

ORIGINAL ARTICLE

The Relationship of Knowledge, Attitudes and Actions of Cadres in the Discovery of Suspected Cases of Diphtheria in the City of Probolinggo Indonesia

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ABSTRACT

Introduction: Diphtheria is an infectious disease whose epidemic is feared globally. In 2019, there were 529 cases with 23 deaths with a Case Fatality Rate (CFR) of 4.35%. Based on the Probolinggo City Health Profile in 2022, it is known that 3 cases of diphtheria were discovered. Diphtheria cases discovered must be immediately prevented from spreading and treated. Posyandu cadres are one of the intermediaries who can connect the community with health workers to find out the whereabouts of diphtheria cases. Therefore, a cadre must have sufficient knowledge accompanied by appropriate actions in dealing with problem in society. This study aims to analyze knowledge, attitudes, and actions of cadres in finding suspected cases of diphtheria in Probolinggo City in order to increase the role of posyandu cadres in preventing diphtheria cases. **Materials and methods:** This research used a quantitative method with a cross-sectional approach. The type of population is an infinite population, with the total number of cadres in the Probolinggo City being 1,095, spread across 6 Public Health Center work areas in 6 sub-districts at Probolinggo City, Indonesia. Determining and calculating the sample size using the Slovin formula (simple random sampling) and obtained 92 people. Next, the researcher used cluster random sampling to obtain samples in each working area of the Probolinggo public health center. **Results:** Based on the results of the research, conclusions can be drawn, namely, the characteristics of the highest respondents consist of an average age including 41-50 years of age as many as 34 people, the average occupation is Housewife (IRT) as many as 81 people, the average length of work is included in category >10 years as many as 61 people, and the average education is high school as many as 65 people. **Conclusion:** The results of the Chi-Square test analysis showed that age and education had a significant influence on cadre behavior, while cadre employment and length of service did not have a significant influence on cadre behavior.

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of diphtheria cases occurred in Southeast Asia, while Europe and Africa experienced a decline. Since 2000, among the countries with the top 10 cases of diphtheria, India is the country with the highest number of cases, followed by Indonesia and Nepal.

INTRODUCTION

Diphtheria is a contagious infectious disease caused by the bacteria *Corynebacterium diphtheria*. These bacteria can make toxins (poison) which can cause a person to become sick.(1) This disease is a terrible disease. This is because diphtheria in the past was a disease that often caused death and is still endemic in countries that have not yet developed it.(2) According to the World Health Organization (WHO), diphtheria is an infectious disease whose epidemic is feared globally. This is because the death rate caused by diphtheria is high, especially in children. In 2005, the highest number

Data from the World Health Organization (WHO) shows that during 2011-2015, there were 18,350 reported cases of diphtheria in India, followed by Indonesia with 3,203 cases. Indonesia is one of the countries that accounts for the highest number of diphtheria cases globally. According to the Indonesian Ministry of Health in (3), the highest number of diphtheria cases occurred in 2012, with 1,192 cases. Then, it decreased in 2016 to 342 cases. In 2017, there were 591 cases with 32 deaths in 95 districts/cities in 20 provinces in Indonesia. In 2018, there were 1,386 diphtheria cases in Indonesia with a total of 29 deaths and in 2019, there were 529

cases with a total of 23 deaths with a Case Fatality Rate (CFR) of 4.35%.

Diphtheria cases discovered must be immediately prevented from spreading and treated immediately. Posyandu cadres act as a link between the community and health workers in their area. In other words, a cadre is someone who is the first to know about the existence of a disease case.(4) Therefore, cadres play an important role in finding suspected diphtheria cases in their respective regions. Achieving the target of finding cases require innovative strategies, especially in human resources such as cadres, so it is necessary to increase knowledge so that it also has a good impact on its implementation in society.(5) In the Probolinggo City Health Service Profile for 2022, there are a total of 219 posyandu with details that each posyandu has 5 cadres, so the total cadre is 1,095 cadres. The study in this research uses L.Green’s theory which states that this theory explains that a person’s behavior can be influenced by 3 things, namely predisposing, enabling, and reinforcing factors.(6)

In terms of the performance carried out by each cadre, researchers in this study want to know the relationship between knowledge, attitudes and actions possessed by cadres in Probolinggo City. According to Bloom, these 3 domains are things that can influence a person’s behavior.(6) So, it is necessary to know knowledge, attitudes, and actions of cadres in finding suspected cases of diphtheria in each region.

MATERIALS AND METHODS

This research was conducted in Probolinggo from July, 3rd to August, 11th 2023. The population used in this

research was a finite population in the form of the total number of cadres in Probolinggo is 1,095 cadres and spreads across 6 work areas public health centers namely Kanigaran, Kedopok, Wonoasih, Jati, Ketapang, and Sukabumi. Determining the sample used the Slovin formula, namely 92 people. The samples were then clustered using the cluster random sampling method to obtain samples at each public health center in Probolinggo like Kanigaran public health center with 24 cadres, Kedopok public health center with 16 cadres, Wonoasih public health center with 14 cadres, Jati public health center with 16 cadres, Ketapang public health center with 15 cadres, and Sukabumi public health center with 7 cadres.

Because the data sample used in this study was 92 respondents, so the normality test can use Shapiro-Wilk because the data is <100. So the result is a significance figure of 0.008, which means the data is not normally distributed because the data is <0.05. Data that is not normally distributed can use the median to determine the respondent’s answer points. Based on the calculation results, the median value obtained was 8.00. So, if the number of answer points per respondent is <8.00 it is in the poor category, whereas if the number of answer points per respondent is >8.00 it is in the good category. The data used in this research are primary and secondary data. Primary data is in the form of interviews with cadres using questionnaires, while secondary data is in the form of library sources that are relevant to this research. Data processing techniques begin with editing data, coding the data, and tabulating the data. The processed data will be presented in tabular and narrative form to make it easier to read the data.

RESULTS

Table II: Knowledge, Attitudes and Actions of Posyandu Cadres

No.	Questions	Answer “Yes”	Score (%)	Answer “No”	Score (%)
Knowledge					
1	Diphtheria disease is caused by infection with the bacteria <i>Corynebacterium diphtheriae</i> ?	58	63	34	37
2	Is diphtheria a disease that can cause death?	69	75	23	25
3	Is diphtheria a disease that can be prevented by immunization?	87	94.5	5	5.5
4	Is diphtheria an infectious disease that can be transmitted?	68	74	24	26
5	Can diphtheria attack human skin organs?	19	21	73	79
Attitudes					
6	Can someone who has a fever, pain when swallowing food, and swollen lymph glands in the neck be suspected of having diphtheria?	40	43	52	57
7	Do you agree with a complete basic immunization program?	85	92	7	8
8	Are you sure that DPT immunization can prevent diphtheria?	71	77	21	23
9	Are you sure that with repeated basic immunizations your child’s immunity will remain protected?	50	54	42	46
10	Are you willing to help health workers provide information about a complete basic immunization program?	61	66	31	34

CONTINUE

Table II: Knowledge, Attitudes and Actions of Posyandu Cadres (CONT.)

No.	Questions	Answer "Yes"	Score (%)	Answer "No"	Score (%)
Actions					
11	Do you provide education regarding diphtheria?	12	13	80	87
12	Would you advise other mothers to follow a complete basic immunization program?	63	68	29	32
13	Do you report to health officials if you find someone experiencing signs and symptoms of diphtheria?	35	38	57	62
14	Do you provide further information to diphtheria suspects with the aim of preventing transmission?	21	23	71	77
15	Do you create health promotion media, such as posters, leaflets, or educational videos related to diphtheria to make it easier to convey health information?	12	13	80	87
Average		50	54.3	42	45.7

Based on the results of calculating the answers to each question given to respondents, it was found that the average respondent's answer was "Yes" at 54.3%. If the respondent's answer "Yes" is <54.3%, then it is included in the category of knowledge, attitudes and actions of a cadre that are not good, whereas if the answer of the respondent is >54.3%, then it is included in the category of knowledge, attitudes and actions of a cadre that is good. The results of respondents' answers to all 15 questions which were included in the poor category were in questions number 5, 6, 11, 13, 14 and 15.

Table III: Normality Test and Median Value

Normality Test	Kolmogrov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total	.113	92	.006	.961	92	.008
Median Value						
N	valid				92	
	missing				0	
Median						8.0000

The data sample used in this study was 92 respondents, so that the normality test can use Shapiro-Wilk because the data is <100. So, the result is a significance figure of 0.008, which means the data is not normally distributed because the data is <0.05. Data that is not normally distributed can use the median to determine the respondent's answer points. The following are the median values presented in Table III. Based on the calculation results, the median value obtained was 8.00. So, if the number of answer points per respondent is <8.00, it is in the poor category, whereas if the number of answer points per respondent is >8.00, it is in the good category.

Table IV: Category of Respondent Behavior

	Category	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Good	42	45.7	45.7	45.7
	Good	50	54.3	54.3	100.0
	Total	92	100.0	100.0	

Based on the results of calculating the frequency of knowledge, attitudes and actions of respondents, the results showed that respondents who had results in the poor category were 42 people or 45.7%, while respondents who had results in the good category got results that were 50 people or 54.3%.

Table V: Respondent's Knowledge, Attitude, and Action Category

	Category	Frequency	Percent	Valid Percent	Cumulative Percent
Respondent's Knowledge Category					
Valid	Not Good	44	47.8	47.8	47.8
	Good	48	52.2	52.2	100.0
	Total	92	100.0	100.0	
Respondent's Attitude Category					
Valid	Not Good	39	42.4	42.4	42.4
	Good	53	57.6	57.6	100.0
	Total	92	100.0	100.0	
Respondent's Action Category					
Valid	Not Good	26	28.3	28.3	28.3
	Good	66	71.1	71.1	100.0
	Total	92	100.0	100.0	

The following is a breakdown of the categories of each factor that causes behavior which consists of the respondent's knowledge, attitudes and actions. The results of the normality test for the knowledge category of respondents show that the data is not normally distributed, so the median value can be used to determine the respondent's answer points. The median obtained in the knowledge category is 4.00, so it can be concluded that the number of answer points per respondent if >4.00 the respondent has good knowledge, whereas if <4.00 then the respondent has poor knowledge. The results of the normality test for the attitude categories of respondents show that the data is not normally distributed, so the median value can be used to determine the respondent's answer points. The median obtained in the attitude category is 4.00, so it can be concluded that the number of answer points per respondent if >4.00 the

respondent has a good attitude, whereas if <4.00 then the respondent has a poor attitude. The results of the normality test for the respondent's action category show that the data is not normally distributed, so the median value can be used to determine the respondent's answer points. The median obtained in the action category is 1.00, so it can be concluded that the number of answer

points per respondent if >1.00 the respondent has a good action, whereas if <1.00 then the respondent has a bad action.

The Relationship of Cadre Characteristics with the Behavior of Discovering Suspect Diphtheri Cases in the City of Probolinggo

Table VI: Relationship between Cadre Characteristics and Behavior in Finding Suspected Diphtheria Cases in Probolinggo City (n=92)

		Behavior Category		
		Not Good	Good	Total
Age	20-30 years	0	2	2
	31-40 years	10	7	17
	41-50 years	10	24	34
	51-60 years	16	17	33
	>60 years	6	50	6
Job	Self-employed	3	5	8
	Teacher	1	2	3
	Housewife	38	43	81
Length of Work	<1 years	1	1	2
	1-3 years	2	4	6
	4-6 years	3	8	11
	7-9 years	5	7	12
	>10 years	31	30	61
Education	Elementary School	5	0	5
	Junior High School	11	3	14
	Senior High School	26	39	65
	Bachelor	0	8	8
		Value	df	Asymptotic Significance (2-sided)
Relationship between Age and Respondent Behavior				
Perason Chi-Square		13.733 ^a	4	.008
Likelihood Ratio		16.896	4	.002
Linear-bu-Linear Association		2.611	1	.106
Relationship between Job Categories and Respondent Behavior				
Perason Chi-Square		.450 ^a	2	.799
Likelihood Ratio		.457	2	.796
Linear-bu-Linear Association		.359	1	.549
Relationship between Length of Work and Respondent Behavior				
Perason Chi-Square		2.613 ^a	4	.624
Likelihood Ratio		2.693	4	.611
Linear-bu-Linear Association		1.583	1	.208
Relationship between Education and Respondent Behavior				
Perason Chi-Square		19.624 ^a	3	.000
Likelihood Ratio		24.803	3	.000
Linear-bu-Linear Association		19.068	1	.000

Based on the Chi-Square test regarding the relationship between age characteristics and respondent behavior, the Asymptotic Significance value was 0.008. This value, namely $0.008 < 0.05$, can indicate that there is a significant relationship between age and the behavior of a cadre. Based on the Chi-Square test regarding the relationship between job characteristics

and respondent behavior, the Asymptotic Significance value was 0.799. This value, namely $0.799 > 0.05$, can indicate that there is no significant relationship between work and the behavior of a cadre. Based on the Chi-Square test regarding the relationship between educational characteristics and respondent behavior, an Asymptotic Significance value of 0.000 was obtained.

This value, namely $0.000 < 0.05$, can indicate that there is a significant relationship between education and the behavior of a cadre.

DISCUSSION

Table I: Cadre Age, Job, Length of Working, Education Categories

	Frequency	Percentage (%)
Age Category		
20-30 years	2	2.2
31-40 years	17	18.5
41-50 years	34	37.0
51-60 years	33	35.9
>60 years	6	6.5
Total	92	100.0
Job Category		
Self-employed	8	8.7
Teacher	3	3.3
Housewife	81	88.0
Total	92	100.0
Length of Working Category		
<1 years	2	2.2
1-3 years	6	6.5
4-6 years	11	12.0
7-9 years	12	13.0
>10 years	61	66.3
Total	92	100.0
Education Category		
Elementary School	5	5.4
Junior High School	14	15.2
Senior High School	65	70.7
Bachelor	8	8.7
Total	92	100.0

According to (6), a person's characteristics can influence his behavior. The characteristics of the respondents used in this study are classified based on the respondent's age, occupation, length of service and last education. In the age section, respondents were divided into 5 age groups, namely 20-30 years, 31-40 years, 41-50 years, 51-60 years, and >60 years. The largest age group of respondents was in the 41-50 years age group, namely 34 people or 37%, while the smallest age group was in

the 20-30 years age group, namely 2 people or 2.2%. There were 17 respondents in the 31-40 years age group or 18.5%, 33 people in the 51-60 years age group or 35.9%, and 6 people in the >60 years age group or 6.5%.

Then, the next characteristic of the respondent is related to the job held by the cadre. Overall, the majority of respondents have the same work background, namely housewives (housewives). The highest number of jobs held by respondents was housewife (housewife), namely 81 people or 88%, while the smallest job was as a teacher, namely 3 people or 3.3% and as an entrepreneur, 8 people or 8.7%. Each respondent's working period as a cadre is different, adjusted to the time they started as a cadre. The calculation results show that the majority of respondents fall into the category of length of work >10 years, namely 61 people or 66.3%, while the smallest results were obtained in the category of length of work <1 year as many as 2 people or 2.2%.

Then, other categories of length of work such as the 7-9 years category with 12 people or 13%, 4-6 years with 11 people or 12%, and 1-3 years with 6 people or 6.5%. Next is regarding the last education completed by the respondent. Based on the results of previous calculations, it was found that the highest results were in the high school category, namely 65 people or 70.7%, while the smallest results were in the elementary school category with 5 people or 5.4%. Other categories such as junior high school obtained results of 14 people or 15.2%, and bachelor's degrees with 8 people or 8.7%.

Analysis of Knowledge, Attitude, and Actions of Cadres in the City of Probolinggo

Knowledge is an understanding of a subject that a person has.(7) Based on the cognitive domain according to Bloom, knowledge is at the lowest level of cognitive goals.(7) The level of this goal is usually a person's ability to remember things they have learned or recall. To find out the knowledge, attitudes and actions of respondents, it is necessary to answer several questions related to this matter. Based on the results of calculating the answers to each question given to respondents, the average respondent answer was "Yes" of 54.3%. If the respondent's answer "Yes" is <54.3%, then it is included in the category of knowledge, attitudes and actions of a cadre that are not good, whereas if the answer of the respondent is >54.3%, then it is included in the category of knowledge, attitudes and actions of a cadre that is good.

Knowledge can be obtained from learning, experience, time, and situations used to solve problems, adapt to new situations or can be used as capital to learn new things. It is hoped that good knowledge will influence good attitudes and actions, so that it can prevent and overcome existing problems.(6) The results of respondents' answers to all 15 questions which were

categorized as poor were in questions number 5, 6, 11, 13, 14 and 15. Point 5 contains knowledge about diphtheria which can attack human skin organs. On average, respondents answered "Yes" <54.3%, namely 21% and were included in the poor knowledge category. This is because diphtheria can attack human skin organs, so it can be said that knowledge regarding the types of diphtheria is still relatively poor. Cutaneous diphtheria is difficult to identify as an inflammation, so this type of diphtheria is often not included in special records or control programs.(8) Increasing knowledge is very necessary to reduce the incidence and risk of diphtheria in the community.(9)

The next question that had a calculation result of <54.3% was regarding the signs and symptoms of diphtheria, such as fever, pain when swallowing food, swollen lymph glands in the neck. These signs and symptoms should be suspected as signs and symptoms of diphtheria, because these signs and symptoms are some of the signs and symptoms that appear in diphtheria sufferers.(10) Question number 11 concerns respondents who provide education regarding diphtheria. The number of respondents who carried out counseling was <54.3%, namely 13% or 12 people. This could be due to the education the respondent has taken. Education influences the actions taken by a person.(6) Education can have an influence on the insight or knowledge possessed by each individual. Someone who has a higher level of education will have broader knowledge compared to someone who has a lower of education. In this case, the majority of respondents had a high school education, namely 65 people (70.7%), so this could have an influence on a cadre's ability to provide counseling.

Then, question point number 13 is regarding the cadre's attitude when they find someone experiencing signs and symptoms of diphtheria. At this point, the results show that it is still relatively low, namely 38% (35 people) or <54.3%. The next point number 14 regarding providing information to diphtheria suspects with the aim of preventing transmission also showed results that were <54.3%, namely 21 people (23%). The last point which is included in the lowest point <54.3%, namely number 15, is related to the creation of health promotion media to facilitate the delivery of health information, which was found to be 12 people or 13% of respondents who created health promotion media. The media used can be posters, leaflets, videos. Media such as posters in health promotion activities is considered effective and can be used to increase target knowledge.(11) Media can be used to make it easier for someone to provide information so that it is better received later. It will be easier for them to see, hear, and imagine the intentions of the education provider.

Points 13, 14 and 15 are also the same as point 11 previously in that this can be influenced by education so that respondents do not have the necessary abilities that

can influence the actions they take. Then, age can also be a factor for respondents in influencing the actions they will take and length of work is a factor that influences actions, because an individual's work experience can influence the knowledge they have. Knowledge will also have an influence on the attitudes and actions that a person will take.(12)

Analysis of the Relationship between Cadre Characteristics and Cadre Knowledge, Attitudes and Actions

Based on the results of calculations using the Chi-Square test to determine the relationship between characteristic variables and knowledge, attitudes and actions or domains of cadre behavior. In the Chi-Square test, the results showed that the characteristics of age and education of cadres had a significant influence on cadre behavior, while the job characteristics and length of service of cadres did not have a significant influence on cadre behavior. In the relationship between age and cadre behavior, the Asymptotic Significance value was obtained, namely $0.008 < 0.05$, which indicates that there is a significant relationship between age and cadre behavior. This is in line with previous research, which states that age has a significant influence on a person's behavior.(13)

The results of the Chi-Square test regarding the relationship between work and cadre behavior obtained an Asymptotic Significance value of $0.799 > 0.05$, which means there is no significant relationship between work and cadre behavior. This is in line with previous research, which stated that there was no significant influence between the work held by cadres and the discovery of pulmonary tuberculosis cases.(8) Furthermore, the results of the Chi-Square test on the variable between a cadre's length of service and their behavior obtained an Asymptotic Significance value of $0.624 > 0.05$, which means there is no significant relationship between a cadre's length of service and behavior. This is in line with previous research conducted by Handayani and Nuryani that the length of service of a cadre does not significantly influence a cadre's actions or behavior.(8) Then, the results of the Chi Square test related to the relationship between education and cadre behavior show that the value of Asymptotic Significance is $0.000 < 0.05$, which means there is a significant relationship between education and cadre behavior. This is in line with previous research, which states that education has a significant influence on a person's behavior.(14)

CONCLUSION

Based on the results of the study and discussion, a conclusion can be drawn, namely, the highest characteristics of respondents consist of an average age including 41-50 years old as many as 34 people, the average occupation is Housewife (IRT) as many as 81 people, the average The length of work included in the

>10 years category was 61 people, and the average education was high school as many as 65 people. The results of the Chi-Square test analysis showed that age and education had a significant influence on cadre behavior, while cadre employment and length of service did not have a significant influence on cadre behavior.

Suggestions that can be given to the Probolinggo Health Service are to coordinate with public health centers and cadres regarding the discovery of diphtheria cases, provide training or outreach to increase cadres' knowledge and make implementation easier in the community, and provide examples of media that can be used when providing education to the community or individuals who affected by diphtheria so that it can motivate cadres to create similar media. The advice that can be given to public health centers based on this research is to select cadres selectively, namely paying attention to age and latest education so that cadre performance improves and has a significant influence on cadre behavior in identifying and finding cases of diphtheria.

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REFERENCES

1. V. T. Hulu, A. Salman, L. Supinganto, Amalia, E. Khariri, Sianturi, et al. *Epidemiology of Infectious Disease Medan*. Yayasan Kita Menulis; 2020.
2. P. Sampealang M., A. Anggara, A. Faris. *Diphtheria in Children*. *Jurnal Medical Profession (MedPro)*. 2021;3(2). ISBN: 978-623-6840-73-3
3. RI Minister of Health Regulation of the Minister of Health of the Republic of Indonesia Number 9 of 2019. concerning Community Empowerment in the Health Sector.
4. Pakpahan M, Siregar D, Susilawaty A, Tasnim, Ramdany MR, Manurung EI, et al. *Promosi Kesehatan dan Perilaku Kesehatan* [Internet]. Watrianthos R, editor. Yayasan Kita Menulis; 2021. Available from: https://repositori.uin-alauddin.ac.id/19791/1/2021_Book_Chapter_Promosi_Kesehatan_dan_Perilaku_Kesehatan.pdf
5. Mustarin Y, Pratiwi N. *Connesction Knowledge and Cadre Attitude With Discovery of Suspect TB in Public Health Center Area Moncongloe, Maros Regency*. ISSN: 2502-7077
6. Notoatmodjo S. *Pendidikan dan Perilaku kesehatan*. Jakarta: Rineka Cipta; 2003. ISBN: 979-518-869-0
7. Swarjana IK. *Concepts Of Knowledge, Attitudes, Behaviour, Perceptions, Stress, Anxiety, Pain, Social Support, Compliance, Motivation, Satisfaction, COVID-19 Pandemic, Access Tohealth Servise Complete With Theoretical Concepts, How To Measure Variables And Examples Of Questionnaires*. Yogyakarta: Andi Publisher; 2022. ISBN: 978-623-01-2315-3
8. Handayani R, Nuryani S. *The Relationship Between Characteristics And The Performance Of Posyandu Cadres In Monitoring The Growth And Development Of Toddlers*. *Jurnal Bina Cipta Husada*. 2022;18(1). ISSN: 1858-4616
9. Wassif GO, Eldin DA. *Relationship Between Knowledge, Attitude, And Practice Of Covid-19 Precautionary Measures And Frequency Of Infection Among Medical Students At An Egyptian University*. *Journal PlosOne*. 2022;17(9). DOI: 10.1371/journal.pone.0274473
10. Indonesian Ministry of Health. *Guidelines for the Prevention and Control of Diphtheria*. Jakarta; 2017.
11. Destari PL, Tahli T, Susanti SS. *The Effectiveness Of Poster Media On Knowledge And Smoking Behavior Among High School Students In Banda Aceh*. *Jurnal Perawat Indonesia*. 2022;6(1). DOI: 10.32584/jpi.v6i1.931
12. Notoatmodjo S. *Kesehatan Masyarakat : Ilmu dan Seni*. Jakarta: Rineka Cipta; 2007.
13. Mappiere A. *Psikologi Remaja*. Surabaya: Usaha Nasional; 2002.
14. Widyono. *Tropical Diseases: Epidemiology, Transmission, Prevention and Eradication*. Jakarta: Erlangga; 2011.