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*Original article*

# Assessment of the quality of care: the experience of public hospitals in Mali

Assessement of functional abilities of stroke patients discharge from Bouake's teaching hospital

O Dembélé*[1], B Diallo[2], AG Diall[3]

**Résumé**

Introduction : L'évaluation de la qualité des soins garantit à chaque patient des soins de qualité conformément à l'état actuel des connaissances médicales. Elle permet de réduire le risque iatrogène et l'analyse cout/efficacité des procédures diagnostics et thérapeutique

Objectif : Déterminer le niveau de la qualité des soins dans les hôpitaux publics du Mali.

Méthodologie : Pour déterminer le niveau de la qualité des soins, une fiche de collecte et un questionnaire de satisfaction ont été utilisés comme matériels.

Concernant, les méthodes, certains indicateurs ont été calculés pour déterminer le niveau des normes professionnelles. Le niveau de la satisfaction des usagers a été déterminé à travers un progiciel conçu à cet effet.

La qualité étant la résultante des normes professionnelles et la satisfaction des usagers, une grille synthétique a été élaborée pour quantifier la qualité des soins. Il s'est agi d'attribuer des points à chaque composante des normes professionnelles et de la satisfaction des usagers.

Ainsi, la sommation des points résultant de l'appréciation des différentes composantes a permis de quantifier les normes professionnelles et la satisfaction des usagers.

Résultats : Sur l'ensemble de ses composantes, les normes professionnelles ont totalisé dans l'ordre pour les hôpitaux évalués, 97 points, 109 points, 123 points, 107 points, 88 points, 104 et 128 points sur les 180 points mis en jeu.

La sommes des points obtenus pour les normes professionnelles et la satisfaction des usagers rapporté sur 360 points a donné un niveau de qualité de 77,28% à HKS et 55,28 à HM.

Discussion : La disponibilité du plateau technique est un déterminant important de la qualité des soins. Selon plusieurs études, le lien entre plateau technique et qualité et sécurité des soins est bien établi. Par exemple, une étude a montré que les patients polytraumatisés hospitalisés dans des centres de traumatologie avec un plateau technique disponible 24 heures sur 24 et permettant toute chirurgie orthopédique ou neurochirurgie, disposant de la radiologie interventionnelle et d'un service de réanimation, avaient une mortalité hospitalière inférieure à 20 % à ceux hospitalisés dans des établissements de santé

n'ayant pas de plateau technique accessible 24 heures sur 24 et disposant uniquement d'accords avec des centres plus équipés pour faciliter les transferts.
Conclusion : L'évaluation a permis de faire l'état des lieux des hôpitaux évalués en matière de qualité des soins. Les moyens de production, les processus, les résultats des soins et la satisfaction des usagers ont été appréciées. Le niveau de la qualité des soins a été déterminé ; les recommandations ont été formulées pour corriger les insuffisances relevées
L'intérêt de cette approche est d'avoir une vue d'ensemble sur les déterminants de la qualité au sein d'un hôpital. Il permet de disposer d'une liste de déterminants dont la prise en compte représente un enjeu d'amélioration de la qualité des soins.
Mots-clés : évaluation, soins, expérience, Mali.

**Abstract**
Introduction: The assessment of the quality of care guarantees each patient quality care in accordance with the current state of medical knowledge. It makes it possible to reduce the iatrogenic risk and the cost/effectiveness analysis of diagnostic and therapeutic procedures.
Objective: Determine the level of quality of care in public hospitals in Mali.
Methodology: To determine the level of quality of care, a collection sheet and a satisfaction questionnaire were used as materials.
Concerning the methods, certain indicators were calculated to determine the level of professional standards. The level of user satisfaction was determined using a software package designed for this purpose.
As quality is the result of professional standards and user satisfaction, a summary grid has been developed to quantify the quality of care. This involved assigning points to each component of professional standards and user satisfaction.
Thus, the summation of the points resulting from the assessment of the different components made it possible to quantify professional standards and user satisfaction.
Results: Across all of its components, the professional standards totaled in order for the hospitals evaluated, 97 points, 109 points, 123 points, 107 points, 88 points, 104 and 128 points out of the 180 points involved.
The sum of the points obtained for professional standards and user satisfaction reported out of 360 points gave a quality level of 77.28% at HKS and 55.28 at HM.
Discussion: The availability of the technical platform is an important determinant of the quality of care. According to several studies, the link between technical platform and quality and safety of care is well established. For example, a study showed that polytrauma patients hospitalized in trauma centers with a technical platform available 24 hours a day and allowing any orthopedic surgery or neurosurgery, with interventional radiology and an intensive care unit, had a lower mortality rate. less than 20% of those hospitalized in health establishments that do not have a technical platform accessible 24 hours a day and that only have agreements with centers that are more equipped to facilitate transfers.
Conclusion: The evaluation made it possible to take stock of these hospitals in terms of quality of care. The means of production, processes, results of care and user satisfaction were assessed. The level of quality of care was determined; the recommendations were made to correct the deficiencies noted.
The benefit of this approach is to have an overview of the determinants of quality within a hospital. It provides a list of determinants whose consideration represents a challenge for improving the quality of care.
Keywords: assessment, care, experience, Mali.

## Introduction

Nowadays, hospitals pay particular attention to the satisfaction of users of health care services. This is a major indicator of the evaluation of performance and performance of care [1,2].

The assessment of the quality of care ensures that each patient receives quality care in accordance with the current state of medical knowledge. It reduces iatrogenic risk and the cost-effectiveness analysis of diagnostic and therapeutic procedures [3]. Good quality care must be accessible, equitable, effective, safe, efficient and patient-centred. The health services offered must meet the satisfaction of patients and take into account the needs of the latter. Satisfaction is a subjective quantity that reflects patients' personal preferences and expectations and may be different from the objective reality of the hospitalization experience. For this reason, a system should have a culture of evaluating itself in order to improve the quality of care provided to patients [4,5,6].

Several phenomena contribute to the interest in quality of care:

- Advances in medicine have made it more effective, but also more complex and dangerous, and stories of mishaps, mistakes and other adverse results are multiplying.
- Rising costs of care inevitably attract the attention of payers and families.
- Medicine has lost its prestige, and a critical public attitude towards medicine is now seen as legitimate. Today's patients question their doctors' decisions, change them if they are not happy, demand availability and results, form associations to defend their interests, in short, behave like clients [1].

There are several definitions of quality of care. For some authors, "quality" is an overall assessment, equivalent to "excellence", "compliance with expectations", "zero defects" or "customer satisfaction". Others believe that quality of care is multidimensional, and that it involves notions such as: equity, accessibility, safety, effectiveness, efficiency, "being patient-centered". Donabedian, a pioneer in this field, speaks of quality in relation to care that "maximizes the well-being of patients after considering the benefit/risk balance at each stage of the care process" [2]. The WHO [3] defines quality as the ability to "guarantee each patient a range of therapeutic procedures... ensuring the best outcome in terms of health, in accordance with the current state of science, at the best cost for the same result, at the least iatrogenic risk, for the highest satisfaction in terms of procedures, results, contacts

Human... ». The most widely used definition comes from the U.S. Institute of Medicine (IOM), which states that quality is "the ability of health services for individuals and populations to increase the likelihood of achieving desired health outcomes, in accordance with current professional knowledge" [4].

Some remarks flow from this definition. The term "health services" encompasses all services offered in the various health disciplines. The definition applies to all types of caregivers (physicians, nurses, paramedics, etc.). Similarly, the definition states that good quality care increases the "likelihood" of desired outcomes, which respects the principle of non-obligation of results for the physician because quality care cannot always produce the desired outcome, it recognizes that there is always an undefined aspect to health. However, the emphasis is on the obligation of means for the health professional. The latter must provide relevant care (technical competence) taking into account the patients' expectations. Finally, the "professional knowledge of the moment" requires that health professionals keep up with good training and that they must use their knowledge appropriately. The flexibility and adaptability of this definition led us to choose Hervé Lafarge's definition of quality of care to operationalize this evaluation. According to him, "Care is said to be of quality when the factors of production of care (materials, skills, products used); the care processes and outcomes achieved are in line with professional standards and satisfy care consumers."

For example, LAFARGE's definition of quality of care was used to assess the quality of care in Mali's public hospitals.

**Objective**:

Determine the level of quality of care in Mali's public hospitals.

**Methodology**

To determine the level of quality of care, a collection sheet and a satisfaction questionnaire were used as materials.

The Professional Standards Data Collection Sheet included the following data:

- Buildings;
- Facilities;
- Materials and equipment existing in the services;
- Garbage cans for waste collection;
- Computer and office equipment;
- Inpatient beds;
- Consultation material;
- Medicines and consumables;
- Basket of medicines and consumables;
- Fluid basket;
- Kit for common surgical pathologies;
- Human resources;
- Medical staff;
- Paramedical staff;
- Administrative staff;
- Support staff;
- Humanitarian personnel;
- Documentation;
- Staff establishment plan;
- Activity reports;
- Information system support;
- Process;
- Staff motivation;
- Planning;
- Organization;
- Hospital hygiene;
- Emergency management;
- Equipment maintenance;
- Keeping patient records;
- Mechanisms for equity in care;
- In-hospital mortality;
- In-hospital maternal death;
- Hospital stays;
- Occupancy of hospital beds;
- Referrals/evacuations received;
- Care for the underprivileged;

The questionnaires for the user satisfaction survey cover the following points:

- Reception;
- Affordability;
- Availability of staff;
- Confidentiality during services;
- Patient Safety;
- Cleanliness in the hospital;
- Outcomes of care.

With regard to the methods, the following indicators were calculated to determine the level of professional standards:

- *Adequacy of buildings and facilities:*

The functionality of buildings and facilities was assessed through the adequacy rate, which is the ratio between the number of functional buildings or facilities and the total number of buildings or facilities;

- *Adequacy of equipment and materials:*

The equipment and materials were assessed in each department through the adequacy rate, which is the ratio between the number of functional equipment and materials and the total number of existing equipment and materials in the department;

- *Availability of medicines, consumables and medical fluids:*

The availability of medicines and consumables was assessed on the basis of a basket of forty (40) medicines and consumables agreed with the hospital, while the availability of fluids concerned all existing fluids at the hospital. This availability is measured through the average breakage rate, which is the result of the breakage rate of each basket item or fluid during the reference period;

- *Availability of laboratory and medical imaging tests:*

The availability of laboratory and medical imaging examinations was assessed by comparing the available laboratory and medical imaging examinations with those provided for by the standards.

- *Human Resource Capacity:*

Human resource capacity was assessed by comparing the number of existing staff in terms of profile with

that provided for in the national hospital map, and by calculating the staff qualification rate, which is the ratio between the number of qualified staff and the total number of staff in the department. The qualification rate was calculated in each department.

- *The convenience of hospitality:*

The convenience of the hotel industry was assessed through the inpatient inpatient convenience rate, which is the ratio between the number of compliant wards and the total number of inpatient wards;

- *The adequacy of the laundry room:*

The suitability of the laundry room was assessed through the functionality rate of the laundry room, which is the ratio between the number of suitable elements and the total number of elements of assessment (premises, staff, means of protection and installations).

- *The adequacy of good management and organizational practices:*

The adequacy of good management and organizational practices was assessed through:

Planning Process Adequacy Rate , which is the ratio of the number of adequate processes to the total number of planning processes (development of the establishment project, development of the annual operational plan).

The Organization Process Adequacy Rate, which is the ratio of the number of adequate processes to the total number of organizational processes.

- *The adequacy of hospital hygiene:*

The adequacy of hospital hygiene was assessed through the adequacy rate of hygiene processes (Decontamination, Sterilization, Waste Management) which is the ratio between the number of adequate processes and the total number of hygiene processes.

- *Adequacy of staff motivation mechanisms:*

Motivational mechanisms were assessed through the adequacy rate, which is the ratio between the number of formal motivations with formal criteria and the total number of motivations;

- *Adequacy of emergency management:*

The management of emergencies was assessed through the adequacy rate of the emergency management process, which is the ratio between the number of adequate processes and the total number of processes (dispensing kits for common surgical pathologies, management of emergency cabinets, emergency management procedure);

- *Adequacy of equipment maintenance:*

The maintenance of the equipment was appreciated through:

the adequacy rate of equipment maintenance processes, which is the ratio between the number of adequate processes and the total number of processes (preventive maintenance, repairs, reform, external service contract);

The average downtime of key equipment, which is the ratio of the sum of downtime days to the total number of assets.

- *Adequacy of patient record keeping:*

The keeping of patient records was assessed through the adequacy rate of patient record keeping, which is the ratio between the number of adequate processes and the total number of processes (opening the file, filling in the file, numbering the file, archiving the file, using the file);

- *The adequacy of the equity mechanism to care:*

Equity in care was assessed through the rate of adequacy of equity-to-care processes, which is the ratio between the number of adequate processes and the total number of processes (pricing, care for the poor by the hospital, categorization of inpatient wards).

The assessment of professional standards was supplemented by the calculation of certain result indicators, which are:

- In-hospital mortality rate per year;
- In-hospital maternal death rate;
- Average length of stay;
- Bed occupancy rate;
- Reference/Evacuation Rate Received;
- Rate of care for the poor.

As for user satisfaction, its level was determined through the satisfaction rate, which is the ratio between the number of satisfied users and the total number of users interviewed. The user satisfaction

was processed using a software package designed for this purpose.

Since quality is the result of professional standards and user satisfaction, a synthetic grid was developed to quantify the quality of care. The aim was to assign points to each component of professional standards and patient satisfaction.

Thus, the summation of the points resulting from the assessment of the different components made it possible to quantify professional standards and user satisfaction.

Finally, quality was calculated by assuming that each of the two components (professional standards and user satisfaction) contributes 50%.

**Results**

The following table shows the results by hospital and quality of care component:

| Points Earned | **Professional Standards (180 points)** | | | | User satisfaction (180 points) | Quality of care (360 points) |
|---|---|---|---|---|---|---|
| Hospitals | Means | Process | Result | **Total** | | |
| HK | 31 | 35 | 31 | 97 | 104 | 201 |
| HSK | 46 | 35 | 28 | 109 | 169 | 278 |
| BROKEN | 46 | 54 | 23 | 123 | 133 | 256 |
| HM | 40 | 40 | 27 | 107 | 92 | 199 |
| HG | 42 | 25 | 21 | 88 | 144 | 232 |
| HT | 41 | 37 | 26 | 104 | 133 | 237 |

The means of production scored 31 points, 46 points, 46 points, 40 points, 42 points and 41 points respectively for the hospitals of HK, HSK, HS, HM, HG and HT. For care processes, these hospitals successively obtained 35 points, 35 points, 54 points, 40 points, 25, and 37 points out of 66 points at stake. As for the results of the treatments, they obtained respectively 31 points, 28 points, 23 points, 27 points, 21, and 31 points of the 48 at stake. Of the 180 points at stake, the professional standards totalled 97 points, 109 points, 123 points, 107 points, 88 points, 104 and 128 points out of the 180 points at stake for these same hospitals.

The sum of the scores for professional standards and user satisfaction out of 360 points resulted in a quality score of 77.28% for HKS and 55.28% for HM.

**Discussion**

The evaluation protocol did not provide standards for equipment and materials by service. Only the functionality of the existing equipment and materials in the departments was assessed. A service may have 100% functionality while some key equipment is non-existent. This is a limitation because it does not make it possible to assess the needs of the services in terms of equipment and materials essential for the quality of care.

The hospitals evaluated have the advantages in terms of quality of care. These are:

- the functionality of buildings and facilities;
- availability of medications;
- the functionality of materials and equipment;
- availability of laboratory tests;

- the convenience of hospitality.

These assets contribute to improving the quality of care in terms of infrastructure, equipment, medicines and patient care. Compared to medicines and consumables, a correct and complete regular refill ensures proper management of medicines and consumables and further minimizes shortages.

However, shortcomings remain in terms of:

- management of medical fluids (no support);
- adequacy of hospital hygiene;
- adequacy of maintenance;
- adequacy of patient record keeping;
- adequacy of staff motivation mechanisms;
- adequacy of the organizational process.

These shortcomings are handicaps for the quality of care in terms of medical fluid supply, patient rights, patient safety, patient care, continuity of care and hospital governance. This situation constitutes a major obstacle to the full exercise of the institution's role as a reference.

The hospital hygiene process is characterized by the absence of a validated decontamination and sterilization procedure, inadequacies in waste sorting and the production, transport and treatment of biomedical waste. However, training on infection prevention and control in the context of waste management, decontamination and sterilization is an asset in terms of safety of care. This advantage must be reinforced by good monitoring of the decontamination, sterilization and waste management processes, especially from waste sorting to production. To achieve this, all healthcare services must be equipped with adequate decontamination and waste management products, equipment and equipment. Similarly, the sorting process must be monitored daily in order to correct the problem at the source.

It should be noted that hygiene is the 1st link in the chain of quality of care. The consequences of a lack of hygiene are multiple:

- risk of contamination of staff, patients and visitors;
- spread of hospital-acquired infections;
- environmental pollution;
- etc.

The maintenance process is marked by the absence of a fact sheet, a dashboard and a written reform procedure. The scorecards, the dashboard and the reform procedure are essential tools to prevent certain breakdowns and ensure the replacement of equipment. Among other things, the dashboard specifies the rate at which spare parts and consumables are replaced according to the workload. Similarly, the reform procedure specifies the conditions for reforming equipment according to the depreciation regime.

The availability of the technical platform is an important determinant of the quality of care. According to several studies, the link between the technical platform and the quality and safety of care is well established. For example, one study showed that polytrauma patients hospitalized in trauma centers with a technical platform available 24 hours a day and allowing any orthopedic surgery or neurosurgery, with interventional radiology and an intensive care unit, had a hospital mortality rate of less than 20% compared to those hospitalized in health facilities that do not have a technical platform accessible 24 hours a day and have only agreements with centres that are better equipped to facilitate transfers [7]

Cases are only opened for hospitalized patients. There is no single numbering system, nor is there an archiving system to find them. It should be remembered that the opening of a file for all patients is a legal requirement in accordance with article 31 of Law 02-050 of 22 July 2002, as amended, on the Hospital Act, which stipulates: "A medical file must be compiled for each patient treated. This file shall be filed and kept by the institution for a period of 10 years." Similarly, it is important to set up an organization to ensure that the information collected on patients can be used to improve the quality of their care. To do this, a unique numbering mechanism must be put in place to find the file if necessary.

The maintenance of medical records, registers and other media in the hospital information system is an important lever for improving the quality of care. A review published in 2017 shows that of the 17 studies analysed, 16 reported improved processes and

outcomes after implementing registries [8]. Recent studies in different countries and fields have confirmed these results: traumatology in the Netherlands [9], out-of-hospital cardiac arrest in Japan [10], joint prostheses in Australia [11]. Registries have the advantage of being designed by professionals to evaluate their performance [12,13].

The poor adequacy of staff motivation mechanisms, corroborated by the fact that all respondent providers say they are not satisfied with their motivation, may affect their ability to provide satisfaction to the hospital's clients (users). Indeed, according to Jean Brilman, if companies are interested in value for staff, it is not because of a sudden generosity of modern capitalism, but because many studies in the United States have shown that customer satisfaction is closely correlated with staff satisfaction, especially those in contact with customers [14]. It is therefore important to establish formal and fair criteria for all forms of motivations in force. Equally, these motivations must satisfy the staff.

The advantage of this approach is to have an overview of the determinants of quality within a hospital. It provides a list of determinants whose consideration represents a challenge for improving the quality of care.

Measuring the quality of care is a prerequisite for defining the actions to be implemented and objectively assessing progress in order to improve the service provided to patients. The process of improving the quality and safety of care begins with the implementation of indicators and regulations relating to care structures and care processes. It should be noted that quality and regulatory indicators are oriented towards the outcomes of care [15, 16,17].

## Conclusion

The evaluation made it possible to take stock of the quality of care of the hospitals evaluated. The means of production, the processes, the results of the care and the satisfaction of the users were appreciated. The level of quality of care has been determined; Recommendations were made to address the deficiencies identified.

Across all of its components, the professional standards averaged 104.66 out of 180 points at stake. As for patient satisfaction, the average is 129.16 out of 180 points for all the hospitals evaluated.

The average level of quality of care in the 06 hospitals is 64.95, it remains below the standard of 80% generally accepted by the World Health Organization. It is affected by a number of shortcomings in professional standards, including:

- the lack of support for the management of medical fluids;
- inadequate hospital hygiene;
- inadequate equipment maintenance;
- inadequate patient record keeping;
- inadequate staff motivation mechanisms;
- the inadequacy of the organizational process.

The implementation of the recommendations made will make it possible to correct the shortcomings and thus improve the quality of care.

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***Correspondence**

Oumar Dembélé .

oumar_dembele@yahoo.fr

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1 : Research Laboratory of the National Institute for Training in Health Sciences, Bamako
2 : Research Laboratory of the National Institute for Training in Health Sciences, Bamako
3 : Research Laboratory of the National Institute for Training in Health Sciences, Bamako



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