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## Evaluation of the Covid-19 Surveillance System in Jayapura City, 2020

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### Abstract

**Background:** The strategy used by the government in controlling COVID-19 is through epidemiological surveillance of COVID-19, in addition to standard patient management, health promotion, prevention activities, logistics management and program monitoring and evaluation. The high number of COVID-19 cases in Indonesia does not mean that the government has not made comprehensive efforts to control it, but because the complexity of the COVID-19 problem, including its surveillance system, makes COVID-19 continue to be a problem in Indonesia. Based on data from the Jayapura City Health Office, the number of confirmed COVID-19 cases in Jayapura City from March to November 28 2020 was 5,563 cases. **Objective:** The purpose of this research is to find out how to evaluate the Covid-19 surveillance system in Jayapura City in 2020. **Methods:** The research method is mix methods (quantitative and qualitative research). The research subjects in this study were all COVID-19 data from March 2020 until this research took place and the informant was the person in charge of surveillance at 13 health centers and the Jayapura City Health Office with a total of 14 informants. Primary data sources come from observations and interviews with informants, while secondary data comes from COVID-19 data in Jayapura City. Data analysis in this study used the stages of data reduction, data presentation, evaluation and drawing conclusions. **Results:** Based on the research results, it was found that the input components were in accordance with the guidelines for the COVID-19 surveillance system in Jayapura City, namely the method and market, while the man, material and money were not in accordance with the guidelines.

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The process components that are in accordance with the COVID-19 surveillance system guidelines are tracing contact, data collection, reports and feedback, while planning, case investigations, data integration, data processing and analysis have not gone well. The output component is in accordance with the guidelines for the COVID-19 surveillance system in Jayapura City.

**Keywords:** Evaluation; Systems; Surveillance; COVID-19.

## **1. Introduction**

More than 6 (six) centuries ago, the scientific concept of mortality and morbidity surveillance began to emerge in Europe. Since the "Renaissance" era, the concept then spread to the American continent together with their droves entering the continent. Initially, surveillance was only concerned with life-threatening diseases, so death due to certain diseases was a concern at that time [1]. The increasing use of the concept of surveillance for epidemic approaches and prevention of infectious diseases began to be recognized in the twentieth century. In 1889 Great Britain began issuing compulsory reporting regulations for infectious diseases. The mandatory reporting of yellow fever, bubonic plague and smallpox came into effect in 1878 in America and since 1925 all states have had to report the disease to public health officials on a weekly basis. At this time the types of diseases that must be reported in the USA are increasing, including HIV and AIDS positive. In 1965, an Epidemiological Surveillance Unit was established in the infectious disease division of the WHO Center, Geneva [2]. Surveillance is an activity that has not been running well in Indonesia until now. With the issuance of Government Regulation (PP) No. 38/2007, one of which regulates the authority of the central and regional governments in the management and operation of the surveillance system, there is new momentum for development [3]. The presence of PP No. 38/2007 is a good bridge regarding the management and operation of the surveillance system because it can reinforce the standard and uniformity of the surveillance system at the central and regional levels, confirms the implementation of surveillance in the era of decentralization, pays attention to local specific conditions, and can increase compliance in the surveillance system. According to the Kepmenkes RI No. 1116 of 2003 concerning Guidelines for the Implementation of a Health Epidemiological Surveillance System, it is stated that surveillance is the process of collecting, processing, analyzing, interpreting data systematically and continuously and disseminating information to units in need for consideration in decision or policy making [4]. In 1987, a data-based Integrated Surveillance System (SST) was developed, the Puskesmas Integrated Reporting System (SP2TP), and the Hospital Reporting System (SPRS), which has undergone several changes and improvements. Besides the existence of SST, several surveillance systems have also been developed specifically for tuberculosis, malaria, dengue fever, measles, respiratory diseases and so on. The surveillance system needs to be developed and adjusted to the provisions of the Regulation of the Minister of Health of the Republic of Indonesia Number 1501 / MENKES / PER / X / 2010 concerning Certain Types of Infectious Diseases That Can Cause Outbreaks and Prevention Efforts [5], Decree of the Minister of Health N0.1116 / MENKES / SK / VIII / 2003 concerning Guidelines for the Implementation of a Health Epidemiological Surveillance System [3], Regulation of the Minister of Health of the Republic of Indonesia Number 45 of 2014 concerning the Implementation of Health Surveillance and the need for epidemiological information to support efforts to eradicate infectious and non-communicable diseases [6]. The epidemiological surveillance system is a procedure for administering epidemiological surveillance that is integrated between

surveillance units and laboratories, data sources, research centers, study centers and health program administrators, covering epidemiological surveillance relations among regencies / municipalities, provinces and centers [6]. The strategy used by the government in controlling COVID-19 is through epidemiological surveillance of COVID-19 in addition to standardized patient management, health promotion, prevention activities, logistics management and program monitoring and evaluation. The high number of COVID-19 cases in Indonesia does not mean that the government has not made comprehensive efforts to control it, but because the complexity of the COVID-19 problem, including its surveillance system, makes COVID-19 continue to be a problem in Indonesia [7]. The purpose of evaluating the public health surveillance system is to ensure that important public health problems are monitored effectively and efficiently. Community health surveillance systems should be evaluated periodically and the evaluation includes recommendations to improve quality, efficiency and utilization. The evaluation of the public health surveillance system focuses on how best the operation of the system can achieve its objectives. The increase in the number of COVID-19 cases is happening quite rapidly, and has spread to various countries in a short time. As of 9 July 2020, WHO reported 11,84,226 confirmed cases with 545,481 deaths worldwide (Case Fatality Rate / CFR 4.6%). Indonesia reported its first case on March 2, 2020. Cases are increasing and spreading rapidly throughout Indonesia. As of 9 July 2020 the Ministry of Health reported 70,736 confirmed COVID-19 cases with 3,417 deaths (CFR 4.8%) [7]. Data on confirmed cases of COVID-19 in Papua Province issued by the Papua Provincial Health Office from March 17, 2020 to March 27, 2020, were 11,635 cases. The details obtained were as many as 2,133 cases were treated, 9,325 cases recovered and 197 cases died (CFR 1.7%) [8]. Based on data from the Jayapura City Health Office, the number of confirmed COVID-19 cases in Jayapura City from March to November 28 2020 was 5,563 cases. The details obtained were as many as 978 cases were treated, recovered 4,494 cases and 91 cases died (CFR 1.6%) [9]. One of the main pillars of tackling the Covid-19 pandemic is good surveillance. Surveillance is not only data collection, but an ongoing systematic process, starting from data collection, processing, analysis, and interpretation, then submitting it for decision making materials. So, this is a long and comprehensive series, from data collection in the field to public policy decisions. The ultimate goal of Covid-19 surveillance is to break the chain of transmission and overcome morbidity and mortality. This means that good and strict surveillance is the key to reducing the morbidity and mortality rates, which are still high and worrying. The surveillance system for COVID-19 is still integrated with ILI and Pneumonia Surveillance, but the system has not been running well, indicated by the presence of positive confirmed case data at the Puskesmas but not included in the data of the Jayapura City Health Office. There is a data difference of 3% between the Puskesmas data and the Health Office data. In addition, a special SKDR for COVID-19 does not yet exist, while COVID-19 has become a pandemic in a large area, especially in the city of Jayapura. Based on the above problems, the researchers felt the need to conduct research on "Evaluation of the COVID-19 Surveillance System in Jayapura City."

## **2. Materials and Methods**

This research is a mix methods research, which is a study by combining two forms of research approaches, namely qualitative and quantitative. Mixed research is a research approach that combines qualitative research with quantitative research [10]. Meanwhile, according to Sugiyono (2011) mix method is a research method by combining two research methods at once, qualitative and quantitative in a research activity, so that more

comprehensive, valid, reliable, and objective data will be obtained [11]. In this study, a sequential mixed methods strategy was used, especially a sequential explanatory strategy. So, the first stage is to collect and analyze quantitative data, then from the quantitative data qualitative research is carried out using the observation method and structured interviews to answer the objectives of the COVID-19 Surveillance System Evaluation research in Jayapura City in 2020. The subjects in this study were all COVID-19 data starting from March 2020 until this research took place and the informant was the person in charge of surveillance at 13 Public Health Centers (Puskesmas, short for Pusat Kesehatan Masyarakat in Indonesian) in Jayapura City (Puskesmas Tanjung Ria (PKM1), Puskesmas Imbi (PKM2), Puskesmas Jayapura Utara (PKM3), Puskesmas Elly Uyo (PKM4), Puskesmas Twano (PKM5), Puskesmas Hamadi (PKM6), Puskesmas Kotaraja (PKM7), Puskesmas Abepura (PKM8), Puskesmas Waena (PKM9), Puskesmas Yoka (PKM10), Puskesmas Abe Pantai (PKM11), Puskesmas Koya Barat (PKM12), Puskesmas Skow (PKM13) and 1 person is in charge of surveillance at the Jayapura City Health Office (D1), so the total respondents in this study were 14 informants. This research was conducted at the Surveillance Section of 13 Public Health Centers in Jayapura City and the Surveillance Section of the Jayapura City Health Office. The research was conducted from December 17, 2020 to January 18, 2021, while COVID-19 data collection was taken from March until the study was conducted. Data were collected using deep-interviews and data analysis used 3 stages, namely data reduction, data presentation, evaluation, and drawing conclusions.

### **3. Result and Discussion**

#### **3.1. Input**

##### **3.1.1. Man**

Based on the results of observations and interviews, it was found that 100% of Puskesmas had COVID-19 surveillance personnel consisting of those in charge of surveillance, tracer personnel, laboratory personnel for swab taking, and COVID-19 vaccine immunization officers. 64.29% of those responsible for COVID-19 surveillance have not attended training on the management of COVID-19 surveillance. While training on the management of Swab collection, management of daily monitoring (Team Tracer) and management of the administration of the COVID-19 vaccine has been attended 100% by these officers through the Zoom Meeting held by the Ministry of Health and the Jayapura City Health Office. The Jayapura City Health Office has 1 surveillance staff who has never participated in training on COVID-19 surveillance management. The following is an excerpt from interviews with informants who have almost the same answers:

*"... Created a team of officers handling COVID-19, have never attended any COVID-19 surveillance training, there are throat and nose swab specimen laboratory personnel during an epidemiological investigation of a COVID-19 case, have participated in specimen collection training. There are medical personnel for daily monitoring for COVID-19 patients and have participated in self-isolating COVID-19 management training. There are Immunization personnel in the prevention and control of COVID-19 and have attended training on providing immunization to prevent the transmission of COVID-19 ..." (PKM 1, PKM 2, PKM 3, PKM 5, PKM 7, PKM 9, PKM 12, PKM 13, and D1)*

*"... There was a COVID-19 surety officer, had participated in COVID-19 surveillance training at the Grand*

*Hotel at that time, there were throat and nose swab specimen laboratory personnel and had attended specimen collection training at LABKESDA, there was a tracer officer for daily monitoring of COVID-19 patients and have attended training. There are Immunization personnel and have attended training on vaccine administration ... "(PKM 4, PKM 6, PKM 10)*

From the results of interviews with informants, it was concluded that the Puskesmas and the Health Office already had COVID-19 surveillance personnel, but on average they had never attended COVID-19 surveillance management training, while training for swab-taking laboratory personnel, monitoring officers and immunization officers had received training.

### **3.1.2. Money**

Based on the results of interviews with the evaluation of the COVID-19 surveillance system in Jayapura City, it was found that 100% of the Puskesmas did not have a special allocation of funds for the management of COVID-19 surveillance, the funds obtained by Puskesmas officers who came from the Ministry of Health were an incentive for the COVID-19 Team. 19 with the same amount of funds for all health workers who are included in the Puskesmas COVID-19 Team. The following is an excerpt from an interview with one of the informants, where all Puskesmas informants have almost the same answers:

*"... Last year there was no special funding for COVID-19, in 2021 the planning for BOK funds was included, all funds from the center, around 200 million for all from the Ministry of Health but for incentives for all officers ..." (PKM4)*

*"... There is no special funding for COVID-19 surveillance, surveillance funds in general come from the BOK of around 7 million, if you say it is enough, it may not be enough because that is the general surveillance fund, for all ..." (PKM 1, PKM 6 , PKM 10)*

*"... There is absolutely no surveillance funds in the BOK, especially for COVID-19, so there is no special funding for COVID-19 surveillance at all, but we get incentives for all the COVID-19 team personnel from the Ministry of Health, but we get the same for all officers, not differentiated for the surveillance staff themselves..." (PKM 2, PKM 3, PKM5, PKM 7, PKM 8, PKM 9, PKM 11, PKM 12)*

Fund for COVID-19 at the Health Office itself, apart from coming from the APBN, also comes from the Jayapura City APBD, here is an excerpt from the interview with the person in charge of surveillance at the Jayapura City Health Office:

*"... For the COVID-19 fund there is for that, if the amount of funds is only around transport, and the activity is funded by the Ministry of Health as well, then from the Department itself there is also transport, the origin of the funds is 1 from the agency, activity funds and funds. The Ministry of Health, the numbers do not know, if it is sufficient ... the team will be sufficient ... "(D1)*

### **3.1.3. Method**

Based on the results of observations and interviews on the evaluation of the COVID-19 surveillance system in Jayapura City, it was found that all (100%) Puskesmas and the Jayapura City Health Office had a COVID-19 Team Decree. 64.29% of the Puskesmas and the Jayapura City Health Office also have a Guidebook for the Management of Covid-19 Surveillance. 64.29% of health centers do not have SOPs for managing COVID-19 surveillance and SOP for daily monitoring of COVID-19 patients. 64.29% already have SOP for the administration of COVID-19 vaccines and SOP for taking live and throat swab specimens. The following is an excerpt from interviews with informants related to the Method:

*"... The COVID-19 Team Decree is available, the Revised Guidebook is up to revision 5, the SOP does not exist because the team's SK actually exists but does not run optimally, I have made SOPs for surveillance management, this monitoring SOP is not available, for retrieval. There are also no swab specimens, there is no SOP for vaccination because they have not yet been implemented ... "(PKM 1, PKM 2, PKM 3, PKM 4, PKM 7, PKM 8, PKM 9, PKM 11, PKM 12, and D1)*

*".. We have a Covid Team Decree, there is a guidebook but it has not been printed, there is an SOP for surveillance management, there is an SOP for daily monitoring, an SOP for taking swab specimens is available, an SOP for immunization is available ..." (PKM 5, PKM 6, PKM 10 )*

From the results of the interview, it was concluded that the input for the COVID-19 surveillance method in Jayapura City was not in accordance with the guidelines because on average Puskesmas did not have SOPs for managing COVID 19 surveillance and SOP for daily monitoring of independent isolation patients.

#### **3.1.4. Materials**

Based on the results of material observations of the COVID-19 Surveillance System in Jayapura City, it was found that all (100%) Puskesmas and the Jayapura City Health Office had adequate PPE in the form of masks, lab coats, gloves, eye protection (google) and head protection. . Availability of Surveillance Kits are also 100% available although most of them use private property, while computers and printers are still used together with other programs. The means of communication used for daily health monitoring are 100% of Puskesmas officers using personally owned cellphones, as well as vehicles used for contact tracing and 100% daily monitoring of officers using private two-wheelers. Availability of all Forms for COVID-19 surveillance in all puskesmas are 100% available. All (100%) Puskesmas in Jayapura City also have a nose and throat swab specimen collection area where all the places for taking swab are outside the Puskesmas building which have good air circulation. All Puskesmas also have the availability of consumables for taking nose and throat swab specimens from the Jayapura City Health Office or from the Labkesda if we submit a VTM request to that party. The following is an excerpt from the informant interview, which basically has something in common:

*"... For materials, there are masks, lab coats, google, gloves, for surveillance kits such as pens, pencils, rulers you use yourself, paper you use yourself, computers and printers exist but join other programs, the All record application and BPBD. there is an officer himself, a regular cellphone with personal use for monitoring, all forms are also available, projectors and infocus are available for the public, tracing officers use private*

*motorbikes, for swab collection places in the TB lab, for consumables for taking swab specimens from the Dinas .. "(PKM1, PKM 2, PKM 3, PKM 4, PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12, D1)*

### **3.1.5. Market**

The target of disseminating information on the results of COVID-19 surveillance at the Puskesmas is only needed or requested by the Health Office, the following are excerpts from the interview results which are essentially the same as other informants:

*"... From the internal party only asked by the Head of the Puskesmas, even if people from the Office asked for a report, they were also asked to be presented at the Linsek to explain how many confirmed numbers were in the area. ask for notification reports, close contact with daily monitoring of independent isolation patients, once also from the DPRD who made a working visit to our Puskesmas they also asked for confirmed data per village, they also asked from the urban village to help us find the address of a confirmed patient ... PKM 3, PKM 4, PKM 5, PKM 6, PKM 9, PKM 10, PKM 11, PKM 12)*

*"... From an internal party, no one asks for a report. Usually, the report is asked by an official, they usually ask for a report on the number of suspects examined by the swab, as well as close contact data, with daily monitoring. From outside, that's an official ..." (PKM 1, PKM 2, PKM 7, PKM 8)*

Based on the results of interviews with research informants regarding the evaluation of the Jayapura City surveillance system, it was found that the Puskesmas internal party did not request or need COVID-19 data other than being asked by the Head of the Puskesmas, and even then asked by the Head of the Puskesmas to be reported to the Jayapura City Health Office or to the Regional Head of Jayapura City at the time of implementing the Monitoring table Meanwhile, from external parties, besides the Jayapura City Health Office, most of the Heads of Kelurahan also asked for COVID-19 data at the Puskesmas in their working area to assist the Puskesmas in finding cases of close contact in their area. The data usually requested by the Health Office are the number of close contacts, daily monitoring of independent isolation patients and notification of COVID-19 cases in each Puskesmas work area. Meanwhile, the urban village office usually asks for confirmed data on COVID-19 in their area. The target of COVID-19 data at the Jayapura City Health Office itself comes from internal and external sources as quoted from the following interview:

*"... There was an internal agency requesting from P2, the data they asked for was cumulative data, confirmed data, recovered data, continued to suspect how many, from extraordinary like from Public Relations because to increase data from Public Relations which always updated the data, it was normal too. from foundations, foundations that they want to know the number of confirmed children and whether there are pregnant women or not, it is from the Kasih Ibu Foundation. Data on deaths are usually requested from the Funeral Service to which they have to update how many they have buried, don't let our data be with buried data. it's not the same, for example like that, they have reported 86 while we were only 80 people, for example, where did these 6 come from, it turns out that the hospital did not report it when their confirmed bodies were still buried under COVID-19 ... "(D1)*

From the results of these interviews, it can be concluded that the market or target for the dissemination of COVID-19 information is needed by internal and external parties from the Jayapura City Health Office, where this information is urgently needed by other relevant sectors and agencies. The data they need is in the form of cumulative data, confirmed data, suspect data, confirmed data on children and pregnant women and data on deaths due to COVID-19.

### 3.2. Process

#### 3.2.1. Planning

Based on the results of interviews with informants regarding the evaluation of the COVID-19 surveillance system in Jayapura City, it was found that on average Puskesmas had not carried out good planning starting from analyzing the COVID-19 surveillance system, drafting the concept of implementing COVID-19 surveillance to implementing the COVID-19 surveillance system -19. Most of the Puskesmas carry out spontaneous COVID-19 surveillance after receiving a confirmed case report from the Task Force Team or the Health Office without going through the planning process first. The following is an excerpt from an informant interview which is essentially the same.

*"... I don't understand the surveillance system analysis for planning, I don't think there is yet, there is no written implementation concept formulation, but if there is a strategy we use, the delivery is like that, if we meet like that, the surveillance section will collect data, for example. someone registers, we schedule it, then we ask their close contact, we schedule the swab, if there are results of the swab being monitored, during Minilok, we only talk about the number of cases, but if it's for planning anything, at most it's like the goods are out of stock ... PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 11, PKM 12)*

*"... There must be a general surveillance system analysis. Covid-19 surveillance actually exists. Only for internal, every month there are numbers that are positive, the number being treated, for general surveillance, from the very beginning of the Puskesmas, the officers must be available. surveillance, for COVID-19 itself is not specifically discussed but every time there is surveillance activity, surveillance is definitely pressed so that it runs well, because if it doesn't work, how can the reporting of COVID-19 work. In all activities, there must be surveillance. The first Puskesmas should send the new data source to the task force, then send back the data to the Puskesmas because the task force data contains a hospital report ... "(PKM 2, PKM 3, PKM 4, PKM 10)*

Covid-19 surveillance planning at the Health Office itself, excerpt from the informant interview as follows:

*"... For the planning to exist, usually we have to evaluate all officers to be more agile to seek close contact, that's what sometimes the problem is that if they step down, it's also rejection from the community, stigma from themselves and their friends and local residents to hide them, they don't want to. It is known. The implementation concept has never been drafted, but we have never had meetings for surveillance, it is rare, maybe because we are helped by BNPB from the SILACAK itself. Now we use an application that the tracer team is funded by BNPB, we are helped from that, if in the past Initially, we manually went to the field to find ... "(D1)*



Based on the results of the interview, it can be concluded that the COVID-19 surveillance planning process at the Puskesmas and the Health Office itself has not been running optimally, there is no system analysis process and the process of drafting the concept of implementing COVID-19 surveillance COVID-19.

### **3.2.2. Contact Tracing**

Finding close contact is a very important process in managing COVID-19 surveillance, here are excerpts from informant interviews, which are essentially the same as the others.

*"... We take positive data from patients we examine at the Puskesmas, if the results come out we automatically follow up by tracking to the patient's residence or by telephone, but the patients we get from our task force match what place of residence they live in. according to the kelurahan and our working area and it is filtered that those in the Puskesmas area will automatically be targeted for tracing as well. Direct contact searches with the community, three officers go down directly to confirm who their close contacts are, so apart from being on the phone if they are not cooperative, officers will go down. The swab check is scheduled after they are contacted by telephone, if they are willing and they want to cooperate and honestly say who are the close contacts we schedule for all of them, we usually schedule swab 2 times a week, Wednesday and Saturday. we immediately asked for the full address KTP, so what they send by nature at email or via WA or they immediately convey the names of the data, after that in the list in front, we will contact the swab one by one later, after they come, they are usually immediately called to match the name on the list, then directly diswab. Daily health monitoring is carried out by intrensip doctors by phone, most of them come by themselves for treatment, and if you see there are indications for swab, we recommend swab, so from the start there we have started taking action ... "(PKM 2, PKM 3, PKM 4, PKM 5, PKM, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12)*

*"... Identification of COVID-19 cases is only from the results of the swab, if there are patients we advise them to swab, then the results are immediately sent to the application, the samples are sent to LABKESDA, LITBANG too, which are empty, to search for close contacts, we tell the patient to come to the Puskesmas, if the patient has been confirmed we recommend that the family also be brought here for examination, there is tracing too, data from the Puskesmas data first then take the swab, the officer fills in the PE form, the patient comes straight for the swab ... "(PKM 1, PKM 7)*

Based on the interview, it was concluded that surveillance officers at the Puskesmas identified confirmed cases from the confirmed reports issued by the Health Office and from the results of the swab examinations carried out at the Puskesmas, then the person in charge for surveillance at the Puskesmas sorted by their working area then the Puskesmas COVID-19 team conducted a tracing contact to The confirmed patient's home to find a housemate contact case, after listing all the family, then the close contact is scheduled to do a swab at the Puskesmas. Health monitoring will be carried out by the tracer team for 14 days of quarantine by telephone to find out the condition of confirmed patients and close contacts who are in independent isolation. The interview excerpt related to Tracing Contact with the person in charge of surveillance of the Jayapura City Health Office is as follows:

*"... Tracing was carried out, came to confirmed houses, the Puskesmas did, sometimes we went down but not every day, but reports from the Puskesmas, for swab checks were carried out by the Puskesmas, and daily health monitoring was also carried out by Puskesmas officers ... (D1)*

Based on the results of the interview, it can be concluded that the tracing contact implementation process has run quite well at the Puskesmas level, officers have actively searched for close contact with the community and from the Health Office has monitored the implementation of the tracing contact by requesting a report on the number of close contacts, notification and daily monitoring.

### **3.2.3. Case Investigation**

The investigation of the COVID-19 case has not been going well, as with the results of the interview with the informant, the following is an excerpt from the informant interview:

*"... There is actually a Rapid Action Team, but no SK, no Cluster determination ..." (PKM 1)*

*"... There is no Rapid Action Team, no cluster determination ..." (PKM 2, PKM 3, PKM 5, PKM 9, PKM 12)*

*"... TGC is the same as the COVID-19 team, there is no cluster determination yet ..." (PKM 8)*

*"... The Fast Action Team actually exists with the head of the village, but the first time we can determine the clusters, for example there is a Pniel Church where we can quickly go down, like in Toyota, yesterday at STIE, tomorrow in Taspen again ..." (PKM 4 )*

*"... TGC is available, the road is surveillance, but there is no cluster determination ..." (PKM 6)*

*"... There is no TGC Team at the Health Office, there has never been a determination of the cluster ..." (D1)*

Based on interviews with informants regarding the evaluation of the COVID-19 surveillance system in Jayapura City, it can be concluded that the Puskesmas and the Health Office do not yet have a Rapid Action Team to investigate the COVID-19 case, so there has been no determination of a cluster in Jayapura City.

### **3.2.4. Data collection**

The process of collecting COVID-19 data in Jayapura City runs according to the guidelines, as with the following informant interview excerpt:

*"... We only look for the method of collecting suspect data from the anamnesis book and the MTBS, there is a symptom that is suspect, for probable there is no, for confirmed data we pass all records and from the task force, all records are recent, but at the beginning, the data from the task force, if for the collection of close contact data it had gone down through the tracer, for confirmed data on hospital care from the task force exel then processed by each village, the death data was also from the task force, beside it there was written death ..."*  
*"(PKM 2, PKM 3, PKM 4, PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12)*

*"... We take suspect data from anamnesis of patients who are running, our probable data is not available, for our confirmed data through all records, data from all positive records we go down to take, for confirmed data we have no hospitalization, mortality data There is also no data from the Puskesmas that we go down to ... "(PKM 2, PKM 7)*

Based on the results of observations and interviews with informants regarding the collection of COVID-19 data at health centers in Jayapura City, it was found that the collection of suspect data came from the medical record status of patients who had symptoms that matched the operational definition of the COVID-19 case, while their probable data never had. the data is because the hospital has never reported the data to the Puskesmas. Confirmed data collection comes from the report of the Jayapura City Cluster Team and comes from the All records application of each puskesmas. Collecting close contact data is carried out by conducting Tracing Contact on patients with confirmed COVID-19 in the work area of each Puskesmas. The collection of data confirmed for COVID-19 treated in hospitals and data on deaths were obtained from reports from the Jayapura City cluster team which were then sorted according to the work area of each Puskesmas. Data collection at the Health Office can be seen based on the informant interview excerpt as follows:

*"...There is no suspicion data collection, no supek data, probable data from the hospital, they were confirmed that the Puskesmas reported, Dian Harapan usually reported how many were treated independently, confirmed data from all records, all we can see from all large records, close contact data from tracing officers at the Puskesmas, collection of data on hospital cases from their reporting, they used to report, from all the records they swab they put in all of their records. The collection of data on deaths from hospitals directly reports to the Dinas..." (D1)*

Based on the results of interviews with informants at the Health Office, it can be concluded that the suspected and close contact data came from the Puskesmas, while the probable data, hospitalized patients and deaths came from hospital reports that the hospital reported directly to the Health Office, while confirmed data was collected through all online-based records sent from the Puskesmas, Hospitals and Litbangkes or Labkesda.

### **3.2.5. Data Processing and Analysis**

Based on the results of interviews with research informants, the results show that the processing and analysis of COVID-19 data, along with an excerpt from the informant interview:

*"... Processing and analysis of suspect data do not yet exist, the same probable does not yet exist, only confirmed raw data, close contact, all hospitalized cases and deaths are not available ..." (PKM 5)*

*"... We take the suspect data processing from the symptomatic patient register book, the probable data processing does not exist, we process the confirmed data from the task force to be sorted by sub-district, as well as the data treated at the hospital we process it from the task force data, the data death is also from the task force, but has never made data analysis ... "(PKM 2, PKM 3, PKM 4, PKM 6, PKM 8, PKM 9, PKM 10, PKM 13)*

*"... There has never been any processing and analysis of data on suspicion, probable, confirmed, hospitalization, and death ..." (PKM 1, PKM 7, PKM 12)*

*"... Puskesmas and the Health Office have processed data but have never analyzed COVID-19 data, here is an excerpt from an informant interview, which is essentially the same as other informants ..." (PKM 3, PKM 4, PKM 10)*

*"... Suspect data were processed from medical records and IMCI books with symptoms, no probable data, confirmed data processing came from all records and data from the task force sorted by urban village, close contact data were processed from contact tracing, patient case data. Hospitals are processed from the data of the task force which is sorted by kelurahan as well, as well as the data on deaths which are also processed from the task force which is separated based on the kelurahan in our work area, but we have never done data analysis ..." (PKM 11)*

*"... The process of processing the suspect data comes from the tracer data as well, usually, the suspect data that they carry out tracing, find the suspects and we can do a swab at the puskesmas, if the probable data is from the puskesmas and hospitals, the data processing process is confirmed mostly from all records. , processing close contact data from the health center, hospital care data from the hospital, directly entering the names, data on deaths also from the hospital directly reporting to the Dinas, but the CFR has never been calculated..." (D1)*

Based on the results of the surveillance system evaluation interview, it was concluded that the Puskesmas and the Health Office in Jayapura City only processed suspect data, close contacts, confirmed hospitalizations, and deaths, but had never analyzed the data.

### **3.2.6. Reports and Feedback**

Reports and feedback on the COVID-19 report in Jayapura City are as follows, as is the excerpt from the informant interview, which is essentially the same:

*"... The report is that he doesn't have any reports every month, meaning there is no routine report, we are just waiting from there, if they ask for the report we give, they ask for a report on how many close contacts we have because there is no routine report, either. There is no Covid-19 report in the SKDR, ILI is not necessarily COVID-19, I continue to give the report to the head of the Puskesmas, the head of the Puskesmas then forward it to the Health Office, No feedback from the Health Office so far, but provision of consumables for swab from the Health Office ..." (PKM 1, PKM 2, PKM 3 PKM 4, PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12, PKM 13)*

*"... Surveillance reports in the City of Jayapura from the number of cases, we usually increase the cumulative data that is reported every day from the City Service for Jayapura City, the flow of reports from hospitals, health centers, which we open from all records from the City to Provincial Offices, from all records, the center can also open and monitor, feedback from the city government has feedback, such as from the ministry itself they ask for verification of all records, now all are pointing to all records ..." (D1)*

Based on the results of interviews with research informants, it is concluded that the COVID-19 reports are reported in stages where the suspect reports and close contacts at the Puskesmas are processed by the person in charge of surveillance then reported to the Head of the Puskesmas then reported to the Health Office. Feedback from the Health Office was in the form of providing consumables for taking specimens for nose and throat swabs and PPE according to requests from each Puskesmas. Daily monitoring reports and notifications are also reported from the Tracer Team to the Head of the Puskesmas, then forwarded to the Health Office to be given feedback in the form of provision of vitamins given to confirmed cases of COVID-19 in the work area of each Puskesmas. The COVID-19 report in Jayapura City is quite good because it has used an online application that can be accessed directly by the Puskesmas, hospitals, the Health Office and the Ministry of Health.

### 3.2.7. Data Integration

Based on the results of interviews with informants, it was found that there was no data integration between the hospital and the Puskesmas regarding probable cases and confirmed cases of COVID-19 being treated at the hospital. The following is an excerpt from an informant, which is basically the same as all puskesmas:

*"... There is no integration of probable data or confirmed cases treated at the hospital to the puskesmas, if the integration of data from LITBANG and puskesmas exists because the sample is sent to LITBANG, LITBANG sends to all records, the same as LABKESDA, usually when the LITBANG is full we send it. to LABKESDA, if there are no other hospitals and others, there are always cases of patients also checking in private labs then coming to the puskesmas themselves if they are positive, if the Health Service and the Health Office there is always data integration except for private hospitals and labs. Puskesmas and the Health Office are different because in the past when they were still manual, the ones who made it different were those from private hospitals and labs, some who checked in private labs came independently to LPMP ... "(PKM 1, PKM 2, PKM 3 PKM 4, PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12, PKM 13)*

*"... If from the Province so far there have also been times for example, communication with them, sometimes there is, for example, between probable and confirmed, it often happens, never, for example with LITBANG and LABKESDA, private labs also now report like Prodia reports manually, want to At the end of the new year they report, if those who can do it are like Prodia's private lab, if the hospital also reports to all records. If the Health Office and the Puskesmas go well ... "(D1)*

From the results of the interview, it was concluded that the integration of swab examination data for suspected COVID-19 with Labkesda and R & D with Puskesmas was sent using the All Record application, but there was no integration of swab examination data from private laboratories with Puskesmas, confirmed patients who carried out independent examinations to a private lab that comes directly to the Puskesmas for further treatment. Data integration between the Puskesmas and the Health Office is good even though there are differences in data from confirmed cases that carry out independent examinations in private laboratories, but the Puskesmas will report to the Health Office if there are additional cases at the Puskesmas, and vice versa. The integration of probable and confirmed data treated at the hospital with the Health Office has been going well, although there is often miscommunication with the Provincial Health Office regarding data on probable cases and those

hospitalized.

### 3.2.8. Follow-up

Follow-up for COVID-19 surveillance to the community can be seen based on excerpts from informant interviews, which are essentially the same as other health centers:

*"... Follow up the surveillance system by providing education to confirmed individuals and families either in person or by phone, while we usually do counseling for the prevention of CODI-19 transmission to the general public in the puskesmas building for puskesmas visitors to comply with the protocol. health while at the puskesmas, as well as at the posyandu. The kelurahan also used to help us find the addresses of confirmed patients for us to trace. Feedback from the health office for the surveillance system at the puskesmas was the provision of VTM we needed for swab taking for suspects and close contact. ... "(PKM 1, PKM 3, PKM 4, PKM 5, PKM 6, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12, PKM 13)*

*"... Feedback to the community is most educated if it is confirmed that it is reported to the puskesmas which reports to them, so from us who get cases we send it to the puskesmas, the puskesmas that educates the community, counseling from the puskesmas, feedback from the puskesmas to the department, they report cases that are confirmed in them but not reported to us, feedback from the service to the puskesmas is the provision of VTM infrastructure that is requested to us, feedback from the City government to the Dinas is budgeting ... "(D1)*

Based on the results of interviews with research informants, it was concluded that there was feedback on the COVID-19 surveillance system to the community from the Puskesmas in the form of providing socialization on how to prevent transmission of COVID-19 in the work area of their respective Puskesmas, besides that the family also helped the Puskesmas in conducting tracing contact in their area. Feedback from the health office itself is in the form of providing consumables for taking nose and throat swab specimens as well as providing PPE for Puskesmas officers. The Jayapura City Government is also actively providing feedback to the Jayapura City Health Office by including COVID-19 funds in the Jayapura City APBD.

### 3.3. Output

The highest number of COVID-19 cases was found in Hamadi Village, namely positive (9,576%), recovered (9.995%) and died (10%). Meanwhile, the lowest number was in Enggros Village which was positive (0.015%), recovered (0.017%) and died does not exist (0%). There was an increase in new cases of COVID-19 from the beginning of the appearance of cases, namely March (8 cases) to July (925 cases), then there was a decrease in cases in August (300 cases), the peak of new cases was in October (1625 cases) and then decreased in November (786 cases) and December (544 cases). CFR COVID-19 data as of 28 March 2020 to 18 January 2021 by District, the highest CFR was in Heram District, namely 2.4% and the lowest was Muara Tami and North Jayapura Districts, namely 1.4%. The highest CFR of COVID-19 in Jayapura City in 2020 was in April (6.3%) and the lowest was in June (0.9%). Based on the results of observations of the research output, it was found that all health centers had 100% data on the number of suspects, confirmed cases, close contact,

confirmed hospital admissions, death data and suspect data taken by specimens, along with excerpts from informant interviews which are essentially the same:

*"... Data on the number of suspects is available, data on probable cases is not available, data on confirmed cases is available, confirmed data for those treated at the hospital are also available, only yesterday there was one positive, in the data that the cluster team was treated at the hospital, then I called how the situation was, the patient answered well, the mother was still cared for, the mother said I was never treated at home, sometimes I wrote it in the hospital, even though I was independent at home, there was also death data, all the suspected specimens were taken in all records, whereas CFR has not been calculated ... "(PKM 1, PKM 2, PKM 3, PKM 4, PKM 5, PKM 6, PKM 7, PKM 8, PKM 9, PKM 10, PKM 11, PKM 12, PKM 13)*

*"... There are data on the number of suspects, data on probable cases available, data on confirmed cases, data on hospital admissions, data on deaths, data on suspicion taken from specimens, CFR data if the last count was the head of the Kadis, only the Kadis mother could count because every day we increase the data, later the head of the Kadis will do the calculations ... "(D1)*

Based on the results of the interview, the following conclusions can be drawn, all Puskesmas and the Health Office have suspect data obtained from the outpatient register book, close contact data derived from tracing contacts of confirmed cases of COVID-19, confirmed data from COVID-19 apart from being obtained from the application. all records, also obtained from the Jayapura City task force report. Confirmed / probable data treated at the hospital and mortality data were obtained from the Jayapura City task force data. Suspect data or close contact specimens were taken from the All Record application that was entered by the respective Puskesmas officer. The CFR data has never been calculated by surveillance officers at the Puskesmas.

## **4. Discussion**

### **4.1. Input**

#### **4.1.1. Man**

The results showed that the health department surveillance officers had different main tasks and functions. Of the three officers, two are tasked with tracking, analyzing and interpreting data, while the other person is in charge of collecting and processing routine COVID-19 surveillance data. The number and qualifications of surveillance officers at the Jayapura City Health Office have not met the indicator Permenkes Number 45 of 2014 on Health Surveillance Implementation [6]. In the decree of the minister of health, it is stated that the implementation of a surveillance system at the district / city level requires 1 expert epidemiologist (S2), 2 expert epidemiologists (S1) or skilled and 1 general practitioner. The number and qualifications of officers at the existing Puskesmas level also do not meet the indicators based on the Decree of the Minister of Health Number 45 of 2014. This is because the regulation states that at the Puskesmas level in carrying out surveillance activities a minimum of 1 expert surveillance officer (S1 Kesehatan) is required, while The results showed that most of the officers were not surveillance experts because their education level was D3 Health. Training is needed so that officers are skilled in carrying out surveillance activities. The results showed that both the

COVID-19 surveillance officers at the city level and the Puskesmas, all (100%) had other jobs besides being surveillance officers. This makes it difficult for officers to carry out surveillance activities, especially in the division of work time. If the capacity of the surveillance personnel exceeds the limit, the surveillance will encounter problems. This occurs when a surveillance officer has a double job as a provider of other health services. Based on the surveillance attributes, the qualifications of human resources at the city and health center levels are not simple to carry out surveillance for COVID-19, especially due to the absence of training for officers and additional workload apart from being a COVID-19 surveillance officer.

#### **4.1.2. Money**

Based on the results of interviews using surveillance attributes, it is known that funding for COVID-19 surveillance at the city level is not yet simple. This is because there is no special funding for COVID-19 surveillance at the health center level, making it difficult for officers to carry out COVID-19 surveillance operations. Meanwhile, the funding for COVID-19 in the Health Office, which comes from the APBD, according to surveillance officers, is quite adequate. Funding at the Puskesmas level is the same as funding at the city level which cannot be said to be simple in terms of surveillance attributes, because officers feel that the available funds are not sufficient for operational activities, moreover, only 2 Puskesmas receive funding from Health Operational Assistance (BOK). However, in its implementation, officers are able to adapt to these changes (flexible), meaning that COVID-19 surveillance continues to run both at the city and health center levels with all limitations. COVID-19 surveillance is one of the Puskesmas operational activities that should receive special funds from BOK.

#### **4.1.3. Method**

The method used in data collection is in accordance with the COVID-19 surveillance management manual. The Puskesmas and Dinas Task Force Teams already have a decree as a legal umbrella for the implementation of COVID-19 surveillance, but some Puskesmas do not yet have an SOP, which is based on PERMENPAN No. 35 of 2012. Standard Operating Procedures are a series of standardized written instructions regarding the various processes of organizing organizational activities, how and when they should be carried out, where and by whom. SOP is one of the basics for health workers in carrying out activities, especially activities related to public services. Based on the results of the research, it was found that most of the health centers did not have SOPs for managing COVID-19 surveillance, SOP for daily monitoring of COVID-19 patients, and SOP for administering COVID-19 vaccines. However, most Puskesmas already have SOP for taking live and throat swab specimens.

#### **4.1.3. Material**

Most of the facilities for surveillance activities have been fulfilled, but at the Puskesmas level the facilities such as computers, telephones and printers are used interchangeably with other programs. This caused some officers to perform data processing and analysis manually. The use of computer based technology can speed up the reporting process rather than using paper based. Based on the type of report, it is known that all types of reporting used by the city-level COVID-19 surveillance officers are in accordance with the Guidelines for the



Management of Covid-19 Surveillance. Meanwhile, at the Puskesmas level, the complete reporting format used is as required.

#### **4.1.3. Market**

Market or information target is a place where the organization markets and disseminates its products (information). The purpose of this market is to create partnerships and networks. According to the surveillance guidebook, those involved in the COVID-19 surveillance system are related programs and sectors. Based on the results of the study, it is known that the target of information on the results of the implementation of COVID-19 surveillance at the Puskesmas consists of the head of the Puskesmas, the head of the village and the Jayapura City Health Office. The market availability resulting from the implementation of COVID-19 surveillance activities is in accordance with the existing guidelines. It can be said that the partnerships and networks built by COVID-19 surveillance officers are not yet optimal, because they only involve the Head of the Kelurahan, the City Health Office and the head of the Puskesmas. So that interventions and follow-up on COVID-19 control at the Puskesmas are still focused on the sufferer, such as making home visits to people with confirmed COVID-19 who are self-quarantined at home.

#### **4.2. Process**

##### **4.2.1. Planning**

Covid-19 surveillance planning is an activity or process of analyzing and understanding the COVID-19 surveillance system, drafting concepts and activities to be carried out in the COVID-19 surveillance system in Jayapura City. This stage is intended to obtain information about the conditions and problems faced by the Puskesmas through an analysis process of the collected COVID-19 data. Based on the analysis of the problem, the drafting of concepts and activities that will be carried out to handle the COVID-19 case is carried out at the Puskesmas and Health Office levels [7]. The results show that there has been no good planning in handling COVID-19 cases at the Puskesmas and Health Office levels because the person in charge of surveillance has never conducted an analysis of COVID-19 data in their respective work areas so that no drafting of concepts and activities will be carried out. related to the data that has been collected.

##### **4.2.2. Contact Tracing**

Based on the guidelines for the management of the COVID-19 surveillance system, contact tracing is a process to identify, assess and manage people who have close contact with confirmed / probable cases to prevent further transmission. Tracing coverage in Indonesia is still minimal. In the same class as DKI Jakarta, with the highest number of cases compared to other provinces, the average tracing ratio is only 1: 4 to 1: 5. While the WHO recommends 1:30, and the United States CDC minimum standard of 1:10. This means that one person is confirmed positive, at least 10 close contacts must be found. The limited number of PCR swab tests has slowed down tracing efforts. Tracking is effective if it is carried out 24 hours from the time the exposed person becomes symptomatic. However, this could not be done because the PCR test results did not come out until 3 days later. Even in some areas up to one week. Even when the health office staff and surveillance personnel receive a

positive case report from the laboratory, they do not necessarily do the tracing that day. All Puskesmas in Jayapura City already have Tracer teams to carry out close contact tracing, daily health monitoring for close contacts and confirmed cases of COVID-19 that are self-quarantined at home, but finding close contacts is still far from the indicators recommended by WHO.

#### ***4.2.3. Case Investigation***

The Rapid Action Team (TGC) has a very important role to update information on potential disease outbreaks, the speed of sharing the information across programs and sectors and to respond quickly and be able to solve problems. It is hoped that the establishment of TGC at the Puskesmas will increase the ability of officers to carry out their duties and be able to apply epidemiological surveillance in overcoming health problems, as well as diseases that have the potential for outbreaks, and diseases that can be prevented by immunization. TGC is expected to be able to work together in an integrated manner to build communication and coordination networks in overcoming health problems and to have the same commitment and perception to improve the quality of services in emergencies due to health problems such as outbreaks or outbreaks. (Admidigk, 2019). It is hoped that the Fast Action Team will be able to carry out investigations of COVID-19 cases and clusters in Jayapura City. Based on the research, it was found that most of the Puskesmas in Jayapura City did not yet have TGCs so that there had not been any determination of the cluster at the Puskesmas level or the Jayapura City Health Office itself.

#### ***4.2.4. Data Collection***

Looking at the context of their scientific capacity, epidemiologists can be placed at the forefront of collecting Covid-19 data, so that accurate evidence-based results are obtained in making decisions in taking further actions such as estimating the number of facilities and facilities for treatment and patient referrals, logistical needs and imposing social protection, administrative protection and environmental protection. Collecting data on COVID-19 at the Puskesmas level, apart from being sourced from primary data from the Puskesmas itself, also comes from secondary data sent from the Jayapura City Health Office. Primary data sourced from the Puskesmas itself are suscep data, close contact data, and most of the confirmed data comes from the All Record Application. Secondary data from Puskesmas originating from the Health Office are probable / confirmed data hospitalized and mortality data.

#### ***4.2.5. Data processing and analysis***

According to WHO (2004), surveillance is an activity of observation that is carried out continuously and systematically in the form of data collection, processing, data analysis, interpretation and dissemination of information on the incidence and distribution of disease and the factors that affect it in society so that countermeasures can be taken more effective. Processing and analysis of COVID-19 data is a process that is carried out on the collected data to be used as COVID-19 surveillance information in Jayapura City. The data that has been collected is actually processed and analyzed properly so that it can become health information that can be understood by all groups. The processing of COVID-19 data at Puskesmas in Jayapura City has been

carried out well, but no health center has yet conducted an analysis of the COVID-19 data in their respective work areas.

#### ***4.2.6. Reports and Feedback***

Recording and reporting of COVID 19 cases is carried out computerized by means of an online application-based way. In some areas that cannot report online, reporting is sent offline using the attached forms through an agreed mechanism. Offline reports from the health facilities will be inputted into the online application by the district / city health office. Online applications that have been prepared as a system for recording and reporting COVID-19 are: All Record TC-19 (<https://allrecord-tc19.kemkes.go.id>), and the COVID-19 Daily Reporting Online System (<https://s.id/reporthariancovid>). Each data element / variable related to surveillance is reported through the application, in accordance with the recording and reporting flow in the COVID-19 surveillance management manual. (Ministry of Health, 2020). Report on COVID-19 in Jayapura City is already based online, namely using the All Record application, but for daily reporting of COVID-19 it has not been going well because the application is not simple enough, making it difficult for officers to do daily reports through the daily application.

#### ***4.2.7. Data Integration***

Monitoring disease outbreak data in a certain area (epidemiology) requires integrated data support from each related surveillance unit. Data integration between surveillance units (health centers, polyclinics, hospitals) must be well managed and designed to allow health leaders and analysts to obtain, integrate, analyze and monitor data (disease cases) from different data sources. The data source comes from a heterogeneous system, in this case the data source is the surveillance unit. To facilitate the management of the surveillance data, a data center will be designed in an epidemiological data warehouse model to form an integrated surveillance system. The problems faced are related to interoperability, namely the ability to integrate and synchronize data sourced from systems with different platforms (heterogeneous). The process of compiling data from all Puskesmas, Polyclinics, Hospitals, Laboratories and all parties related to COVID-19 surveillance in Jayapura City has not been well integrated, there is no standard report format such as LB1, SKDR specifically for COVID-19 makes data integration between the Puskesmas and the hospital not integrated. and private laboratories. Data integration between the Puskesmas and the Jayapura City Health Office also often shows differences in data because some patients who carry out PCR examinations in private laboratories come to report independently to their regional Puskesmas if they are confirmed to have COVID-19.

#### ***4.2.8. Follow-up***

Based on the COVID-19 surveillance management guidelines, surveillance officers who have carried out contact identification and contact data collection activities will gather a team of both local health center officers, cadres, volunteers from PMI and other related parties. Ensure that the monitoring staff is fit and does not have comorbid diseases. Allocate one day to explain how to carry out monitoring, identify symptoms, take house observations, use PPE, prevent the transmission of other diseases and promote health for the community in the

environment. Risk communication must be conveyed in parallel to the public to prevent unwanted things, such as the emergence of stigma and discrimination due to ignorance. Provincial surveillance officers act as supervisors for surveillance officers at the district / city level. District / city surveillance officers act as supervisors for puskesmas officers [7]. Follow-up surveillance for COVID-19 from the Puskesmas to the community has been going quite well, where health center officers are actively providing health promotion to the public about COVID-19. Follow up from the Health Office to the Puskesmas has also been good because the Jayapura City Health Office has always prepared facilities and infrastructure to support the implementation of COVID-19 surveillance, as well as the follow-up from the Jayapura City government to the Health Office which has accommodated the implementation of COVID-19 surveillance in Jayapura City. .

#### **4.3. Output**

Covid-19 surveillance is also carried out in accordance with the mandate of Permenkes Number 45 of 2014, covering recording, reporting, data processing, and distribution of data and information based on national and regional needs as materials for policy making for COVID-19 prevention and control. Recording and reporting of cases related to COVID-19 must be an effective means of communication between health workers both at the regional and central level, so that information is continuous and efforts to control cases can be achieved. Therefore, the recording and reporting system for COVID-19 must be implemented quickly, accurately, completely and validly, with due observance of surveillance performance indicators, namely the completeness and accuracy of reports. Recording and reporting of COVID-19 is divided into case notification reports, delivery and specimen inspection reports, epidemiological investigation reports, contact tracking and monitoring, and aggregate daily reports. In general, the recording and reporting of COVID 19 cases is computerized by means of an online application based. In some areas that cannot report online, reporting is sent offline using the attached forms through an agreed mechanism. Offline reports from the health facilities will be inputted into the online application by the district / city health office [7]. The data on COVID-19 in Jayapura City is based on completeness and timeliness, because the recording and reporting of COVID-19 cases has been carried out by means of online applications based on applications, especially suscep data and close contact that the swab specimens were taken for because reporting was through the all record application, while data reporting notifications, mortality data, and probabilities have not been running well because the online daily report application is not yet running well.

#### **5. Conclusion**

The results of the discussion on the evaluation of the COVID-19 surveillance system in Jayapura City in 2020, it can be concluded that:

1. Evaluation The input of the COVID-19 surveillance system in Jayapura City has not met the standards or provisions that apply to man (personnel), there is no money (funds) specifically for the implementation of COVID-19 surveillance, there is no SOP for the management of COVID-19 surveillance for the method, matherial (computers and printers) that are used to create COVID-19 data are still joined by other programs, and the COVID-19 surveillance market (target) is in accordance with

the guidelines for managing COVID-19 surveillance.

2. Evaluation The process of the COVID-19 surveillance system is generally good, where Tracing Contact, data collection and processing have been running according to the COVID-19 surveillance management guidelines. Reports and feedback have also been running well because it is based on an online application, Data Integration has worked well between the Puskesmas and the Health Office or vice versa, there have been follow-ups from the Puskesmas to the community, the Health Office to the Puskesmas and the city government with the Jayapura City Health Office. There is no planning process, data analysis and investigation of COVID-19 cases in Jayapura City.
3. Evaluation of the output of the COVID-19 surveillance system in Jayapura City in 2020 based on completeness and timeliness is good because the recording and reporting of COVID-19 cases has been carried out by means of an online application-based method, especially the suspect and close contact data that swab specimens are taken because the reporting is through the all record application. Meanwhile, for reporting notification data, mortality data, and probable data have not been running well because the online daily report application has not been running well, while CFR data has never been calculated at the health center level.

## **6. Suggestion**

From the results of this study, the suggestions are as follows:

1. For Puskesmas in Jayapura City, it is recommended that they be able to propose health workers with a background in Epidemiology to the Jayapura City Health Office to be positioned as expert epidemiologists at the Puskesmas, allocate funds for COVID-19 surveillance activities and set up a special computer for surveillance reporting.
2. For the Jayapur City Health Office and other related agencies, it is recommended to provide training on the management of COVID-19 surveillance for surveillance officers at the Community Health Center and be able to plan programs related to efforts to prevent the transmission of COVID-19, such as providing information in the form of posters about COVID-19 in public places and the implementation of outreach activities about COVID-19 in mass media and other online media.
3. For further researchers, with reference to the research results that have been obtained, this research can be continued by further researchers with quantitative or qualitative research methods in order to obtain information that is more in-depth and different from previous research.

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