International Journal of Psychology and Health Science (IJPHS)
+62 813 8765 4578 http://greenpub.org editor@greenpub.org Jl. Kapt. A. Hasan, Telanaipura Jambi - Indonesia.
DOI: https://doi.org/10.38035/ijphs.v2i3
Received: August 09th, 2024, **Revised:** August 19th, 2024, **Publish:** August 26th, 2024

Analysis of the Implementation of EMR Integration into the SATUSEHAT Platform at X Hospital

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Abstract: The implementation of EMR integration into the SATUSEHAT Platform at X Hospital has yet to be fully integrated. This research aims to analyze the implementation of electronic medical record integration into the SATUSEHAT Platform at X Hospital. This type of research is qualitative with a descriptive approach and uses Edwards III policy implementation theory. Using purposive sampling techniques, research data was collected through interviews with four informants and observations. The validity of the data was tested using source triangulation and technique triangulation. The research results show that X Hospital has successfully integrated 93.5% of its data with SATUSEHAT, while the remaining 6.5% have metadata variable inconsistencies and need adjustments to be integrated with SATUSEHAT. The main conclusion shows that the bureaucratic structures related to SOP in X Hospital need to be fixed, and there is a mismatch in the National ID Number in the metadata variable between X Hospital's Management Information System and the Ministry of Health Republic of Indonesia. Therefore, X Hospital needs to evaluate and improve the metadata variables of the EMR system to be appropriate and facilitate data interoperability.

Keyword: Integration, EMR, SATUSEHAT

INTRODUCTION

In the digital era, the development of information technology in various fields has become a worldwide phenomenon. One example of information technology in health services is Electronic Medical Records (EMR) (Siagian, 2016). EMR is a system used to record and manage patient health data electronically (KEMENKES, 2022). The use of EMR has a very useful role in developing the quality of service systems around the world. In addition, EMR can address changes and challenges such as interoperability, efficiency, and flexibility (Asih & Indrayadi, 2023). Therefore, the implementation of EMR must be held in all healthcare facilities by the policy issued in September 2022, namely Minister of Health Regulation No. 24 of 2022 concerning medical records that no later than December 31, 2023, to hold EMR and mandates that all health facilities that have held EMR are required to integrate with SATUSEHAT Platform (Tania et al., 2023).

SATUSEHAT Platform is a health service system managed by the Ministry of Health of the Republic of Indonesia (KEMENKES, 2022b). This application presents a variety of health features and services, childhood immunization history, and digitally recorded medical record resumes (Halim & Suwandy, 2023). SATUSEHAT Platform is an application and part of the health data exchange ecosystem (Health Information Exchange/HIE) that connects multiple digital health platforms in Indonesia. Before the SATUSEHAT Platform was developed, Indonesia's health ecosystem experienced considerable problems. The Indonesian government has more than 400 unintegrated health applications, inconsistent metadata that can make interoperability difficult, lack of interoperability format standards that make integrating applications challenging, and multiple data of the same medical record collected in different health applications (Pusdatin, 2023). Thus, with the development of the SATUSEHAT Platform, health workers do not need to repeatedly enter data into various applications. If the officer only fills in with one application, the Platform will automatically connect to other health apps. Patients do not have to carry medical record files to different service facilities, and all medical resumes are available digitally at the SATUSEHAT Platform (Rokom, 2022). So, by integrating national health data, Indonesia's health service system can be easier, faster, and more efficient and effective (Hulisnaini & Juliangrace, 2023).

Based on Circular Letter Number HK.02.01/MENKES/1030/2023 concerning the implementation of electronic medical records in health service facilities and the implementation of administrative sanctions in the context of coaching and supervision, it is emphasized that for health services, including hospitals that have not implemented electronic medical records until December 31, 2023, they will receive administrative sanctions in the form of written warnings. Then, electronic medical records that have been implemented but have not been integrated with SATUSEHAT Platform will then get sanctions in the form of recommendations for adjustment of accreditation status and for health facilities that do not carry out electronic medical records at all and integrate them with SATUSEHAT Platform will then get sanctions in the form of revocation of accreditation status (KEMENKES, 2023). Therefore, healthcare facilities, including hospitals, must integrate EMR into the SATUSEHAT Platform so that implementing the policy can help improve the quality of health services and secure the level of accreditation.

X Hospital is a health service facility that implemented electronic medical records before the Minister of Health Regulation No. 24 of 2022 concerning medical records was issued. Electronic medical records began in 2020 and will be carried out thoroughly in 2022. The integration of medical records into the SATUSEHAT Platform at X Hospital has been implemented since the beginning of 2024. Based on the results of a preliminary study obtained from observations on the SATUSEHAT Dashboard and interviews with informants at X Hospital, it was found that X Hospital has not been fully integrated with SATUSEHAT, and there is no (Standard Operational Procedure/SOP) related to the implementation of policies at X Hospital. Based on this, to achieve policy implementation at X Hospital, the researcher will analyse using Edwards III policy theory to find out how to integrate EMR into the SATUSEHAT Platform at X Hospital. Researchers will also discuss the challenges and obstacles faced in implementing EMR integration into the SATUSEHAT Platform. Therefore, this study aims to analyse the Implementation of Electronic Medical Record Integration into the SATUSEHAT Platform at X Hospital.

METHOD

The type of research used in this study is qualitative, using a descriptive approach. The qualitative research aims to provide an overview of the facts found in interviews and observations on implementing EMR integration into the SATUSEHAT Platform at X Hospital (Sugiyono, 2013). The descriptive approach aims to analyze by describing it through

written and oral words from informants (Moleong, 2000). The research was conducted at X Hospital, which involved several research subjects, including the Head of the Clinical Support Section, the Head of the Medical Records Division, the Head of the Health Facility Development Division and the Head of the Information Technology (IT) Division. Research data collection will be done by interviewing informants and observing the SATUSEHAT Dashboard. This research has various instruments in data collection, such as interview guide sheets, observations, recording tools such as pens and books, recording devices and the researcher herself. The sampling in this study used a purposive sampling technique. Informants were selected based on their direct involvement and in-depth knowledge of integrating electronic medical record into the SATUSEHAT Platform at X Hospital (Nirmalasari & Safriantini, 2019). The validity of the data is carried out by triangulation techniques, namely source triangulation and triangulation techniques.

The policy implementation theory developed by Edwards III is used to support the research. Four variables must be considered: related communication (transmission, clarity, and consistency), related resources (financial resources, human resources, and infrastructure), disposition, and related bureaucratic structure (Standard Operational Procedure / SOP) (Widodo, 2010).

RESULTS AND DISCUSSION

Implementation of Medical Record Integration into SATUSEHAT at X Hospital

At this time, the implementation of the integration of Electronic Medical Records (EMR) into the SATUSEHAT Platform at X Hospital has met the minimum points set by the Ministry of Health. Based on information from one of the informants, the minimum point to integrate into the SATUSEHAT Platform is above 50%, and X Hospital has reached 93.5%. This shows that X Hospital has successfully connected and integrated EMR data to the SATUSEHAT Platform. The success of sending electronic medical record data can be monitored through the SATUSEHAT Dashboard, which the public and the government can access to review the data transmission status and the implementation of EMR integration in all healthcare facilities in Indonesia. On the SATUSEHAT Dashboard, Health Facilities (Health Service Facilities) that have successfully connected to the SATUSEHAT Platform are marked in green. In contrast, those not yet submitted data are marked in red.

Based on data analysis from Dashboard SATUSEHAT, X Hospital has met all indicators of the achievement of the SATUSEHAT implementation flow. The achievement indicators of the SATUSEHAT implementation flow are calculated from the Number of Health Service Facilities based on Registration Status (Have EMR at DFO), Integration Status (Granted API Production), and Connectivity Status (Send data to SATUSEHAT at least once) (Kementerian Kesehatan RI, 2023). The results of the data analysis from Dashboard SATUSEHAT are presented in the following table.

Table 1. Achievements of the implementation flow of SATUSEHAT X Hospital

Integration Stages	Already done	Not Yet done
Registered SATUSEHAT or have EMR status at DFO	✓	-
Integrated (has been granted API Production)	✓	-
Connected (sending data to SATUSEHAT)	✓	-

Source: SATUSEHAT Dashboard

Table 2. EMR data that has been connected to the SATUSEHAT Dashboard

Data Integration	Already done	Not Yet done
Patient Visits	✓	
Condition (ICD 10)	✓	
Observation	✓	
Action	✓	

Prescription Medication	✓	
Redeem Medicine	✓	
Service Requestment	✓	
Species	✓	
Diagnostic Report	✓	
Resume Diet	✓	
Intolerant Allergies	✓	
Clinical Implications	✓	
Follow-up Plan		✓
Questionnaire Response		✓
Treatment Notes		✓

Source: SATUSEHAT Dashboard

Based on Table 1, X Hospital has achieved all indicators of the implementation flow to be integrated with SATUSEHAT, and in Table 2, 3 data sets have not been connected to SATUSEHAT. Data that has been successfully connected to SATUSEHAT has been sent at least once (Kementerian Kesehatan RI, 2023); X Hospital has sent 12 data, meaning X Hospital has successfully connected and sent data more than once. This explanation is that the policy at X Hospital has been well implemented.

Based on the interview results, implementing EMR integration with the SATUSEHAT Platform at X Hospital has challenges and obstacles, as seen in the following table.

Table 3. Achievements of the implementation flow of SATUSEHAT X Hospital

Challenges and Obstacles
Long Process
Feedback from SATUSEHAT takes a long time

Based on the data presented in Table 3, the process of implementing electronic medical records to the SATUSEHAT Platform at X Hospital has challenges in the integration implementation process that is quite long. One of the informants stated that connecting to SATUSEHAT was quite long because it had to be registered from the SIMRS (X Hospital's Management Information System) provider vendor and hospital registered to SATUSEHAT to be integrated. The obstacle in integrating electronic medical records into SATUSEHAT in terms of time, namely feedback from the SATUSEHAT team regarding receipt, takes a long time. This can hinder the implementation process of integrating electronic medical records into the SATUSEHAT Platform.

Communication

Communication is information that is channelled into understanding policy implementation. The aspects studied are transmission, clarity and consistency from policymakers to policy implementers and beneficiaries of policies (Puspitasari & Junadi, 2018). Based on the results of interviews related to communication in the transmission aspect, clarity and consistency are considered quite good. Communication channelled from policymakers to policy implementers and beneficiaries in implementing medical record integration to the SATUSEHAT Platform is carried out through notification letters and meetings offline or online through Zoom. The discussions usually relate to the latest information from SATUSEHAT or to sudden events, understanding, and other important matters related to implementing electronic medical record integration to the SATUSEHAT Platform. The results of the interview are presented in the following table.

Table 4. Achievements of the implementation flow of SATUSEHAT X Hospital

Communication Aspects	Result
Transmission	Socialization

Clarity	Clear
Consistency	Consistent

Based on the results presented in Table 4, Communication in the transmission aspect is in the form of socialization related to integrating electronic medical records into the SATUSEHAT Platform. Socialization was done among electronic medical records users, nurses, midwives, or doctors. One of the informants stated that regarding integrating electronic medical records into the SATUSEHAT Platform, socialization has been carried out several times and has recently been conducted with specialist doctors. They were socializing how the data is valid and how it must be integrated into the SATUSEHAT Platform. Doctors and nurses must complete electronic medical records. The data cannot be connected to the SATUSEHAT Platform if it is empty. The socialization carried out by the policy implementer is to make it mandatory for electronic medical record users to complete medical record documents. Therefore, socialization related to EMR integration is essential to ensuring the smooth integration process and optimal use of EMR.

In terms of clarity of information for, policy implementers at X Hospital, it clearly understands the guidelines for implementing the policy of integrating electronic medical records into the SATUSEHAT Platform. One of the informants stated a different thing in the operational definition of policy implementation, which is sometimes ambiguous and cannot be understood clearly because the guideline is not clearly defined. From the aspect of consistency, one of the informants stated that the implementation of the policy of integrating electronic medical records into the SATUSEHAT Platform at X Hospital has been followed in accordance with regulations. Thus, the policy of integrating electronic medical records into the SATUSEHAT Platform at X Hospital has been consistent between what is decided by policymakers and the implementation carried out by policy implementers.

Resources

The success of implementing resources plays a fairly important role in integrating EMR into the SATUSEHAT Platform (Puspitasari & Junadi, 2018). The elements that are researched on resources are related to financial funds, human resources, and infrastructure facilities needed to implement the policy. Based on the results of the interviews, resources for implementing EMR integration to the SATUSEHAT Platform are reasonable and adequate.

Table 5. Achievements of the implementation flow of SATUSEHAT X Hospital

Elements studied	Already done	Not Yet done
Financial fund resources	✓	
Human resources	✓	
Infrastructure	✓	

Based on Table 5, the source of financial funds for integrating medical records into the SATUSEHAT Platform is sufficient. Funds that support the implementation of EMR integration with the SATUSEHAT Platform are sourced from the functional budget of X Hospital/BLUD (Regional Public Service Agency). The budget received for policy implementation is 1.5% of the total budget. These financial funds are utilised by investing in network equipment, hardware, and human resources financed from the BLUD/functional budget of X Hospital.

Based on the interview results, the human resources involved in implementing EMR integration into the SATUSEHAT Platform are IPSRS, RM, IT, doctors, and all service fields. All informants stated that the number of people involved in integrating EMR with the SATUSEHAT Platform at X Hospital was considered adequate. Specific expertise in policy implementation is tailored to particular expertise in each field. One of the informants said that

the most important special expertise in the policy implementation process is the IT field. The IT field must have special abilities in policy implementation. Training and guidance for all policy implementers involved at X Hospital is carried out via Zoom. One of the informants stated that there is no internal training and guidance related to integrating medical records into the SATUSEHAT Platform. However, externally, the Ministry of Health has socialized how data can be interoperable with programs from SATUSEHAT. The information related to socialization carried out by SATUSEHAT was socialized again to all policy implementers involved. Human Resource Participation in training and guidance related to integrating EMR into the SATUSEHAT Platform depends on existing policies.

Based on the interview results, the infrastructure to support the implementation of EMR integration to the SATUSEHAT Platform is adequate. Several facilities and infrastructure are needed to integrate medical record with the SATUSEHAT Platform, namely local/cloud servers, SIMRS applications, electronic medical records, interoperability features, and adequate Internet. Adequate Internet access can support the interoperability process. Internet access for EMR integration to the SATUSEHAT Platform at X Hospital has strong and fast power, with an Internet bandwidth capacity of 200mbps and low latency to support bridging the SIMRS application with SATUSEHAT. Bridging the SIMRS application with the SATUSEHAT server by utilizing interoperability features, one of which uses API code. The API code can connect SIMRS with the SATUSEHAT server.

Disposition

Disposition is the attitude and commitment of policy implementers towards implementing EMR integration with the SATUSEHAT Platform (Puspitasari & Junadi, 2018). Based on the research results, the implementer's attitude towards the policy at X Hospital is quite good. This can be seen in the following table.

Table 6. Achievements of the implementation flow of SATUSEHAT X Hospital

Executive	Support	Not Supported
Head of Clinic Support Section	✓	
Head of Medical Records Division	✓	
Head of Health Facility Development	✓	
Head of the Information Technology (IT)	✓	

Based on the results presented in Table 6, all informants fully support the implementation policy. One of the informants stated that implementing the policy of integrating electronic medical records into the SATUSEHAT Platform greatly influences the hospital's accreditation status. If policy implementers cannot integrate medical record data or are not interoperable, it can be a problem for hospitals. Thus, it is also a regulatory obligation for health facilities to implement the policy of integrating medical records into the SATUSEHAT Platform. This is supported by the commitment of the policy implementer at X Hospital in the form of socialization to medical record users and to all fields involved in policy implementation. Then, a form of commitment and support from policy implementers is by continuing to implement the integration of medical records into the SATUSEHAT Platform by the duties of each field. This commitment can be seen from the tables presented in Table 1 and Table 2, which show that X Hospital has been integrated and connected to the SATUSEHAT Platform.

Bureaucratic Structure

Bureaucratic structure is an essential factor affecting the success or failure of policy implementation. Bureaucracy is created only to carry out a policy. The main characteristic of the bureaucratic structure is SOP (Standard Operational Procedure). Based on the interview

results, the bureaucratic structure of SOP (Standard Operational Procedure) at X Hospital has not been appropriately implemented. SOPs in the implementation of medical record integration into the SATUSEHAT Platform can be seen in the table presented below.

Table 7. Achievements of the implementation flow of SATUSEHAT X Hospital

Source	Standard Operational Procedure
X Hospital	-
Ministry of Health	Metadata variables and Downtime

From the results presented in Table 7, the SOP (Standard Operational Procedure) related to integrating medical records into the SATUSEHAT Platform at X Hospital must be appropriately implemented because there is no official SOP. However, regarding the interoperability of data from the Ministry of Health, there are SOPs related to downtime, which is a guide that must be followed in case of system disruptions and metadata variables. Metadata variables are guidelines related to the EMR system that must exist. If it does not match, the EMR data cannot be connected to the SATUSEHAT Platform. Based on the results of interviews and observations on the EMR system at X Hospital, 6.5% of the data recommended by the Ministry of Health must be revised in the EMR system. Therefore, X Hospital needs to improve the EMR system to connect patient data to SATUSEHAT. One of the informants stated that patient data must be complete, such as in the EMR system, and the full name and RM number are appropriate. However, the NIK (National ID Number) must be revised because in the meta-variables, the NIK data must be filled in numerically, and the NIK must not be blanked. If there is no NIK, it must be filled with the number 9, as many as 16 digits must not be blank because the patient's data sent to SATUSEHAT will not be valid. At X Hospital, when filling out the NIK, you can still use the alphabet and blank the NIK with free letters. So, the NIK must be revised to match the metadata variables and can be connected to SATUSEHAT. This is by the regulations in the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/1423/2022 concerning guidelines for variables and metadata in the implementation of electronic medical records that in the regulations are presented variables that must exist and are by the EMR system. The guidelines for metadata variables must be used as a reference by all medical record operators to facilitate the interoperability of electronic system data developed by Health Facilities (KEMENKES, 2022a).

CONCLUSION

Based on the results of the research conducted at X Hospital, it can be concluded that the integration of EMR to the SATUSEHAT Platform at X Hospital in terms of the implementation flow has been carried out well even though the response from SATUSEHAT and the implementation process takes a long time are obstacles and challenges in implementing the integration of EMR to the SATUSEHAT Platform. The implementation of policies in the aspects of communication, resources, and disposition has been carried out quite well. However, the bureaucratic structure has not been appropriately implemented, and there are invalid metadata variables in the NIK between the X Hospital's Management Information System and the Ministry of Health. As much as 6.5% of the data in the EMR system needs to be revised by X Hospital, which impacts the invalidity of patient data connected to SATUSEHAT. Therefore, X Hospital needs to evaluate and improve the metadata variables of the EMR system so that they are appropriate and can facilitate data interoperability. This study needs to be analyzed or further researched to identify what are the factors that cause the difference between metadata variables and the EMR system.

REFERENCE

Asih, H. A., & Indrayadi. (2023). Perkembangan Rekam Medis Elektronik di Indonesia: Literature Review. *Jurnal Promotif Preventif*, *6*(1), 182–198.

Halim, F., & Suwandy, R. (2023). Evaluasi User Engagement dan User Experience pada Aplikasi Satu Sehat. *Journal of Information System Research (JOSH)*, *5*(1), 151–158. https://doi.org/10.47065/josh.v5i1.4346

Hulisnaini, H., & Juliangrace, S. (2023). Transformasi Layanan Pedulilindungi Menjadi Satu Sehat (Transformation of Pedulilindungi Into Satu Sehat). *ResearchGate*, *April*, 9.

KEMENKES. (2022a). *Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/1423/2022 Tentang Pedoman Variabel Dan Meta Data Pada Penyelenggaraan Rekam Medis Elektronik*.

KEMENKES. (2022b). Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/Menkes/1559/2022 Tentang Penerapan Sistem Pemerintahan Berbasis Elekteronik Bidang Kesehatan dan Strategi Transformasi Digital Kesehatan. In *Menteri Kesehatan Republik Indonesia*.

KEMENKES. (2022c). PERMENKES RI NO 24 Tahun 2022 Tentang Rekam Medis. In *Menteri Kesehatan Republik Indonesia*.

KEMENKES. (2023). Surat Edaran Nomor Hk.02.01/Menkes/1030/2023 Tentang Penyelenggaraan Rekam Medis Elektronik Di Fasilitas Pelayanan Kesehatan Serta Penerapan Sanksi Administratif Dalam Rangka Pembinaan Dan Pengawasan. In *Menteri Kesehatan Republik Indonesia*.

Kementerian Kesehatan RI. (2023). *Monitoring Implementasi SATUSEHAT Seluruh Indonesia*. DASHBOARD SATUSEHAT. https://satusehat.kemkes.go.id/data/dashboard/3678097d-d11e-4b2c-8552-310d782a905b

Moleong, L. J. (2000). *Metode Penelitian Kualitatif*. Remaja Rosdakarya.

Nirmalasari, M. Y., & Safriantini, D. (2019). Analisis Implementasi Integrasi Jamsoskes Sumatera Selatan Semesta ke Program Jaminan Kesehatan Nasional di Kota Palembang dari Sisi Stakeholder. *Jurnal Kebijakan Kesehatan Indonesia : JKKI*, *8*(3), 127–135.

Pusdatin. (2023). *Mengenal SATUSEHAT*. Kementerian Kesehatan Republik Indonesia. https://rc.kemkes.go.id/mengenal-satusehat-63a5eb

Puspitasari, M. M., & Junadi, P. (2018). Analysis of Implementation of Integration of HIV PMTCT Services into Antenatal Services in Depok City 2017. *Jurnal Kebijakan Kesehatan Indonesia : JKKI*, *7*(2), 79–87.

Rokom. (2022). *Kemenkes Luncurkan Platform SATUSEHAT Untuk Integrasikan Data Kesehatan Nasional*. Sehat Negriku. Biro Komunikasi Dan Pelayanan Publik Kementrian Kesehatan RI. https://sehatnegeriku.kemkes.go.id/baca/umum/20220726/5140733/kemenkes-ri-resmi-luncurkan-platform-integrasi-data-layanan-kesehatan-bernama-satusehat/

Siagian, S. (2016). Analysis of Security Threat of Management Information System in. *Scientia Journal*, *4*(04), 371–375.

Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. ALFABETA,CV.

Tania, A., Putri, D., Kesehatan, M. P., Administrasi, D., Kesehatan, K., Ilmu, F., Masyarakat, K., Indonesia, U., & Indonesia, U. (2023). Challenges in implementing electronic medical record in Indonesia healthcare facilities. *Jurnal Medika Hutama*, *4*(3), 3427–3431.

Widodo, J. (2010). *ANALISIS KEBIJAKAN PUBLIK, Konsep dan Aplikasi Analisis Proses Kebijakan Publik*. BAYUMEDIA PUBLISHING.