

## Factors Causing Inadequate Implementation of the HIMS Electronic Medical Records Outpatient at Level II Hospital, dr. Soepraoen Malang

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### ABSTRACT

The use of HIMS operationally is useful for improving performance and service, facilitating coordination between units, and increasing HR capabilities. The formation of HIMS not only automates old procedures, but organizes and updates and even creates new and more efficient data flows, this is very important, especially the implementation of HIMS in the field of radiology. The purpose of this Community Services residency is to analyze the factors that cause inadequate implementation of HIMS Electronic Medical Record Outpatient Level II Hospital dr. Soepraoen Malang. Therefore, this residency discusses existing problems using fishbone diagrams, USG (Urgency, Seriousness, Growth), and SWOT Analysis (Strength, Weakness, Opportunity, Treats). The results of the residency show that after analyzing the problem with fishbone, USG, and SWOT, the implementation of a strategy that can be applied to community service residency activities is to make regulations in the form of SOPs regarding data input for medical, non-medical, radiology requests and conducting training activities for Outpatient Polyclinic operators. Evaluation of the strategy that has been made is by coordinating between management and sections/fields according to their respective duties, principals and functions in an attempt to optimize the implementation of electronic medical record HIMS in outpatient services at polyclinics.

**Keywords:** Application of HIMS, outpatient, radiology

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### INTRODUCTION

The Hospital Information Management System (HIMS) is a computer system that processes and integrates all business process flows of health service in the form of coordination networks, reporting, and administrative procedures to obtain information quickly, precisely, and accurately. Many Hospitals which still continue using conventional administration systems show many lost opportunities to gain profits due to weak coordination between departments and lack of fast, precise, accurate and integrated information support. This of course affects the quality of services provided, especially to patients. Generally, these hospitals cannot compete with hospitals which use HIMS. HIMS development should not be carried out partially but it must be integrated. (Handiwidjojo, 2009).

The results of interviews with the IT operators who manage HIMS in Level II Hospital, dr. Soepraoen Malang showed that one of the problems related to HIMS was found in radiology services. In radiological services, they still used a combined system, both computerized and manual systems. So that radiological examination services have not run optimally. Sometimes, the requesting doctor or patient receives the results of radiological examinations and their readings exceed the waiting time for the results of the examination service. According to the radiologist's statement, so far there are very few or even no polyclinics which input requests for radiological examinations into HIMS. These circumstances can hamper services at the Radiological Installation because they have to manually input them into HIMS. There will also be a high risk of entering the patient's identity incorrectly. From the results of these interviews, the problem arising related to HIMS is that the implementation of HIMS in radiological examination services has not been optimal on the Outpatient Polyclinic. Further, on the current use of the HIMS Electronic Medical Records (HIMS EMR) which is considered meaningful and useful, there are some problems arise related to the compliance of doctors or nurses including the operator who in charge (nurse) to enter medical procedures which have been carried out, as well as problems with lack of knowledge and ignorance in entering data/medical record data which should be done by nurse operators. HIMS which is currently used by Level II Hospital, dr. Soepraoen Malang has limitations so that there are obstacles in developing information systems including adding new features such as integrated Electronic Medical Records. The officers' lack of knowledge is also considered to be another cause of the lack of Electronic Medical Records uses even though the hospital has provided socialization on the implementation of using Electronic Medical Records to representative operators from each section or Polyclinic service. As a result, they complete data entry manually and sometimes they are finishing it after all services are completed done or they are doing it on the next day.

## **METHOD**

This study used qualitative methods to describe the causal correlation between the variables and examine the dynamics of the relationship between risk factors. The researchers collected the data by observing and exploring data in the field. In this study, data collection technique used was by searching from several secondary sources from related agencies and interviews regarding the synchronization of the data that had been collected. Therefore, this residency discussed existing problems using fishbone diagrams, USG (Urgency, Seriousness, Growth), and SWOT Analysis (Strength, Weakness, Opportunity, Treats).

## **RESULT**

### **Assessment**

Based on the explanation given by the field supervisor, in general there are 3 main problems arise, namely HIMS problems, problems regarding hospital quality, and problems regarding hospital facilities or infrastructure. Based on group discussion, the researchers decided to take the big topic, namely HIMS problem, where one of the problems is the implementation of HIMS Electronic Medical Record (HIMS EMR) which has not been optimal in outpatient services in polyclinics.

### **Identification of Statements of Research Problem**

Analysis of Inhibiting Factors of HIMS Electronic Medical Record at Level II Hospital dr. Soepraoen Malang by using Fishbone Analysis.

The descriptions of 5M which have been found include:

1. Man: a. Not all operators in the service unit at Level II Hospital dr. Soepraoen Malang was able to enter Medical Records data on medical procedures which had been carried out, b. Operators were less obedient in inputting MR data, c. There was no divisional responsible

- officer for data input yet.
2. Method: a. Operators in the polyclinic service unit were not knowledgeable enough about inputting medical record data, b. There was no division which has tasks to input medical record data polyclinic counters, c. Operator training in the polyclinic unit was not optimal, d. There was no SOP regarding data input and medical record data input flow.
  3. Material: a. Software (the HIMS application for medical records was inadequate and not all operators could input data or medical procedures (medical records)).
  4. Mother Nature: a. There were quite a lot of patient visits and sometimes there are IT problems / network is not connected, b. The hospital carried out activities to improve service quality and marketing during endemic period.
  5. Machine: There were not enough PCs in polyclinic service units.

## Determination of Problems Priority

### 1. Determination of Problems Priority

Based on the fishbone diagram which has been made related to the strategy for optimizing the use of HIMS medical record in the internal medicine polyclinic, the factors that cause the problem are identified as follows:

- a) Not all operators in the service unit at Level II Hospital dr. Soepraoen Malang was able to enter Medical Records data on medical procedures which had been carried out.
- b) Operators are less obedient in inputting MR data.
- c) There is no divisional responsible officer for data input yet.
- d) The distribution of tasks to input medical record data is not maximized at polyclinic counters.
- e) Operator training in the polyclinic unit is not optimal.
- f) There is no SOP regarding data input and medical record data input flow.
- g) HIMS has not been optimally integrated with electronic MR.
- h) The HIMS application for medical records is inadequate and not all operators can input data or medical procedures (medical records).
- i) There are quite a lot of patient visits and sometimes there are IT problems / network is not connected.
- j) The hospital carries out activities to improve service quality and marketing during endemic period.
- k) There are not enough PCs in polyclinic service units.

Based on the identification of the factors causing the problems that have been recorded and the fishbone analysis, the researchers determined the problems priority with the USG method (urgency, seriousness, growth). The following lists above are the result of determining the problems priority with the USG method.

From the table it is found that the problem that needs to be prioritized for resolution is that there is no person in charge or division in charge of inputting medical record data at the internal medicine polyclinic counter which has been carried out in each section and there are no regulations which can facilitate data entry.

## Intervention Plans

1. Identification of problem-solving strategies regarding the implementation of HIMS medical records which has not been optimal in the internal medicine polyclinic of Level II Hospital dr. Soepraoen with SWOT analysis (strength, weakness, opportunity, threats).  
Based on determination of problem-solving priority mentioned above, the intervention plan for this residency is determined by conducting a SWOT analysis (strengths, weaknesses, opportunities, threats) on internal and external factors at the Level II Hospital dr. Soepraoen. The following is a problem-solving analysis which can be carried out with a SWOT analysis as shown in table 3.3 and table 3.4.

- Calculation of the SWOT analysis to find strategies which can be used to optimize the HIMS medical record use in the polyclinic of Level II Hospital dr. Soepraoen.  
From the results of calculating the value of each internal factor including strengths and weaknesses, as well as external factors including opportunities and threats, the final S-W and OT values were -0.2 and 0.35, respectively. The two S-W and O-T values were then depicted on the SWOT diagram to determine the position of the SWOT quadrant. From the results of the quadrants obtained, the researchers determine strategies that might be applied.

**SWOT analysis**

|   | Strength  | Weakness   |
|---|---|--|
|   | <ul style="list-style-type: none"> <li>Operators at the internal- HR capacity in Information medicine polyclinic Technology installations is counter are sufficiently insufficient.</li> <li>divided, and according to- Operators are still not competence needed obedient in the process of</li> <li>- Hardware supporting entering medical records or infrastructure and procedure taken.</li> <li>computer counters are- There is no available, there is waiting regulation regarding medical room which functioning records data entry for properly procedures performed in</li> <li>- Internal medicine internal medicine polyclinic services are polyclinics.</li> <li>quite complete and- Not all operators in extensive the service unit are able to</li> <li>- HIMS which can be enter medical records that used to enter medical have been carried out.</li> <li>records or procedures in- There is no operator polyclinic is available assigned to medical records</li> <li>- There is management data entry duties in the support in HIMS repair internal medicine polyclinic.</li> </ul> |  |
| Opportunities   | S-O   | W-O  |
| <ul style="list-style-type: none"> <li>- There is support from the hospital that collaborates with Khanza regarding the improvement of HIMS including optimization of medical record data entry</li> <li>- The role of digital information record entry operators technology in the 4.0 industrial revolution era has increased</li> <li>- The Ministry of Health supports Hospital digitization attempts.</li> <li>- There is MOH Regulation Number 24 of 2022 on Electronic Medical Records.</li> </ul> | <ul style="list-style-type: none"> <li>- The hospital develops new HIMS according to hospital needs.</li> <li>- The hospital conducts training for medical record entry operators regarding the new electronic system.</li> <li>- The hospital adds staff or IT operators</li> </ul>  | <ul style="list-style-type: none"> <li>- The hospital makes torules/SOPs regarding electronic medical record data entry operators.</li> <li>- The hospital divides the task of entering medical record data in polyclinic units</li> <li>- The hospital conducts operator training related to inputting medical record data at the polyclinic unit.</li> </ul> |

| Threats   | S-T   | W-T   |
|---|---|---|
| <ul style="list-style-type: none"> <li>- There is competition between hospitals in providing the best service, including to employees.</li> <li>- The emergence of regulation changes from the regional government and/or the Ministry of Health</li> <li>- There was a decrease in income due to the end of the pandemic period, heading towards endemic period.</li> <li>- There are new changes of regulations from National Health Insurance</li> </ul> | <ul style="list-style-type: none"> <li>- The hospital fulfills infrastructure needs related to HIMS</li> <li>- The hospital makes UI and HIMS Electronic Medical Record responsibility better.</li> </ul> | <ul style="list-style-type: none"> <li>- Propose suggestion to add IT staffs or operators</li> <li>- Hold staged evaluation of HIMS maintenance.</li> </ul> |

1. Analysis of Inhibiting Factors of HIMS in Radiological Examination Services at the Outpatient Polyclinic, Level II Hospital, dr. Soepraoen Malang by using Fishbone Analysis.

The descriptions of 5M which have been found include:

a. Man: 1) Not all operators the Level II Hospital service unit dr. Soepraoen Malang was capable of inputting radiological service examinations, 1) Operators were less obedient in inputting radiological examination services, 3) The capacity of operators in the Hospital Service Unit was insufficient, 4) Work Motivation.

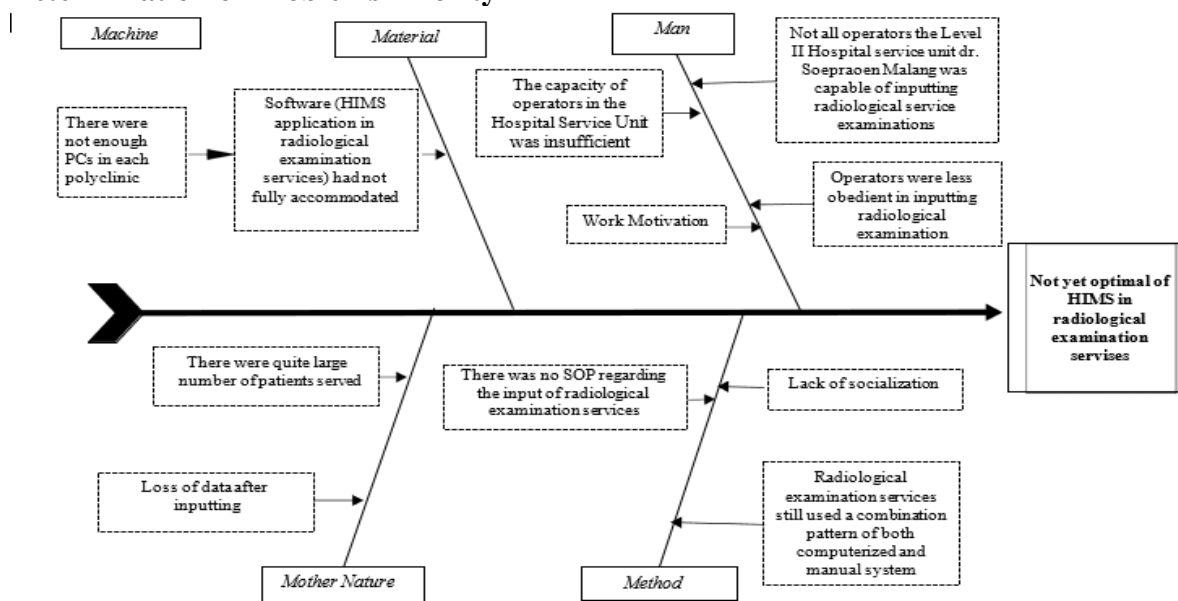
b. Method: 1) There was no SOP regarding the input of radiological examination services, 2) Radiological examination services still used a combination pattern of both computerized and manual system, 3) Lack of socialization.

c. Material: Software (HIMS application in radiological examination services) had not fully accommodated.

d. Mother Nature: 1) There were quite large number of patients served, 2) Loss of data after inputting.

e. Machine: 1) There were not enough PCs in each polyclinic, 2) HIMS server was down.

**Determination of Problems Priority**



Based on the fishbone diagram which has been made regarding the implementation of HIMS which has not been optimal in radiological examination services at the Outpatient Polyclinic, Hospital Level II dr. Soepraoen Malang, the factors that cause the problem can be identified as follows:

1. Not all operators the Level II Hospital service unit dr. Soepraoen Malang was capable of inputting radiological service examinations,
2. Operators were less obedient in inputting radiological examination services,
3. The capacity of operators in the Hospital Service Unit was insufficient,
4. Work Motivation,
5. There was no SOP regarding the input of radiological examination services,
6. Radiological examination services still used a combination pattern of both computerized and manual system,
7. Lack of socialization,
8. Software (HIMS application in radiological examination services) had not fully accommodated,
9. There were quite large number of patients served,
10. Loss of data after inputting,
11. There were not enough PCs in each polyclinic,
12. HIMS server was down.

Based on the identification of the factors causing the problems that have been recorded and the fishbone analysis, the researchers determined the problems priority with the USG method (urgency, seriousness, growth). The following lists above are the result of determining the problems priority with the USG method.

From the table it is found that the problem that needs to be prioritized for resolution is that there is no SOP regarding the input of radiological examination services and a lack of socialization/training and compliance in the Outpatient Polyclinic.

**Intervention Plans**

1. Identification of problem-solving strategies for the Inadequate Implementation of HIMS in Radiological Examination Services at the Outpatient Polyclinic, Level II Hospital dr. Soepraoen Malang with SWOT Analysis (Strength, Weakness, Opportunity, Threats). Based on determination of problem-solving priority mentioned above, the intervention plan for this residency is determined by conducting a SWOT analysis (strengths, weaknesses, opportunities, threats) on internal and external factors at the Level II Hospital dr. Soepraoen. From the results of calculating the value of each internal factor including strengths and weaknesses, as well as external factors including 41 opportunities and threats, the final S-W and OT values were -0.11 and 0.35, respectively. The two S-W and O-T values were then depicted on the SWOT diagram to determine the position of the SWOT quadrant. From the results of the quadrants obtained, the researchers determine strategies that might be applied.

| Strength   | Weakness   |
|--|--|
| ✓ Supporting facilities and infrastructure are available                   | ✓ Server is down   |
| ✓ HIMS which can be used in radiological examination services is available | ✓ Compliance in the application of HIMS in radiological examinations is still lacking  |
| ✓ Modern and sophisticated medical devices are available                   | ✓ There are not enough PCs for each polyclinic room.                                   |
| ✓ There is management support in HIMS repair                               | ✓ There is lack of socialization.  |
|  | ✓ There is no SOP regarding the application of HIMS in radiology examination services. |

|  |  |   |
|--|--|---|
| <p><b>Opportunity</b></p> <ul style="list-style-type: none"> <li>✓ The number of patients served quite a lot</li> <li>✓ The role of digital information technology in the era of the industrial revolution 4.0 is increasing</li> <li>✓ The Ministry of Health supports Hospital digitization attempts</li> <li>✓ ITE Law Number 19 of 2016 supports the implementation of electronic transactions in hospitals</li> </ul> | <ul style="list-style-type: none"> <li>✓ Development of HIMS is according to hospital needs.</li> </ul>        | <ul style="list-style-type: none"> <li>✓ The hospital prepares SOPs regarding the application of radiology examination services</li> <li>✓ The hospital conducts outreach to operators related to the application of radiological examination services</li> <li>✓ There was a decrease in income due to the end of the pandemic period</li> </ul> |
| <p><b>Threats</b></p> <ul style="list-style-type: none"> <li>✓ There is competition between hospitals in providing the best service, including to employees</li> <li>✓ The emergence of regulation changes from the government and/or the Ministry of Health</li> <li>✓ There are new changes of regulations from National Health Insurance</li> </ul>   | <ul style="list-style-type: none"> <li>✓ The hospital fulfills infrastructure needs related to HIMS</li> </ul> | <ul style="list-style-type: none"> <li>✓ Proposed additional officers in the service unit</li> </ul>  |

Based on the two SWOT analysis tables above, the WO strategies (in Quadrant III-defensive) which can be applied include:

1. Preparation of SOP regarding the application of HIMS ERM on data input at the outpatient polyclinic.
2. Preparation of SOP regarding the application of radiological examination services.
3. Information socialization/training and compliance of operators regarding entering Medical Record data at the Outpatient Polyclinic.

Based on the proposed strategies above, from the results of fishbone, USG, and SWOT analysis, the strategies which can be applied in this residency activity are at the same time making rules, regulations, or SOPs regarding Medical Record data entry operators, distributing medical record data input tasks carried out in outpatient care, operator training related to of medical record data entry as well as inputting radiological requests and outreach/training as well as operator compliance related to inputting radiological requests.

## DISCUSSION

Implementation of residency activities in community service are as follows:

1. Coordinate with the Head of HIMS Installation at Level II Hospital dr. Soepraoen Malang.
2. Coordinate with the Head of Outpatient Installation at Level II Hospital dr. Soepraoen Malang.
3. Coordinate with the Head of the Polyclinic at Level II Hospital dr. Soepraoen Malang.
4. Coordinate with the Head of Radiology Sub-Installation at Level II Hospital dr. Soepraoen Malang.
5. Make regulations related to the person in charge of entering medical records and

regulations regarding medical procedures which are routinely carried out by outpatient polyclinic services at Level II Hospital dr. Soepraoen Malang.

6. Make regulations in the form of SOPs concerning optimizing the SOPs applications in radiological examination services, in this case regarding the input of requests for radiological examinations.

## **The following are proposed procedures and Standard Operating Procedures (SOP), Inputting Outpatient Medical Records:**

### **General Procedures**

HIMS must implement a system which reduces the possibility of information leakage. Each user must have a user name (username) and a PIN (Personal Identity Number) or password so that their identity is known. Data must be sorted in such a way that certain people can only access data within certain limits (with access rights).

HIMS access rights include the registrar can only access the general identity of the patient, Doctors and nurses or other professional nursing care providers can only access all of their own patient data, A billing officer can only access specific information that is useful for medical history, The system must be able to detect who and when, if any people who access certain data (Footprints), and if there are changes to the records in it must be detected, the system must be able to provide opportunities to use data for auditing purposes.

Flow of entry for Outpatient Medical Record Procedures at Polyclinics at the receptionist or front desk, patient data is entered into the computer, then the data is sent to the patient service area according to the patient's purposes. (Register then move towards the destination, for example, internal medicine polyclinic) at the patient service area (e.g., internal medicine polyclinic), the person in charge or the nurse for data entry inputs the MR of procedures taken by the doctor or professional nursing care provider to the patient. Entering MR of patient must be done at the right time patient service is complete. (SOAP polyclinic registrar fills SOAP form / examination sheet – doctor / officer treatment - select operators and procedures - select general treatment - select treatment for examination in the laboratory, Radiology - Additional clinical and pharmaceutical indications - select examination of the direction of laboratory or radiological needs: 1) Doctor's action: right-click menu-outpatient action-fill SOAP/examination sheet -fill in ICD 10 and ICD 9 diagnosis save - general medical - menu input prescription to go to Pharmacy - search for drug -enter drug / general quantity - rules for use - mix and so on, 2) Nurse's actions: menu / referral to poly – fill in general nursing and SOAP - to doctor - general medical -diagnosis and doctor's request - return to nurse - doctor's treatment -lab or radiology requests.

The nurse operator responsible for data entry is the admin or head of the room/team and doctor's assistant if the number of visits is high. The verification operator checks whether the actions or procedure which have been entered are in accordance with the actions taken. After being agreed upon by the team, the team then proposed to the HIMS team and the head of the hospital to issue a regulation of the Head of Hospital. After the rules are published, it is applied in HIMS system. Data from HIMS becomes the basis for medical records. Flow for Inputting Radiology Examination Requests: The computer is on standby mode and connected to the internet. The operator opens the HIMS application then logged in using their respective username and password. The operator enters the outpatient menu. If a patient list appears, select the patient you want to go to, then click until it turns red. If on the right side is the patient's name, select the request menu Select the radiology request menu. If the request form appears, fill in the information in the Additional Information column for Photo Checking and Indication for Examination / Clinical Diagnosis, if there is no additional information and indication for the examination, enter (-). Then to find the examination list, on the bottom of keyword button select the button. If an examination list appears, then select the examination



to be given. If all is done, click save.

## Evaluation

Evaluation is carried out on the contents of the regulation and compliance towards the regulatory procedures and flow of outpatient Electronic Medical Record HIMS for polyclinic services that have been made. This process is carried out to know whether they comply with the regulations in terms of the contents of the procedures and flow, and how staff comply with these regulations.

## CONCLUSION

Human resource (HR) and organizational factors play an important role in the success of technology acceptance, in this case the use or implementation of HIMS. In the implementation, there is no regulation (SOP) regarding input patients' data in polyclinics and a lack of training on this matter. After conducting a problem analysis using fishbone, USG, and SWOT, it was found that the implementation of a strategy that could be applied to residency activities in community service were making regulations in the form of SOPs regarding inputting data for medical, non-medical, radiology requests and conducting training activities for outpatient polyclinic staff. Evaluation of the strategy that has been made is by coordinating between management and sections/fields according to their respective duties, principals and functions in an attempt to optimize the application of Electronic Medical Record HIMS in outpatient services at polyclinics.

## REFERENCE

- Fentiana, N., & Ginting, D. (2020 dan Ginting, D. 2019). *Jurnal Ilmiah Universitas Batanghari Jambi*, 20(3), 1008. <https://doi.org/10.33087/jiubj.v20i3.1034>.
- Handayani, P. W., Hidayanto, A. N., Pinem, A. A., Hapsari, I. C., Sandhyaduhita, P. I., & Budi, I. (2017). *International Journal of Medical Informatics*, 99,11-28 <https://doi.org/10.1016/j.ijmedinf.2016.12.004>.
- Handiwidjojo, W. (2009). *Universitas Kristen Duta Wacana Yogyakarta*, 2(1), 36–41. <https://ti.ukdw.ac.id/ojs/index.php/eksis/article/view/383>.
- Kusnadi, E. (2020). *Blog Eris Fishbone Diagram dan Blog Eris Fishbone Diagram dan Langkah- Langkah Pembuatannya..* <http://eriskusnadi.wordpress.com/2011/12/24/fishbone- diagram-dan-l>.
- Kemenkes. (2008). *Standar pelayanan minimal rumah sakit nomor : 129/Menkes/SK/II/2008* (Vol. 76, Issue 3, pp. 61–6.
- Noor, S. 2014 *Jurnal Ilmu Manajemen*, 17(2), 58–70.
- Peraturan Pemerintah RI. (2014). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 46 Tahun 2014 Tentang Sistem Informasi Kesehatan*, 1–66. <http://jdih.kkp.go.id/peraturan/pp-46-2014.pdf>.
- Pujihastuti, A. (2021). *Abstrak. LITERATURE REVIEW PROSES PENYUSUTAN DOKUMEN REKAM MEDIS DI RUMAH SAKIT.*
- Permenkes. (2022). *Peraturan Menteri Kesehatan RI Nomor 24 tahun 2022 tentang Peraturan Rekam Medik Elektronik Instansi Kesehatan.*