, activity, and output.

Input Aspect

The Ministry of Health argues that training is the most crucial aspect to improve the quality of human resources, especially in case and program managements.[7] During interviews, the URI program managers conveyed that they did not join any special training related to managements of pneumonia case and other relevant programs in 2016. They also revealed that they only took participation in socializations of pneumonia. There are still also many program holders with $\leq$3-years service time and desperately need training to improve the quality of human resources.

Fund availability is one of considerably determining factors to perform pneumonia controlling activities since those activities can only be conducted if supported by sufficient fund. Decree of the Ministry of Health highlights that the funding of URI control and eradication program largely depends on the State Budget (APBN, *Anggaran Pendapatan Belanja Daerah*) (Decree of the Ministry of Health, 2002). During interviews, programmers revealed the fact that there is no funding earned by community health services to control pneumonia and that funding for another program has to be used.

Checkups for children under five can be executed in polyclinics, units of maternal and neonatal health, and special units for children. However, the researchers found out that the checkups were mostly conducted in polyclinics. The obstacle exists when human resources of those polyclinics are not adequate to overcome the number of patients coming so that IMCI cannot be completely applied.

Partnership is one of important factors to succeed the program. Partnership establishment related to the pneumonia investigation aims to improve the society's participation and roles of cross-sector and cross-program distributions. In approaches of implementation of disease eradication program especially for pneumonia, partnership is expected to be able to be executed in an integrated and comprehensive way. The pneumonia eradication with the help of competent, active sectors is not only targeted to the sufferers and risk factors but also other influential factors (Ministry of Health, 2012).

The interview results unfold the fact that cooperation of pneumonia case investigation on children under five has not been optimally established. It is still only internal or inside building. Cases occurring outside building that might be handled by private midwives, polyclinics, or private hospitals have not been reported to community health centers so that those

community health centers only deliver reports containing the number of pneumonia patients inside building to the Public Health Office of Sleman.

Decree of the Ministry of Health states that the investigation should be conducted through activities supporting the desire of society to get the right medicine, assisted by health officers. Hence, reports of pneumonia sufferer investigation of various health facilities, including government and private health facilities have to be delivered to the public health office or community health centers nearby (Decree of the Ministry of Health, 2002).

Logistics are crucial to succeed the investigation of pneumonia case. Necessities of investigation and case management involve breathing apparatuses (ARI Soundtimer) and medicine; while the media of communication, information, and education are requested for the activities of communication, education, and information. Other necessities to support the investigation of pneumonia on children under five are guide books and recording and reporting media (Decree of the Ministry of Health, 2012).

Logistic availability in Sleman can be categorized as good. However, there are community health centers possessing inabilities to use ARI Soundtimer properly. There are even community health centers that still put the timer in the warehouse and do not operate it. All community health centers have provided guide books. Nevertheless, the media of communication, information, and education is still inadequate and thus it impediments counselling activities related to pneumonia.

Activity Aspects

Planning

Planning is an activity supposed to be done before arranging a certain activity or event to achieve goals within a certain period. Planning is performed to improve efficiency and provide guidance to implement a certain program in order to be able to be utilized as an evaluation base (Asropi, 2013). In interviews with the program holders, it is conveyed that there has been no planning done, causing a minimum investigation implementation.

Execution

Investigation of pneumonia on children under five should be actively conducted to expand the scope of case investigation and hence the target can be achieved. In line with the result of research by Marlinawati, the result of this research also points out that community health centers achieving their national target perform the case investigation actively and passively; while unsuccessful community health centers perform the case investigation passively only (Lina Sri Marlinawati, 2015).

Investigation of pneumonia case by all health facilities (hospital, community health center, community health sub-center (Pustu, Puskesmas *Pembantu*), pre- and postnatal health care, and private health facility) should be actively and passively reported by using standard instruments stipulated by community health centers, public health offices of regency as well as Public Health Office of Sleman.

The research by Marlinawati in Tangerang proves that the failure of community health centers to achieve the target of pneumonia investigation is affected by the difficulty in finding pneumonia cases on children under five and no reporting of private clinics. This research also supports the finding resulting that pneumonia cases are still passively investigated and conducted inside building; while pneumonia cases outside building remains unknown (Lina Sri Marlinawati, 2015).

The majority of community health centers have conducted socialization of standard case management yet still intern (cross-program) only. The distribution of information through workshop coordination has also been executed during mini workshops or the monthly Reflection Case Discussion (RCD) meeting. Nevertheless, the topic discussed is still the number of pneumonia cases; whereas the attempts to investigate cases and overcome and monitor the program of unsuccessful problem solving are still out of range.

Decree of the Ministry of Health states that to improve the investigation of pneumonia and its management quality, the IMCI approach should be implemented in health facility units. This is necessary to improve the quality of health services for children, to improve the scope of pneumonia investigation, and to decrease the number of suffering and death due to pneumonia on children under five (Decree of the Ministry of Health, 2002).

Approaching ill children under five can be conducted by applying IMCI. IMCI should be executed in polyclinics by nurses. However, the research results indicate that IMCI is not applied to all ill children. There are even health facilities that do not

apply it so that the checkups are performed by midwives. Case detection in units of maternal and neonatal health is also assisted by IMCI. For the units existing without doctors, referral to polyclinic will be given.

To improve the quality of IMCI implementation, a separated chamber should be provided and conveniently and appropriately designed for children.[3] This research figures out that checkups for ill children under five are still performed in the general poly and unit of maternal and neonatal health. Investigation of pneumonia cases by using IMCI in the unit of maternal and neonatal health should have achieved a complete success with the percentage of 100% but the interview results reveal the contrary.

The barriers are that there are many patients that have to be treated; while officers take a long time to complete one IMCI form for one patient. It means that the existing workforce is insufficient to treat the ill children. Troublesome children worsen the situation since making the officer miss TDDK by losing their concentration.

This research also discovers the fact that almost all community health centers never had any home visit for children under five that did not revisit the centers two days after treatment due to the funding absence for performing such visit. Cooperation with supportive public health offices, the heads of sub-district, neighborhood, hamlet, or related instances to investigate the risk factor controlling has not been conducted either due to the limited fund and time.

A successful pneumonia controlling is also considerably determined by roles of society. The society has to aspire others to participate in the program implementation and utilize health infrastructures and facilities. To improve the participation of society in pneumonia controlling, training of pneumonia controlling is arranged. The research figures out the fact that program holders have not arranged any socialization or training for people responsible in health facilities, alert villages, private midwives, or private polyclinics.

Conclusions and Recommendations

Conclusions

The implementation of pneumonia case investigation in Sleman has been well conducted but there are still weaknesses requiring fixation that are:

From the input aspect: inadequate breath counting tools with usage irregularities, absence of cross-sector cooperation, absence of specific funding to support pneumonia controlling activities on children under five, and $\leq$3 years service time experiences as a program holder.

From the activity aspect: absence of program planning, passive case investigation, investigation of pneumonia cases with IMCI less than 100%, incomplete home visit for pneumonia sufferers that do not revisit after treatment, absence of trainings for responsible people, private midwives, pre-and postnatal health care, private polyclinic to recognize pneumonia symptoms and preventive attempts for pneumonia.

From the output aspects: low coverage of pneumonia case detection on children under five in 2016 in Sleman (only 36.06%) while the percentage of achievement target is >85%.

Recommendations

Public Health Office

Monitoring, evaluating ARI Soundtimer availability, and providing three soundtimers for one community health service are required to be conducted. Uniformity in utilizing breath counting tools are also required to be performed in all community health centers.

Agreement between public health offices and community health services to examine children under five in the chamber of maternal and neonatal health or in a special chamber for ill children thus enables all children to be treated by nurses is required to be made.

Improvement of human resource quality by giving trainings to the program holders and health workforces responsible to be an executor in detecting the ill children by providing training to refreshing relevant knowledge should be conducted.

A cooperation commitment to report pneumonia case investigation to community health services in the form of MoU should also be established by public health offices, community health services, hospitals, polyclinics, and other private health services in Sleman.

Community Health Service

Planning of funding, logistics, and activities to support the improvement of pneumonia investigation scope needs to be arranged.

A commitment of community health services to implement IMCI for improing the pneumonia case investigation on all ill children under five is required.

An active case investigation and home visit for sufferers who do not revisit after treatment should be performed.

Trainings or socializations of symptoms and preventive attempts for private midwives, responsible people, alert village, and pre- and postnatal health cares to improve the investigation of pneumonia cases should also be arranged.

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