IMPLEMENTATION OF TELERADIOLOGY SERVICES POLICY IN HEALTHCARE FACILITIES

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KEYWORDS
Implementation; Policies; Teleradiology; DICOM; PACS

ABSTRACT
Teleradiology, according to Ministry of Health Regulation No. 20 of 2019, is a diagnostic radiology service that utilizes electronic transmission of images from all radiology modalities, along with supporting data, from Consultation Requesting Health Facilities to Consultation Provider Health Facilities. The goal is to analyze the implementation of teleradiology service policies in healthcare facilities and assess the supporting and inhibiting factors for the implementation of teleradiology service policies in healthcare facilities. The research method used in this study is descriptive qualitative. A total of 12 informants were interviewed, including individuals from Batin Mangunang Hospital, PON Hospital, and X Tambun Bekasi Hospital. Purposive and snowball techniques were employed to identify informants in this study, along with the use of data triangulation and ATLAS.ti software. The results of the implementation of teleradiology service policies at Batin Mangunang Hospital currently involve the use of the WhatsApp application for teleradiology services. Previously, in 2016, the hospital had used applications from the Ministry of Health, but this only lasted for a few months. The inhibiting factor is that the implementers do not fully understand and implement teleradiology services, mainly because they did not continue to provide funding sources and infrastructure facilities. The implementation of teleradiology service policies at PON Hospital for teleradiology services previously used teleradiology from the Ministry of Health and only ran for a few months. Currently, they use Picture Archiving And Communication System (PACS) facilities. The supporting factor is that the implementors understand teleradiology service policies related to DICOM usage standards.

DOI: 10.58860/ijsh.v2i10.120

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INTRODUCTION
To obtain high-quality and safe radiology services, good technical management and control are required, supported by appropriate infrastructure, personnel, and equipment (Amir, 2018). In order to ensure consistent quality in radiology services, a standard radiology service policy that can serve as a guideline is necessary (Kuzairi et al., 2017). Medical services that provide diagnoses and/or treatments using image guidance, encompassing both ionizing and non-ionizing radiation modalities, can be conducted by various healthcare facilities, whether owned by the central government, local government, or private healthcare facilities; this is the essence of clinical radiology services (Nurdaeniar, 2022). These healthcare facilities can include Hospitals (RS), Public Health Centers (Puskesmas), as well as Clinics.

Common issues often associated with the quality of radiology services in hospitals include relatively long waiting times, particularly for services like chest X-rays, which have the highest demand. Limited human resources, especially for radiology specialists who have numerous other
responsibilities such as meetings, professional seminars, leave, and other commitments, can also pose challenges. The absence of radiology specialists at the practice location results in delayed services, causing temporary disruptions in radiology service delivery. The interruption of radiology services is caused by a system that depends on the presence of radiology specialists at the facility. If this continues, it can significantly affect patient care, patient psychology, and the quality of service (Heri, 2019). The best step to follow up on quality radiology services is to innovate to address quality-related issues (Mas'uul & Marwati, 2020). One approach is to implement teleradiology in radiology services, which can reduce waiting times.

Through the Directorate of Referral Health Services, the Ministry of Health introduces telemedicine, a form of remote healthcare that utilizes telecommunications to transmit medical data, images, videos, and medical knowledge from one location to another. Teleradiology is one of the subsystems of telemedicine. This is based on the Minister of Health of the Republic of Indonesia's Decree No. 409/2016 on the Pilot Program of Telemedicine Services Based on Video-Conference and Teleradiology (Decree of the Minister of Health of the Republic of Indonesia Number 409 of 2016 concerning Trial Hospitals for Telemedicine Service Programs Based on Video-Conference and Teleradiology, 2016). In this context, teleradiology refers to diagnostic radiology services that electronically transmit images from all radiology modalities and supporting information from requesting healthcare facilities to consulting healthcare facilities, to gain expertise in diagnosis. Teleradiology provides unlimited access to radiology specialists in consulting healthcare facilities for healthcare facilities that do not yet have a Radiology Specialist.

Healthcare facilities that provide consultations and those that request consultations have specific tasks as stipulated by Ministry of Health regulations, which must be carried out during the implementation process, including the necessary requirements such as the availability of human resources, facilities, infrastructure, equipment, and applications. These services are carried out by qualified healthcare professionals (medical and health personnel) who hold practice licenses at the providing healthcare facilities and are in accordance with the standards and regulations established by the legislation (Lestari, 2021). This explanation shows that teleradiology services should be conducted between the consulting healthcare facility and the requesting healthcare facility and should meet several other requirements to provide teleradiology services.

Based on the first preliminary study conducted at the Ministry of Health's office in Kuningan, Jakarta, it was found that since 2019, pilot testing of telemedicine-based teleradiology services is no longer being conducted. The Ministry of Health has established Regulation No. 20/2019 concerning the implementation of telemedicine services between healthcare facilities (Regulation of the Minister of Health of the Republic of Indonesia Number 20 of 2019 concerning the Implementation of Telemedicine Services Between Health Service Facilities, 2019). The pilot program for teleradiology-based telemedicine services, selecting several hospitals as consulting healthcare facilities and requesting healthcare facilities, has been updated in its implementation process. The requirements stated in this regulation require healthcare facilities to follow the rules established by the Ministry of Health and be registered (Rosady et al., 2022). These new provisions have been included to assist and oversee the national rollout of telemedicine services by the Ministry of Health, provincial health offices, district/city health offices, and other relevant local regulations. The programs mentioned above aim to improve patient safety, service quality, and public protection against healthcare service threats.
In the second preliminary study, it was found that there are hospitals and healthcare facilities in the Bekasi area that electronically transmit images from all radiology modalities and supporting data not to consulting healthcare facilities, as stipulated by the Ministry of Health regulations, but to individual medical and healthcare personnel using electronic media such as email and social media, such as WhatsApp. The transmission is done using WhatsApp, and the image format is sent as JPEG. This process has been in place for several years and is considered effective for image expertise and speeding up radiology services at the hospital. However, its implementation does not yet follow the regulations issued by the Ministry of Health.

The aim of this research is to analyze the implementation of teleradiology service policies in healthcare facilities and to analyze the supporting and inhibiting factors for the implementation of teleradiology service policies in healthcare facilities using SWOT analysis as a recommendation.

This research is expected to provide benefits in the form of input for policymakers, especially in the implementation of teleradiology service policies in healthcare facilities, enhance the insights and knowledge of the authors, particularly for readers who are generally concerned with the implementation of teleradiology service policies in healthcare facilities, and serve as a reference for future academic writing.

METHOD

This is a qualitative research study that explores empirical facts about the implementation of teleradiology service policies in healthcare facilities in accordance with the Republic of Indonesia Minister of Health Regulation 20 of 2019 regarding Telemedicine Services Between Healthcare Facilities. The study involves observing the implementation of teleradiology service policies at various healthcare facilities, including Batin Mangunang Regional Hospital in the Tanggamus district, PON Hospital in Jakarta, and RS X Tambun in Bekasi. The selection of informants for this study is based on purposive and snowball sampling techniques. The researcher conducts observations of the implementation process of teleradiology service policies at the following healthcare facilities: the healthcare facility requesting consultations (Batin Mangunang Hospital in the Tanggamus district), the healthcare facility providing consultations (PON Hospital in Jakarta), and other healthcare facilities (RS X Tambun in Bekasi).

RESULTS AND DISCUSSION

Implementation policy service teleradiology at the facility service health contained in Minister of Health Regulation No. 20 of 2019, namely about Maintenance Telemedicine Services Between Facilities Health Services (Kamesworo Et Al., 2023). The success of implementing teleradiology service policies in healthcare facilities will vary depending on the characteristics, the level of understanding of the people in power, and the conditions in these health facilities. The implementation of teleradiology service policies in healthcare facilities aims to analyze the factors that support and inhibit their implementation.

Based on the data gathered from observations and interviews, the efforts to implement these policies have been carried out at Batin Mangunang Regional Hospital in the Tanggamus district and the National Brain Center Hospital, following the teleradiology system established by the Ministry of Health. However, at this moment, these efforts have not been fully completed due to several barriers. In contrast, RS X Tambun in Bekasi has not yet fully implemented the teleradiology service policy as
prescribed by the Ministry of Health. Hospital X Tambun Bekasi continues to provide teleradiology services outside the existing regulations set by the Ministry of Health.

**Batin Mangunang Regional Hospital (Health Facilities Requester Consultation)**

Batin Mangunang Regional Hospital was previously known as RSUD Kotaagung. It officially changed its name to Batin Mangunang Regional Hospital when Regional Regulation Number 51/2017, dated December 12, 2017, came into effect. It is located in the Tanggamus district. The name "Mangunang" commemorates a heroic figure from the coastal Lampung area who opposed Dutch colonialists in the Gulf region from 1820 to 1833. Naming the hospital after Batin Mangunang serves to inspire the people of Tanggamus to emulate the heroic struggle of this historical figure.

This hospital has the status of a Regional Public Service Agency (BLUD) and is classified as a class C hospital. It is owned by the Tanggamus Regency Government and occupies a significant area of land, covering 57,925 square meters, with a building area of 5,975 square meters. According to data from the Ministry of Health, Batin Mangunang Regional Hospital offers 118 patient beds, catering to various service classes, including class I, class II, class III, HCU, isolation without negative pressure, and a special emergency room for Covid-19 cases. The hospital provides a wide range of medical services, including general medicine, dentistry, MCH/KB, 24-hour emergency services, internal medicine, pediatrics, surgery, obstetrics and gynecology, anesthesia, and radiology.

**List of Workers Radiation**

Installation radiology own source Power man For do service health as shown in table 1 below:

**Table 1 List of Workers Radiation at Batin Mangunang Regional Hospital district Tanggamus (Health Facilities Requester Consultation)**

<table>
<thead>
<tr>
<th>Power Type</th>
<th>Qualification Have SIP/STR/SIB</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiology Specialist Doctor</td>
<td>Specialist Doctor Radiology</td>
<td>1</td>
</tr>
<tr>
<td>Radiographer</td>
<td>D-III Radiological Engineering</td>
<td>5</td>
</tr>
<tr>
<td>Physicist Medical &amp; PPR</td>
<td>S-1 Physicist Medic</td>
<td>1</td>
</tr>
<tr>
<td>General Administration</td>
<td>SENIOR HIGH SCHOOL</td>
<td>1</td>
</tr>
<tr>
<td>Technology Information</td>
<td>D-III Radiological Engineering</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Document Report Installation Radiology at Batin Mangunang Regional Hospital district Tanggamus Year 2023

Table 1 explains that at Batin Mangunang Regional Hospital district Tanggamus has 9 radiation workers.

**Radiology Services**

The Radiology department at Batin Mangunang Regional Hospital in Kab. Tanggamus has a well-organized structure, enabling it to effectively perform its service functions. The organizational structure of the Radiology department is an integral part of the larger organizational structure of Batin Mangunang Regional Hospital. Radiology services encompass diagnostic procedures that utilize both ionizing and non-ionizing radiation, which includes radiodiagnostic services. Radiodiagnostic services comprise conventional services, while non-ionizing services encompass ultrasound examinations (USG). Radiodiagnostic services are primarily conducted within the radiology installation room, which includes a conventional radiology room, a patient waiting area, and an operator room.

Scope service observed radiology in accordance with table 2 below:
Table 2 Coverage Service Radiology at Batin Mangunang Regional Hospital district Tanggamus (Fasyankes Requester Consultation)

<table>
<thead>
<tr>
<th>No</th>
<th>Scope Service Radiology</th>
<th>Observed Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modality</td>
<td>Amount The modalities owned by Batin Mangunang Regional Hospital are 2 (two) units. Which consists of 1 (one) conventional radiology tool and an ultrasound (USG) tool</td>
</tr>
<tr>
<td>2</td>
<td>Worker Radiation</td>
<td>Amount worker radiation 9 (Nine) people.</td>
</tr>
<tr>
<td>3</td>
<td>Implemented teleradiology</td>
<td>Teleradiology done 2016 through appointment health facilities requester consultation. Right now, that's it replaced with utilization application WhatsApp for send picture radiology.</td>
</tr>
<tr>
<td>4</td>
<td>Regulations</td>
<td>Regulations used is Minister of Health Regulation No. 20 of 2019 for regulation teleradiology and Minister of Health Decree No. 409 of 2016 for appointment health facilities requester consultation.</td>
</tr>
<tr>
<td>5</td>
<td>Person in charge of service teleradiology</td>
<td>Parties involved in service teleradiology is appointed hospital management Ka.Inst.Radiology</td>
</tr>
</tbody>
</table>

Checklist Document

Based on results grouping document obtained some data as in table 3 below:

Table 3 Checklist Documents On Service Radiology at Batin Mangunang Regional Hospital district Tanggamus (Fasyankes Requester Consultation)

<table>
<thead>
<tr>
<th>No</th>
<th>Element Study</th>
<th>Checklist</th>
<th>There is</th>
<th>There isn’t any</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regulation legislation (regulation general)</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Source SK Power man</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Structure organization teleradiology</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Policies in Hospitals</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>5</td>
<td>Standard Operational Procedure (Ministry of Health)</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Proof of implementation in the field</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Standard Operational Procedure (by whatsapp)</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. Jakarta National Brain Center Hospital (Fasyankes Giver Consultation)

The National Brain Center Hospital is expected to become a comprehensive healthcare facility specializing in brain and nerve care, setting an example for handling neurological cases in Indonesia. This general class A hospital, which falls under the Ministry of Health, is located on Jalan MT Haryono in Jakarta. The hospital boasts an 11,000-square-meter rectangular area and an 11-story building, commencing its operations on July 1, 2013.

With a focus on enhancing the quality of service for the community, the National Brain Center Hospital is committed to prioritizing patient safety, improving access, and ensuring customer satisfaction. It also continuously adapts and upgrades its services in accordance with technological advancements and customer needs. The success of these plans will be evaluated through indicators, including certification and accreditation from JCI (Joint Commission International).

Among its various specialties, stroke is given particular attention, requiring a dedicated and comprehensive management team to provide fast, precise, and accurate care. Based on its commitment to quality, the National Brain Center Hospital has been established as a Center of Excellence in Advanced Clinical Care, Restoration and Rehabilitation, Education and Training, Basic Clinical and Comprehensive Research, Product Development, and Community Policy Development.

List of Workers Radiation

Installation radiology own source Power man For do service health as shown in table 4 below:
Table 4 List of Workers Radiation at the National Brain Center Hospital (Fasyankes Giver Consultation)

<table>
<thead>
<tr>
<th>Power Type</th>
<th>Qualification Have SIP/STR/SIB</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Doctor</td>
<td>Specialist Doctor Radiology</td>
<td>3</td>
</tr>
<tr>
<td>Radiographer</td>
<td>D-III &amp; DIV Radiological Engineering</td>
<td>30</td>
</tr>
<tr>
<td>Physicist Medic</td>
<td>S-1 Physicist Medic</td>
<td>1</td>
</tr>
<tr>
<td>PPR</td>
<td>Physicist Medic</td>
<td>1</td>
</tr>
<tr>
<td>General Administration</td>
<td>S1</td>
<td>1</td>
</tr>
<tr>
<td>Worker</td>
<td>SENIOR HIGH SCHOOL</td>
<td>1</td>
</tr>
<tr>
<td>Nurse Radiology</td>
<td>Bachelor of Nursing, Nurse</td>
<td>4</td>
</tr>
<tr>
<td>Technology Information</td>
<td>DIV Radiology Engineering &amp; S1 Computer</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>43</td>
</tr>
</tbody>
</table>

Source: Document Report Installation Radiology at the National Brain Center Hospital in 2023

Table 4 explains that at the National Brain Center Hospital there are 43 workers radiation with various profession and discipline mutual knowledge synergize For produce quality the best service.

Service Radiology

The National Brain Center Hospital offers a range of diagnostic imaging services, including Digital Radiography (DR), ultrasonography, a 256-slice Computed Tomography (CT Scan), and a 3 Tesla Magnetic Resonance Imaging (MRI) to enhance the accuracy of medical diagnoses. Digital Radiography involves the use of X-rays to evaluate various organs within the body, including the chest (heart and lungs), stomach, and bones throughout the body. At the National Brain Center Hospital, this examination is performed using a digital system, resulting in sharper and more precise images.

CT Scan, a modality that uses X-ray radiation and computer technology, allows for detailed examination of internal organs in the head, neck, chest, abdomen, and limbs. The hospital's CT scan equipment, featuring 256 slices, enables faster and more accurate imaging. This CT scan is particularly effective for specialized examinations of blood vessels, such as those in the head, heart, and limbs. Additionally, it can be used to assess heart blood vessels without the need for heart-rate-lowering medications and to evaluate brain perfusion (blood flow).

These examinations play a crucial role in the early treatment of acute stroke by distinguishing between bleeding and non-bleeding stroke types, assessing blood vessel conditions, and evaluating brain perfusion. This information is invaluable for making decisions about stroke management, enabling faster interventions and potentially minimizing disability. The National Brain Center Hospital's ultrasound capabilities allow for the assessment of internal organs, such as those within the abdomen, as well as surface organs like muscles, nerves, thyroid, and breasts. Using Doppler techniques, the examination of blood vessels can also be conducted. MRI examinations utilize magnetic fields to provide a comprehensive view of the body's internal organs. This thorough examination is highly beneficial for medical diagnostics and evaluation (Caldwell et al., 2022). In cases of stroke due to blockage vessels blood acute (very early), MRI can detect very early disorders, which are not can assessed with method other. MRI 3 Tesla has the most up-to-date technology possible evaluation to abnormalities in the brain like a tumor with mark very high diagnostic and precision, so can differentiate types of benign and malignant tumors. At the National Brain Center Hospital it is also available package inspection For evaluate function parts brain in a way Specific as
part from handling tumor patients so effect side surgery minimum maybe. There are also C-Arm tools and tools Cathlab as tool addition interventional diagnostic, as well Panoramic tool for diagnostics in clinic National Brain Center Hospital teeth.

Scope service observed radiology in accordance with table 5 below:

Table 5 Coverage Service Radiology at PON Hospital (Easyandes Giver Consultation)

<table>
<thead>
<tr>
<th>No</th>
<th>Scope Service Radiology</th>
<th>Observed Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modality</td>
<td>Amount The modalities owned by PON Hospital are 12 (twelve) units consisting of from CT-Scan 256 slices 1 (one) unit, CT-Scan 128 slices 1 (one) unit, MRI 1 (one) unit, digital radiography (DR) 1 (one) unit, Panoramic 1 (one) unit, Mirra -Ray Mobile 2 (two) units, ultrasonography (USG) 1 (one) unit, C-Arm 2 (two) units and tools cathlab 2 (two) units.</td>
</tr>
<tr>
<td>2</td>
<td>Worker Radiation</td>
<td>The number of radiation workers is 43 (forty three) people</td>
</tr>
<tr>
<td>3</td>
<td>Implemented teleradiology</td>
<td>Teleradiology done 2016 through appointment health facilities giver consultation. Currently implemented is service use system picture archiving communications system (PACS)</td>
</tr>
<tr>
<td>4</td>
<td>Regulations</td>
<td>Regulations used is Minister of Health Regulation No. 20 of 2019 for regulation teleradiology and Minister of Health Decree No. 409 of 2016 for appointment health facilities giver consultation</td>
</tr>
<tr>
<td>5</td>
<td>Person in charge of service teleradiology</td>
<td>Parties involved in service teleradiology is Hospital management appointed Inst. Radiology</td>
</tr>
</tbody>
</table>

Checklist Document

Based on results grouping document obtained some data as in table 6 below:

Table 6 Checklist Documents On Service PON Hospital Radiology (Health Facilities Giver Consultation)

<table>
<thead>
<tr>
<th>No</th>
<th>Element Study</th>
<th>Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regulation legislation ( regulation general )</td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>Source SK Power man</td>
<td>√</td>
</tr>
<tr>
<td>3</td>
<td>Structure organization teleradiology</td>
<td>√</td>
</tr>
<tr>
<td>4</td>
<td>Policies in Hospitals</td>
<td>√</td>
</tr>
<tr>
<td>5</td>
<td>Standard Operational Procedure ( Ministry of Health )</td>
<td>√</td>
</tr>
<tr>
<td>6</td>
<td>Proof of implementation in the field</td>
<td>√</td>
</tr>
</tbody>
</table>

B. Hospital X Tambun Bekasi (Other Health Facilities)

Hospital X Tambun Bekasi adopted its official name from a healthcare facility previously known as a clinic in the Tambun Bekasi area. The hospital was granted its official name in 2012, following the approval of its operational status by the Head of the Bekasi District Health Service. Prior to becoming a hospital, Hospital X Tambun Bekasi operated as a general practitioner's clinic, established by Dr. Typical Jonny BS, famously referred to as "Dr. J." This clinic, known as Dr. J Clinic, was established in 1995 with a mission to provide proper healthcare services to the economically disadvantaged in the community. In its early days, Dr. J. not only managed the clinic but also frequently attended to critically ill patients on-site and made house calls to provide medical care. Over time, the clinic expanded its service coverage and continually grew to meet the increasing healthcare needs of the community.

Since end in 2012, Clinic Dr. J has obtain permission Hospital operations from Head of the Bekasi District Health Service above the name of Hospital X Tambun Bekasi as Name disguise. Clinic Dr. J has official become a hospital and can operate as a Class D Primary Hospital based on
Minister of Health Regulation no. 24 of 2014 concerning Class D Pratama Hospitals with capacity take care stay as many as 45 places sleep. Currently Hospital X Tambun Bekasi is working on project development land and development facilities and infrastructure new. To use increase class Hospital services up to reach class C with specialization in the field transplant kidney. RS X Tambun Bekasi has the vision to become a coveted hospital Bekasi community. A number of poly services provided including, general, teeth & mouth, disease in, obstetrics and gynecology, pediatrics, and surgery general. Apart from that there is service support medical which includes, laboratory, radiology, pharmacy, etc.

**List of Workers Radiation**

Installation radiology own source Power man for do service health as shown in table 7 below:

**Table 7 List of Workers Radiation at Hospital X Tambun Bekasi (Other Health Facilities)**

<table>
<thead>
<tr>
<th>Power Type</th>
<th>Qualification Have SIP/STR/SIB</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Doctor</td>
<td>Specialist Doctor Radiology</td>
<td>1</td>
</tr>
<tr>
<td>Radiographer (includes PPR)</td>
<td>D-III Radiological Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Technology Information</td>
<td>D-III Radiological Engineering</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

(Source: Document Report Installation Radiology Hospital X Tambun Bekasi 2023)

Table 7 explains that at Hospital X Tambun Bekasi there are 6 workers radiation.

**Service Radiology**

The radiology unit at X Tambun Bekasi Hospital offers diagnostic services that utilize both ionizing and non-ionizing radiation, including radiodiagnostic services. Radiodiagnostic services encompass conventional services, while non-ionizing services include ultrasound (USG) examinations. The radiodiagnostic services are primarily conducted within the radiology unit, which includes a conventional radiology room, a patient waiting area, and an operating room. The radiology unit's services extend to emergency unit patients, outpatient care, and inpatient care. The outpatient care services comprise general medical care, internal medicine, maternal and child health (family planning services - KIA/KB), and pediatric healthcare services.

Scope service observed radiology in accordance with table 8 below:

**Table 8 Coverage Service Radiology Hospital X Tambun Bekasi (Other Health Facilities)**

<table>
<thead>
<tr>
<th>No</th>
<th>Scope Service Radiology</th>
<th>Aspects Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modality</td>
<td>Amount The modalities owned by RS X Tambun Bekasi are 3 (three) units consisting of from 1 (one) unit of conventional x-ray equipment, 1 (one) unit of mobile x-ray equipment and 1 (one) unit of ultrasonography (USG)</td>
</tr>
<tr>
<td>2</td>
<td>Worker Radiation</td>
<td>Amount worker radiation 6 (six) people</td>
</tr>
<tr>
<td>3</td>
<td>Implemented teleradiology</td>
<td>Teleradiology performed is with utilize application WhatsApp For send picture radiology. Already walk from year</td>
</tr>
<tr>
<td>4</td>
<td>Regulations</td>
<td>Haven't used yet regulations Minister of Health Regulation No. 20 of 2019 for regulation teleradiology</td>
</tr>
<tr>
<td>5</td>
<td>Person in charge of service teleradiology</td>
<td>Parties involved _ in service teleradiology is the hospital management that handed over policy to part radiology</td>
</tr>
</tbody>
</table>

**Checklist Document**

Based on results grouping document obtained some data as in table 9 below:
Table 9 Checklist Documents On Service Radiology Hospital X Tambun Bekasi (Other Health Facilities)

<table>
<thead>
<tr>
<th>No</th>
<th>Element Study</th>
<th>Checklist</th>
<th>There is</th>
<th>There isn’t any</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regulation legislation (regulation general)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Source SK Power man</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Structure organization teleradiology</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Policies in Hospitals</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Standard Operational Procedure</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Proof of implementation in the field</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data that the researchers obtained is related to the implementation of the teleradiology service policy in various healthcare facilities. This includes Bakti Mangunang Regional Hospital in the Tanggamus district, which serves as the healthcare facility requesting consultation, National Brain Center Hospital (PON Hospital) as the healthcare facility providing consultation, and Hospital X Tambun Bekasi as another healthcare facility. This implementation is in accordance with Minister of Health Regulation No. 20 of 2019 regarding the maintenance of intermediary telemedicine services in healthcare facilities.

A. Bakti Mangunang Regional Hospital district Tanggamus (Fasyankes Requester Consultation)

The implementation of the teleradiology service policy at Batin Mangunang Regional Hospital in the Tanggamus district primarily aims to enhance the quality of radiology services, especially by reducing the waiting time for the interpretation of radiology films or results. An old and classic problem, which has historically hindered the prompt reading of radiology films, has now been significantly mitigated, resulting in increased efficiency from a time perspective. Based on the data gathered from observations and interviews, it is evident that efforts to implement the teleradiology service policy have been incorporated into the healthcare facility's standard operational procedures (SPO). However, it is important to note that not all aspects of the teleradiology service have been fully integrated into the SPO, particularly for the ongoing teleradiology services.

The initial implementation of teleradiology services adhered to the instructions and guidance provided by the Ministry of Health and was supported by the necessary equipment during the initial months of implementation. However, various conditions and circumstances have prevented further progress since then. Presently, teleradiology services have become simpler in terms of the equipment required and are cost-effective. This simplification is largely attributed to the utilization of features on social media platforms, such as the use of the WhatsApp application for sending images in JPEG format, which has significantly streamlined the process.

Initially, the standard format for radiology film results was in the original DICOM format. However, it was later changed to the JPEG format, and the images were sent to specialized radiology doctors via WhatsApp. This shift in format has significantly reduced the time it takes for the images to reach the doctors.

Batin Mangunang Regional Hospital's response to the implementation of teleradiology services was initially aligned with the system provided by the Ministry of Health. The implementation started as planned but encountered several challenges that hindered its progress. One key challenge was the availability of specialist radiology doctors, and another was related to the financial burden of meeting the requirements for radiology film distribution, which was borne by Batin Mangunang Regional Hospital itself.
To date, the use of teleradiology, as specified in Minister of Health Regulation No. 20 of 2019, has not been fully executed due to various technical and non-technical constraints. As an alternative, the hospital has continued to provide radiology services using information and communication technology, choosing to use the WhatsApp application as the most effective solution. This choice was based on the convenience of WhatsApp for both staff and specialist radiology doctors.

In terms of human resources and infrastructure, the health facilities requesting consultation have met the necessary requirements as per regulations. Their tasks have been executed in accordance with established guidelines and standards. The availability of infrastructure, equipment, applications, and timing aligns with the standards set by the Ministry of Health. However, the sustainability of teleradiology services is hindered by challenges related to internet network issues, procurement from suppliers, and a lack of financial certainty between supporting and supported hospitals. Consequently, the hospital has opted to use WhatsApp as the medium for delivering radiology films to specialists.

Another reason for using the teleradiology system based on the WhatsApp application, after the discontinuation of teleradiology by the Ministry of Health, is to enable the radiology department to continue meeting quality indicators for radiology examinations. These indicators include ensuring that chest X-ray examinations are completed within 3 hours and that critical radiology reads are done within 1 hour.

Based on the observational data collected by researchers, the continued use of the teleradiology system as per the Ministry of Health's guidelines has revealed the need for evaluation and improvements. The necessary improvements pertain not only to the application system itself but also to the establishment of clear rates and policies for interpreting the results by the supporting hospital, with a focus on expediting the process. It is important to remember that one of the primary goals of implementing teleradiology services is to enhance the speed of radiology services, particularly in reducing waiting times.

Information provided by the informants highlights the fact that the Ministry of Health's teleradiology implementation at Batin Mangunang Regional Hospital was closely related to several essential factors, which were discussed extensively with policy makers from the Ministry of Health and the management of both the supporting and the managed hospitals. Additionally, information shared by specialist radiologists emphasizes the significant hope that potential obstacles, particularly in areas with a high volume of patients, can be addressed through the teleradiology system. The key to overcoming these challenges lies in maintaining the quality of the images produced by radiology equipment and ensuring that the radiologist receives high-quality images for interpretation. Thus, finding a suitable modality or delivery medium that can accommodate these needs is crucial.

Following channel service teleradiology based application whatsapp the researcher get:

![Chart 1 Teleradiology flow based application whatsapp at Batin Mangunang Hospital as health facilities requester consultation (Processed research data 2023)]
Chart 1 above describes the process in which a radiographer conducts an examination of a patient and obtains the results in DICOM format. These results are then converted using computer radiography (CR) tools into JPEG format. Subsequently, the images are sent through the WhatsApp application to a specialist radiologist for interpretation. Afterward, the radiologist sends the expert results back to the radiographer, who then provides them to the patient and stores them in an archive.

**B. National Brain Center Hospital (Fasyankes giver consultation)**

The response of PON Hospital's management to the implementation of teleradiology services initially involved aligning with the existing system provided by the Ministry of Health. However, at the outset, the implementation did not progress as expected, primarily due to a lack of full understanding of the policy regarding teleradiology services. As of the present moment, the use of teleradiology services, as specified in Minister of Health Regulation No. 20 of 2019, has not been fully executed due to several technical and non-technical constraints. The most significant obstacle is related to internet network limitations, which impede the smooth operation of teleradiology services.

These challenges are also linked to issues with equipment compatibility, which hinders the Ministry of Health's teleradiology services from functioning effectively. Up to the current time, radiology services at PON Hospital are conducted using a Picture Archiving & Communication System (PACS) that utilizes the hospital's intranet and internet facilities.

PON Hospital has been utilizing a PACS system since its inception in 2014, providing excellent service. In cases where the Requesting Hospital for consultation (Batin Mangunang Regional Hospital) utilizes teleradiology based on the WhatsApp application to facilitate the reading of radiology results, PON Hospital employs the latest PACS technology known as FujiFilm PACS Synapse. The use of this device significantly shortens the process of delivering results, eliminating the need to convert images from DICOM to JPEG for radiology specialists located outside of PON Hospital. The availability of human resources meets the necessary requirements and is in compliance with regulations, with each individual occupying a position based on their profession.

**Hospital X Tambun Bekasi (Other Health Facilities)**

The implementation of the teleradiology policy at RS X Tambun Bekasi has the general goal of enhancing the quality of radiology services, particularly by reducing the waiting time for radiology film results to be read by experts. However, the challenge lies in the fact that a radiology specialist cannot be on standby 24 hours a day, posing a unique challenge for the hospital to maintain efficient wait times while ensuring quality service. Based on observational data and interviews, it is observed that the implementation of the teleradiology policy at RS X Tambun Bekasi is conducted using the WhatsApp application as a medium, as teleradiology services from the Ministry of Health have not yet been put into practice.

Furthermore, the standard operational procedures for teleradiology using the WhatsApp application are not yet available, primarily due to the radiology unit at RS X Tambun Bekasi undergoing a transition from automatic processing to a digital radiography (DR) device. Data indicates that teleradiology services using the WhatsApp application have only been implemented since 2022, after the hospital switched from using digital radiography (DR) for radiology films. This implementation involves sending radiology images in JPEG format via WhatsApp to radiology specialists.

The JPEG images are obtained after being formatted in the digital radiography system by radiographers. The quality of the resulting images aligns with the assessments made by radiology specialists and provides ease in obtaining expert results for radiology images.
Following channel service teleradiology based application whatsapp the researcher get:

![Diagram of teleradiology flow]

**Chart 2 Teleradiology flow based application whatsapp at RS X Tambun Bekasi as health facilities others (Processed research data 2023)**

Chart 2 above describe that radiographer after do examination of the patient and obtaining results description format dicom, then do conversion in digital radiography tools to jpeg format. After that picture then burn it to a compact disc (CD), moved to a personal computer (PC) for sent through application whatsapp to doctor specialist radiology for read results radiology patient. After that doctor send results expertise to radiographer return for then given to patient and stored as archive.

**Supporting Factors and Inhibiting Factors Implementation Policy Service Teleradiology In Facilities Health Services**

There are several models that serve as guidelines for implementing public policies, and their implementation should align with the formulated policies. In this thesis research, the implementation model used is George C. Edwards III's policy implementation model. Efforts to achieve the objectives of a policy involve establishing structures, programs, and regulations in the implementation process. However, policy implementation has its own dynamics.

In the implementation of policies, numerous factors come into play, including contributing factors that support policy implementation and inhibiting factors that hinder it. In the context of the implementation of the teleradiology service policy, as outlined in Minister of Health Regulation No. 20 of 2019, at various health facilities such as Batin Mangunang Regional Hospital (a health facilities requester for consultation), National Brain Center Hospital (a health facilities giver for consultation), and RS X Tambun Bekasi (a health facilities others), several supporting and inhibiting factors have been identified. To uncover these factors affecting the implementation of the teleradiology service policy in health facilities, whether they are requester consultation facilities, giver consultation facilities, or others, the researchers have employed the implementation model proposed by George C. Edwards III. This model examines factors related to communication, sources of power, disposition, and bureaucratic structure to understand the dynamics of policy implementation.

**Batin Mangunang Regional Hospital district Tanggamus (Fasyankes Requester Consultation)**

Factor supports and factors inhibitor implementation policy service teleradiology at Batin Mangunang Regional Hospital (health facility requester consultation) is revealed with George C. Edward III's implementation model approach, namely seen through aspect communications, sources power, disposition and structure bureaucracy. Linkages aspects in implementation service teleradiology health facilities requester consultation explained as following:

**Communication**

Communication is one of the influencing aspects for the success of any implementation. Effective communication is crucial for achieving the objectives of policy implementation. Implementing a policy effectively will only happen if the policy makers already know what needs to be done. This knowledge can be conveyed effectively through communication, ensuring that every
decision and regulation regarding policy implementation is communicated to the right target. In this research on the implementation of the teleradiology service policy, there are three key aspects to consider in terms of communication: the implementor's understanding and knowledge of policy execution, any resistance encountered during policy implementation, and the achievement of the policy's objectives.

**Understanding and Knowledge of Health Facility Management in Implementing the Teleradiology Service Policy**

The understanding and knowledge within the health facility management regarding the implementation of the teleradiology service policy is significant. While hospital management comprehends the policy, they don't fully grasp all aspects of the teleradiology service policy. Hospital management had initiated the teleradiology service policy from the Ministry of Health in 2016, but the system experienced disruptions, leading to the decision to implement teleradiology based on WhatsApp. The current state of the radiology service at Batin Mangunang Regional Hospital utilizes WhatsApp, and there is no concrete plan for the implementation of the teleradiology service policy from the Ministry of Health.

**Resistance in the Implementation of Teleradiology Services by Medical Personnel and Health Personnel as Target Groups**

In the implementation of the teleradiology service policy at Batin Mangunang Regional Hospital, there was no resistance from the target group. The facts in the field reveal that no resistance has arisen. In the event of any problems, hospital management, radiology, and the target group will collaboratively address them.

**Achievement of Teleradiology Service Policy Goals**

To achieve the policy objectives, the offered policies need to align with the needs of the target group. The objective of the policy is to obtain remote expertise results using information technology facilities to ensure the smooth running of radiology service quality indicators. The management's incomplete understanding of the teleradiology service policy is due to the issuance of the WhatsApp application-based teleradiology service policy.

**Resource**

Resources for a policy encompass various elements, including human resources, financial resources, infrastructure, and the competence of human resources. Human resources are a significant supporting factor for the success of a program. There are three key aspects of resource power in this research: the availability of human resources, funding sources, infrastructure, and the competence of human resources.

**Availability Human Resources**

The availability of human resources is crucial in the implementation of the teleradiology service. The group of individuals involved includes radiology specialists, radiographers, and information technology personnel. According to the interview results, it is evident that the availability of human resources for the implementation of the teleradiology service at Batin Mangunang Regional Hospital is sufficient and aligned with the hospital management's plans.

**Availability Sources of Funds and Infrastructure**

Through interviews with several informants, it was observed that funding sources and infrastructure for the implementation of the teleradiology service at Batin Mangunang Regional Hospital were available during the initial months of implementation by the Ministry of Health, but then they ceased to be available.
Availability Human Resources

In the dedicated effort to implement policies, having competent personnel is vital. The competence of individuals functioning as implementers in fulfilling policies is crucial. Limitations in the competence of these individuals can lead to program failures, especially if their skills or qualifications do not align with the required standards. Interviews conducted revealed that the human resources in the radiology department at Batin Mangunang Regional Hospital are already aligned with the core responsibilities of each worker.

Disposition

Disposition, as the third factor influencing policy implementation, is critical. It encompasses the character and attitudes of the implementers, including qualities such as honesty and democratic nature. Implementers with positive dispositions are more likely to execute policies effectively, aligning with the intended message of the policy. Conversely, if the attitudes and perspectives of implementers differ from the policy maker's intentions, the policy implementation process may be ineffective. In this study, the disposition factor was evaluated, focusing on implementer characteristics such as honesty and the ability to find democratic solutions to problems. The research findings demonstrated that implementers exhibited sufficient honesty and a democratic nature, with a commitment to openness in problem-solving. This observation was substantiated by the minutes and results of routine radiology activity meetings.

Structure Bureaucracy

Even with available resources and knowledgeable implementers, weaknesses in bureaucratic structure can impede policy implementation. The presence of standard operational procedures (SOP) and the complexity of organizational structure are crucial elements. SOP serves as a reference and guideline for internal implementers, ensuring that policy execution aligns with the goals and objectives. Based on interview results, SOP for teleradiology are available and have been prepared by the Ministry of Health. However, SOP for teleradiology based on WhatsApp are yet to be established. This gap implies that the management might not have a complete understanding of how to implement the teleradiology service policy at Batin Mangunang Regional Hospital.

National Brain Center Hospital (Fasyankes Giver Consultation)

The factors supporting and inhibiting the implementation of the teleradiology service policy at the National Brain Center Hospital, a health facility providing consultation, are evaluated using George C. Edward III's implementation model approach. This evaluation considers aspects such as communication, resource power, disposition, and structural bureaucracy. The interconnectedness of these aspects in the implementation of teleradiology services at health facilities providing consultation is explained as follows:

Communication

In this research on the implementation of the teleradiology service policy, three aspects of communication are scrutinized: the implementer's understanding and knowledge of policy execution, resistance encountered during policy implementation, and the achievement of the policy's objectives. Effective communication plays a crucial role in the success of policy implementation. Policies are executed effectively when policy makers clearly convey their intentions, and implementers comprehend these intentions. The knowledge of what needs to be done can be effectively communicated through well-established communication channels.
Understanding and Knowledge (Health Facility Management) in Implementing Teleradiology Service Policy

The understanding and knowledge of the policy's implementation lie with the hospital management, which is the policy holder. Although the hospital management has some understanding of the implementation of the teleradiology service policy, they have not fully comprehended it. In 2016, the hospital management initially began implementing the teleradiology service policy from the Ministry of Health, but the system didn't last long. This discontinuation was attributed to issues related to the strength of the internet signal at the requesting hospital consultation and problems with the sophistication of personal computers (PC).

Based on observational documents, the National Brain Center Hospital currently maintains its radiology installation services using a Picture Archiving & Communication System (PACS), which has been in use since 2014.

Resistance in Implementation Implementation Service Teleradiology by Medical Personnel and Health Personnel as Group Target

During the implementation of the teleradiology service policy at the National Brain Center Hospital, there was no resistance observed from the target group. It was found that there was no resistance emerging. If any problems did arise, hospital management, radiology, and the target group would discuss and address them together.

Achievement of Policy Goals Service Teleradiology

Achieve the objectives of the policy, it is important that the policies offered align with the needs of the target group (Torres & Clegg, 2014). The policy objectives aimed to obtain expert results remotely using information technology facilities, thereby ensuring that quality service indicators in radiology run smoothly. However, the hospital management does not fully understand some aspects related to the teleradiology service policy. This resulted in discontinuing the teleradiology service offered by the Ministry of Health, which was intended to support the policy's objectives. As a consequence, the policy objectives for the implementation of teleradiology services were not fully realized and were focused on internal services at PON Hospitals using PACS.

Resources

In this research, there are three important aspects of resources to consider: the availability of human resources, financial resources, facilities and infrastructure, and the competence of human resources themselves.

Availability Human Resources

Concerning the implementation of teleradiology services, the relevant resources consist of the target group, which includes radiology specialists, radiographers, and information technology personnel. According to the interview results, it was evident that the availability of human resources for implementing teleradiology services at the National Brain Center Hospital was sufficient and aligned with the pre-established plans made by the hospital management.

Availability Sources of Funds and Infrastructure

Based on interviews with several informants, the researcher discovered that the availability of funding sources and infrastructure for implementing teleradiology services at the National Brain Center Hospital was initially fulfilled during the early stages of the teleradiology service implementation by the Ministry of Health, but after a few months, these resources were no longer available. This indicates that the availability of funding sources and infrastructure was only
temporarily fulfilled at the beginning of the teleradiology service implementation and subsequently ceased.

**Competence Human Resources**

Based on interviews with several informants, it was found that the competence of human resources in the radiology installation at the National Brain Center Hospital is in line with the main duties of each worker's job (Bamieh & Ziegler, 2023).

**Disposition**

Disposition factors were assessed in this study, covering implementer characteristics, such as honesty and openness in problem-solving between implementers and the target group in the implementation of the teleradiology service policy at the National Brain Center Hospital. The results of the interviews revealed that the implementer characteristics are sufficiently honest and democratic, and there is always openness in problem-solving. This information is supported by observation documents, including meeting minutes and results of routine radiology activities.

**Bureaucratic Structure**

While the necessary resources for policy implementation are available, and the implementers are aware of what needs to be done and are willing to carry out the policy, the potential for policy failure still exists due to weaknesses in the bureaucratic structure (Balaguer-Martínez et al., 2023).

The first aspect to consider is the presence or absence of standard operational procedures (SOP) and the complexity of the organizational structure. SOP serves as a reference and a set of guidelines that internal implementers must follow to ensure that the actions taken in policy implementation align with the goals and objectives of the policy. Internal implementers are required to adhere to the existing SOP.

It is worth noting that SOP for teleradiology services have been developed and provided by the Ministry of Health, and there are also SOP available for using PACS. This suggests that the management of the National Brain Center Hospital is aware of and knowledgeable about the teleradiology service policy implementation. However, the full accomplishment of this policy has not been realized, as the Ministry of Health's radiology policy has not been fully implemented since a few months after its initiation.

**Hospital X Tambun Bekasi (Other Health Facilities)**

The factors that support and inhibit the implementation of the teleradiology service policy at RS X Tambun Bekasi (a health facility serving other roles) are examined using the implementation model developed by George C. Edwards III. This analysis is based on various aspects, including communication, sources of power, disposition, and the bureaucratic structure. The relationships between these aspects in the implementation of teleradiology services for health facilities providing consultations are explained as follows:

**Communication**

In research This implementation policy service teleradiology there are 3 (three) things to look at from aspect communication that is Implementor's understanding and knowledge within carry out policy, resistance in implementation policies and their achievements objective policy.

**Understanding and Knowledge (Management Health Facilities) In Implementing Policy Service Teleradiology**

The understanding and knowledge of the implementors regarding the policy in question are primarily related to the hospital management, who are the policy holders. It has been observed that the hospital management does not have a full understanding of the implementation of the teleradiology...
service policy. In addition to the lack of full understanding of the implementation policy, RS X Tambun Bekasi is also in the process of upgrading to SIRS (Sistem Informasi Radiologi Seri) and Electronic Medical Record (ERM) systems to enhance the quality of service (Półchłopek et al., 2020).

Based on observations and documents, the radiology unit services at RS X Tambun Bekasi continue to use the application-based WhatsApp for teleradiology. This approach is favored because it not only simplifies the process but is also deemed sufficient for the radiologists to conduct their image evaluations.

**Resistance in the Implementation of Teleradiology Services by Medical Personnel and Health Personnel as Target Groups**

In implementing the teleradiology service policy at Hospital X Tambun Bekasi, there was no resistance from the target group, and if any issues arise, they are discussed and resolved collectively by the hospital management, radiology staff, and the target group.

**Achievement of Teleradiology Service Policy Goals**

The goal of the teleradiology service policy is to obtain remote expertise results using information technology facilities to ensure the smooth operation of radiology service quality indicators. However, it was observed that the hospital management does not fully understand the teleradiology service policy, as they have not provided teleradiology services in accordance with the regulations issued by the Ministry of Health to support the policy objectives. Thus, the policy objectives for implementing teleradiology services cannot be considered achieved because the indicators used do not meet the Ministry of Health's regulations.

**Resource**

There are three important aspects of resources in this research: the availability of human resources, funding sources and infrastructure, and the competency of human resources.

**Availability of Human Resources**

In implementing teleradiology services, the relevant resources include the target group, which consists of radiology specialists, radiographers, and information technology personnel. Based on interview results, it is evident that the availability of human resources for implementing teleradiology services at RS X Tambun Bekasi is sufficient and aligns with the hospital's prepared plans.

**Availability of Funding Sources and Infrastructure**

Interview results revealed that there are funding sources and infrastructure available for implementing teleradiology services at RS X Tambun Bekasi (Barasa & Tsisiga, 2014). However, the procurement of SIRS (Sistem Informasi Radiologi Seri) and ERM (Electronic Radiology Management) is still in the planning stage. Therefore, the availability of funding sources and infrastructure has not yet been fully realized. RS X Tambun Bekasi will need to prepare for the next stages, including the acquisition of SIRS and PACS (Picture Archiving and Communication System) facilities.

**Competence Human Resources**

Based on the results of interviews, it was found that the competence of the human resources in the radiology unit of Hospital X Tambun Bekasi is aligned with the requirements of each worker's job.

**Disposition**

The evaluation of the disposition factor in this study encompasses the characteristics of the implementors, including their honesty and openness in resolving issues between the implementers and the target audience during the implementation of the teleradiology policy at Hospital X Tambun Bekasi. Based on the results of interviews, it was found that the implementors displayed sufficient
honesty, a democratic nature, and a commitment to openness in problem-solving (Polk, 2015). The fact that these implementor characteristics, such as honesty, a democratic approach, and a commitment to open problem-solving, are already in place is supported by documented evidence, including meeting minutes and the results of routine activities in the radiology department.

**Structure Bureaucracy**

Even if the necessary resources are available, the implementers are knowledgeable about what needs to be done, and they have the desire to execute a particular policy, there is still a possibility that the policy may not be successfully implemented due to structural weaknesses.

One key aspect of this structural weakness is the presence or absence of standard operational procedures (SOP) and the complexity of the organizational structure (Dameri et al., 2023). SOP serve as references and guidelines for internal implementers to ensure that the actions taken during policy implementation align with the goals and objectives of the policy. Internal implementers are expected to follow the established SOP.

In the case of teleradiology service, it was found that SOP were not yet available (Lödel et al., 2020). This is because teleradiology was being carried out using the WhatsApp application as a medium, and the transition from automatic processing to digital radiography (DR) was in progress. The lack of established SOP may hinder the smooth implementation of the policy.

**CONCLUSION**

Based on the analysis of the results displayed, it can be concluded that the implementation of the teleradiology service policy in health facilities is facing challenges. In both requesting and providing health facilities, there seems to be a lack of full understanding and implementation of the teleradiology service policy. This may be attributed to the fact that the Ministry of Health has only recently introduced the teleradiology service, while the management still wishes to maintain the traditional radiology services. Furthermore, in some health facilities, the policy has not been fully implemented due to a lack of understanding of the regulations. In these facilities, issues related to funding and infrastructure have also hindered the full adoption of teleradiology, even after several months of its introduction by the Ministry of Health. Additionally, other health facilities are facing challenges in procuring the necessary equipment and infrastructure for teleradiology due to a lack of available funds.

To better understand the factors influencing the implementation of the teleradiology service policy, a SWOT analysis was conducted. Supporting factors include effective communication between requesting and providing health facilities, as well as a lack of resistance to the policy. This suggests that the target groups in these facilities perceive the benefits of teleradiology. Additionally, health facilities that request teleradiology have good availability of qualified staff and the necessary competencies. They also exhibit an honest and democratic approach in implementing the policy, remaining open to the concerns of their target groups. Furthermore, these facilities have established standard operating procedures and maintain a simple bureaucratic structure. In contrast, other health facilities face inhibiting factors. In terms of communication, the management of requesting health facilities doesn't seem to fully comprehend and implement the teleradiology policy. After initially implementing the service, they decided to continue using teleradiology via WhatsApp, and later, they switched to using the Picture Archiving & Communication System (PACS) for intranet and deep internet services for reading radiology results. These decisions have contributed to the challenges in policy implementation.
REFERENCES

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