

Overview of Diarrhea Case Surveillance Based on The Implementation of The Surveillance System at The Public Health Center X City

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ABSTRACT

Diarrhea is still a serious public health problem in Indonesia. Based on the highest disease distribution data in Indonesia in 2025, acute diarrhea ranks second with a total of 2,372,498 cases, which shows that diarrhea is still a significant public health problem. The high prevalence of diarrhea in North Sumatra (4.7%) emphasizes the importance of evaluating the surveillance system at First Level Health Facilities (FKTP). The purpose of this study aims to describe the implementation of the diarrhea case surveillance system at the Community Health Center, X City. This descriptive qualitative research method uses in-depth interviews with Community Health Center surveillance officers. Data are analyzed qualitatively to obtain an overview of the implementation of diarrhea surveillance analysis remains simple descriptive. Follow-up and evaluation of the diarrhea surveillance system at the X Community Health Center (Puskesmas) has met the requirements for data collection and routine reporting as per regulations, but requires improvements in the quality of data analysis and strengthening of feedback mechanisms, supported by increased human resource capacity, so that the resulting data can be used more effectively in diarrhea control.

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1. INTRODUCTION

Integrated surveillance also plays a crucial role in improving the quality of health services. Surveillance data can be used to monitor the performance of health programs, identify weaknesses in the service system, and measure the impact of interventions. Health surveillance is crucial for preventing disease outbreaks and is crucial for planning and decision-making regarding medium- and long-term strategic health programs. Tools are needed to facilitate the implementation of public health surveillance, including data calculation and analysis. To produce accurate data that can be used for health programs.

In the implementation of surveillance, there are several methods used, namely, Routine Reporting System, Sentinel Reporting System, Survey and Special Study, Outbreak Investigation,

Vital Registration System, Census (1). Effective surveillance activities can reduce the number of illnesses and detect disease trends. Surveillance activities can be carried out efficiently with a strong implementation system. An effective surveillance system consists of input, processing, and output components. The collected data will be a strong basis for decision-making on health program planning, implementation, and evaluation.

Furthermore, integrated surveillance serves as an early warning system for extraordinary events (KLB). By closely monitoring disease incidence, changes in distribution patterns, and the emergence of new diseases, surveillance can detect significant increases in cases early. This enables a rapid and appropriate response to prevent the spread of disease outbreaks. Furthermore, surveillance can identify vulnerable population groups, allowing for effective targeting of health interventions.

Integrated Disease Surveillance is a continuous cycle that includes data collection, analysis, interpretation, and dissemination. Through this process, we can gain a better understanding of disease trends, risk factors, and the effectiveness of health interventions. With integrated surveillance of this disease, the epidemiological picture of the disease will be known - the diseases with the most cases. Furthermore, plans can be developed for appropriate and effective programs tailored to the disease burden in the community. Diarrheal disease is also a public health problem in developing countries like Indonesia, due to its high morbidity and mortality (2). Diarrheal disease is endemic in Indonesia and is also a potential outbreak (KLB) disease that is often accompanied by death.

Diarrhea is defined as a disease characterized by changes in the shape and consistency of stools from soft to liquid and an increase in the frequency of bowel movements more than usual, namely 3 or more times a day, which may be accompanied by vomiting or bloody stools.

Health Surveillance is a systematic and continuous observation activity of data and information about the occurrence of diseases or health problems and conditions that influence the increase and transmission of diseases or health problems to obtain and provide information to direct control and mitigation measures effectively and efficiently.

Based on data on the distribution of the highest diseases in Indonesia in 2025, acute diarrhea ranked second with a total of 2,372,498 cases, indicating that diarrhea remains a significant public health problem. This high incidence is related to various factors, particularly the unequal availability of clean water, inadequate environmental sanitation, and suboptimal clean and healthy living practices, including in food and beverage processing. Vulnerable groups such as toddlers are at higher risk of experiencing acute diarrhea, which can result in dehydration and impaired nutritional status if not treated appropriately. From a health surveillance perspective, the large number of cases also reflects the still high burden of diarrheal disease in the community, so that sustainable prevention efforts are needed through improving sanitation, increasing access to clean water, and strengthening health education to reduce the incidence of diarrhea sustainably (3).



Figure 1. Developments of National Disease Situation (Ministry of Health, BPKP RI, 2023)

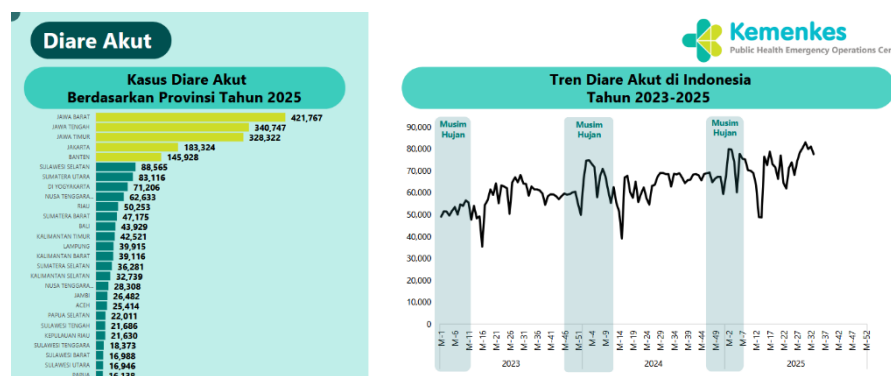


Figure 2. Acute Diarrhea Cases by Province in Indonesia (Ministry of Health, BKKP RI, 2023)

In Indonesia, diarrhea is a public health problem with a high prevalence. The 2023 Indonesian Health Survey found that the prevalence of diarrhea based on symptoms or diagnosis across all ages in Indonesia was 4.3%. One region showing a significantly high prevalence of diarrhea is North Sumatra. The prevalence of diarrhea based on diagnosis/symptoms in North Sumatra Province remains above the national prevalence of 4.7% (4).

Based on data on acute diarrhea cases in 2025, North Sumatra Province recorded 83,116 cases, placing it among the provinces with a relatively high burden of acute diarrhea compared to several other provinces in Indonesia. This figure indicates that acute diarrhea remains a public health problem that requires attention, especially considering the characteristics of the North Sumatra region, which has varied geographical conditions, population density, and disparities in access to sanitation and clean water between urban and rural areas. The high number of diarrhea cases in North Sumatra may be influenced by environmental factors, such as drinking water quality that does not fully meet health standards, suboptimal basic sanitation, and community clean and healthy living behaviors that still need to be improved (3).

Furthermore, climatic conditions and the rainy season have the potential to exacerbate the risk of diarrhea transmission through contaminated water sources. From a health surveillance perspective, the number of recorded cases also reflects the importance of strengthening monitoring and reporting systems at the health service level. Therefore, diarrhea control efforts in North Sumatra need to be integrated through improving environmental sanitation, providing safe, clean water, and strengthening public health education to sustainably reduce diarrhea incidence.

2. METHOD

This study employed a qualitative research method with a descriptive analysis approach. The aim of the study was to describe the implementation of the diarrheal disease surveillance system at the Community Health Center in X City. Data collection was conducted through in-depth interviews using interview guidelines developed based on the components of the surveillance system, including data collection, data processing and analysis, data interpretation, information dissemination, and follow-up and evaluation. The subjects were community health center surveillance officers directly involved in the implementation of diarrheal disease surveillance and were selected purposively. The data obtained were analyzed qualitatively through the stages of data reduction, data presentation, and conclusion drawing to obtain an overview of the implementation of the diarrheal disease surveillance system at the community health center.

3. RESULTS AND DISCUSSION

3.1 Collection of Diarrhea Case Surveillance Data

In this study, all research subjects have collected data on all elements of data collection, including:

3.1.1 People

People Includes characteristics of diarrhea sufferers, such as age, gender, risk age groups (especially toddlers), and the general condition of the sufferer related to susceptibility to disease.

3.1.2 Place

Place Includes the location where diarrhea cases occur based on administrative areas, such as villages/sub-districts, districts, cities/regencies, provinces, as well as the working areas of health service facilities.

3.1.3 Time

Relating to the time of occurrence and reporting of diarrhea cases, including the onset date, epidemiological week, and pattern of occurrence over time to see the trend of increasing or decreasing cases.

This is in line with the results of interviews conducted with surveillance officers at the Community Health Center in X City. The interviews stated that diarrheal disease surveillance data collection is carried out at the community health center through routine recording of all patients who come for treatment and are diagnosed with diarrhea, according to the operational definition of the surveillance disease. The data collected focuses on diseases that are a priority for surveillance, particularly diarrhea, by taking into account the number of cases reported in the community health center's work area.

Each case is systematically recorded based on the time of occurrence, allowing the collected data to reflect the magnitude and distribution of diarrhea cases at the primary healthcare level(5). Data recording and processing are conducted periodically, weekly, by summarizing patient data for one week(6). This weekly data is used to monitor the development and trends of diarrhea cases over time and to support early detection of potential increases in cases. The results of this surveillance are then used as reporting material to the health office and serve as the basis for planning and implementing diarrheal disease control and prevention efforts in the community health center (Puskesmas) work areas.

3.2 Surveillance Data Processing and Analysis

Based on Regulation of the Minister of Health of the Republic of Indonesia Number 45 of 2014, surveillance data processing is carried out through the stages of recording, recording, validating, and grouping data based on variables of person, place, and time(5). Data analysis is carried out to generate information on the distribution and trends of disease incidence. These stages aim to ensure that surveillance data can be used as a basis for decision-making and health program planning.

Interviews with surveillance officers at the Community Health Center in X City indicate that diarrhea case surveillance data processing at the center is carried out through routine recording of the number of patients diagnosed with diarrhea and is summarized weekly. This data is reported through the Early Warning and Response System (SKDR) and communicated to cross-sector stakeholders using *WhatsApp*. This implementation is in accordance with Minister of Health Regulation No. 45 of 2014, particularly in the aspects of recording, data processing, and surveillance reporting. However, data processing is still limited to a recapitulation of the number of cases and has not been fully presented in tables, graphs, or epidemiological measurements as recommended in surveillance guidelines.

The surveillance data analysis conducted at the community health center is still simple descriptive, simply monitoring the number of diarrhea cases over time as the basis for reporting. This condition is essentially in accordance with the provisions of Minister of Health Regulation No. 45 of 2014, but its implementation is not optimal due to limited human resources, where surveillance officers have dual duties *and* have not received special training. These limitations have the potential to impact the quality of analysis and utilization of surveillance data in diarrheal disease control efforts.

3.3 Analysis and Interpretation of Surveillance Data

Surveillance data analysis and interpretation are conducted to assist with weekly monitoring, monthly reporting, identification of at-risk areas, and the distribution of cases based on individual characteristics, time, and location (7). Surveillance data analysis and interpretation also aim to generate meaningful information as a basis for decision-making and determining follow-up actions.

Based on interviews with surveillance officers, it was discovered that the analysis and interpretation of surveillance data at the community health center was based on the types of diseases under surveillance, the number of cases, and disease incidence trends, which were inputted weekly. After processing the data, analysis and interpretation were conducted to obtain more complete information regarding diarrhea cases in the area.

3.4 Dissemination of Information and Feedback

Dissemination of information in line with surveillance guidelines which emphasize that surveillance data must be distributed in a hierarchical and timely manner to relevant parties, including across sectors, to support the early warning system and prevention of outbreaks of infectious diseases such as diarrhea.

Based on interviews with surveillance officers, dissemination of diarrheal disease surveillance information at the Community Health Center in X City is carried out through a routine reporting mechanism using the Early Warning and Response System (SKDR). Reporting is carried out weekly, by sending data on the number of cases and the number of sufferers through the SKDR, supported by cross-sector communication through WhatsApp groups, each of which has the contact number of the relevant officer. After the data is submitted, the system will provide a notification as a sign that the report has been received. However, feedback based on guidelines should be carried out periodically and in a structured manner, in the form of report attendance, data quality corrections, and follow-up recommendations to improve the quality of surveillance at the community health center level.

Interviews revealed that surveillance feedback was not yet optimal. Surveillance data was obtained from patient case records at community health centers and a weekly recap of patient visits based on priority surveillance diseases, including diarrhea. However, this was not accompanied by an explanation of written feedback, routine evaluations, or recommendations for data improvement from higher levels (e.g., district/city health offices).

Limited human resources (HR) are a major obstacle, as surveillance officers generally hold second jobs and not all have specialized surveillance backgrounds. Furthermore, there is a lack of specialized surveillance training. Consequently, officers' ability to analyze data and provide optimal feedback remains limited. Therefore, although information dissemination mechanisms are in place, the quality of diarrheal disease surveillance feedback still needs to be improved through human resource development and specialized surveillance training.

3.5 Follow-up and Evaluation

Action, or response, is the use of information obtained from the surveillance process to guide appropriate public health interventions. Without action, surveillance has no practical purpose. Evaluation is the process of assessing the effectiveness, efficiency, and quality of the surveillance system itself to ensure its objectives are achieved and resources are optimally utilized. Based on the interview results, the Community Health Center in X City implemented integrated follow-up actions aimed at relevant parties in diarrhea control efforts, including reporting case incidents through the SKDR and cross-sectoral coordination. The Community Health Center's internal system is designed to monitor service quality indicators.

Evaluations that can be conducted at this community health center include recruiting competent surveillance personnel in their respective areas of expertise, as well as providing ongoing training for Human Resources (HR) requiring skill enhancement. This data is then processed, analyzed, and communicated as constructive feedback to all staff for continuous improvement.

4. CONCLUSION

Data collection includes elements of Person (patient characteristics, at-risk groups such as toddlers), Place (administrative area), and Time (onset date, epidemiological week). Recording is routinely conducted on patients diagnosed with diarrhea (8). This implementation is in accordance with the basic principles of surveillance, which include data collection based on epidemiological characteristics (person, place, time)(9).

The implementation of recording, processing, and reporting is in accordance with the Minister of Health Regulation No. 45 of 2014. However, data processing is not yet optimal because it is still limited to the recapitulation of the number of cases, and has not been presented completely in the form of tables, graphs, or epidemiological measurements.

Analysis is not optimal due to limited human resources; surveillance officers are double-tasked and lack specialized training. Information is disseminated routinely weekly through SKDR reporting and cross-sector communication via *WhatsApp*. This aligns with surveillance guidelines, which emphasize the timely and hierarchical distribution of data to relevant parties, including across sectors, to support early warning.

During the follow-up and evaluation phase, the Community Health Center in X City consistently reports diarrhea cases weekly to higher-level health authorities. Based on a comprehensive evaluation conducted by the Health Office, obstacles encountered in implementing diarrhea case surveillance have been identified and reviewed. In response, the Community Health Center has taken strategic steps to address these obstacles, including recruiting competent surveillance personnel in their respective areas of expertise and providing ongoing training for Human Resources (HR) requiring skill enhancement(10). With the implementation of an effective and robust feedback surveillance system, the Rambung Community Health Center is optimistic about increasing public trust, achieving the highest accreditation standards, and making improving public health a top.

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