



Evaluation and Implementation of the Epidemiological Surveillance System for Infectious Diseases at the Class I Port Health Office in Medan in 2022 in the Working Area of Kualanam International Airport

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| <p>Track Record Article</p> <p>Accepted: 12 November 2022 Published: 25 December 2022</p> <p>How to cite: Susanti, N., Simamora, L., Andira, Dwi, A., Erwina, Putri, B., & Sagala, Ainun, N. (2022). Evaluation and Implementation of the Epidemiological Surveillance System for Infectious Diseases at the Class I Port Health Office in Medan in 2022 in the Working Area of Kualanam International Airport. <i>Contagion: Scientific Periodical Journal of Public Health and Coastal Health</i>, 4(2), 247–259.</p> | <p style="text-align: center;">Abstract</p> <p><i>One type of disease that can become a threat to global disease is an infectious disease. The airport is one of the public places that has the risk of becoming a portal of entry for infectious diseases. Factors influencing the entry of plague cases into Indonesia are weak supervision at the country's entry points and epidemiological surveillance activities that have not been maximized. Surveillance activities are carried out during the departure and arrival of aircraft from the infected area to the entrance to the Medan Class I port health office work area. Research Objectives: to assess and evaluate an activity using an observational approach to obtain in-depth information by observing carefully and directly at the Class I Port Health Office in Medan, the working area of Kualanam International Airport. Method: this research is a type of evaluative research that evaluates and assesses an activity system using qualitative methods to obtain information from data sources or informants regarding activities that have been carried out, in order to be able to explain the actual situation in the field. Results: The problems encountered were workers' health, data reporting and data dissemination. Epidemiological surveillance of workers' health is still lacking so that additional workers' health is needed, then reporting weekly disease data so that current disease trends can be identified, as well as dissemination to stakeholders who are competent in their fields.</i></p> <p>Keyword: Airport, Evaluation, Surveillance.</p> |
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INTRODUCTION

In order to overcome the threat of global disease and public health problems, the *International Health Regulation (IHR) 2005* states that a country must have the ability to carry out epidemiological surveillance. (Ghozali, 2017) . Epidemiological surveillance is the activity of systematically and continuously observing diseases or health problems and conditions that affect the risk of occurrence of these diseases or health problems in order to take effective and efficient countermeasures through the process of collecting, processing and analyzing and disseminating epidemiological information. health program administrators (Permenkes RI, 2014) .

One of the scopes of epidemiological surveillance is infectious disease surveillance (Andila, 2015) . According to the Regulation of the Minister of Health of the Republic of Indonesia Number 82 of 2014 Concerning Communicable Disease Control, (2014) Infectious diseases are diseases that can be transmitted to humans caused by biological agents, including viruses, bacteria, fungi and parasites. Infectious diseases can cause epidemics or public health emergencies, this is due to the rapid movement of people who are sick to people who are healthy, either directly or indirectly. So that an increase in the number of sufferers increases significantly beyond the usual conditions at a certain time and area and can cause havoc or epidemics. According to Farina (2022), Health Surveillance is implemented through data collection, data processing, data analysis, and dissemination as an inseparable unit to produce objective, measurable, comparable information across time, between regions, and between community groups as decision-making material.

Factors that influenced the entry of plague cases into Indonesia were, among others, weak supervision of the entrance to the country's territory and epidemiological surveillance activities that were not optimal, so that the outbreak could spread in Indonesia. If viewed from health services, the Port Health Office is at the forefront of epidemiological surveillance activities in the country's entry points (Ghozali, 2017) . The Port Health Office has the task of implementing prevention of entry and exit of diseases, potential disease outbreaks, epidemiological surveillance, quarantine, environmental health impact control, health services, OMKABA supervision as well as safeguarding against new diseases and re-emerging diseases, bioterrorism, biological, chemical and radiation protection in the working area of airports, ports and national land crossings. In the implementation of the prevention and entry of infectious diseases (Permenkes No 77 of 2020) .

Epidemiological surveillance activities were carried out during the departure and arrival of aircraft from the infected area to the entrance to the Medan Class I KKP work area. Thus it is necessary to evaluate the epidemiological surveillance system, this is done to assess whether a surveillance activity is in accordance with the actual provisions of continuous monitoring to assess and observe an incident so that accurate and correct data can be obtained so that it can be used in planning and reference in taking policy in responding to a disease incident (Divine, 2022) . Surveillance activities are expected to provide benefits in: the estimation and detection of the magnitude of NCD risk factor problems, describing the natural history of NCDs and their risk factors, distribution of NCD risk factors, evaluating the effectiveness of NCD risk factor prevention and control programs, monitoring program coverage and program planning

(Rahajeng & Wahidin, 2020). To determine the effectiveness of a component in supporting the objectives of the activity, it is necessary to conduct an evaluation to assess the system (Desita et al., 2021)

Based on previous research, there are still obstacles or problems in implementing epidemiological surveillance at the Port Health Office, this can hinder the implementation of epidemiological surveillance at KKP (Putri et al., 2019) . The research conducted by Siswanto, (2016) found that there was a shortage of epidemiological surveillance in Class I KKP Surabaya, namely the database used was still very simple and coding on several variables had not been carried out. Then there is a non-uniformity of surveillance officers when doing data *entry* , so it takes time to analyze the data to be longer. In addition, based on Al Ghazali's research, (2017) there are obstacles in the form of surveillance staff who are still lacking both in terms of numbers and available qualifications such as not being fluent in English and *handytalky facilities*. Based on research conducted by V Divine & Mangguang., (2022) at the Padang Class II Port Health Office in the Working Area of the Minangkabau International Airport that there are problems with reporting that has not been done every week at the KKP polyclinic in the BIM work area to see disease trends, and must carry out dissemination available to relevant stakeholders.

Based on this background, the purpose of this study was to look at and evaluate the epidemiological surveillance of infectious diseases at the Class I Port Health Office in Medan, Kualanamu International Airport Working Area.

RESEARCH METHODS

The research design used is evaluative research, which aims to assess an activity using an observational approach to obtain in-depth information by observing and reviewing carefully and directly at the research location. The location of this research is KKP Class I Medan Working Area of Kualanamu International Airport. The research was carried out on 1-17 February 2023. The type of data used was secondary data in the form of an annual report of the Class I KKP Medan Working Area of Kualanamu International Airport for quarantine control and epidemiological surveillance. The data collection method is through document observation to see the implementation of the surveillance system in the Kualanamu International Airport Working Area. Analysis of surveillance activity data was carried out descriptively.

RESULTS

Kuala Namu International Airport Working Area is carried out by the Quarantine Control and Epidemiological Surveillance sector based on the activities of the epidemiological surveillance system. The stages of the epidemiological surveillance system for infectious diseases in Class I KKP Medan, Kuala Namu Airport Working Area, are as follows.

A. Data Collection

Data collection is an activity carried out to obtain the necessary data or information. Data collection on infectious diseases at KKP Class I Medan in the Kualanamu International Airport Working Area is carried out by recapitulating daily incidence data on infectious diseases at the Kualanamu Airport Polyclinic and monthly reports from the Community Health Centers and Private Clinics in the Kualanamu International Airport Working Area. Data collection based on health centers and private clinics is carried out in the context of early detection and disease response at airports. Data collection is carried out every day or every time there are incidents and visits of infectious diseases both at the Kualanamu Airport Polyclinic and the Community Health Center/Private Clinic within the Kualanamu International Airport Working Area.

B. Data Processing

In KKP Class I Medan, Kualanamu International Airport Working Area, data processing was carried out descriptively from the incidence and visits of infectious diseases at the Kualanamu Airport Polyclinic and Community Health Centers/Private Clinics in the Kualanamu International Airport environment. The processed data includes age, sex and history of infectious diseases.

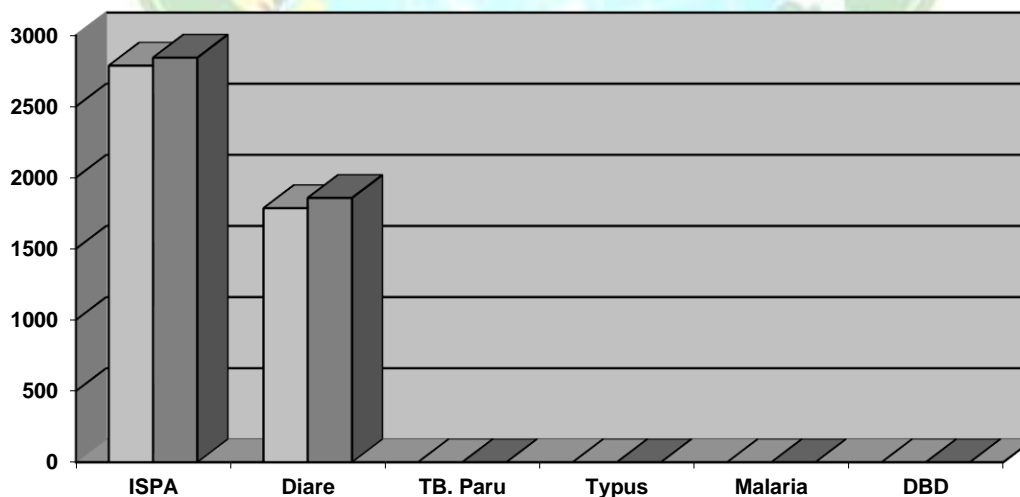
C. Data Analysis

Excel and *Word* programs with descriptive epidemiological methods. This method is used to describe the distribution of infectious diseases in KKP Class I Medan, Kualanamu International Airport Working Area based on age, sex and history of infectious diseases. The data that has been analyzed is presented in the form of tables and graphs as follows.

Table 1 Distribution of Infectious Diseases in the Working Area of Kualanamu International Airport

| No | Disease Name | Age Group and Gender | | | | | | | | | | Amount | | Total |
|---------------|--------------|----------------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|-------------|-------------|-------------|
| | | 0-4 | | 5-9 | | 10-19 | | 20-44 | | >45 | | L | P | |
| | | L | P | L | P | L | P | L | P | L | P | | | |
| 1 | ISPA | 529 | 554 | 507 | 521 | 605 | 636 | 568 | 581 | 579 | 552 | 2788 | 2844 | 5623 |
| 2 | Diarrhea | 354 | 338 | 378 | 386 | 373 | 419 | 326 | 413 | 355 | 302 | 1786 | 1858 | 3644 |
| 3 | TB. Lungs | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | typhoid | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | Malaria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | DHF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amount | | 883 | 892 | 885 | 907 | 978 | 1055 | 894 | 994 | 934 | 854 | 4574 | 4707 | 9276 |

From the data table above it can be seen that infectious diseases are found around Kualanamu Airport, the highest diseases are Upper Respiratory Tract Infection (ARI) with 5632 cases (60.72%) and 3 Diarrhea 3644 cases (39.28%).



Graph 1 . Distribution of Infectious Diseases in the Working Area of Kualanamu International Airport

D. Data Interpretation

After the data has been analyzed, the next stage of surveillance activity is data interpretation. Data interpretation is carried out by providing information regarding the number

of infectious diseases that occur most frequently based on age and sex at a certain predetermined time.

E. Dissemination

Information dissemination related to the distribution of infectious diseases in KKP Class I Medan in the Kuala Namu International Airport Working Area is carried out continuously every month. The form of dissemination is in the form of monthly reports sent to the Main Office of KKP Class I Medan .

DISCUSSION

A. Data Collection

In epidemiological surveillance activities the method used is very important because it can determine *the output* of the results of surveillance activities, so that the objectives can be achieved optimally. Method is a series of procedures or steps used to achieve a certain goal. The use of methods is not limited to certain fields, but can be applied in various fields such as education, research, business, and others. Methods are generally used to expedite and accelerate the attainment of goals, as well as to support the decision-making process. The data collection method used by the Medan Class I Port Health Office is to collect data from documents or reports relating to the health of departing and arriving passengers and crew, data collection from direct observation of passengers and crew, and data collection from interviews with passengers. boat. The purpose of data collection was to complete passenger and aircraft data compiled from e-HAC and then entered into the Health Information System (SIRKARKES). This method is in accordance with the Standard Operating Procedures (SOP) set by the Directorate General of Disease Prevention and Control of the Ministry of Health of the Republic of Indonesia.

Data is a very important variable in conducting epidemiological surveillance activities, therefore the data collected by surveillance officers is accurate and valid. The type of data collected in the Medan Class I KKP Work Area includes data on communicable and non-communicable diseases from polyclinic visits but not in weekly form because reporting is carried out once a month making it more difficult to see trends in existing diseases. During the COVID-19 pandemic in Indonesia, every passenger who arrived at the port or airport in the working area of the Medan Class I Port Health Office underwent a health check, such as a temperature check using a Thermal Scanner and an *Infrared* Thermometer . The examination is to check one of the indicators of an infectious disease, namely a temperature $> 38^{\circ} \text{C}$.

Rubianti's (2020) research found that developing surveillance systems for reporting dengue cases by private physician practices was unsuccessful in making dengue case data more accurate and representative. This is because of the practice of private doctors totaling ten people; for three months, no one reported dengue cases to Puskesmas I West Denpasar.

In Azzahroh's (2016) research, it was found that the implementation of the leptospirosis case surveillance system in Semarang City has not run optimally, so it has not been able to reduce the number of leptospirosis cases, which tends to increase considering that Semarang City is also an endemic area and at risk of leptospirosis cases. In Saraswati's (2017) research, the data collection process began with discovering leptospirosis cases. So far, leptospirosis cases in Boyolali Regency have been found more in hospitals.

In the KMK standard No. 1116 of 2003 regarding the implementation of the health epidemiological surveillance system for PKSE officers at the Port Health Office of the Kualanamu International Airport Working Area, it is sufficient to carry out routine epidemiological surveillance activities, but there are still not enough health workers. This is different from the results of research conducted by Jamaludin Abduh Alghozali at the Class II Tarakan Port Health office regarding the evaluation of epidemiological surveillance activities at ports in an effort to prevent bird flu outbreaks in the aspect of the existing health worker staff being sufficient to carry out routine epidemiological surveillance activities. but according to KMK standard no. 1116 of 2003 regarding the implementation of an epidemiological surveillance system for the health of existing personnel, it is still lacking. The existing officers also double as holders of other programs, this will cause some epidemiological surveillance activities to be carried out less than optimally, for example, namely delays in reporting.

B. Data Processing

The data processing system is carried out using descriptive epidemiological methods in order to be able to see the results of the information in accordance with the agreed epidemiological surveillance objectives. This descriptive analysis was carried out in order to get an overview of the spread of disease or health problems and the factors that influence them, namely according to person, place and time.

Data processing in epidemiological surveillance activities at the Medan Class I port health office goes through several stages, namely regular and comprehensive data recording regarding the health of passengers and crew members, data verification to ensure the accuracy and completeness of the data collected, data analysis to obtain relevant and useful information regarding the potential risk of illness to passengers and crew of the ship, as well as the

interpretation of data from analysis results to make decisions about health measures that must be taken.

Sidjabat's (2021) research found that the evaluation results found that the data processing process was only in tabulations presented in tables without further analysis and interpretation. Research conducted by Anggraini (2016) regarding evaluating the surveillance system for the incidence of measles at the Bangkalan Regency Health Office. The results of this study show that there are areas for improvement in the implementation of the surveillance system, with findings in the input components and processes of epidemiological surveillance activities, especially at the community health center level.

Rahmi's research (2022) found that the surveillance system runs at the Medan Denai Health Center, it can be concluded that the surveillance that takes place at the Medan Denai Health Center is running very well. Reporting is carried out every day and reported before 12 noon, data is processed manually (data tabulation) with the help of software in the form of excel. Eva's research (2022) is based on interviews with HIV surveillance officers; after the data is collected and corrected, the data is then inputted into the SIHA application. Data processing is carried out at the time of the Workshop by the District Health Office every three months. In the results of Sari's (2020) research conducted on informants, dengue case data was processed as tables and graphs and entered into the SKDR application. So that the processing at the Sungai Raya community health center is 100%, and the analysis of dengue case data has not been carried out systematically, so the results are included in the good category.

C. Data Analysis

Data analysis was only to see the distribution of passengers, and the number of arrivals and departures, potential disease outbreaks, new diseases and re-emerging diseases which were carried out using the *Excel* and *Word programs* and then presented cumulatively in tables and graphs using descriptive epidemiological methods.

In collecting data based on puskesmas data in the framework of early detection and response to disease at ports or airports, data collection based on routine puskesmas data is carried out continuously and reported periodically (monthly/yearly), the puskesmas data is also supplemented by data originating from the Polyclinic KKP Class I Medan and primary data in the field of Environmental Risk Control regarding risk factor data as a completeness of monthly/annual surveillance reports. This is in accordance with the Medan Class I KKP Activity Action Plan (RAK) from the Directorate General of Disease Prevention and Control for 2022 to 2024.

Wayan's (2018) research conducted dengue surveillance data of the Bangli District Health Office in the form of comparative analysis; the analysis was only carried out once every year, namely during the preparation of the district health profile, while for surveillance data at the community health center, there were still officers who did not analyze due to too high workload. In contrast to Purnawan's (2022) research which found that there are still limitations in processing and presenting data. In addition, there is also no data processing in the form of mapping at all levels of health services in the Gianyar district.

It was found that the distribution of infectious diseases in Class I KKP Medan Kuala Namu International Airport Working Area based on age, gender and history of infectious diseases in 2022 found a large number of ISPA Diseases with a total of 5632 cases (60.72%), Diarrhea had a total of 3644 cases (39.28%), TB, Lung, Typus, Malaria and DHF 0 cases, it was found that ARI was the highest communicable disease among other diseases.

D. Data Interpretation

At the Medan Class I Port Health Office, data interpretation is only displayed in the form of reports in the form of tables or graphs. We recommend that surveillance data that has been processed and entered into the system be displayed periodically so that it can provide interpretation that can be viewed regularly, as is done in monthly surveillance activities. This will allow us to see whether there has been an increase or decrease in surveillance activity, and the data can be used as a reference source for future surveillance activities.

The essence of the surveillance system is to carry out continuous and systematic analysis of the data collected so that the data is of great benefit, because it can produce accurate and quality information to assist decision making in disease prevention and control efforts. According to Epina's research (2019), the weakness of measles surveillance officers lies in the processing, presentation, analysis, and interpretation of data before intervention. Krisnita's (2017) research found that the interpretation of the data from the analysis was carried out by looking at the tendency or trend of high-risk pilgrims based on time (comparing with the previous year) and gender.

Interpretation of Communicable Disease data is a description or narrative of the results of data analysis so that epidemiological information can be obtained and has meaning. This epidemiological information is used as a basis for carrying out efforts to control infectious diseases by officers who are in charge of the Communicable Diseases program. The results of this data interpretation are presented in the Medan Class I KKP health profile and stored in a computer file. Interpreted infectious disease data is information related to the number of

infectious diseases that occur most frequently based on age and sex at a certain predetermined time . Interpretation of data by age is important to determine actions to prevent and control infectious diseases in the community.

E. Dissemination

Dissemination can be done to a higher or lower level. The results of an epidemiological survey on measles such as data, information and advice will be provided to those acting in disease management and health program improvement, research institutions and study centers, and epidemiological lan survey networks to obtain an understanding of the increase or decrease in cases. Nadia's research (2022) on disseminating TB information in Banyumas has followed the guidelines, which are carried out in the form of meetings and periodic reports. Dissemination activities have also included parties across programs, sectors, communities, and policymakers

Dissemination of epidemiological surveillance results is published through meetings, print media and websites. The KKP Class I Medan website has its own website, namely on the kkpmedan.web.id page with the Teras Layin Karkes program in the form of monthly data updates. The form of dissemination carried out is information related to the distribution of infectious diseases in KKP Class I Medan, Working Area of Kualanamu International Airport in the form of monthly reports sent to the Main Office of KKP Class I Medan. At work meetings, the dissemination is usually explained at the time of renkon (disaster emergency operation plan). In print media it is published in booklets and leaflets. In addition, dissemination was also carried out to related stakeholders around Belawan Port, such as Syahbandar, Fisheries Quarantine, Immigration Quarantine, Naval Hospital and so on.

F. Alternative Problem Solving

Monitoring of infectious disease activities is implemented through the use of a surveillance information system that provides the necessary information. To play an important role in public health decision making, surveillance information must be accurate, timely and complete. Information technology and telecommunications are used to present this information. The information system is part of an organizational system that is used to meet needs and solve problems encountered by utilizing information. Hargono's (2022) research found that the priority problems chosen based on the CARL method were delays in reporting dengue suspects, dengue cases, and ABJ by community health centers. Alternative solutions to the proposed problem are implementing weekly reports through Google Forms and regular

meetings every two weeks or once a month. This activity can reduce reporting delays because the data is continuously updated to report dengue cases faster.

Alternative solutions to the problems found are (1) It is necessary to use digital media to collect reports from each wilker. Because so far data collection from some wilkers is done directly so the process becomes less effective and efficient, by utilizing digital media it will save more time and money. (2) It is necessary to add experts in the IT section who will handle and be responsible for the online dissemination process. The most appropriate time to update a report on the kartes layin terrace is 2-3 days after the report has been completed. It is suggested to the KKP to rebuild a team that will reactivate the dissemination of data and information through printed media such as leaflets and bulletins. In addition to disseminating data, the bulletin and leaflet itself can become a medium to introduce the KKP and its duties and functions to the public.

CONCLUSIONS AND RECOMMENDATIONS

The implementation of the epidemiological surveillance system at the Medan Class I Port Health Office in the Kualanamu International Airport Working Area is running in accordance with existing guidelines and procedures. However, the problem is that health workers are still lacking in Quarantine Control Epidemiological Surveillance, so the problem is that reporting has not been done every week at the KKP polyclinic in the working area of Kualanamu International Airport so that they can see disease trends, and should carry out dissemination of relevant stakeholders .

The number of epidemiological surveillance officers at the Medan Class I Port Health Office is still lacking. Even though they have competent surveillance personnel, if the workforce is still lacking this can hamper other surveillance programs. Therefore it is necessary to add epidemiological surveillance officers at the Class I Port Health Office in Medan.

From the results of the evaluation of the surveillance system and the alternative solutions to the problems provided, it is hoped that the Class I Port Health Office in Medan, the Kualanamu International Airport Working Area, will be able to carry out a surveillance system in accordance with an evaluation of existing weaknesses and problems so that they can make improvements related to the surveillance system program. As for future researchers, it is recommended to be able to carry out in-depth analysis so that they can see the relationship between variables that can influence the results found at the Port Health Office.

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