

## REFLECTION ARTICLE

# QUALITY MANAGEMENT IN IMAGING DIAGNOSTIC CENTER AND PATIENT SAFETY: A REFLEXIVE ESSAY<sup>1</sup>

Laura Vargas Acauan\*  
Maria Cristina Soares Rodrigues\*\*  
Jeferson Lima Pereira\*\*\*

## ABSTRACT

This essay aims to present a reflection about quality management in image diagnosis center, from the perspective of nursing management, in order to improve the patient safety. The processes, people and results triad – excellence criteria – is approached from the concepts established by National Quality Foundation, regarding the characteristics, patterns and consequences of scientific-technical and administrative quality management. Potential damage and benefits that aim to promote patient safety in radiology services are pointed out. Revisiting their practice and seeking new knowledge, the nurses can innovate their management model. To do so, must be based on a modern administration, regarding new management approaches and quality programs. In this way, they will better their working process, with impact on organizational culture and consequently on patient safety, contributing to a diagnostic imaging service free of possible errors, which expresses the quality of health care.

**Keywords:** Imaging diagnostic. Quality of health care. Management of quality. Patient safety.

## INTRODUCTION

Nowadays, with the incorporation of new technologies and different ways in terms of the organization and management of health services, higher quality and improved safety results are necessary<sup>(1)</sup>. These can be achieved through actions aimed at minimizing risk in order to avoid adverse events and unnecessary damage with regard to the healthcare service provided<sup>(2)</sup>.

The preoccupation of managers, directors and professionals associated with health organizations with regard to service quality is increasing. The growth of competition, technological innovations, the dissemination of information and a more demanding clientele have developed a scenario in which the tools created to ensure a higher quality and safer medical-hospital assistance are increasingly used<sup>(3)</sup>.

As a consequence of assisting patients with even more complex demands, the area of health

demands the use of management formats centered on criteria involving excellence in terms of quality or, in other words, based on the results found in terms of structure, process and results<sup>(1,4)</sup>. Within the context of healthcare assistance, quality is defined as the achievement of more benefits with little associated risk to the patient, together with lower costs, and centered on the management of the criteria of quality excellence already mentioned<sup>(4)</sup>.

From this perspective, in 2011, after a collegiate resolution, the Brazilian National Agency of Health Surveillance (ANVISA, in Portuguese) established the requisites for good operating practices for healthcare services. These detail the actions that should be performed in order to institute a policy of quality inside health institutions. Hence, the healthcare service provider must develop actions based on the standards of this policy. This involves the three elements of health management: structure, processes and results<sup>(2)</sup>.

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\* Nurse. Master in Nursing by Universidade de Brasília (UnB), expert in Management in Family Health and Quality Services Management. Brasília – DF, Brazil. E-mail: lacauan@uol.com.br

\*\* Nurse and Pharmaceutics. Post-doc, University College London. Associated Professor, Nursing Department, Faculdade de Ciências da Saúde da UnB. Brasília – DF, Brazil. E-mail: mcsoares@unb.br

\*\*\* Strategic Manager of Organizations, Expert in Management of Public Administration and Projects Management – PMI, consultant of excellence systems in management. Invited Professor of IESB Post-graduation, UnB, SEBRAE. Brasília – DF, Brazil. E-mail: jeferson@incontre.com.br

In this sense, nursing actions need to be developed beyond the traditional care process. Because these professionals are engaged in diversified work, they must adopt quality management procedures aimed at achieving a better quality benchmark during their work in terms of the criteria of excellence, in order to present a fundamental aspect that is directed towards a continuous improvement of the management of health organizations<sup>(1,4)</sup>.

Nurses who work in the area of imaging, an area which provides an important diagnostic service in support to many different medical professionals, must be constantly updated, as the techniques used are complex and demand a high level of competency in terms of the professionals concerned and all the team in which they operate<sup>(5)</sup>. In a Center of Diagnostic Imaging (CDI), risk control goes beyond simply working with equipment, thus involving questions related to the processes, the situation under consideration, and the participation of the many actors (collaborators and patients) involved in the process<sup>(6)</sup>.

This reflection was done based on the need to rethink strategies of managerial approach, supported by a management model ruled by criteria of excellence, with regard to the safety of the patients in a CDI. This aspect emerged from an observation of the work routine of one of the authors of this study, a nurse-manager of a Diagnostic Imaging (DI) unit and a specialist in quality management in services. Willing to collaborate in the process of the writing of this essay, a scholar and researcher in the area of patient safety and a professor who specialized in the area of service management joined this study. Because this is a topic which has encouraged few other studies, the emerging and relevant theme has been brought to light to contribute to the improvement of the professional routine of the nursing team in a CDI.

Therefore, the aim of this study is to present a reflection about quality management in a CDI based on the managerial perspective of the nurse, in order to provide safety to the patient.

## METHODOLOGY

This is a theoretical and reflexive study done during the months of August and September 2012. It started with the reading of scientific articles fully available in the data banks of the Scientific Electronic Library Online (SciELO) and in the Latin-American and Caribbean Center on Health Sciences (LILACS, in Portuguese, but also known as BIREME), in addition to the references of the Brazilian National Foundation of Quality (FNQ, in Portuguese), published between 2008 and 2012. The following keywords were used: quality management in health, nursing management, quality in healthcare assistance, diagnosis by imagery, patient safety.

An analytical reading of the selected references ensued. These works dealt with the criteria of excellence in quality, innovation in management, and safety of the patient in CDI. These led to the emergence of two central topics of reflection, as discussed below.

### **CRITERIA OF EXCELLENCE IN QUALITY IN TERMS OF PROCESSES, PEOPLE AND RESULTS FROM THE PERSPECTIVE OF PATIENT SAFETY**

According to FNQ, the criteria of excellence involve a systemic model of management that has been adopted by countless organizations around the world. They are built over some significant conditions essential to achieving the desired excellence in performance. These are put into practice through the application of eight criteria: leadership, strategies and plans, clients, society, information and knowledge, people, processes and results<sup>(4)</sup>. In particular, three of these relate to reflections, transformations and advances in health practices, reflected in the way teams are organized to provide healthcare services, as follows.

The fundamental criterion of excellence in management, the *process*, must be executed by the *people* of the health organization or of the area. This leads to the last criterion of excellence mentioned in this reflection, the *results* for the patient and for the organization<sup>(4)</sup>.

Therefore, the *processes* presuppose the comprehension and the segmentation of a set of activities and of the processes of the organization that aggregate some value for the

parts involved. Decision-making and the performance of actions must be based on the measurement and analysis of performance, taking into account the information available, besides including identified risks<sup>(4)</sup>.

Patient safety, based on the perception of excellence in terms of the service provided that manages processes, must ensure the planning, organization and execution of a set of interrelated activities. These are characterized by requiring certain particular supplies and work processes, thus implying an aggregated value in order to achieve certain results<sup>(2,4)</sup>. In a CDI, the processes that focus on safety must be described, performed, mapped and evaluated to avoid unnecessary harm to service users and their companions. In addition, the manager should follow the procedures described in the radiological protection plan as approved by the Brazilian National Commission for Nuclear Energy (CNEN, in Portuguese)<sup>(7)</sup>.

The accepted work procedure in a CDI must generate benefits to the individuals involved or for society, such as to justify the corresponding costs. As part of recommended practice, clients and staff must use equipment with lead plates, in order to provide individual protection by impeding the absorption of radiation. Under the guidance of the manager, and with the participation of specialist staff, those responsible for the execution of the processes, mechanisms and quality control proceedings must execute such actions in order to review and evaluate the radiological protection that needs to be implemented in the CDIs<sup>(4,7)</sup>.

Processes that involve X Ray equipment, their quality control, preventive and corrective maintenance and time of usage, are fundamentally important when it comes to reducing possible harm<sup>(2-7)</sup>. The new technologies, because they generate benefits but also possible harm, require a concept of risk that takes this complexity into account. In these situations, the risks cannot be simply eliminated, because there would be a consequent elimination of benefits<sup>(8)</sup>.

The area of people management (human resources) is fundamental in terms of the risks that patients face when there is a group of professionals who are not qualified and/or

unprepared to work performing the actions needed in a health<sup>(9)</sup>.

The need for constant change has been motivated by the continuous development of technology, a situation that leads to a rapid obsolescence of products and services. The organizations are open to new ideas in order to meet this challenge, thus generating a degree of understanding and the promotion of the active participation of the people involved<sup>(10)</sup>.

The criterion of excellence in terms of *people* deals with managerial processes related to the team, the development of competencies, and the maintenance of well-being through the creation of conditions such that team members can feel professional and personally fulfilled<sup>(4)</sup>.

In health organizations, with a growing demand for high quality and safety in terms of the services provided, technological advancement and competition in the area of health, there is a need for changes in management policy. To implement these changes, people management must be integrated, answering the interests and expectations of the organization and of the people involved. This is the only way to support a productive relationship between these two parts<sup>(11)</sup>.

In the area of health, the management of people has specific characteristics that differentiate it from other types of management, once it is seen as extremely valued and as part of the propriety managed by the administration. Especially in this area, the relationship between the patient and the working team (the health team) is important, in order for the objectives of the organization to be achieved. Health professionals must be motivated, well-prepared and capable of working safely, achieving high quality standards and fulfilling their roles, as they deal on a daily basis with the lives of people. In this case, the human resources are seen as a means, and not an end in itself, to achieve better results<sup>(11)</sup>.

Management based on the criteria of excellence in CDI focuses on the staff involved, making sure that they have a solid background, a consciousness about their responsibilities, promoting periodic training and educational activities about protocols of imagery acquisition with quality, radiological protection of the teams and patients and risk management, so that there

is a reduction in the harmful effects for both staff and patients<sup>(4)</sup>.

The management of *results* means to go beyond a management of systems, based on a detailed set of rules. Management is supported in terms of the results achieved based on two elements: the products or services provided (the outputs), and the impacts/results seen on society (the outcomes). The first aims to ensure an effective and efficient way to produce a certain product or service; the second aims to know the social impact of the organization and of its product on the educational level, the state of health of people, and the capacity to solve problems<sup>(9)</sup>.

To obtain quality images (results) while at the same time minimizing costs and reducing the quantity of radiation on the patient, on the professional and on the environment, requires an organized effort. Here, the objective is to ensure that the diagnostic images produced have enough quality to provide adequate information to the radiologist/physician so that he can provide a safe diagnosis with the lowest cost possible, and with a minimal exposure of patients and staff to harmful radiation<sup>(6)</sup>.

### QUALITY IN A CENTER FOR DIAGNOSTIC IMAGING

The Brazilian standards for radiological protection, as provided by the Brazilian National Commission for Nuclear Energy (CNEN, in Portuguese), define the parameters regarding the production, the storage of supplies, and the practice that involves ionizing radiation, as well as the basic requirements for a safe working environment for professionals and patients<sup>(6)</sup>.

The safety regulations establish the prerequisites for actions involving the objects under safety surveillance. They regulate control actions such that the “technologies in health” generate more benefits with less damage, taking into account the related scientific, ethical, economic and social issues<sup>(12)</sup>. To achieve such objectives, a program to guarantee quality is needed. This would also require the fulfillment of a series of items related precisely and consistently to the equipment that generate X-rays, as well as the ones related to work proceedings<sup>(13)</sup>.

The radiologist/physician works with the final product of the examination, the images that provide important information for the final decision regarding diagnosis, treatment or follow-up. The necessary level of image quality for a correct diagnosis has to be acquired by using the lowest dose of radiation possible, through the implementation of a rigorous program of quality assurance (PQA)<sup>(7)</sup>. This program has detailed instructions with regard to performing quality assurance actions, including systematic and planned actions, all of which are needed to promote adequate confidence, confirming that the product or service can satisfy the demands of safety and quality<sup>(7)</sup>.

In the CDI, the nurse performs technical procedures, generates and applies questionnaires, protocols, guidance, training, interventions with regard to the patient and, most of all, the management of the area<sup>(5)</sup>. It is necessary to provide personalized care in a pleasant environment, with qualified professionals, that offers a competent, safe and effective service. Therefore, by integrating equipment and people in an organized and sectorial structure, it is possible to take care of people both during the treatment of a disease and in terms of personal safety and satisfaction<sup>(3)</sup>.

With the current technological evolution, the PQA needs to go through constant reviews to evaluate and implement its main target or, in other words, the provide the best quality imaging with the lowest dose of radiation possible to all involved in the diagnostic process<sup>(14)</sup>.

According to a resolution of the CNEN, the PQA must be created and documented, including a description of operational and managerial processes that describe, among others, the structures involved in the area of the CDI, the attribution of the responsibilities of people, their qualifications, training, attendance at in-service workshops, and the radiometric analysis and radiation measures in all the area around the CDI<sup>(13)</sup>.

Hence, to have an effective PQA in the areas such as the CDI involving the use of high technology and which also depends on innovation and creativity, changes in management and in the organizational culture are essential<sup>(7)</sup>.

## CONCLUSION

Changes in the management and culture of health organizations, especially in the areas of diagnostic support such as a CDI, are considered important and necessary in the light of the new demands have arisen from society.

In this review, it was not the authors' intention to investigate all the possible directions of this topic while discussing CDI management. Instead, the paper considers the criteria for excellence with regard to achieving higher quality, and this reminds us of the crucial need to credit diagnostic imaging. This target is a great challenge today, with an emphasis on the contributions of the nursing staff who, under a new perspective of managerial practice that use managerial instruments and tools to encourage

technical and administrative coordination, with the aim of providing an effective and safe service.

The provision of these same services in the CDI is based on the interaction of many factors: the human, the medication, the equipment and the facilities. When more factors are involved in the provision of such a service, there will be even greater chances of the occurrence of adverse events. Therefore, it is of considerable importance that there is an investment in the education of the people involved, as well as a continuous description, execution, evaluation and improvement of the processes, so that patients have a caring service free of possible harm, providing high quality and safe imaging diagnoses.

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## GESTÃO DA QUALIDADE EM CENTRO DE DIAGNÓSTICO POR IMAGEM E SEGURANÇA DO PACIENTE: UM ENSAIO REFLEXIVO

### RESUMO

Este estudo tem por objetivo apresentar uma reflexão sobre gestão da qualidade em Centro de Diagnóstico por Imagem na perspectiva do gerenciamento pela Enfermeira, com vistas à segurança do paciente. A tríade processos, pessoas e resultados - critérios de excelência - é abordada à luz de concepções desenvolvidas pela Fundação Nacional da Qualidade, referentes às características, padrões e consequências técnico-científicas e administrativas da gestão da qualidade. Potenciais danos, assim como benefícios que visam à promoção da segurança do paciente no serviço de diagnóstico por imagem são discutidos. Revisitando sua prática profissional no setor de diagnóstico por imagem e em busca de novos conhecimentos, a Enfermeira é capaz de inovar seu modelo de gestão. Para tanto, deve fundamentar-se em uma administração contemporânea, considerando novas abordagens gerenciais e programas de qualidade. Nesse sentido, aperfeiçoará seu processo de trabalho, com repercussão na cultura organizacional, e, consequentemente, na segurança do paciente, contribuindo para um serviço de diagnóstico por imagem isento de possíveis erros, que expressa qualidade da assistência à saúde.

**Palavras-chave:** Diagnóstico por imagem. Qualidade da assistência à saúde. Gestão de Qualidade em Saúde. Segurança do paciente.

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## GESTIÓN DE LA CALIDAD EN CENTRO DE DIAGNOSTICO POR IMAGEN Y SEGURIDAD DEL PACIENTE: UN ENSAYO REFLEXIVO

### RESUMEN

Este estudio tiene por objetivo presentar una reflexión sobre la gestión de calidad en un Centro de Diagnóstico por Imagen en la perspectiva de la gestión por la Enfermera, con vistas a la seguridad del paciente. La tríada, procesos, personas y resultados - criterios de excelencia - es abordada basada en las concepciones desarrolladas por la Fundación Nacional de la Calidad, referentes a las características, patrones y consecuencias técnico-científicas y administrativas de la gestión de la calidad. Daños potenciales, así como beneficios que pretenden la promoción de la seguridad del paciente en el servicio de diagnóstico por imagen son discutidos. Revisitando su práctica profesional en el sector de diagnóstico por imagen y en la búsqueda de nuevos conocimientos, la Enfermera es capaz de innovar su modelo de gestión. Para ello, debe fundamentarse en una administración contemporánea, considerando nuevos enfoques de gestión y programas de calidad. En ese sentido, mejorará su proceso de trabajo, con repercusión en la cultura organizacional, y, consecuentemente, en la seguridad del paciente, contribuyendo para un servicio de diagnóstico por imagen exento de posibles errores, lo que expresa una asistencia a la salud de calidad.

**Palabras clave:** Diagnóstico por imagen. Calidad de la asistencia a la salud. Gestión de calidad en salud. Seguridad del paciente.

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**Corresponding author:** Laura Vargas Acauan. Rua Augusto Ribas, 514. Centro, CEP. 84010-300, Ponta Grossa, Paraná, Brasil.

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