

ORIGINAL RESEARCH

## Management of Medical Record Unit Services for Covid-19 Patients in Type C Hospitals: A Study of Legal Aspects.

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## Abstract

**Background:** The impact of the pandemic on medical record health service procedures has induced significant changes. The duplication of Covid-19 patient numbers in the patient medical record unit is an important concern. This study aims to analyze the legal aspects of managing medical record services during the Covid-19 pandemic in hospitals.

**Methods:** This type of research is descriptive and quantitative with a cross-sectional approach. The key informants are 15 registration and medical record unit officers, using online interview techniques, employed in three hospitals in Semarang with a focus on group discussions. The object of research includes the management of medical records and service standards for Covid-19 patients as regulations in the medical record unit of the Semarang city general hospital.

**Results:** Policies and standards for medical record services for Covid-19 patients, have not been adjusted to the provisions based on Circular Letter Number HM.01.01/001/III/2020 concerning procedures for work in situations of the Covid-19 outbreak. The medical record service for Covid-19 patients still applies paper-based or semi-electronic medical records so that errors can occur. This can cause legal problems for hospitals; therefore, medical record service standards must meet legal aspects as legal evidence that can protect the interests of various parties.

**Conclusions:** It is necessary to manage a medical resume form design that is better, complete, electronical, and in accordance with legal aspects.

**Keywords:** Covid-19, design, legal information, medical resume, policies and standards, standard operating procedures.

**Conflicts of interest:** None declared.

**Authors' contributions:** This research was conducted in collaboration of all the authors. The authors of the RAS designed the study. Authors RAS, S, MS, ASW, BGV, ENR, NW and SHN did the sampling and wrote the first draft. Authors S, SI and RAS authors wrote the protocol and administered the study analysis. The RAS authors and SI authors managed the literature search. All authors read and approved the final manuscript.

**Data Availability:** All relevant data has been registered with supporting file information.

**Ethical Approval:** According to international standards or research standards in the Republic of Indonesia, written ethical consent has been collected and kept by the author. This research proposal has passed the ethical review from the Health Research Ethics Commission (KEPK) Faculty of Health, Dian Nuswantoro University Semarang on May 4, 2021 with an Ethical Approval Certificate issued with Number 024/EA/KEPK-Fkes-UDINUS/V/2021.

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## Introduction

The Corona Virus Disease 2019 (Covid-19) pandemic is caused by the Corona Virus SARS-CoV-2 (1), designated by the World Health Organization as a Covid-19 Pandemic on March 11, 2020 (2). Transmission occurs via microdroplets or aerosol (3). Common symptoms of this viral illness are fever, cough, and shortness of breath, which in case of complications can lead to pneumonia and severe acute respiratory distress (4). Recommendations for prevention are frequent hand washing with alcohol or a surfactant (soap) (5) and keeping a distance of at least 1 meter from other people and wearing masks (6). The Covid 19 virus can survive on medical devices, paper, and medical records (7).

Medical record management is an activation process that begins when the patient is admitted to the hospital, recording the patient's medical data while receiving health services and continue with the handling of medical record files which includes storing and releasing files from the storage area to serve requests. These activities are a risk factor for disease transmission due to Covid-19 (8).

The patient's medical record file of the admission will be stored according to regulations. The files are entered into a folder containing data and information on the results of services obtained by individual patients (9). However, the impact of the Covid-19 pandemic has greatly affected the management of medical record documents in hospitals (10), especially the occurrence of errors in medical record service procedures, including duplication of medical record folders or medical record numbers for Covid-19 patients (11). This can happen because Covid-19 patients usually come back to the hospital for treatment 4-6 days after discharge. At this time the patient's medical record is still in quarantine so that the patient gets a new medical record document. In this case continuity of medical information is not achieved, which can lead to errors. The numbering duplication that also can occur is generally caused by an inaccurate identification process that causes a patient to get more than one medical record number (12).

The success of health services begins at the registration section, patients should get a medical record number, both outpatient and inpatient. Numbering plays an important role in facilitating the search for medical records when patients come back for treatment (13).

The purpose of this study is to analyze the management of medical record services for Covid-19 patients from the point of legal aspects, including medical document management standards, procedures for protecting medical recorders and health information personnel, patient registration, and medical treatment procedures in order to prevent transmission of Covid-19.

## Methods

This research is descriptive and quantitative with a cross-sectional approach (14). The key informants are the medical recorder at the patient registration area: the outpatient registration officer, the inpatient registration officer, and the emergency patient registration officer, together 15 officers and 3 triangulation informants, the heads of the medical record units of three type C hospitals, namely the Gondosuwarno Ungaran General Hospital, the Ken Saras Hospital Bawen, and the Permata Medika General Hospital Semarang.

The study uses online interviews with key informants and Focus Group Discussions (FGD) as well as triangulation (15). The target is to identify the standard for managing medical record documents for Covid-19 patients as a regulation in the Medical Record Unit of the Hospital. The measurement scale for the questionnaire follows Guttman (16). The information on the collected data is summarised in Annex 1.

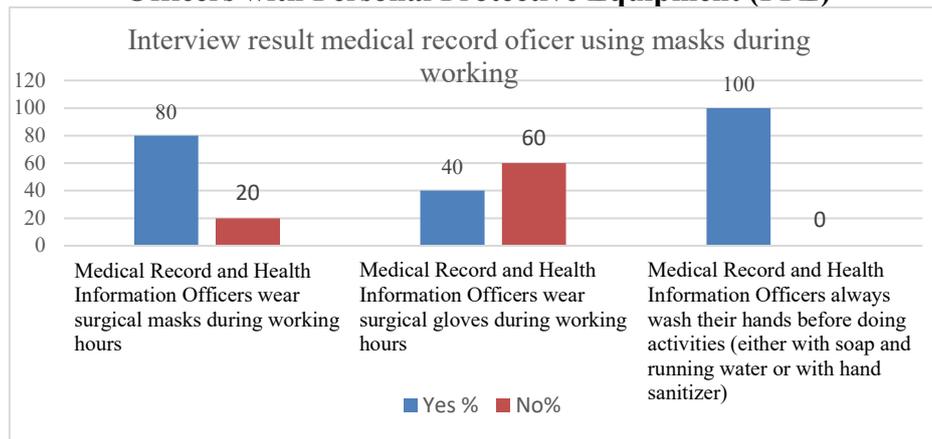
## Results

The Indonesian Association of Medical Recorders and Informatics has released the Circular Letter Number HM 01.01./002/III/2020 concerning Procedures for Medical Recorders and Health Information (PMIK) in Situations of the Covid-19 Outbreak. Only 8 of the 15 medical record officers (53%) were aware of the circular letter.

The results of interviews with key informants regarding the policy on registration procedures for preventing transmission of Covid-19 cases revealed that the hospital had such a policy according to 67% of the answers, while 33% stated that the hospital did not have.

Medical recorders wore surgical masks during working hours with an 80% compliance rate, wore surgical gloves with a 40% compliance rate, and always washed their hands with soap before completing activities in running water with a 100% compliance rate, according to interview data. (Figure 1).

**Figure 1. Interview Results on Protection of Medical and Health Information Systems Officers with Personal Protective Equipment (PPE)**



The results of the interviews regarding the flow and procedure of medical record documents for new patients with Covid-19 are as follows: a special computer unit with an online registration system new Covid-19 patients existed in 47%, a special table for

filling out new patient forms in 40%, and screening patients by health facilities officers at the entrance to the patient registration area in 67%. 87% of medical recorders can always avoid direct contact with patients/patient s' families (Figure 2).

**Figure 2. Interview Results on Flow and Procedures for Medical Record Document Services for New Patients with Covid-19 Cases**

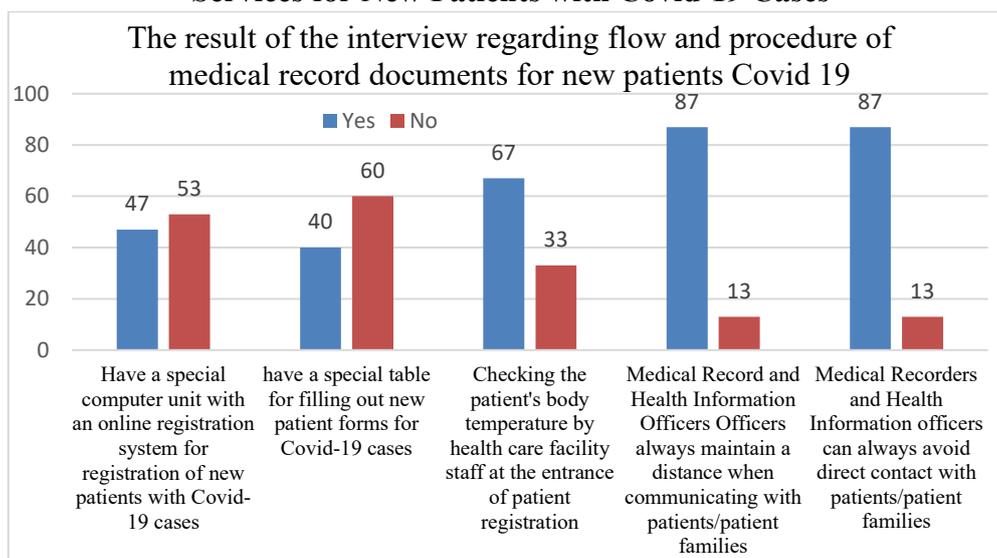


Table 1 summarizes the procedures of handling Covid-19 patients records. More

than 10 YES answers out of 15 are documented only for issues f), g), n), and o).

**Table 1. Interview Results on Handling Procedures for New Patient Medical Record Documents of Covid-19 Cases**

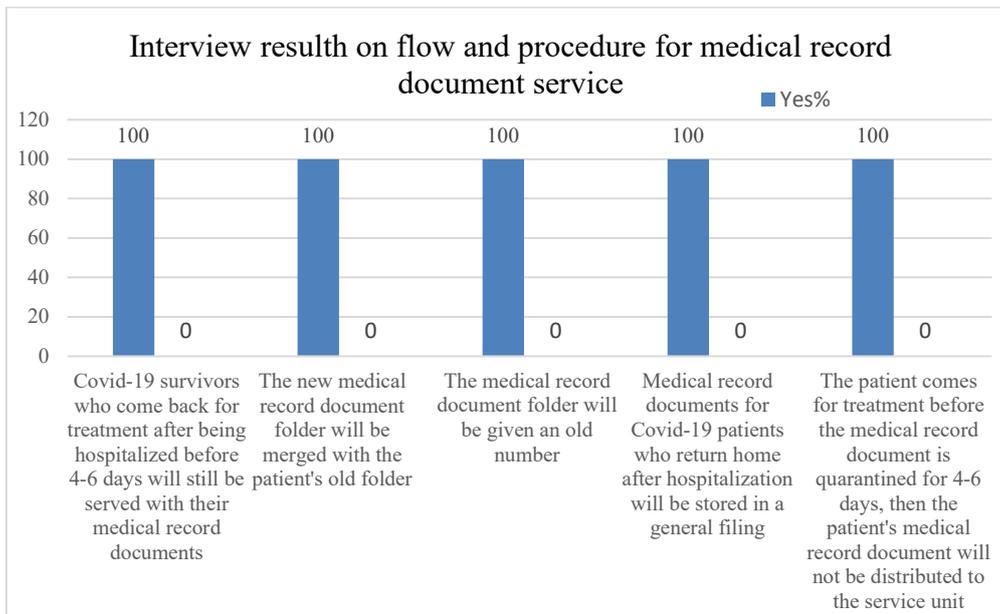
No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	The patient's medical record form in the inpatient registration room is already an electronic medical record form.	6	40	9	60	15 (100%)
b.	Paper medical record forms are available at the patient registration area.	9	60	6	40	15 (100%)
c.	If the answer to number b is "yes", then the patient's medical record document is entered in the check box.	4	27	11	73	15 (100%)
d.	For inpatients, there is a special procedure for handling Covid-19 patient medical record documents before being taken to the Nurse Station room.	4	27	11	73	15 (100%)
e.	Medical record documents are brought to the patient care room while the patient is being treated.	5	33	10	67	15 (100%)
f.	The patient's medical record document is always in the Nurse Station room while the patient is hospitalized.	15	100	0	0	15 (100%)
g.	The medical record document of the patient who will go home (recorded in the medical record unit) is given the date of receipt of the document.	15	100	0	0	15 (100%)
h.	Medical record documents of inpatients are put in a tightly closed box for several days.	0	0	15	100	15 (100%)
i.	The surface of the outer cover/plastic of medical record documents is cleaned with spray sanitizer / alcohol / disinfectant.	6	40	9	60	15 (100%)
j.	The patient's medical record box is stored in a special room.	3	20	12	80	15 (100%)
k.	The filing clerk who cleans the cover of the medical record document wears medical gloves.	2	13	13	87	15 (100%)
l.	The sterilization procedure for medical record documents only applies to Covid-19 patients who will return home after undergoing hospitalization.	0	0	15	100	15 (100%)
m.	Medical record documents for Covid-19 patients who return home from hospitalization are immediately destroyed.	0	0	15	100	15 (100%)
n.	The procedure for shrinking medical record documents for Covid-19 patients who return home from the hospital is treated the same as general disease patients.	15	100	0	0	15 (100%)

o. Covid-19 patient medical record documents are classified in the general disease group in the archive retention schedule.	15	100	0	0	15 (100%)
p. Have a special note for the medical record document of Covid-19 patients who return from the hospital.	0	0	15	100	15 (100%)

The results of the survey show furthermore that 33% of key informants stated that there were still patient medical records that were left behind or mixed up in the inpatient room while the patient was being treated. This is not allowed because paper can be a medium for transmitting Covid-19, even 100% of the informants answered that the medical record

documents of Covid-19 patients who were hospitalized were not put in a tightly closed box for several days, again not in accordance with the minimum standards set (17). Interview results on flows and procedures for medical record document services, can be seen in figure 3:

**Figure 3. Interview Results on Flows and Procedures for Medical Record Document Services**



**Discussion**

Operational procedures for medical record services in general and specifically during the Covid-19 pandemic situation, include: a) Setting standards or basic controls b) Measuring performance, c) Comparing performance with standards and determining differences d) Correcting deviations with corrective actions (18).

Regulations have to comprise all Medical Record and Health Information in the form of policies to apply minimum standards in accordance with SE No. HM 01.01/002/III/2020 of the Indonesian Association of Medical Recorders and

Informatics Profession (PORMIKI) (19) and the standard operating procedures for handling medical records and managing information on Covid-19 as outlined by WHO (20). The assessment of Government Regulation of the Republic of Indonesia Number 46 of 2011 concerning Assessment of Civil Servants' Work Performance shows that the socialization of regulations in the hospital environment is by far not complete, implying that the contents of circular letter no. HM 01.01/002/III/2020 have not been fully implemented, possibly due to a lack of training and socialization.' (21). The implementation of standard operating procedures must be set at

minimum service standards to achieve optimal medical record services (22,23), non-compliance in hospitals can result in patient deaths and legal issues (24).

Our results confirm that according to 10 key informants (67%) screening of patients by officers at the entrance has not been carried out, as well as maintaining distance. Hospital management is obliged to establish policies and standards for medical record services for Covid-19 patients (10,25), and must have a policy on the use of standard personal protective equipment (PPE) during medical record services (26,27). In the investigated type C hospitals medical records are still paper-based or semi-electronic, which is an obstacle for the application of minimum standards referring to SE No. HM 01.01/002/III/2020. Regarding a facilitated registration with an online system or provision of special computers for patients (28) we found that according to 47% of key informants the patient registration place had not an online system and 40% of the informants answered that there was no special table provided for filling in the format of identity of new patients, whereas registration officers should maintain a minimum distance of 1 m from patients and reduce direct contact with them (29).

Hospitals are legally responsible for the quality of care provided to patients delivered by doctors, nurses and health care professionals (30). According to Article 46 paragraph 1 and paragraph 2 of Law Number 29 of 2004 concerning Medical Practice (1), every doctor or dentist in carrying out medical practice is obliged to keep medical records, which must be completed immediately after the patient has received health services (31). Medical records

provide evidence of all service actions, disease progression, and treatment during a patient's visit or hospitalization (32). Data and information in medical records can be used for health care and treatment of patients, evidence in the process of law enforcement, educational research purposes, basic health service fee payments, and health statistical data (33). It includes a discharge resume (26,34) in accordance with the regulations of the Joint Commission International Accreditation Standards for Hospitals (35). A draft discharge summary form has been designed to address problems that occur in type C hospitals if a Covid-19 patient comes back for treatment before the quarantine period of medical record documents is complete (Annex 2).

### Conclusions

The results of the three hospitals investigated show that 2 hospitals have not set policies and Standard Operating Procedures for the Covid-19 pandemic and 1 hospital has used standard memos for medical record services during the Covid-19 pandemic since 2020. All three Hospitals are still implementing paper-based medical records or semi-electronic documentation.

The occurrence of duplication of numbering is generally caused by an inaccurate identification process that causes patients to get more than one medical record number. The solution for Covid-19 patient referral hospitals that still apply paper-based and semi-electronic medical records is to make resumes of homecoming patients according to the Joint Commission for Hospitals International Accreditation Standards.

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## **Annex 1: Stored data collection**

### **1. Medical Record Management Standards for Covid-19 Case Patients**

**Table 1. Interview Results on Regulations for Management of Medical Records in Patients with Covid-19 Cases** (f stands for frequency)

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	The medical record officer is aware of the regulation of SE No. HM 01.01/002/III/2020 concerning Medical Recorder Work Procedures and Health Information (PMIK) in Covid-19 Outbreak Situations	8	53	7	47	15 (100%)
b.	Medical record officers have received training on Patient Registration Procedures for the Prevention of Transmission of Covid-19 Cases	13	87	2	13	15 (100%)

**Table 2. Interview Results on Flow Policies and Procedures for Medical Record Services for Covid-19 Patients**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	Have a policy on patient registration procedures for the prevention of transmission of Covid-19 Cases	10	67	5	33	15 (100%)
b.	Have a policy on procedures for medical record documents for new patients for Covid 19 Cases	6	40	9	60	15 (100%)

**Table 3. Interview Results on Standard Flows and Procedures for Medical Record Services for Patients with Covid-19 Cases**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	Have standard operating procedures for Patient Registration for Prevention of Transmission of Covid-19 Cases	7	47	8	53	15 (100%)
b.	Have standard operating procedures for medical record document services for new patients with Covid 19 Cases	4	27	11	73	15 (100%)

**Table 4. Results of focus group discussions on Regulations for Management of Medical Records of Covid-19 Case Patients against Triangulation (IT) Informants**

IT 1, 2, 3	<p>There is no special socialization of regulations in the form of circular letter No. HM 01.01/002/III/2020 concerning Medical Recorder Work Procedures and Health Information in Situations of the Covid-19 Outbreak.</p> <p>There has been no special training for medical record services to patients in the context of preventing the transmission of Covid-19 cases or managing medical record documents for Covid-19 patients.</p> <p>There are no policies and standard operating procedures specifically for patient medical record services in the context of preventing the transmission of Covid-19 cases</p> <p>There are no policies and standard operating procedures specifically for the management of medical record documents for Covid-19 patients.</p>
IT 3	<p>There is a medical record service memo for Covid-19 patients for emergency conditions in 2020 which was agreed to be carried out in the medical record unit.</p>
<b>Conclusion</b>	<p>There are no policies and standard operating procedures for patient medical record services in the context of preventing the transmission of Covid-19 cases or managing the Medical Record Documents for Covid-19 Patients in 3 type C hospitals, Regency and Semarang City.</p>

## 2. Procedures for The Protection of Medical Officers and Health Information Systems with Personal Protective Equipment (PPE)

**Table 5. Interview Results on Protection of Medical and Health Information Systems Officers with Personal Protective Equipment (PPE)**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	Medical Record and Health Information Officers wear surgical masks during working hours	12	80	3	20	15 (100%)
b.	Medical Record and Health Information Officers wear surgical gloves during working hours	6	40	9	60	15 (100%)
c.	Medical Record and Health Information Officers always wash their hands before doing activities (either with soap and running water or with hand sanitizer)	15	100	0	0	15 (100%)

## 3. Patient Registration Procedures for Prevention of Transmission of Covid-19

**Table 6. Interview Results on Flow and Procedures for Medical Record Document Services for New Patients with Covid-19 Cases**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	Have a special computer unit with an online registration system for registration of new patients with Covid-19 cases	7	47	8	53	15 (100%)
b.	Have a special table for filling out new patient forms for Covid-19 cases	6	40	9	60	15 (100%)
c.	Checking the patient's body temperature by health care facility staff at the entrance of patient registration	10	67	5	33	15 (100%)
d.	Medical Record and Health Information Officers always maintain a distance when communicating with patients/patient families	13	87	2	13	15 (100%)
e.	Medical Recorders and Health Information officers can always avoid direct contact with patients/patient families	13	87	2	13	15 (100%)

**Table 7. Results of Focus Group Discussion Regarding the Flow and Procedure of Medical Record Document Services for New Patients with Covid-19 Cases against Triangulation Informants**

IT 1, 2, 3	<p>There are no computers and special desks available for registration of new patients who come at the patient reception center.</p> <p>Have a barrier between medical record and health information officers and patients at the patient reception center counter.</p> <p>Have an online registration application.</p>
IT 3	<p>Have a non-permanent barrier (plastic or glass) between medical recorders and health information officers and patients at the patient reception center counter.</p> <p>Have an online/whatsapp registration application for the convenience of patients via mobile phones.</p>
<b>Conclusion</b>	<p>New patient registration services at the patient reception center counter are still served at the patient registration counter during the Covid-19 pandemic.</p>

#### 4. Procedure for Management of Medical Record Documents for Prevention of Transmission of Covid-19 Cases

**Table 8. Interview Results on Handling Procedures New Patient Medical Record Documents for Covid-19 Cases**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	The patient's medical record form in the inpatient registration room is already an electronic medical record form.	6	40	9	60	15 (100%)
b.	Paper medical record forms are available at the patient registration area.	9	60	6	40	15 (100%)
c.	If the answer to number b is "yes", then the patient's medical record document is entered in the check box.	4	27	11	73	15 (100%)
d.	For inpatients, there is a special procedure for handling Covid-19 patient medical record documents before being taken to the Nurse Station room.	4	27	11	73	15 (100%)
e.	Medical record documents are brought to the patient care room while the patient is being treated.	5	33	10	67	15 (100%)
f.	The patient's medical record document is always in the Nurse Station room while the patient is hospitalized.	15	100	0	0	15 (100%)
g.	The medical record document of the patient who will go home (recorded in the medical record unit) is given the date of receipt of the document.	15	100	0	0	15 (100%)
h.	Medical record documents of inpatients are put in a tightly closed box for several days.	0	0	15	100	15 (100%)
i.	The surface of the outer cover/plastic of medical record documents is cleaned with spray sanitizer / alcohol / disinfectant.	6	40	9	60	15 (100%)
j.	The patient's medical record box is stored in a special room.	3	20	12	80	15 (100%)
k.	The filing clerk who cleans the cover of the medical record document wears medical gloves.	2	13	13	87	15 (100%)
l.	The sterilization procedure for medical record documents only applies to Covid-19 patients who will return home after undergoing hospitalization.	0	0	15	100	15 (100%)
m.	Medical record documents for Covid-19 patients who return home from hospitalization are immediately destroyed.	0	0	15	100	15 (100%)
n.	The procedure for shrinking medical record documents for Covid-19 patients who return home from the hospital is treated the same as general disease patients.	15	100	0	0	15 (100%)
o.	Covid-19 patient medical record documents are classified in the general disease group in the archive retention schedule.	15	100	0	0	15 (100%)
p.	Have a special note for the medical record document of Covid-19 patients who return from the hospital.	0	0	15	100	15 (100%)

**Table 9. Interview Results on Flows and Procedures for Medical Record Document Services**

No.	List of Questions	Yes		No		Total
		f	%	f	%	
a.	Covid-19 survivors who come back for treatment after being hospitalized before 4-6 days will still be served with their medical record documents.	15	100	0	0	15 (100%)
b.	The new medical record document folder will be merged with the patient's old folder.	15	100	0	0	15 (100%)
c.	The medical record document folder will be given an old number,	15	100	0	0	15 (100%)
d.	Medical record documents for Covid-19 patients who return home after hospitalization will be stored in a general filing.	15	100	0	0	15 (100%)
e.	The patient comes for treatment before the medical record document is quarantined for 4-6 days, then the patient's medical record document will not be distributed to the service unit.	15	100	0	0	15 (100%)

**Table 10. Results of Focus Group Discussion on Medical Record Management Procedures for Prevention of Transmission of Covid-19 Cases to Triangulation Informants (IT)**

	Medical record documents of Covid-19 patients who are treated in the isolation room remain at the Nurse Station, not brought into the patient isolation room.
IT 1, 2, 3	Post-hospitalized Covid-19 survivors who come back for treatment before 3 days will create a new DRM folder with the old medical record number.
	Medical record documents for hospitalized patients in Covid-19 cases are quarantined for at least 3 days before entering the medical record unit.

## Annex 2: Discharge Summary Form Design

<div style="text-align: center;">  <p><b>HOSPITAL IDENTITY</b></p> <p>Address Phone Number : (024) 6921006; Fax : (024) 6922910</p> </div>	<p style="text-align: center;"><b>PATIENT IDENTITY</b> <i>Identitas Pasien</i></p> <p>Patient Name : <i>Nama pasien</i></p> <p>Date of Birth / Age : <i>Tanggal Lahir / Umur :</i></p> <p>Medical Record Number : <i>No. Rekam Medis</i></p>																										
<b>DISCHARGE SUMMARY</b>																											
Admission Date : <i>Tanggal Masuk</i>	Discharge Date : <i>Tanggal Keluar</i>																										
Room : <i>Ruang Kamar</i>	Guarantee Letter by : <i>Penjamin</i>																										
Medical Doctor in Charge : <i>Dokter yang Merawat</i>	Case Referred by : <i>Dokter yang Merujuk</i>																										
<b>Discharge Summary</b> <i>Ringkasan Perawatan Pasien</i>																											
Anamnesa : <i>Anamnesa</i>																											
Comorbid : <i>Penyakit Penyerta</i>																											
Physical Examination : <i>Pemeriksaan Fisik</i>																											
Lab & Radiolog / Results : <i>Pemeriksaan Penujang</i>																											
Treatment : <i>Terapi</i>																											
Initial Diagnosis : <i>Diagnosis Awal</i>																											
Confirmed Diagnosis : <i>Diagnosis Akhir</i>	Code ICD-10 : <i>Kode ICD-10</i>																										
Secondary Diagnosis : <i>Diagnosis Sekunder</i>	Code ICD-10 : <i>Kode ICD-10</i>																										
Treatment Procedure : <i>Tindakan</i>	Procedure Code : <i>kode Tindakan</i>																										
Condition When Discharge : <i>Kondisi pada saat pulang</i>	Discharged to : <i>Cara keluar</i>																										
<input type="checkbox"/> Healed <input type="checkbox"/> Better <input type="checkbox"/> Not Healed <input type="checkbox"/> Dead <input type="checkbox"/> Other _____	<input type="checkbox"/> Home <input type="checkbox"/> Forced <input type="checkbox"/> Referred <input type="checkbox"/> Other _____																										
Dead Cause : <i>Sebab Kematian</i>																											
Follow-up Plan : <i>Rencana selanjutnya</i>																											
Home Medicine : <i>Obat Pulang</i>	Semarang, _____, time: _____																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Medicine</th> <th style="width: 25%;">Dosis(_x_)</th> <th style="width: 25%;">Amount</th> <th style="width: 25%;">Other Information</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Medicine	Dosis(_x_)	Amount	Other Information																	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Medical Doctor in Charge <i>Dokter yang Merawat</i></th> <th style="width: 33%;">Patient's Family <i>Keluarga / saksi pasien</i></th> <th style="width: 33%;">Patient <i>Pasien</i></th> </tr> </thead> <tbody> <tr> <td style="height: 40px;">( _____ )</td> <td style="height: 40px;">( _____ )</td> <td style="height: 40px;">( _____ )</td> </tr> </tbody> </table>	Medical Doctor in Charge <i>Dokter yang Merawat</i>	Patient's Family <i>Keluarga / saksi pasien</i>	Patient <i>Pasien</i>	( _____ )	( _____ )	( _____ )
Medicine	Dosis(_x_)	Amount	Other Information																								
Medical Doctor in Charge <i>Dokter yang Merawat</i>	Patient's Family <i>Keluarga / saksi pasien</i>	Patient <i>Pasien</i>																									
( _____ )	( _____ )	( _____ )																									

Made in 3 Copies :  Medical Record    Guarantee letter by    Patient

MR.01/REV.01/2021