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EARLY DETECTION AND SELF MONITORING OF COVID-19 STATUS THROUGH ELECTRONIC BASED SURVEILLANCE IN KENJERAN SUB-DISTRICT, BULAK DISTRICT, SURABAYA

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ABSTRACT

Introduction: Covid-19 prevention and control efforts are carried out both individually and through the health system, including surveillance system. Community participation and the implementation of information technology has the potential to support the surveillance system, especially to speed up the process of recording, reporting and analyzing data. The aims of this activity is to socialization of Covid-19 surveillance among residents of Kenjeran sub-district, Bulak district, Surabaya city to increasing participant's knowledge about Covid-19 surveillance.

Methods: The method used was the socialization and training of the Covid-19 surveillance application to the public, which was attended by 50 participants. The assessment was carried out to determine the acceptance of the Covid-19 surveillance application information technology through in-depth interviews via telephone a few days after the training. The assessment is carried out by asking 10 questions consisting of conditions that facilitate, application function, ease of use of the application and desire to use the application.

Results: The application was able to perform its function as data input and produce information about the status of Covid-19 and its recommendations quickly. The participants also stated that this application can display Covid-19 status accurately and the results can be read quickly.

Conclusion: There were obstacles when registering participants, but participants had the desire to continue to use the Covid-19 surveillance application because it was very helpful in determining the status of Covid-19 quickly and accurately. Community participation and use of information technology are expected to support the surveillance system.

KEYWORDS

detection; monitoring; surveillance; electronic; covid-19

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1. INTRODUCTION

The Coronavirus-19 or Covid-19 pandemic has hit the world, including Indonesia. Data from the Ministry of Health of the Republic of Indonesia shows that confirmed Covid-19 cases in Indonesia as of 29 November 2020 had reached 534,266 cases, of which 16,815 cases died. This figure is an increase compared to the previous report. This disease has been designated as a Public Health Emergency of International Concern by WHO (World Health Organization, 2020b).

Covid-19 prevention and control efforts are carried out both individually and through the health system. Systematic efforts include territorial restrictions, case tracking and surveillance. Surveillance is one of the WHO recommendations in

monitoring and detecting health problems in the community. Public health surveillance is an activity that is carried out systematically and continuously against diseases and health problems as well as conditions that increase the risk through the process of data collection, processing and dissemination of epidemiological information to health program administrators in order to take countermeasures effectively and efficiently (M'ikanatha, Lynfield, & Beneden, 2007; World Health Organization, 2006, 2020a)

Community participation has the potential to support the surveillance program. Regulation of the Ministry of Health of the Republic of Indonesia Number 45 of 2014 concerning the Implementation of Health Surveillance states that one of the important components in implementing surveillance is the participation of the community. The community is a source of surveillance data that can be obtained both actively and passively. The community plays a role in conducting health surveillance to improve the quality of surveillance data and information (Ministry of Health RI, 2020b).

The form of public participation in supporting Covid-19 surveillance can be done through recording and reporting the status of Covid-19 and independent monitoring. Self-recording and reporting of Covid-19 status to determine individual status about Covid-19 based on risk factors. Recording and reporting of Covid-19 status based on risk factors carried out independently by the community is expected to help improve the detection of Covid-19 cases in the community (Ministry of Health RI, 2020a). Independent monitoring by the community is expected to assist health workers and surveillance volunteers in collecting surveillance data.

Recording of Covid-19 status based on risk factors and independent monitoring needs to be supported by surveillance applications to simplify and speed up detection of cases based on risk factors and speed up recording and reporting of Covid-19 status and monitoring. This application, which is used to support Covid-19 surveillance in the community, was developed in collaboration with the Community Service Team, Faculty of Public Health, Universitas Airlangga supported by the Directorate of Information Systems, Universitas Airlangga. This application, which can be accessed at http://surveilans.fkm.unair.ac.id/, refers to the Guidelines for the Prevention and Control of Coronavirus Disease (Covid-19) revision 5 (Ministry of Health RI, 2020b).

This application functions as a support for recording and reporting electronically and contains forms Important information about Covid-19 in the form of infographics and Frequently Asked Questions (FAQ). This application is a development of the Unair surveillance application developed by the Covid-19 Surveillance Team, Faculty of Public Health, Universitas Airlangga and Directorate of Information Systems, Universitas Airlangga.

This surveillance concept, apart from being able to be carried out on a limited population in certain institutions, can also be applied to monitor health problems in the community. The aim of this community service activity is an socialization of the Covid-19 surveillance concept and application developed by the Covid-19 Surveillance Team, Faculty of Public Health, Universitas Airlangga to the community.

2. MATERIAL AND METHODS

This community service activity was carried out in Kenjeran sub-district, Bulak district, Surabaya as a pilot project. The location selection is based on the target districts that have been selected and agreed upon by Faculty of Public Health, Universitas Airlangga. The socialization of Covid-19 surveillance and training on Covid-19 surveillance applications for the community was conducted on Wednesday, November 11 2020 at 08.00-12.00 at the Citizens Association Hall in Kenjeran sub-district, Surabaya.

The training was attended by 50 people consisting of religious leaders, community leaders, Citizens Association heads, health cadres and representatives of youth organizations. Participants get the application by accessing the web application on the page http://surveilans.fkm.unair.ac.id/

The assessment was carried out to determine the acceptance of the Covid-19 surveillance application information technology through in-depth interviews with a number of training participants via telephone a few days after the training. The assessment is carried out by asking 10 questions consisting of conditions that facilitate, application function, ease of use of the application and desire to use the application. The questionnaire refers to the concept of Technology Acceptance Model (TAM) by Davis, Bagozzi, & Warshaw (1989).

3. RESULTS

Acceptance of the use of information technology in the form of a Covid-19 surveillance application was assessed through participants' responses to the application through in-depth interviews using in-depth interview guides. In-depth interviews were conducted by telephone which were conducted several days after the training with selected participant informants. The results of in-depth interviews with informants stated that they had sufficient resources to access the Covid-19 surveillance application. These resources include smartphones, laptops and internet access and data.

This Covid-19 surveillance application for the community is able to run according to its function. The informant stated that this application can enter data easily and precisely, but initially it needed help and needed to be repeated until it could do it independently. They also stated that this application can display Covid-19 status accurately and the results can be read quickly.

The informant stated that there were several obstacles in implementing this application. These constraints include the difficulty in logging in because they have to register before entering the data. They need to be assisted first in using the application and using it repeatedly to get used to it.

Informants stated that even though there were obstacles experienced in logging in, they had the desire to continue to use the Covid-19 surveillance application because this application was very helpful in determining the status of Covid-19 quickly and accurately. This application is felt to be very helpful in taking preventive action against family and closest people. They suggest that this application be simplified to make it easy to use.

4. DISCUSSION

The use of information technology in public health surveillance allows the surveillance system to carry out more complex recording and reporting, but it is done in a relatively fast time with more valid results (Gouda, Richardson, Beaglehole, Bonita, & Lopez, 2015). The mobile health (mHealth) approach is used for surveillance in Africa. The use of mHealth is also useful, especially for follow-up efforts for Non Communicable Disease patients (Bloomfield et al., 2014).

The Covid-19 surveillance application for the community has accommodated Revision 5 of the Guidelines for the Prevention and Control of Coronavirus Disease (Covid-19) and can be accessed at http://surveilans.fkm.unair.ac.id/. The initial appearance of the application is presented in Figure 1.

This application is used as a support tool for recording and reporting the status of Covid-19 from the public. Socialization and how to use this application is carried out in conjunction with the socialization of the importance of implementing surveillance as an effort to prevent and control Covid-19 in the community. This application is not only used to record and report the status of Covid-19 to the public, but also contains important information about Covid-19. This information is presented in the form of

important information about Covid-19, infographics, and Frequently Asked Questions (FAQ).

Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 45 of 2014 concerning the Implementation of Health Surveillance, it is stated that one of the important components in implementing surveillance is the participation of the community. The community is a source of surveillance data that can be obtained both actively and passively. The community plays a role in conducting health surveillance to improve the quality of surveillance data and information.

Efficient surveillance activities are needed to collect information, take action, and control the Covid-19 pandemic. Surveillance data can be useful for early detection of Covid-19 cases, implementation of health protocols, and control measures. The surveillance indicators used are sensitivity, specificity of surveillance, timeliness and completeness of surveillance reports (Ibrahim, 2020).

The obstacle to implementing Covid-19 surveillance is that there are many Covid-19 cases that are in the confirmed stage or underreported. Covid-19 surveillance activities are also limited because mild cases do not usually seek treatment. In addition, the testing capacity is limited only for severe cases. Clinically detected cases represent only the tip of the iceberg of actual cases infected with Covid-19. Another obstacle is the lack of timeliness and completeness of reports. In addition, the quality of surveillance data in many developing countries is limited by several factors including resources and training (Ibrahim, 2020).

The very rapid spread of a pandemic poses a challenge in collecting exposure data to see the extent of disease spread. Thus hindering efforts to disseminate accurate and timely information, but it will also affect public health planning and clinical management. Thus, a real-time data collection platform is needed that is fast and prospective in collecting data. Mobile phone applications and web-based platforms can be used for independent population-level data collection which results can be quickly retrieved to provide health information (Drew et al., 2020).

5. CONCLUSION

The Covid-19 surveillance application for the community is built based on case definitions and recommendations contained in the Revised Guidelines for the Prevention and Control of Coronavirus Disease (Covid-19) 5. The Covid-19 surveillance application functions as a support for electronic recording and reporting and contains important forms of information about Covid. -19 in the form of infographics and Frequently Asked Questions (FAQ).

The results of testing the application of the Covid-19 surveillance application in the community show that this application is able to perform its function as data input and produce information about the status of Covid-19 and its recommendations quickly. There were obstacles when registering participants, but participants had the desire to continue to use the Covid-19 surveillance application because it was very helpful in determining the status of Covid-19 quickly and accurately.

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