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Original article

Evaluation of the quality of audits of maternal deaths in hospitals in the health districts of communes IV and V of Bamako

Evaluation de la qualité des audits des décès maternels dans les hôpitaux des districts sanitaires des communes IV et V de Bamako

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Abstract

Introduction: In Mali, the audit of maternal deaths instituted in 2017 aims to reduce maternal mortality. The objective of this study was to assess the quality of maternal death audits carried out in the hospitals of health districts in communes IV and V of Bamako between 2015 and 2019.

Methodology: This was a descriptive, cross-sectional study of 108 maternal death audit reports over the period from 2015 to 2019. The exploitation of the said reports and the interview with the service providers were the techniques used. The ratio between the expected and obtained scores of each audit component allowed them to be assessed. When at least 80% of the expected scores are achieved, the component is considered to be of sufficient level, therefore favorable to quality audits. When the average score obtained for the components is at least 80%, the audit is judged to be of good quality.

Results: The performance levels of the «inputs and processes» components of the audits were respectively 80.4% and 74.7% in commune IV and 56.9% and 63.2% in commune V. The performance in terms of results was 40.7% in the two municipalities. The quality of the audit was 70.1% in Commune IV and 56.9% in Commune V.

Conclusion: From 2015 to 2019, the audit of maternal deaths was judged to be of average quality in Commune IV and insufficient in Commune V. Training and the active involvement of stakeholders are necessary to improve audit quality.

Keywords: Audit, maternal death, district hospitals, Bamako.

Résumé

Introduction : Au Mali, l'audit des décès maternels institué en 2017 vise à réduire la mortalité maternelle. L'objectif de cette étude était d'évaluer la qualité des audits de décès maternels réalisés dans les hôpitaux de districts sanitaires des communes IV et V de Bamako

entre 2015 et 2019.
Méthodologie : Il s'agissait d'une étude descriptive, transversale portant sur 108 rapports d'audits de décès maternels sur la période de 2015 à 2019. L'exploitation desdits rapports, l'entretien avec les prestataires ont été les techniques utilisées. Le rapport entre les scores attendus et obtenus de chaque composante de l'audit a permis leur appréciation. Lorsqu'au moins 80% des scores attendus sont atteints, la composante est jugée de niveau suffisant, donc favorable aux audits de qualité. Lorsque la moyenne de scores obtenus des composantes est d'au moins 80%, l'audit est jugé de bonne qualité.
Résultats : Les niveaux de performance des composantes « intrants et processus » des audits étaient respectivement de 80,4% et 74,7% en commune IV et 56,9% et 63,2% en commune V. La performance en termes de résultats était de 40,7% dans les deux communes. La qualité de l'audit était de 70,1% en commune IV et 56,9% en Commune V.
Conclusion : De 2015 à 2019, l'audit des décès maternels a été jugé de qualité moyenne en Commune IV et insuffisante en commune V. La formation et l'implication active des acteurs sont nécessaires à l'amélioration de la qualité de l'audit.
Mots-clés : Audit, décès maternel, hôpitaux de districts, Bamako.

Introduction

The World Health Organization (WHO) defines quality of care as the ability of health services provided to individuals and populations to improve desired health outcomes. To achieve this goal, care must be safe, effective, timely, efficient, equitable, and person-centred (1). She reports that one in ten patients is the victim of preventable errors that have a direct impact on their condition(2).
Quality measures are a fundamental component of standards of care. They are necessary to assess the inputs to be provided, the process of providing care or services and, where appropriate, the outcome of care, and therefore to monitor progress towards achieving a particular standard of care (1).
Mortality auditing is a way to document the causes of death and the determinants that contributed to it, (3).
In order to put an end to preventable maternal deaths, several strategies have been developed, including family planning, emergency obstetric and neonatal care, and skilled delivery(4) .
The audit thus becomes a key element for decision-making in future cases, it helps to avoid medical and behavioral errors by providers and facility managers on the one hand, and to reduce preventable maternal deaths on the other.
Maternal mortality is an unacceptable social injustice in the world(4). According to the WHO, 295,000 maternal deaths were recorded worldwide in 2017, i.e. a global maternal mortality ratio (MMR) of 211 deaths per 100,000 live births (5) . The least developed countries have a rate of 415 deaths per 100,000 live births, which is 40 times higher than the MMR in Europe, which is 10 deaths per 100,000 live births (5). According to the same source, sub-Saharan Africa and South Asia account for about 86% (254,000) of the estimated maternal deaths worldwide in 2017; sub-Saharan Africa accounted for about 66 per cent (196,000), South Asia for almost 20 per cent (58,000) (5).
In Mali, according to the demographic and health survey, the MMR has improved significantly, having gone from 464 in 2006 to 368 in 2018 (6).
The Sustainable Development Goals (SDGs) aim to reduce the maternal mortality ratio to less than 70 deaths per 100,000 live births globally by 2030 and to eliminate preventable maternal deaths (8). To achieve these SDGs, WHO recommends auditing maternal deaths as a means of reducing maternal mortality (8)
In Mali, these audits have a low completion rate or are insufficiently carried out in our structures.
Thus, the rate of completion of maternal death audits was 49% in 2018 at the Kayes regional hospital in Mali for the period from 2014 to 2018 according to Diassana M et al (9).
SOME et al reported a low level of overall organization

and functioning of the Department of Gynecology, Obstetrics and Reproductive Medicine of the CHUSS of Bobo-Dioulasso, Burkina Faso with an overall audit score of 53.3%.(2).

The Republic of the Congo and its development partners have undertaken many initiatives, including the one aimed at reducing maternal mortality, through the development of a roadmap (2008-2015) for the reduction of maternal mortality, setting the target at 390 deaths per 100,000 births.(4)

In Algeria, an audit of maternal deaths has been set up by Ministerial Order No. 89 of 4 July 2013 instituting the mandatory declaration of all maternal deaths (10).

As for Mali, the institutionalization of the notification and audit of maternal, perinatal and neonatal deaths by decree N◦2017-0637 MSHP in 2017 was a strong commitment to the reduction of said deaths by the authorities (11).

Little knowledge is available on the quality of auditing in Mali, hence the present study, which aims to assess the quality of maternal death audits in hospitals in the health districts of communes IV and V of Bamako from 2015 to 2019. The aim was to contribute to improving the quality of audits and reducing maternal deaths in our health facilities.

Methodology

The study was carried out in the district hospitals of communes IV and V of Bamako.

The choice of these two sites was reasoned because they stood out for their major obstetrical activities among the 6 in Bamako, or even in the country.

Commune IV (Com IV) is located on the left bank of the Niger River, covers an area of 37.68 km² with an estimated population of 407074 inhabitants, with a density of 10803 inhabitants/km2 in 2018 (updated RGPH). It has eight (08) neighborhoods and has about 108 health structures including 09 Community Health Centers (CSCom).

As for commune V (Com V), it is located on the right bank and covers an area of 41.59 Km2 with an estimated population of 407074 inhabitants for a density of 13750 inhabitants/km2 in 2019 (updated RGPH). It has eight (8) neighbourhoods with 10 CSComs and 47 private health structures (2008 monograph).

It was a normative, descriptive and cross-sectional evaluation study, which focused on the reports of maternal death audits carried out from 2015 to 2019 of the said hospitals. Data collection takes place from August 1 to 31, 2020. The data collected came from 108 audit reports with minutes, 67 of which were in Commune V, individual interviews with 6 doctors in the maternity units, including 2 gynaecologists in charge of the operating room per municipality, 3 midwives in charge, 2 of whom were in Commune V, and the observation of an audit session in Commune V.

The Kobocollect tool was used to collect the data and SPSS for their analysis.

The theory of Corlien M. et al (12) was used for the operationalization of the variables whose scores made it possible to classify the levels according to the requirements of Order No. 2017-0637-MSHP-SG (13) of 17 March 2017 relating to the notification of material, perinatal and neonatal death cases and the institutionalization of audits of material, perinatal and neonatal deaths and cases of near miss escapes.

The variable scoring system used in this study was based on the Corlien et al scale model (12) . This model has been adapted to our variables, components and modalities.

Each variable is made up of components. Each component is made up of modalities and each modality has been assigned a score according to its value. Scores ranged from 1 to 3. The assessment of the modalities, components and variables was carried out in the following way. Each modality was assigned a score according to its level of satisfaction. The minimum score is one point and increases by another point each time the modality improves by one level.

Thus, the variables: quality of the maternal death audit, inputs, processes and outcomes were judged as follows:

- if ≥80%, the component is judged to be of high

level, good; sufficient;
- if between 60 – 80%, the level is average, to be improved
- if < 60%, the level is considered low and insufficient.

The anonymity of the deceased and the members of the committee was respected. Confidentiality was required. The agreement of the administrative authorities of the said hospitals was obtained before starting the study.

Results

- **General characteristics**

From 2015 to 2019, a total of 188 women lost their lives while giving a life in the hospitals studied, 61.17% of whom were in commune V.

In 42.6%, the deaths were not audited, of which those recorded on arrival constituted 90% of these cases.

Of the 108 deaths audited, 62% were in commune V.

There were 41 audit sessions of maternal deaths in commune IV compared to 67 sessions in commune V between 2015 and 2019.

- **Level of satisfaction of the components of the maternal death audit in the district hospitals of communes IV and V**

Input assessment

The district hospitals of communes IV and V obtained respectively 41 and 29 points out of an expected score of 51 for the inputs necessary to carry out death audits, i.e. a compliance rate of 80.4% and 56.9%. Thus, for commune IV, this level is considered sufficient according to our method and insufficient for commune V.

The low score in commune V was linked to the lack of training of the committee members currently present, the participation of the committee president in the sessions of maternal death audits, and the invitation of partner structures (CSCom and private firms).

Regarding commune IV, despite the sufficient level of inputs (80.3%), some shortcomings remain in the systematic participation of the president in audit sessions, the computer for archiving audit data.

Process Assessment

Regarding the process, the score obtained in communes IV and V was respectively 65 and 55 points out of a score of 87, i.e. 74.7% and 63.2%. Thus, the process was judged to be of an average level in the two municipalities. The shortcomings were the lack of evaluation of previous recommendations before a new audit session which was common to the hospitals, of a written report and a problem resolution plan in Com IV, of archiving the attendance list during the audit sessions and of motivation measures in Com V.

Assessment of the results obtained

Municipalities IV and V each obtained 11 points out of a score of 27 in the «results» component of maternal death audits, i.e. a score completion rate of 40.7% in the two municipalities of 2015-2019. These results are considered insufficient according to our assessment criteria. Areas for improvement included the completion rate of audits of reported maternal death cases, data archiving, and the availability of reports of meetings and annual reviews.

- **Audit quality**

The scores obtained for all the components of the death audit were 117 and 95 points respectively in Communes IV and V out of an expected total score of 167 each, i.e. an average level of performance of 70.1% and 56.9%.

The quality of the audit practice is judged to be average in commune IV and insufficient in commune V according to our criteria.

Table I: Scores obtained from the input assessment elements for carrying out maternal death audits in district hospitals in communes IV and V of Bamako from 2015 to 2019.

Criteria for the "Inputs" component	Elements of assessment	Scores		
		Expected	Obtained	
			Commune IV	Commune V
Human resources	9	27	23	17
Material Resources	5	15	13	9
Staff motivation	3	9	5	3
Total	17	51	41	29

Table II : Scores obtained from the assessment elements of the process of conducting maternal death audits in district hospitals in communes IV and V of Bamako from 2015 to 2019

Criteria for the "Process" component	Elements of assessment	Scores		
		Expected	Obtained	
			Commune IV	Commune V
Audit session	8	24	24	18
Collection	5	15	9	7
Analysis	4	12	8	6
Strategic Standards	7	21	15	15
Action Plan	5	15	9	9
Total	29	87	65	55

Table III: Scores obtained from the assessment of the results of maternal death audits in district hospitals in communes IV and V of Bamako from 2015 to 2019

Criteria of the "Result" component	Elements of assessment	Scores		
		Expected	Obtained	
			Commune IV	Commune V
Short-term change	4	12	6	6
Medium-term change	4	12	4	4
Long-term change	1	3	1	1
Total	9	27	11	11

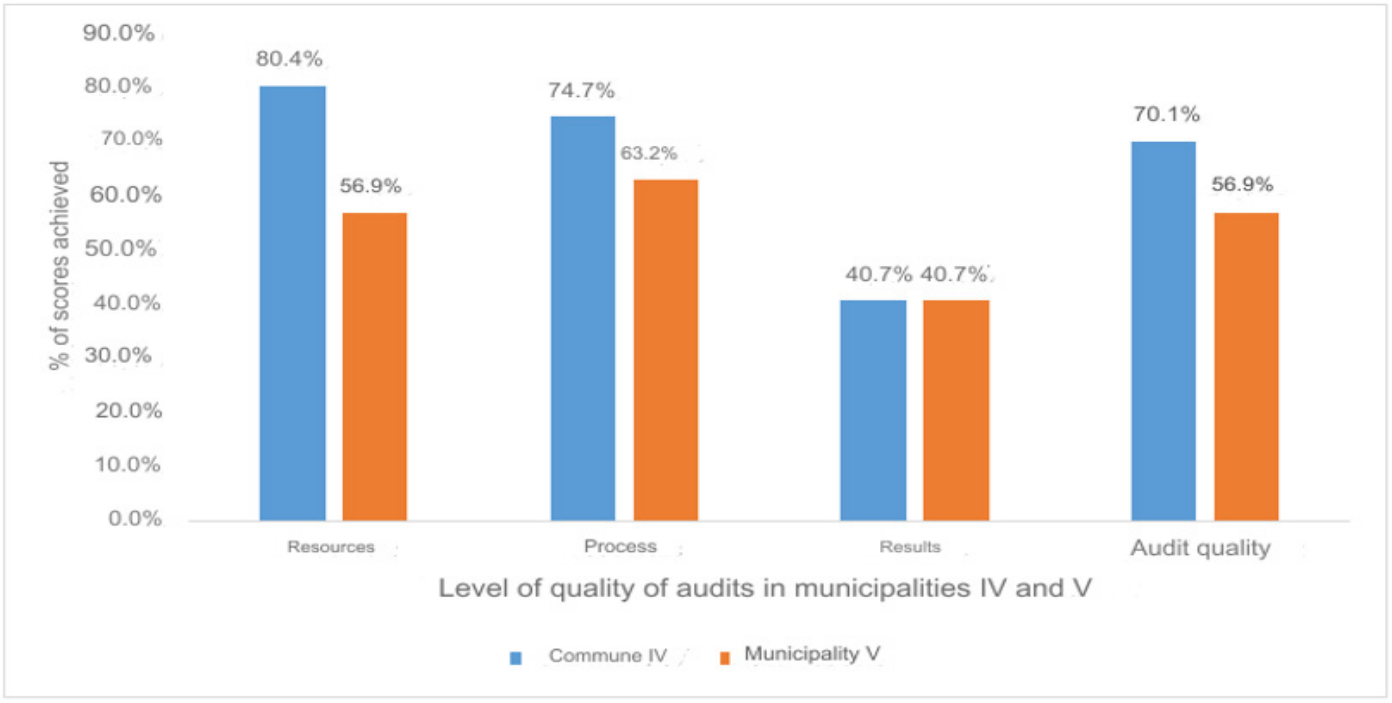

Figure 1: Level of quality of maternal death audits in district hospitals in communes IV and V of Bamako from 2015 to 2019

Discussion

- **Inputs**

The district hospitals of communes IV and V obtained respectively 41 and 29 points out of a score of 51 for the inputs necessary to carry out death audits, i.e. a satisfaction rate of 80.4% and 56.9%. The level of inputs was deemed sufficient in Com IV and insufficient in Com V according to our criteria.

In accordance with Ministerial Order No. 2017-0637-MSHP-SG (13), the various committees respect the framework of an audit committee, at the district level. However, there are some shortcomings, in particular the presence of the private service, the Local Federation of Community Health (FELASCOM), and social development.

The continuous training of members and the reorganization of audit committees seem necessary because of the perpetual movement of staff and the inadequacy in the internal organization between the service providers and the administration in commune V. This is also noticeable when the first doctor declares: *«In our structure, the audit is well conducted because it respects the different stages of the activity. But the administration must stay away from the organization of audit sessions.»* This lack of collaboration can affect the organization of care.

Diassana et al conclude that the conduct of maternal death audits has the effect on the staff of the service of an awareness of the dramatic nature of preventable maternal deaths and the commitment of the said staff to implement the corrective measures recommended during the audit sessions (9).

Tardiness or absences from service pose a problem of insufficient management of resources and care. In hospitals, where nurses cared for six patients, the mortality rate was 20% lower than in hospitals where nurses cared for ten patients(2).

- **The process**

The process obtained in Com IV and V respectively 65 and 55 points out of a score of 87, i.e. 74.7% and 63.2% of achievement of the scores. The level of the process was considered average in the two municipalities. In our study, previous recommendations were not assessed at the level of the two hospitals before starting a new audit session. The meeting, which should be open to all those involved, multidisciplinary and reflective of reality, was not systematically so. The

participation of different groups of people in audit meetings will allow for different perspectives and opinions(14). This would not provide an indication of the outcome of recommendations made on already known problems, whereas previous reports may identify possible modifiable factors at each level, for example in the home or in the community due to a delay in acknowledging the problem, the use of harmful practices, or delayed or limited access to health facilities(14).

The documentation of audit sessions by reports written in Commune IV and attendance lists during audit sessions in Com V was weak. However, according to the guide to the use of maternal death audit tools, all participants must register on an attendance list and each audited case must have a report (15). Of the 108 audits organized, 18 audits, or 17%, were carried out within 15 days at the level of the two structures, while Order No. 2017-0637-MSHP-SG recommends the systematic audit of maternal deaths within 15 days of their notification (11).

- **Results**

Communes IV and V each obtained 11 points out of a score of 27 expected points in the «results» component of maternal death audits. With a performance rate of 40.7% in the two municipalities, the Results Component was deemed insufficient according to our assessment criteria.

SOME et al at the CHUSS of Bobo (BF) evaluated the components of «reception, environment and infrastructure» at 45.2% and «medical organization» at 50% in addition to data relating to human resources, materials, medicines, and medical consumables (2).

During the last five years, 188 maternal deaths were recorded at the level of the two structures, of which 108 or 57.4% were audited, compared to that of Diassana et al, which recorded 219 cases of maternal deaths and 108 cases audited in Mali in 2018, or 49.31% (9). In our study, we did not see a decrease in the number of deaths from year to year regardless of the structure.

However, in the IV interviews, the doctors acknowledge that an improvement has occurred following the various audits carried out: *«The process is very well underway in our structure timidly at the beginning, but that it is going smoothly today because we have seen the impact of the first audit sessions» and « It is an excellent activity that has contributed to a reduction in the number of deaths and has allowed us to undertake actions at the 1st level of the referral and at the district hospital.»*

In short, the various audits carried out have enabled the structures to become aware of certain realities, even if efforts are still necessary.

The quality of the audit of maternal deaths

Out of a total of 167 points expected for all components, the hospitals of Commune IV and V obtained 117 and 95 points respectively, i.e. 70.1% and 56.9% of the scores achieved.

The maternal death audits carried out from 2015 to 2019 in district hospitals were judged to be of average quality in commune IV and insufficient in commune V according to our evaluation method. This level of the two district hospitals does not meet national standards. Our findings are similar to those of Congo B et al in 2022 in Burkina Faso who report maternal death review cycles in health districts and hospitals do not meet quality standards (16).

The continuous training of members and the reorganization of audit committees and the active participation of the presidents are essential elements in achieving the optimal quality of the audit of maternal deaths.

Conclusion

The present study noted that the conduct of maternal death audits in Bamako's district hospitals is insufficient. Indeed, their implementation rate is low and national requirements are not fully observed. To improve its quality and contribute to the reduction of mortality, continuous training and the active and effective involvement of the actors concerned are necessary.

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