

Management analysis of clinical processes opened in outpatient consultations at Mavalane general hospital between 2019 and 2021

Abstract

The clinical archive is the sector that stores and preserves patient information in clinical processes whose management involves collecting and managing a large portion of important information related to each patient, such as personal, clinical data, care data, consultations and any procedures performed in the hospital environment.

The objective of this work was to analyze the management process of clinical processes opened in the outpatient clinics of the Hospital Geral de Mavalane, in the period from 2019 to 2021. Methodologically, the research followed a qualitative approach and had as its object of study all clinical processes opened in external consultations between the years 2019 to 2021 and as a target group a total of 20 employees who deal directly with the management of clinical processes, consisting of administrative assigned to the clinical archive sector, external consultations and wards. Data collection was based on in-depth interviews and documentary records. The semi-structured interview guide was used as an instrument for data collection and at the end the information collected was analyzed according to its content.

The results showed that the loss of clinical files is a reality at the Mavalane General Hospital and that from 2019 to 2021, it increased by about 0.3%, they also showed that the clinical archive does not have a computerized system for patient data and which has only one employee assigned to the service, which directly affects the quality of the clinical file management process.

The research concluded that the lack of staff in the clinical archive directly contributes to the deficient management of clinical files and, consequently, to the loss and duplication of processes in the clinical archive. The research also concluded that Medicine, Surgery and Gynecology consultations were the ones with the highest number of loss of clinical processes during the years under study.

Keywords: clinical process management, Mavalane general hospital, Maputo, Mozambique

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Introduction

The clinical archive is the sector that stores and preserves patient information in clinical processes (CP) and its management involves collecting and managing a large portion of important information related to each patient, such as personal, clinical, care data, consultations and any procedures performed in the hospital environment.¹

With an ever-increasing population and an increase in the number of patients, the pressure on doctors and hospital staff has increased and so new CP management techniques are really needed.² An important fact raised was the observation that a lot of information is lost over the years, due to the lack of care when posting it, either by the loss of the process itself, or by deterioration caused by biological agents. The practice of good management and conservation of CPs is a way of preserving such information in order to keep the content of the physical document intact and prevent the loss of the CP from jeopardizing the good care of patients and carrying out research that depends on its informative content.¹

It should be noted that the Mavalane General Hospital (MGH) is a complex tertiary-level health unit, where the clinical archive is a challenge. It serves as a reference for 13 health centers and, on

average, serves around 500 patients a day on an outpatient basis, assisted by an approximate universe of 702 health professionals. The entire process of managing clinical processes is carried out in accordance with the national policies in force in the organic statute of the Mozambican Ministry of Health, published in the Bulletin of the Republic of Mozambique of May 26, 2017.

Generally, when the patient arrives at the health unit, they go through a flowchart of care until they decide to open the clinical process. This patient triage is performed by professionals duly trained in the handling and control of clinical processes and uses a standard operating procedure manual.

The HGM clinical archive has seen an unpleasant scenario regarding the CP management process, health professionals spend a lot of time in file folders to locate a CP, often the situation worsens, because in addition to the delay in locating, some processes are not even located, causing them to be duplicated as they must be reopened.

However, from the Report made in 2019, it was found that during this period, about 38% of CPs were lost in the hospital, with the gynecology consultation being the pioneer, holding about 21%, equivalent to 76 lost cases monthly.³

This problem makes it possible to lose the clinical history of patients, thus causing the disruption, the continuity of the services provided and automatically the treatment that the patient was following, as well as the repetition of exams and consultations already made by the patient. Generally, the MGH clinical archive does not produce reports regarding the loss of CPs, to report to the hospital management. For these reasons, it was considered pertinent and relevant to carry out this research, to better analyze the management of clinical processes and consequently identify the main causes of CPs loss and assess the main challenges in their management.

Material and methods

A retrospective study was carried out, with a qualitative approach, in a time horizon from 2019 to 2021. The object of study was all clinical processes opened between the years 2019 to 2021 in the outpatient clinic and as a target group, a total of 20 employees, made up of health professionals (administrative) assigned to the clinical archive sector, external consultations and wards and who deal directly with the management of clinical processes. A semi-structured interview guide was used to collect data from employees linked to process management. For the clinical files, the documentary record was made through a form, which consisted of verifying the files opened in each year of study (2019 to 2021) and the existing processes in the clinical archive. With the help of the patient identification number (PIN) registration system used in the hospital's clinical file, all the NID's opened in the study period were analyzed and then the respective

processes on the file shelves were verified in order to know if they were still were in the archive, if not, an investigation was carried out in order to find out the location of the case, if it was in the wards, consultation offices and/or if it was lost.

The CPs were organized by query area, in order to know the area where processes are lost most frequently. Initially, data were collected from CP using the PIN registration system, taking into account existing and open CPs in the years 2019 to 2021. Then, the collection of data referring to the employees linked to the management of clinical processes was carried out. These were initially provided the participant information and the informed consent form. For those who consented to participate in the study, they were encouraged to provide truthful information. The interviews were conducted in isolation, that is, each employee was approached and interviewed separately, in a closed office, with only the presence of the properly trained interviewer and the informant. During the interview, the names of the interviewees were not requested, in order to ensure anonymity. After data collection, an analysis of the interviews was performed, using the thematic content analysis technique.^{4,5} The documentary record data were summarized in frequencies.

Results

During the years under study, a total of 28,779 PCs were opened, of which 28,513 were the processes requested by the external consultation sectors, 28,146 (98.7%) processes were returned and 1,272 (13%) were considered lost by the clinical file (Table 1).

Table 1 Open processes for each year of study

Variables	Year under study							
	2019		2020		2021		Total	
	n	%	n	%	n	%	n	%
Open Processes	10458	-	6380	-	11941	-	28779	-
Processes raised	10504	100%	6507	100%	11502	100%	28513	100%
Processes returned	10348	98.50%	6469	99.40%	11329	98.50%	28146	98.70%
Processes not returned	156	1.50%	38	0.60%	173	1.50%	367	1.30%
lost processes	460	4.40%	252	3.90%	560	4.70%	1272	13%

Percentage of lost PCs per year in the clinical file

During the three years under analysis, 1272 PCs were considered lost, corresponding to 13% of the total, and in the first year a total of 460 (4.4%) PCs were lost, in the second year a total of 252 (3.9%) PCs and in the third year under analysis a total of 560 (4.7%) lost PCs (Figure 1).

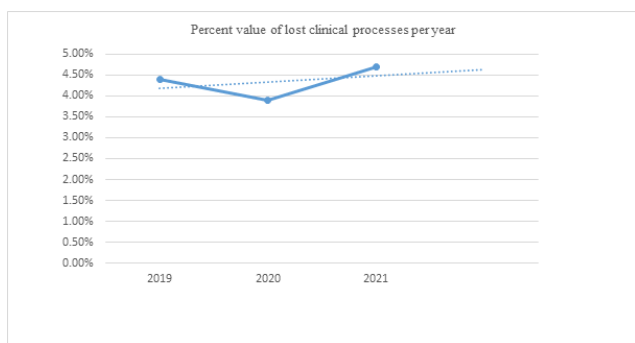


Figure 1 Percent value of lost clinical processes per year.

Number of clinical processes opened per year per consultation (sum of open and requested cases).

As shown in Table 2, speech therapy is the sector with the least number of clinical processes opened per year and, on the other hand, Ophthalmology followed by Medicine and Gynecology are the sectors with the highest number of processes opened.

Queries with the highest rate of process loss in the years under analysis

The loss of the clinical process is felt in all consultations but, especially in the gynecology consultation, with about 22%, followed by the surgery consultation with about 21% and lastly the medicine with 16.7%, totaling 59.7% of all processes lost in the last 3 years (Table 3).

Sociodemographic characteristics of the interviewees

The group of interviewees consisted of 16 (80%) female elements and 04 (20%) males. Regarding the age group, the highest predominance was from 29 to 39 years old with 45% followed by 40 to 50 years of age with 35% and finally 18 to 28 years with only 20%. Regarding the level of education, 11 (55%) had the average level, 07 (35%) professional technical level and 02 (10%) had the higher level.

Table 2 Clinical processes open per year per consultation

Year	Medicine	Gynecology	Ophthalmology	Physiotherapy	Speech therapy	Surgery
2019	4264	6852	8532	3207	237	4961
2020	7851	3857	5432	2086	252	2796
2021	7264	4460	7793	2418	607	1843

Table 3 Number of lost processes in queries with the highest number of lost processes

Consultations	Year under study/number of lost processes							
	2019		2020		2021		Total	
	n	%	n	%	n	%	n	%
Gynecology	92	7.2%	87	6.8%	106	8.3%	285	22.4%
Surgery	89	7%	84	6.6%	94	7.4%	267	21%
Medicine	69	5.4%	63	5%	80	6.3%	212	16.7%

Continuous training on clinical process management

Of the study participants, asked about continuous training, 70% of respondents, corresponding to 14 employees, stated that they have not had continuous training and only 30%, corresponding to 06 employees, stated that they benefit from continuous training.

Daily average of clinical processes requested

In the present qualitative study, to the interviewees, asked about the daily average of the requested processes, 100% of the interviewees stated that their sectors have requested more than 40 processes per day.

Performance level of clinical archive staff

To better analyze this variable, the interviewees were asked about the performance level of the clinical archive staff, where 04 (20%) considered it excellent, 10 (50%) considered it Good and 06 (30%) Fair.

Qualifications that clinical archive personnel should have

In order to determine the qualifications that the staff of the clinical archive should have from the point of view of the interviewees, it was asked what qualifications they thought the staff should have, the interviewees answered that the staff of the clinical archive should have training in clinical process management and training in archival and documentation.

Management of processes in the clinical file

Asked about the management of clinical files, only 01 (05%) considered it excellent, 03 (15%) considered it good and 16 (80%) considered it reasonable.

Loss of clinical processes

To better analyze the loss of clinical processes, respondents were asked how often the processes are lost. 02 (10%) reported that they are lost rarely, 15 (75%) occasionally and 03 (15%) always.

Equipment used to store clinical files

All employees interviewed (n=20) stated that the equipment used to store clinical files are open shelves.

Factors that influence the loss of clinical processes

Study participants asked about the factors that influence the loss of clinical processes, reported the following:

- Survey of processes by unauthorized persons, such as patients;
- Small and inadequate space;
- Lack of process control;
- Inadequate filing;
- Lack of staff;
- Requisition and non-return of the processes;
- Lack of process control strategies outside the clinical archive, such as: delimiting the period for returning the processes;
- Failure to complete the clinical process log books.

Measures taken to reduce the loss of clinical processes

When asked about reducing the loss of clinical processes, all respondents (100%) were unanimous in answering that to reduce the loss of processes, the entry and exit of the requested processes is made, as well as the registration of the destination of these processes in order to be able to know their location.

Improvement in the clinical process management process

As a way to improve the CP management process, respondents suggested:

- Outline strategies that enable efficient process management in order to reduce CP loss;
- Establish norms, such as: defining the period for returning the processes requested in the file;
- Increase in the number of staff in the clinical archive;
- Definition of a classification and restoration plan for processes in an advanced state of degradation.

Sociodemographic characteristics of the employee assigned to the clinical file

The clinical archive sector has only one (01) male employee, responsible for the sector, 62 years old, with an average level of education and with more than five (05) years of service in the clinical archive sector.

When is the clinical process considered lost?

When the employee assigned to the clinical archive was asked about the loss of cases, the official replied that the case is considered lost when it is not in the clinical archive, in the wards, in consultation offices and supposed places where it should go.

Declaration of the lost clinical process

When asked who declares the clinical file as lost, the official said that he is the person in charge of the sector, administrative assistant.

Measures taken after the loss of the clinical process

Study participants were asked what is done when a clinical process is lost. And according to the data collected, in general, the official stated that, in the event of a loss of clinical file, the name, PIN and contact of the patient are noted in order to search for the file. Once the process is found, the patient must be called and informed, and when the process is not located, the duplicate is opened.

Clinical process organization system

When asked about the type of organization system for clinical processes, the employee stated that the system for organizing clinical processes in the clinical file is numerical, which according to Casella (1985) consists of determining a number for each process according to the order of arrival and registration.

Location of the clinical process during readmission

When asked about the location of the processes in the case of readmission, in general, the employee replied that it is easy to find them.

Duplication of clinical processes

When asked about the duplication of processes, the employee stated that there is indeed a duplication of processes in the clinical file and in these cases, when the duplicated process is located (is destroyed with the help of a specific equipment and is burned), the second is discarded, but first all the clinical information of the second must be transferred for the first process.

Factors that contribute to the inadequate filing of the clinical process

Asked about the factors that contribute to the inadequate archiving of the Clinical Process, the interviewee stated that the lack of staff has contributed to the inadequate archiving of the processes.

Discussion

The interviewees were made up of male and female employees, coinciding with the results obtained by Silveira,⁶ in his study entitled “Analysis of the Functioning of the Clinical Archive at the General Hospital of Mavalane”, where 66.7% were female and 33.3% were male. It also coincides with the results obtained by Ngirande,⁷ in his study on the “Analysis of the Organization of the Archive System of Clinical Process of Inpatient Services”, where 63.3% were female and 36.7% were male. This scenario may be likely, given the fact that women make up the majority of the Mozambican population, according to the population census carried out in 2017, and the country is prioritizing the integration of this gender into work activities.

As for the age group of the interviewees, can be concluded in this way that administrative employees are constituted mostly by the young and women. As for the level of education, the study shows that 11 (55%) were at the high school level, 07 (35%) at the professional technical level and only 02 (10%) at the higher level. It is also notable that the administrative staff mostly had a medium level (55%) followed by a professional technical level (35%). The short time of service and the lack of training in the area for some, may be one of the factors that contribute to the management of clinical processes not working within the accepted minimum standard.⁸

Continuous training on clinical process management

According to the findings, 70% (14) of respondents, said they did not have continuing education. This result coincided with Garrine,⁹ in his study entitled: “Assessment of the degree of compliance with the operating norms of the Clinical Archive service of the Central Hospital of Maputo”, where 96% of the interviewees stated that they did not have training in the management of hospitals clinical processes. This result coincides with that found by Silveira,⁶ in his study “Analysis of the Functioning of the Clinical Archive of the General Hospital of Mavalane”, where 100% of the interviewees were unanimous in stating that they had never had in-service training.

It also coincides with the study by Ngirande⁷ entitled “Analysis of the Organization of the Archive System of Clinical Cases of Inpatient Services at the General Hospital of Chamanculo”, where 93.3% of respondents had no training on the management of clinical cases.

This scenario (lack of knowledge about the management of the clinical archive) contributes in a way to the low quality of the services provided, as well as to the duplication and loss of clinical processes.¹⁰

Loss of clinical processes

To better analyze the loss of clinical cases, respondents were asked how often CP are lost and the majority in this case, 15 (75%), stated that CP are occasionally lost. According to Mezzomo¹⁰, the clinical process is the hospital clock that serves to measure its performance. Following this reasoning, the Hospital without the clinical process is equated with a clock without hands.

Equipment used for archiving clinical files

According to the study, all respondents (100%) stated that the equipment used for the storage and conservation of clinical processes are open shelves. The use of open shelves is supported by Mezzomo,¹⁰ according to him, depending on the equipment, more or less space is required. Open shelves represent the simplest, most economical and practical way of archiving. Casella¹¹ also supports the use of open shelves, because files with drawers, although they can better protect clinical processes, are inadvisable because they occupy more than twice as much space as open shelves and make work considerably more difficult to archive and unarchive.

And circular files, because they are rotating, facilitate the manipulation of processes, and because they are equipped with rolling doors, they favor conservation, but they bring the inconvenience of being much more expensive and occupying about 25% more space than the clinical file.¹¹

Computerization of Patient Information

According to the study, 90% (19) of the interviewees stated that there is no computerized basis for patient information. What exists is a PIN registration system, where, during registration, the system produces the PIN and stores the patient's sociodemographic information, only two people have access to the system, those responsible for General Acceptance, where the opening of Clinical Processes. For Pinto,¹² by keeping documents digitized, the possibility of loss, temporal wear and tear or theft of physical documents is eliminated. The digitization of the clinical file would allow restricting the data and selecting which employee profile can access certain information. With this, the control of processes and authorizations is much more efficient.

Also for Pinto,¹² the clinical archive management system would be a local platform, that is, without the need for internet access, minimizing costs at the health unit level. Only authorized personnel

would have access to the platform, and it would be possible to find all patient information, both clinical and sociodemographic, including the opening date of the process, the exact dates and times of all updates made to the process.

Factors that influence the loss of clinical processes

Poor management of clinical processes brings with it negative impacts both for patients and for the hospital and one of them is the loss of clinical processes. There are several factors that influence the loss of clinical files, one of them is the lack of staff, where only one person must carry out all the activities of the archive, causing fatigue, which reduces the quality of the services provided.

Another relevant factor is the failure to complete the entry and exit registration book of the processes, which makes it difficult when the process is lost and there is no knowledge of where the process may be and who raised it, as well as the lifting of the processes by unauthorized persons, such as patients, who often do not return the CP to the archive and take it home and by employees of non-requesting sectors. The above results coincide with Garrine,⁹ in his study entitled: “Assessment of the degree of compliance with the operating rules of the Clinical Archive service of the Central Hospital of Maputo”, where 80% of the interviewees stated that the lack of control of the processes clinical records, inadequate filing and failure to complete the record book contribute to the loss of CP at the Maputo Central Hospital.

The clinical process organization system

The system for organizing the clinical files used in the clinical file was the numerical system, which consists of assigning a sequential number to each open and registered case followed by the year in which the case was opened, such as: Case No. 122/2022; Process No. 123/2022. Due to the large number of processes handled daily, the choice of numerical system for the organization of the processes was judged better, as this system, in addition to helping for better organization, facilitates the identification of the process on the shelves, drastically reducing the search time for the processes by employees. According to Casella¹¹, from a scientific point of view, it is considered correct, as there are three rules in the ordering and sequence of Medical documentation, such as: alphabetic, numerical and alphanumeric, which allows its location.

Duplication of clinical processes

Regarding the duplication of processes, the results showed that there is duplication of processes in the clinical file.

Inadequate archiving and lack of control of requested processes can be one of the causes that leads to duplication of processes. This scenario mostly culminates in unnecessary expenses with clinical forms, repeated exams, repeated medication, contributing to the increase in hospital costs. These findings coincide with the results obtained by Ngirande,⁷ in his study on the Analysis of the Organization of the Archive System of Clinical Processes of Inpatient Services.

Loss of clinical cases per year during the years under study

According to Table 3, the Gynecology consultation is the pioneer, with the highest number of lost cases (285 lost cases), followed by the Surgery consultation (267 lost cases) and finally the Medicine consultation (212 lost cases). This scenario can be justified by the large flow of patients seen per day in these consultations (Gynecology, Surgery and Medicine) and consequently by the greater number of

processes opened daily, making it difficult to control the processes required by these consultations, which often culminates in the loss of clinical processes (Tables 4&5).

Table 4 Sociodemographic characteristics of respondents

Category	n	%
1. Gender		
female	16	80%
Male	04	20%
Total	20	100%
2. Age group		
18 - 28 years	04	20%
29 - 39 years	09	45%
40 - 50 years	06	30%
51 - 61 years	1	05%
62+ years	0	0
Total	20	100%
3. Level of Education		
Basic	0	0
Medium	11	55%
professional technician	07	35%
Higher level	02	10%
Total	20	100%
4. Service time		
6 months - 1 year	02	10%
1 year – 5 years	4	20%
>5 years	14	70%
Total	20	100%

Table 5 Frequency with which processes are lost in the clinical file

Category	n	%	
How often are clinical processes lost?	Rarely	02	10%
	Occasionally	15	75%
	Ever	03	15%
Total	20	100%	

Management of clinical processes in the clinical archive

Regarding the management of clinical processes in the clinical file, of the interviewees, only 01 (05%) considered it excellent, 03 (15%) considered it good and 16 (80%) considered it reasonable, which coincided with the result obtained by Silveira,⁶ in their study on “Analysis of the Functioning of the Clinical Archive of the General Hospital of Mavalane” where 06 (100%) considered the management of clinical processes in the archive reasonable. This result can justify the inefficiency in the management of clinical processes by employees, causing duplication and loss of processes, not only, as well as the lack of control of the requested processes day after day.

Conclusion

The research concluded that:

- The clinical archive has only one employee, directly influencing the deficient management of clinical processes. It can also be concluded that the loss of clinical files is a reality in the clinical archive and that from 2019 to 2021, it increased by about 0.3%.
- The consultations with the highest number of lost clinical processes are the Gynecology consultations, followed by the Surgery consultation and finally the Medicine consultation.

C. The lifting of processes by unauthorized persons, lack of staff, Inadequate filing, requisition and non-return of cases and failure to complete the entry and exit record book of clinical processes, are one of the main factors that influence the loss of clinical processes.

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Conflicts of interest

The authors declare no conflict of interest.

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