

LITERATURE REVIEW: STAFF PERFORMANCE FACTORS RELATED TO INCOMPLETE MEDICAL RECORD DOCUMENTS IN PUBLIC HEALTH CENTER

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ABSTRACT

Background: Patient medical records are records relating to the patient's identity, diagnosis, action, and to the treatment that has been given to the patient. Thus, medical records must be protected from damage, but damage to medical records is still found in every hospital. **Purpose:** This study attempts to investigate the causes of damage to hospital medical record materials. **Methods:** this is literature review, and the research was obtained from google scholar and the portal garuda, using full text articles. The measured results were factors that cause damage to medical record documents. **Results:** The main factor were still officers with a low level of education, namely high school graduates. This has an impact on filing officers to be not disciplined in maintaining medical record documents, and the absence of implementation of training related to management and storage management in the filing section. The machine factor was that there was no medical record rack available in accordance with the number of medical record documents. The method factor was that there was no SOP for maintaining medical records. The material factor was the raw material for the map using thin paper. The media factor, namely the storage space, has not been avoided from the dangers of water, fire, and biological damage. **Conclusion:** Based on 5M factors, the factors that have the highest influence on damage to medical record documents are the elements of people, machine, and material. While the factor that causes the least damage to medical record documents is the method.

Keywords: hospitals, damage, and medical record document

INTRODUCTION

Hospitals are service institutions that provide complete individual health services, including promotive, preventive, curative, and rehabilitative services. It provides inpatient, outpatient, and emergency services. It aimed to improve service quality and maintain hospital standards (Kemenkes RI, 2008). Hospitals need auxiliary units to perform their duties. One of them is a medical record unit.

The patient's medical record is a file that includes notes and papers relating to the patient's identity, examination, treatment, activities, and other services (Kemenkes RI, 2008). Using medical records as a source of health service information requires that every health service facility maintain medical records properly and safeguard medical record materials from theft and physical damage (Suraja, 2019).

However, there are still medical records that have been damaged in several hospitals, for example, research results Kholifah *et al.*, (2020) stated that the number of damaged medical records at Universitas Airlangga Hospital Surabaya in 2015-2020 was 104 total covers that were torn and 30 total covers faded. The amount of damage based on the results of the research survey by Alfiansyah *et al.*, (2020) conducted at Hospital X Furthermore, Valentina and Sebayang (2018) showed that based on observations made at Setia Mitra Hospital on March 13-15, 2019, in the medical record storage area. The number of medical records experienced was 56 documents, and known information was based on observations. Then, Isnaenis and Siswati (2018) stated that the number of damaged medical records was 7 medical records.

State of art and novelty of the article are, the security of medical record documents is always related to the danger and damage to medical records (Wijiastuti, 2014 in Hautaruk and Astuti, 2018). There are many factors that affect the damage to medical record documents, causing damage to medical records due to poor management, namely the use of the Man element. The results of the research by Kholifah *et al* (2020) said that there are still officers who graduated from high school, there is no training course regarding management and storage in the filling section. This has an impact on the knowledge and skills of medical record officers

to be lacking. Hutaaruk and Astuti (2018) stated that the damage to medical records has increased causing security and confidentiality to not be said well.

The machine element is the availability of medical record racks and roll o'packs that do not match the number of medical record documents. Siswati and Dindasari (2019) showed that the absence of storage racks that can accommodate medical data resulted in the accumulation of medical records on the storage racks, resulting in damage. The technical component is that there is no SOP for maintaining medical records. The results of the research by Ovtasari and Pratama (2020) showed that no SOP regulated the maintenance of medical records. The component of the map material is the raw material, namely the article, in its most basic form. Research findings by Rani *et al.*, (2020) showed that the quality of the paper used for medical record folders is not thick enough, causing the folder to be easily damaged. Based on the statement above, it turns out that the method and machine elements also affect damage to medical records

The results of the research by Hautaruk and Astuti, (2018) stated that the Medan Lung Special Hospital (Rsk) has an over-high temperature of around 21.3°C - 33.5°C. The high temperature of the filing room makes the paper dry and brittle. The media element, namely the storage space, has not been avoided from the dangers of water, fire, and biological damage. The fragility of the paper causes the cover to be damaged or torn so that the confidentiality aspects of medical record documents are not properly maintained.

Based on this description, this study aims to identify the elements that cause damage to medical record documents in hospitals and reduce the number of damaged hospital medical records.

METHOD

The technique used in this study was a literature review through an electronic database, namely Google Scholar and the Garuda Portal. In addition to Google Scholar and the Garuda portal, researchers also conducted searches on the ACM digital library, Crossref, Directory of Open Access Journal (DOAJ), Copernicus, and Web of Science. The articles used were articles published from 2010-2020. Articles include full

text. The measured result was identifying the cause of damage to medical record documents in hospitals with the keywords "identification of trigger damage to medical record files" OR "identification of trigger damage to medical record files" AND "identification of trigger variables for damage to medical record documents in the hospital" OR "identification of trigger variable damage to medical record documents in the hospital" AND "relationship of intrinsic and extrinsic factors to damage to medical record documents in hospital" OR "relationship of intrinsic and extrinsic factors to damage to medical record documents in hospital" AND "physical safety factors of medical record documents in hospital." The selected articles were articles that, based on the literature and inclusion criteria, identified the elements that cause damage to the medical record paper.

The researcher searched the database using specific keywords and found 39 publications, including 36 from the Google Scholar database, 0 from the DOAJ database, 0 from the Garuda Portal database, and 3 from the

database itself. After selecting the articles according to the criteria, 14 relevant articles are obtained. The ACM database article was 0, and the Web of Science database article was 0. Below was the article search process:

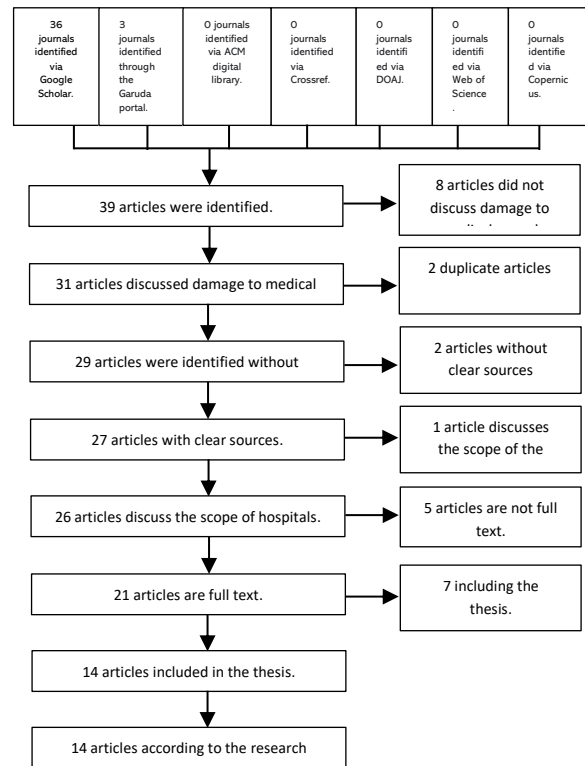


Figure 1. flow of article selection.

RESULT

The following is a literature review Matrix:

Table 1. Matrix of Literature Review.

Authors Name, (Publication Year)	Research Title	Language	Article Source	Study Design /Research Method	Research Result
Aulia Nurul Kholifah, Novita Nuraini, Andri Permana, Wicaksono (2020)	"Analysis of Factors Causing Damage to Medical Record Documents at Universitas Airlangga Hospital"	Indonesia	Google Scholar	Qualitative, data collection by interview and observation	a.) <i>HR</i> 1. Education level: there are still 2 officers who are high school graduates. 2. Work Discipline: the filing officer does not immediately copy the damaged cover but is still compiling the medical record. 3. Officer Training: there is no training related to the maintenance of medical records. b.) <i>Machine</i> : Overcrowded medical record shelf c.) <i>Method</i> : RM protection SOP has never been socialized. d.) <i>Material</i> : Inadequate Map Design.
Meri Ovtasari dan Rika Yunita Pratama (2020)	"Analysis of Security Aspects of Medical Record Files in Storage Room at Sekadau Hospital"	Indonesia	Google Scholar	Qualitative descriptive through interviews and check list observations.	1. <i>Method</i> : No SOP has been made regarding medical record care and also medical record security 2. <i>Machine</i> : Number of filing racks are not suitable for receiving medical records.
Valentina dan Srika Br Sebayang (2018)	"Factors Causing Damage to Medical Record Files in the Storage Room of Rsu Mitra Sejati"	Indonesia	Google Scholar	Descriptive	1. <i>Material</i> : The quality of the the medical record document cover is still using paper that is not good and the adhesive on the medical record folder is also not good. 2. <i>Media</i> : There is a leaky ceiling. The power cord is not neatly arranged, direct sunlight hits the surface of the document.

Continuation Table 1. Matrix of Literature Review

Authors Name, (Publication Year)	Research Title	Language	Article Source	Study Design /Research Method	Research Result
Annisah Isaeni dan Siswati (2018)	"Overview of the Security and Confidentiality of Medical Records in the Filing Room of Bhakti Mulia Hospital"	Indonesia	Google Scholar	Qualitative	<ol style="list-style-type: none"> 1. <i>Material</i>: The basic material for medical record covers still uses low-quality materials, causing medical records to be damaged quickly. 2. <i>Media</i>: The medical record room is still not clean enough to find dust, used paper, and food scraps.
Putu Eka Rani, I Putu Suhartika, Ni Putu Premierita Haryanti (2020)	"Treatment and Preservation of Medical Record Archives at the Klungkung Regional General Hospital"	Indonesia	Google Scholar	Descriptive, Qualitative	<ol style="list-style-type: none"> 1. <i>Machine</i>: Insufficient number of shelves. 2. <i>Material</i>: The content of the medical record cover paper used is not thick, so it is easily damaged. 3. <i>Media</i>: The medical record room is damp and there is an AC leak
Esraida Simanjatak dan Rizka Mei Shella (2019)	"Review of the Implementation of Medical Record File Maintenance in the Filing Room of DR. Pirngadi Medan in 2019"	Indonesia	Google Scholar	Descriptive	<ol style="list-style-type: none"> 1. <i>Man</i>: You can still see the RM file in the filing room that hasn't been replaced with a new one by the recording clerk 2. <i>Machine</i>: Insufficient number of medical record racks to accommodate all medical record documents 3. <i>Media</i>: Room temperature and humidity are not controlled
Bayu Aji Santoso dan Sri Sugiarsi (2017)	"Overview of the Implementation of Risk Management in the Filing Unit of Dr. Moewardi General Hospital"	Indonesia	Google Scholar	Qualitative descriptive Methodology of observation and structured interview	<ol style="list-style-type: none"> 1. <i>Man</i>: There are still medical record files in the storage room that have not been replaced with new ones. 2. <i>Machine</i>: The filing room has a small number of medical record shelves.
Puput Melati Hutaeruk dan Wilda Tri Astuti (2018)	"Review of the Security and Confidentiality of Medical Record Files in the Filing Room of the Medan Lung Special Hospital in 2018"	Indonesia	Google Scholar	Qualitative descriptive, using the observation method	<ol style="list-style-type: none"> 1. <i>Method</i>: There is no SOP attached to the medical record room. 2. <i>Media</i>: The medical record room has an over high temperature of around 21.3°C - 33.5°C. The heat of the filing room temperature causes the paper to become dry, brittle (easily broken) and brittle.
Salausa Kliren Palaguna dan Sri Indrahti (2016)	"Preservation of Medical Record Archives at Dr. Soeselo Regional General Hospital, Tegal Regency"	Indonesia	Google Scholar	Descriptive Qualitative	<ol style="list-style-type: none"> 1. <i>Machine</i>: lack of medical record rack in the filing room 2. <i>Material</i>: The medical record cover material used is not sudden and is made of medium paper
Tri Widya Sendika dan Ernianita (2019)	"Review of the Implementation of Maintenance of Medical Record Files in the Filing Room of the Prof. Dr. Muhammad Ildrem Mental Hospital, Medan in 2018"	Indonesia	Google Scholar	Descriptive	<ol style="list-style-type: none"> 1. <i>Man</i>: There are still medical record files in the storage room that have not been replaced with new ones. The medical record officer still has not replaced the damaged medical record document. 2. <i>Material</i>: The medical record cover material used is thin, resulting in damaged medical record documents
Gamasiano Alfiansyah, Rossalina Adi Wijayanti, Selvia Juwita Swari, Novita Nuraini, Siti Wafiroh (2020)	"Determinants of Security and Confidentiality of Medical Record Files in the X Hospital's Filing Room"	Indonesia	Google Scholar	Qualitative, brainstorming method with interview, observation and documentation techniques	<ol style="list-style-type: none"> 1. <i>Education level</i>: filing clerks and distribution officers at hospital X have a high school education level. A low level of education causes a lack of officer knowledge. 2. <i>Work Discipline</i>: There are still damaged covers, damaged covers are not replaced by officers. 3. <i>Training</i>: Filing officers and distribution officers have also never attended training related to the filing department.
Siswati dan Dea Ayu Dindasari (2019)	"Overview of the Security and Confidentiality of Medical Records at Setia Mitra Hospital, South Jakarta"	Indonesia	Google Scholar	Descriptive	<ol style="list-style-type: none"> 1. <i>Material</i>: The adhesive used in the medical record folder still uses bad adhesive 2. <i>Method</i>: Not yet made SOP Maintenance of medical records and SOP for medical record security

Continuation Table 1. Matrix of Literature Review

Authors Name, (Publication Year)	Research Title	Language	Article Source	Study Design /Research Method	Research Result
Novita Yuliani (2016)	“Factors Affecting the Security of Medical Record Documents Based on Legislation (Case Study at Sukoharjo Regional General Hospital)”	Indonesia	Portal Garuda	Descriptive	3. Machine: folded and there is a form that is loose from the medical record folder due to the lack of available shelves Machine: The storage room has a file rack, but the file rack does not match the number of medical record files, this causes the file to be physically damaged.
Tazia Intann Prasasti dan Dian Budi Santoso (Jkesvo (2017)	“Security and Confidentiality of Medical Record Files at Dr. Soehadi Prijonegoro Regional General Hospital, Sragen”	Indonesia	Google Scholar	Qualitative	1. Material: Medical record cover material used uses thin paper so that it can cause damage to medical records. 2. Media: the medical record file storage room still contains dust and there are still insects and mice in the storage room.

Table 2. Factors that cause damage to medical record documents.

5M elements	Variable triggers damage to medical record documents	N	N	%	Total %
Man	Low level of education	14	2	14%	64%
	Lack of work discipline	14	5	36%	
	No training	14	2	14%	
Machine	Lack of availability of filling rack	14	8	57%	57%
Method	SOP (Standard Operating Procedure) has not yet been made	14	4	29%	29%
Material	Thin medical record cover/map sheet	14	8	57%	57%
Media	The medical record room is not protected from the dangers of water, fire and biology	14	6	43%	43%

Based on Table 2, the factors that cause document damage are caused by several elements: Man, the man element is the cause of the 1st highest damage at 64% where the sub-variable that affects the level of education is low because all officers have a high school education level, the filing officer lacks discipline in maintaining medical record documents, especially in changing the cover of record documents damaged medical records, training for medical record officers has not been carried out. Machine, this element is the cause of damage to the 2nd largest 57% where the unavailability of storage racks in accordance with the number of files resulted in damage. Method, that is not yet made SPO (Standard Operational Procedure) maintenance and security of medical records. The material, of this element is the cause of damage to the 3rd largest 57% where the material if the map is of low quality material and uses thin paper, this can cause damage to medical record documents. This elemental media, is the 4th biggest cause of damage, 43% where the storage space has not

been protected from the dangers of water, fire, biological damage and subsequent temperature and humidity are not resolved.

DISCUSSION

According to Regulation No. 6 of 2005 issued by the Director of the National Archives of the Republic of Indonesia, state documents/archives are records of information in paper or non-paper form. Vital archives play an important role in protecting the rights of organizations. The following circumstances can cause damage to the hospital medical record file:

Identification of Triggers for Damage to Medical Record Documents in Hospitals Based on Man Elements

Man associated with limited knowledge (untrained, inexperienced), limited basic mental and physical abilities, fatigue, stress, apathy, etc. The man element consists of three components:

Education

Based on the 14 articles that have been reviewed, there are 2 articles, namely Kholifah *et al.*, (2020) and Afiansyah *et al.*, (2020) the low level of education where all archiving officers and distribution officers in hospitals have a high school education level causes a lack of awareness of officers about preserving medical records. Ritonga (2016) stated that a low level of medical record education will have a negative impact on knowledge levels, especially on the system for storing and securing medical records, according to the report. Based on the previous discussion, it can be said that lack of education can damage medical record paper.

Work Discipline

Based on the 14 articles that have been reviewed, there are 5 articles, namely Kholifah *et al.*, (2020), Santoso and Sugiarsi (2017), Simanjuntak and Shella (2019), Sandika and Ernianita (2019) and Afiansyah *et al.*, (2020) or as much as 36% where the five articles can be concluded that, the lack of discipline of filing officers in maintaining medical record documents, especially in updating medical record covers that have been damaged so that it can cause damage to medical record folders that are getting worse. This is in line with research (Satrio, 2017 in Wati and Nuraini, 2019) directing law enforcement officers to check their medical records more regularly and to replace damaged files with new ones to prevent further damage and to prevent further data loss.

Wati and Nuraini (2019) that most medical records were torn because they did not have covers to protect medical record documents, and officers had difficulty finding medical records because the papers were damaged and the number of documents piled up tightly, making it difficult to find medical records. According to previous debates, the lack of discipline shown by officers when carrying out their duties can result in damage to medical record paper.

Officer Training

Based on the 14 articles that have been reviewed, there were two articles, namely Kholifah *et al.*, (2020) and Afiansyah *et al.*, (2020), showed that the absence of training for medical record officers in maintaining and protecting themselves from injury would result

in a decrease in work productivity by up to 14 percent. Thus, medical record documents are damaged. This is in line with research (Anggraeni, 2013 in Wati and Nuraini, 2019), which argued that officers lack adequate knowledge about medical records if they do not receive training on them.

The law above states that job training must be carried out. Job training must be planned and directed to equip, improve, and develop work skills to increase ability, production, and welfare, as required by Law No. 13 of 2003 concerning Manpower. Based on what has been mentioned, it can be argued that inadequate training of staff members can cause the paper used for medical records to be damaged.

Identification of Triggers for Damage to Medical Record Documents in Hospitals Based on Machine Elements

Based on the 14 articles that have been reviewed, there were eight articles, namely Kholifah *et al.*, (2020), Ovtasari and Pratama (2020), Simanjuntak and Shella (2019), Rani *et al.*, (2020), Siswati and Dindasari (2019), Santoso and Sugiarsi (2017), Palaguna and Indrahti (2016), and Yuliani (2016). 57% or eight articles included the criteria. It can be concluded that the lack of availability of storage racks that were proportional to the volume of the medical record file due to the damage to the medical record file. Therefore, those quality file racks must be made of stainless aluminum. File racks are hospital equipment used to store documents. The lack of archive racks with the capacity to accommodate medical record files on archive racks that are full, not neatly organized, and crowded together. The increasing number of medical records on the shelves can cause rapid damage to medical records. Ritonga, (2018). Valentina and Ritonga's study in 2021 confirmed that there would be a buildup of medical records if the file rack were insufficient to accommodate the volume of documents. This buildup will impact the time required for medical record retrieval at the hospital because officers will find it increasingly difficult to carry out filing tasks. After all, the lanes between shelves are getting crowded. Based on the above discussion, it can be concluded that the absence of a medical record rack in accordance with the number of

medical record documents can cause damage to the medical record file.

Identifying Triggers for Damage to Medical Record Documents in Hospitals Based on Method Elements

Based on the 14 articles that have been reviewed, there were four articles, namely the research of Khalifah *et al.*, (2020), Ovtasari and Pratama (2020), Hautaruk and Astuti (2018) and Siswati and Dindasari (2019) or as much as 29%. Maintenance of medical records can have an impact on file damage. Based on the four articles, it can be concluded that the SOP for the maintenance and security of medical records has not been made. The SOP socialization has not been carried out, and there was also no SOP attached to the medical record room, so officers in carrying out their work do not comply with existing regulations. This is also in line with Sriyanti's research (2020) which stated that if there were no written and affixed SOP, all employees would be less able to comply with existing rules. The socialization of the existing SOP has not been carried out, so carrying out file storage has not been efficient, causing files to be lost and damaged (Suhartina, 2019). Based on the above discussion, it can be concluded that the SOP has not been made.

Identification of Triggers for Damage to Medical Record Documents in Hospitals Based on Material Elements

Based on the 14 articles that have been reviewed, there were eight articles, namely Kholifah *et al.* (2020), Valentina and Sebayang (2018), Isnaeni and Siswati (2018), Rani *et al.* (2020), Palaguna and Indrahti (2016), Sandika and Ernianita (2019), Siswati and Dindasari (2019), Prasasti and Santoso (2017) or as much as 57%. Based on eight articles, it can be concluded that only raw materials for maps with low-quality materials and using thin paper can cause damage to medical records. This is in line with the research by Sandika and Ernianita (2019), which stated that medical record folders should use thicker paper so that medical record files are not easily damaged. Kamil *et al.* (2020) that medical record folders made of thin materials are prone to damage and tearing. Due to the corrupted state of the folder, the forms it contains are also susceptible to corruption. The conclusion that can be drawn from the explanation above is that thin-cover raw

materials can trigger damage to medical records.

Identification of Triggers for Damage to Medical Record Documents in Hospitals Based on Media Elements

Based on the 14 articles that have been reviewed, there were six articles, namely Valentina and Sebayang (2018), Isnaeni and Siswati (2018), Rani *et al.*, (2020), Simanjuntak and Shella (2019), Hautaruk and Astuti (2018), and Prasasti and Santoso (2017) or as much as 43%. Based on eight articles, it can be concluded that the storage space in the hospital is still not protected from the dangers of water, fire, and biological damage. Dust, waste paper, and food scraps remain in unsanitary storage areas. In addition, the temperature and humidity of the room in the storage room are not properly regulated, which results in the destruction of archives in a short time. Storage space must be protected from the risk of theft and physical, chemical, and biological damage to prevent losses. Dermawan *et al.*, (2020) indicated that the temperature setting for the storage space should not exceed 27 degrees Celsius. Paper will become dry, brittle (breaks easily), and brittle if the temperature in the storage area is too high. Increasing the temperature to a certain amount can increase the enthusiasm that encourages work performance. However, an increase in temperature that begins to interfere with body temperature can hamper work performance after reaching a certain threshold (Fauziah, 2017). The conclusion that can be drawn from the explanation above is that medical records can be damaged in storage areas that are not protected against water, fire, and biological damage.

Research Limitations

This study only used national articles with articles published in 2010-2020. Further researchers were expected to be able to review international articles with the latest publications.

CONCLUSION

Based on the results of a literature review related to the triggering factors for damage to medical records, it was concluded that the man element was the main factor that caused damage to medical record documents (64%), where the most influential sub-variable was man's discipline (36%). The machine element is the

second factor that causes damage (57%) because the lack of availability of filing racks can cause damage to medical records. The material element is the third factor that causes damage (57%) because the thin cover of the medical record folder can cause damage to the medical record. The method element is the factor that causes the least amount of damage (29%). Not yet making an SOP for maintaining medical records can cause damage to medical records.

SUGGESTION

The author suggests that the medical record head should provide stricter and more regular supervision so that officers are more disciplined in their work. The machine element of the entire medical record committee should submit a continuous application for additional/planning of the medical record shelf and the hospital materials element in making document covers. Medical records should use thick paper such as glossy laminated art paper. Hospital media elements should provide insect repellent, vacuum cleaners, air conditioning, and APK in the filing room. Besides that, it is necessary to schedule cleaning of storage space once a month, method elements the head of the medical record should design the making of the SOP. Maintenance of the medical record documentation, then renew it once a year,

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CONFLICT OF INTEREST

The author has no conflict of interest.

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AUTHOR CONTRIBUTION

Author Rossalina Adi Wijayanti as Study design, data collection and supervision, data analysis, manuscript revision. Author Melia Sinta Lestari as Data collection, data analysis, manuscript writing, literature review, reference. Author Atma Deharja as Study design, data collection and supervision, data analysis, manuscript revision. Author Maya Weka Santi

Study design, data collection and supervision, data analysis, manuscript revision.

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