Quality and non-quality in the health sector

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Abstract

The cost of quality has long been the subject of studies in the industrial sector but only recently has it been investigated in the service sector and little in the health sector. Starting from the hypothesis that quality defects concern and the management and the operations of medical establishments while impacting the quality of medical care and services offered to patients, as well as the economic performance of the establishments, this article proposes to analyze the concept of quality in hospitalsand the factors of non-quality, to offer a taxonomy of quality defects, and to estimate their cost for the organization. The findings and their discussion are based on a survey of six establishments in France and Belgium.

Key words: health sector; hospitals; cost of quality; hidden costs

Introduction

Since its origins the quest for quality has implied the consideration of the issue of non-quality (Shewart, 1931). Quality and non-quality are two sides of the same coin. Even if the problems caused by non-quality were not immediately clearly associated with their cost to the organization's production process, this question of cost has always been underlying, as the goal of quality control was to increase the efficiency of the process.

The Cost of Quality came to the forefront in the 1960s (Crosby, 1979), both as a response to a number of organizations which dismissed quality management as too costly, and as an attempt to make these very companies realize that non-quality implied costs were much bigger than the implementation of a quality management system. Historically, like most aspects of quality management, the Cost of Quality referred to industrial processes, but it was very quickly realized that the cost of non-quality was important and very often higher in service processes, and that the root causes of non-quality were to be found in the management of the organization. More recently, attention was focused on (at least basically) non-profit organizations, such as educational or health institutions, where non-quality can have far-reaching albeit

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not immediately identifiable consequences, and lethal ones in the case of the health sector.

In the health sector, the lack of control of quality and risks can entail not only adverse health consequences for the individual,but also an economic and social cost (invalidity, loss of employment…), notably in the case of nosocomial diseases. Nowadays, thanks to scientific and technological progress and better information, the public looks for and demands more quality in the provision of care and services. Quality defects also have important economic consequences for the organization due to the mustering of additional resources (human, material and financial) to 'regulate non-quality' and to the risk of litigation.

The management of quality in health organizations also represents a strategic stake as it is a determining factor for obtaining the right to operate, for certification and accreditation, and for receiving funds. In the case of France, since certification became obligatory in 2001, the High Health Authority has been in charge of controlling the continuous improvement of quality and safety in hospitals. Quality requirements do not only cover medical care strictly speaking, but also the management, internal organization and operations of the establishment, in a context of cost rationalization and control. As a result, certification has modified the governance of hospitals, as its objectives cover all the activities of the establishment, including medical services of course as well as administration, logistics, safety and well-being of patients, and cost reduction. Accreditation represents a lever for actions in favor of quality improvement and better performance for the organization. Hence certification and improvement of quality both depend on the reduction of defects and the costs they generate.

Consequently, it is necessary to investigate the major quality defects and their cost in hospitals, starting from the hypothesis that quality defects concern the management and the operations of hospitals and while impacting the quality of medical care and services offered to patients as well as the economic performance of the establishments.

The study will be presented under three headings: the concept of quality in hospitals (1), a presentation of quality defects and the implied hidden costs based on a survey of six French establishments and a Belgian one (2) and an analysis and discussion of the findings (3).

1. The concept of quality in hospitals

The concept of quality in hospitals will be examined at three different levels: exogenous quality factors (1), quality approaches in different sectors and in health care (2) and different evaluation methods of non-quality costs showing the economic impact of non-quality on organizations.

1.1 Exogenous quality factors

The analysis of the exogenous quality factors evidences the characteristics of a hospital's provision of care, which are essentially linked to laws and regulations: sanitary planning, financing system, relationships with consultative bodies, specific recruitment system, absence of hierarchical links between the medical personnel and the management in public establishments, evaluation of professional practices, safety and certification. In this context we can define the production of services by hospitals according to the model of Eigler and Langeard (1987): the interaction between the physical environment (premises, equipment, products, etc.), the personnel (medical, administrative and technical), and the patient determines the level of quality of the provided service.

Quality requirements from the public, together with a strong competition among hospitals in the same sector and between public and private hospitals lead to strategies with the aim of creating value for the 'customer', in which quality is a strategic variable for hospitals (Noobre, 1998; Vinot, 1998; Bertezene, 2000).

1.2 Quality approaches

Different conceptual and operational approaches to quality can be identified: conformance quality, total quality**,** global quality and the certification of hospitals. The concept of conformance quality, which has been widely developed following Crosby's definition of quality (Garwin, 1984; Abott, 1986; Périgord, 1987; Doucet 1990; Cruchant, 1995; Reix, 1996; Dubois, Doutre, Rémi, 1999), is based on the assumption that conformance of the product to standards gives rise to customer satisfaction. Conformance quality then gives an essential character to the product's attributes and characteristics, which are controlled and measured in order to determine the level of conformance. Organizations respond to requirements by using a number of tools permitting them to control the aptitude of the service in order to satisfy the needs of the user as described by the standards.

This approach is the basis for "quality assurance" (Igalens, Penan, 1994; Garin, 1996; Cole, 1999), leading to the certification of the product and the processes. The generalization of the notion of satisfaction and the search for increased effectiveness are the main factors at the origin of the notion of "total quality" (Feigenbaum, 1956; Wissler, 1986; Crosby, 1979; Ishikawa, 1987; Dean, Bowen, 1994; Hackman, Wageman, 1995; Berny, Peyrat, 1995).

Certification can be a preliminary stage of total quality by gradually integrating customer satisfaction and improving the effectiveness of actions during the production process of medical services, taking the value and cost of quality actions into account. "Global quality" is based on a socio-economic analysis (Savall, Zardet, 1989, 1995) that puts customer satisfaction at the centre of the strategy of organizations. The socio-economic analysis is the basis for developing a process and tools of management, permitting the continuous improvement of quality while reducing the costs of non-quality.

These approaches, which were originally developed in the industrial and commercial market sector, have been transposed to the health sector. The certification of hospitals is a procedure of external evaluation of quality which must lead establishments to the implementation of continuous improvement. Its objectives cover all the activities of the establishment. In spite of a number of similarities with practices in the market sector, there is a key difference between the certification of companies and that of hospitals. The former initiate the policy on a voluntary basis, although most of the time upon the demand of their customers. The lack of certification may jeopardize the economic survival of the enterprise in the medium or long term, but it does not condition its legal existence. The certification of hospitals is a legal requirement, with different levels (certification, certification with recommendations, conditional certification, non-certification) upon which depends the authorization to operate or the decision to provisionally or definitely close.

1.3 The evaluation of non-quality costs

A number of models define the cost of non-quality with varying, albeit related, objectives: reaching a quality optimum (Juran, 1988; Harrington, 1988), controlling performance with the integration of the external environment of the organization (Geoffrey, Pasewark, 1988) and reducing dysfunctions (Savall, 1975; Crosby 1979; Abadie, 1989; Echard, 1990). These models use the cost of non-quality as an operational tool to measure the gap between the actual performance and the expected performance. However, they mainly remain focused on the costs that are directly linked to the customer and the product and do not fully take the costs related to the organization into account. If a socio-economic analysis of the organization is carried out, hidden costs can be identified so that a global view of the organization's performance becomes possible. This way, a socio-economic calculation of non-quality costs can be an instrument of strategic control. Consequently, acting on hidden costs implies modifying the means of regulation through a different monitoring of the organization's resources (Savall, Zardet, 1995). In hospitals, the micro-economic calculation of nosocomial diseases (Meynet, Fabry, Sepetjean, 1991) evidences the charged and not charged medical costs and the social cost suffered by patients due to a lack of quality.

Quality approaches require immaterial investments that traditional accounting methods neither take into account nor value. For that reason, new methods of accounting have been proposed (Savall, Zardet, 1988; Boisselier, 1993; Pierrat, Martory, 1996; Bonnet, 1995) in order to demonstrate the economic interest and the profitability of such investments. The design and implementation of a policy of continuous improvement is an immaterial investment whose cost is lower than that of non-quality. This investment finances itself through the qualitative and quantitative results of an improvement in quality (Savall, Zardet, 1995).

2. Quality defects in hospitals

Quality defects in hospitals will be examined in the following three stages: data collecting method and data analysis (1), the identification of quality defects (2) and their cost (3).

2.1 Data collecting method and data analysis

The data have been collected from seven establishments; four public hospitals in France (A, C, D, E), two private clinics in France (F, G), and one private hospital in Belgium (B). The diagnostics have been carried out through semi-guided interviews (some with individuals, some with small groups), lasting from one to one and a half hour, with different categories of personnel, through direct observation and an analysis of internal documents. The seven diagnostics represent 140 interviews and 196 persons.

In order to process and analyze the data, a grid of variables about the operations of the establishments (working conditions, communication-coordination-consultation, time management) and about the management (organization of work, training and strategic implementation) has been designed. Quality defects in the seven organizations have been identified according to this grid. The interviewer took care that all the domains of dysfunctions were discussed. Then the notes were analyzed to evidence a dozen key-phrases testifying of dysfunctions, which were subsequently classified in themes, sub-themes and key-ideas. A key-idea is a generic idea of dysfunction which can be illustrated, through the key-phrases, in different ways. A frequency is attributed to each key-idea according to the number of times the dysfunction is mentioned. 1,100 key-phrases with 345 key-ideas concerning quality defects have been identified.

The socio-economic diagnostic also allows us to measure hidden costs, which are the monetary translation of the regulation activities of dysfunctions (Savall, 1975). Quality defects are grouped under five indicators making up the economic module of the diagnostics: absenteeism, work accidents, personnel turnover, direct quality defects affecting goods and services (rework, repair…) and direct productivity gaps (labor costs linked to failures or lack of competencies). In order to remedy quality defects or dysfunctions, hospitals set up costly activities of regulation in terms of time, materials and non-rendered services. The cost of all quality defects is equal to the sum of the historical cost of over-consumption of resources and opportunity costs (loss due to non-production). This sum constitutes the potential improvement of the global economic performance of the organization, which does not appear in the classic accounting information system. Hidden costs are calculated by using six components, making up the financial module of the diagnostics which are called “over-pay, over-time, over-consumption, non-production, non-improvement, risks”. “Over-pay” occurs when a function is accomplished by a person better paid than the one who should have accomplished it. “Over-time” corresponds to the time spent to regulate dysfunctions. “Over-

consumption" is the quantity of products consumed to regulate dysfunctions. "Non-production" is the absence of activity due to a dysfunction. "Non-improvement" is the cost in man/hours of actions (e.g. preventive actions, training) which cannot be performed because actors have been employed to regulate dysfunctions. The economic impacts of quality defects, valued according to the cost of their regulation, are classified according to the six components of the financial module.

The first hypothesis on which the socio-economic calculation rests is the iso-productivity of work (i.e. each work unit, whatever the moment or the person, generates a constant average production). This hypothesis permits us to know the amount of man-hours through the calculation of the hourly contribution to the margin on variable costs (HCMVC). The calculation is done in this way: HCMVC = gross margin on variable costs/number of hours expected, where the margin on variable costs is turnover minus variable costs. The calculation of HCMVC aims at showing the role of the personnel in the creation of economic value. The second hypothesis is that the regulation time taken into account concerns all the categories of actors (i.e. direct and indirect manpower). The calculation of unit prices of consumed products is based on the internal transfer price. The calculation of work hours is based on three assumptions: (1) a rational apportionment of resources (fixed costs are determined according to a standard level of activity), (2) the economic value of human work is calculated by incorporating in the cost of work a contribution to the fixed costs, (3) labor costs are treated as fixed costs.

2.2. The identification of quality defects

Hospital operations are studied through working conditions (21% of key-phrases), communication-coordination-consultation (16.5%) and time management (16.5%). The quality defects of management concern the organization of work (23.5%), in-house training (7%) and strategic implementation (15.5%).

2.2.1 Working conditions

A number of problems come from the age of the premises and their lack of adaptation to activities. Scattered premises and the lack of space are obstacles to good working conditions. Actors also mention the dull character of buildings, the lack of intimacy and even insufficient conveniences and hot water.

The nature of the equipment (for administrative work as well as for care) and its age are not adapted to guarantee the safety of patients and personnel and cause a loss of time. Actors also complain about too much noise, too much or not enough heat, which make the patients' stay uncomfortable and the staff working conditions difficult.

On top of the psychological stress implied by working with patients affected by serious diseases, the staff often mentions hardship due to moving equipment too often. The work rhythm and the absence of breaks tire people and are a risk factor for the quality of care.

The work atmosphere is also often characterized by a lack of consideration for the staff, leading to a consequent lack of team spirit.

2.2.2 Communication-coordination-consultation

This theme is characterized by insufficient top-down and bottom-up communication, a lack of consultation and coordination, compartmentalization among units, insufficiencies in the transmission of information and in the relations between internal suppliers and customers. There is also a lack of horizontal communication inside units, mainly with the persons responsible for the unit. People do not communicate and coordinate one another, which creates difficulties in managing the workload and practices. Information from top and middle management does not reach the operators and suggestions by the operators and even the middle management are not taken into consideration. People in units rarely or never meet, and when they do, they often consider these meetings uninteresting. The lack of information also affects patients. Communication between internal suppliers (technical staff-medical staff, admissions-wards, pharmacy-medical staff) and customers is also deficient. Compartmentalization of activities is most often quoted as the main obstacle to internal supplier-customer relations.

2.2.3 Time management

Whether it is for administration or care, the main point that emerges is the non-achievement of delivery times. This is true both internally (internal suppliers do not respect delivery times), and with external partners.

The establishments also cause their external customers (patients) to wait for too long during the admission procedure, thus giving a bad image of themselves. The planning and programming of activities is deficient. Either they do not exist or they are not respected, or priorities constantly change because they are not properly defined.

A number of tasks are not properly accomplished, such as the reception of the patient, the management of the blood bank, and preventive maintenance. The causes are found in the lack of time to accomplish them correctly or in a lack of quality in the services rendered by internal suppliers.

The personnel are also often disturbed by various events, such as telephone calls, which interrupt the flow of work.

All these elements result in extra work and affect the quality of patients' treatment.

2.2.4 The organization of work

The organization of care and other activities show a poor distribution of goals, functions and tasks. The roles of individuals and units appear blurred to the actors. The distribution of tasks does not correspond to the reality of the organization. The

organizational chart does not always exist or does not clearly show hierarchical links or functions which in fact exist. When the organizational chart is formalized, often it is not respected. As a result, in certain cases, there is a shift in functions creating risks for the patients' safety.

Actors also denounce the non-replacement of persons who are absent, which is generally due to a lack of trained human resources.

Delegation can be excessive (an anesthetist nurse is left alone with a patient), creating risks and disorganization of work, or insufficient at the same time, giving the personnel a feeling of being treated like children.

Actors mention lack of protocols and procedures for care. When they exist, they are often badly formalized and harmonized, making work more difficult, especially for nurses. In some cases rules are not respected because they are too heavy or ill-adapted.

2.2.5 In-house training

The analysis of training carried out inside hospitals shows the inappropriateness of the training for the job. The provided training does not correspond to the needs of the establishment, therefore certain objectives cannot be accomplished.

Care units lack potential and specialists. In spite of requests by the personnel, training needs are not assessed and remain unsatisfied. The situation is similar for non-medical staff (administration). Continuous training is neglected. For example, secretariats do not master the information system, thus causing errors in patients' files.

2.2.6 The strategic implementation

Strategic decisions suffer a lack of communication becausethey are not clear and the personnel do not seem to know them most of the time. Even when they are known, they are sometimes challenged.

Strategic decisions are implemented with delay, they are little monitored and not communicated to all levels of the organization. There is also little communication between top and middle management. The personnel sometimes complain that some decisions are inconsiderate, notably those concerning the operations of units. The high turnover of decision-makers also impedes the implementation of strategic decisions in units.

Monitoring tools are insufficient and the shortcomings of the information system disturb the good accomplishment of activities.

Budgets and resources for strategic implementation are deemed insufficient to achieve the set objectives, and top management seems to be focused only on the reduction of costs.

In some cases the governance is considered too authoritarian, in others too lax; it is inconsistent, with little participation of the actors. Actors also underline the difficulties of the management of personnel in the public sector. The absence of

promotion and recognition does not develop commitment to the job. Evaluation and promotion modes are deemed ill-adapted and unjust. This feeling comes from the impossibility to reward (or penalize) the personnel, and from the low level of salaries.

Table 1: The domains of quality defects

MANAGEMENT VARIABLES	OPERATIONS VARIABLES
Organization of work (23,5% of key-phrases) Distribution of goals, functions, tasks Regulation of absenteeism Autonomy in work Workload Rules, procedures and protocols Organizational chart	**Working conditions (21% of key-phrases)** Premises layout Equipment and supplies Disturbances Work hours **Work atmosphere**
In-house training (7% of key-phrases) Adequacy of job-training Training needs Available competencies **Organization of Training**	**Communication-coordination-consultation (16% of key-phrases)** Information flow internal to unit Horizontal information flows Vertical information flows Information systems Transmission of information Relations with surrounding units
Strategic implementation (15,4% of key-phrases) Strategic orientation Communication and organization of strategic implementation Decision-makers Tools for strategic implementation Information systems Means for strategic implementation Personnel management **Governance**	**Time management (16,5% of key-phrases)** Respect of delivery times Planning, programming of activities Tasks not properly done Non-respect of plans **Disturbing factors in time management**

Source: Our elaboration

2.3 The cost of quality defects

After the inventory of quality defects from a qualitative point of view, their economic consequences are studied in four hospitals: A (unit of 44 persons), B (unit of 27 persons), C (unit of 30 persons), G (unit of 14 persons) with the study of hidden costs by component (2.3.1) and by indicator (2.2.2).

2.3.1 The study of hidden costs by component

Non-quality spreads through the organization and generates costs linked to its regulation. Hidden costs have been evaluated on the experimental basis by component (Table 3) and by indicator (Table 4). The results show that

establishments waste their resources in time, which is evidenced by 'over-time' (42%) and 'non-production' (30%). These components of hidden costs illustrate the time taken to regulate non-quality: search for information, non-respect of procedures and protocols, ill-designed meeting agendas, lack of evaluation of the workload, lack of delegation, etc. 'Over-pay' (14%) also reflects a waste of time due to a wrong, inexistent or disrespected distribution of tasks. They are manifested through a shift in functions (Table 2): a nurse does the work of a nursing auxiliary, a physician does secretarial work, etc.

Table 2: Illustration of hidden costs related to a shift in functions in establishment F

Nomenclature of unit costs	HCVM: 33.25 euro Number of weeks expected per year: 44.5 weeks Weekly hours: 38 hours Average hourly rate for head: 29.32 euro/h Average hourly rate for team leader: 16 euro/h
Nature of dysfunction	Shift in function in middle management
Frequency of dysfunction	Every week
Regulation	The head of unit is obliged to manage a team instead of the team leader and check the work, which takes up 10% of his time: 1 pers x 38 h x 10% x 44.5 weeks x (29,32-16) = 2252.41 euro of 'over-salary'
Sub-theme of the quality domain	Distribution of missions and tasks

Source: Our elaboration

'Over-consumption' represents 14% of all hidden costs. It includes products, supplies and office and medical equipment used to reduce a quality defect.

Table 3: Recapitulation of the evaluation of hidden costs by component in euro per person and per year

Diagnostics	Over-pay	Over-time	Over-consumption	Non production	Non creation of potential	Total
A	1 400	1 400	1 500	1 300	NE*	**5 600**
B	1 900	6 700	3 000	5 800	NE	**17 400**
C	2 700	7 800	1 400	3 600	NE	**15 500**
G	NE	2 000	150	2 000	NE	**4 150**
Total	**6 000**	**17 900**	**6 050**	**12 700**	NE	
	14%	42%	14%	30%	NE	

*NE: not evaluated

Source: Our elaboration

In the analysed unit (establishment C), for example, hidden costs represent about 36.5% of labour costs. Such a figure evidences the room for improving performance.

2.3.1 The study of hidden costs by indicator

The indicator measuring the gaps in direct productivity (52%) groups the highest amounts of hidden costs. By convention this indicator represents the costs related to quality defects which disturb the organization of work and staff. Direct productivity is an indicator which measures non-quality as the gap between standard productivity and actual productivity. Some of the main dysfunctions are: lack of access to necessary information, invoicing errors, slowness or failure of the information system, disturbances during work, execution of useless tasks, lack of interest at meetings, lack of planning, absence of work monitoring and problems met by the personnel.

The direct defects of quality (28%) show the immediate consequences on the quality of service. Among these defects we find: being unable to find the equipment, 'unjustified' repairs, incomplete transmission of information, double invoicing, poor reception of patients and planning of surgical operations.

Absenteeism (19%) implies quality defects such changes in functions and overload of work.

Table n°4: Recapitulation of the evaluation of hidden costs by indicator in euro per person and per year

Diagnostics	Absenteeism	Labour Accidents	Personnel turnover	Quality defects	Direct productivity gaps	Total
A	1 400	NE*	NE	500	3 500	**5 400**
B	2 000	NE	NE	6 900	8 200	**17 100**
C	2 600	2 000	NE	6 200	6 700	**17 500**
G	3 200	NE	NE	NE	6 400	**9 600**
Total	**9 200**	**2 000**	**NE**	**13 600**	**24 800**	
	19%	1%	NE	28%	52%	

Source: Our elaboration

Hidden costs are usually under-valued, notably because of the lack of information needed to calculate certain costs. If the global sum is under-valued, it means that costs related to quality defects are also under-valued. It would then be helpful to carry out quantitative and financial diagnostics on a regular basis and extract the costs related to insufficient quality actions. Thus the person responsible for a unit would have reasonable and reliable information to make decisions about the use of resources.

3. Analysis and discussion of the findings

The quality defects found in the operations of the establishments are mainly due to the following causes: a mismatch between the physical structure (buildings, layout) and the reception and treatment of patients (3.1), an information system which is not adapted to the organization of the medical, technical and administrative work (3.2), failures in the management of people's time and activities (3.3). The causes for the non-quality of management are to be found in the workload and its distribution (3.4), in-house training (3.5), failures in the decision-making process and the implementation of objectives (3.6). It is to be noted that no significant gaps have been found between the French establishments and the Belgian one, or between public and private establishments. It is therefore reasonable to assume that the findings would be similar for establishments in other environments.

3.1 The mismatch between the physical structure of establishments and the reception and treatment of patients

Buildings and their layout do not ensure the confidentiality of information, which is transmitted in spite of legal requirements. This quality defect damages both the establishment and the patient, as it considerably influences the relationships between the patient and the medical staff (Poletti, 1979). Although patients are normally protected by the clauses of the Patient's Charter, they suffer for example from excessive noise, heat or cold. Hospitals seem not to respect those clauses because of a lack of resources.

This lack of adaptation of the premises and of the technical means to services which are to be rendered to the patients also explains the often mentioned difficult working conditions (Bertezene, 2005). A study carried out in France in 1998 shows that the medical staff complain more and more about the physical efforts they have to make (for example: standing for too long, 66%; carrying heavy loads, 46%; having to walk long distances, 48%). In 2006, in France, 19% of labour accidents were due to carrying heavy loads and 15% to falls. Professional diseases are on the rise, especially those related to muscles and joints (Amar, Amira, 2003). They increased for example by 14.3% between 2000 and 2001, and in 2009 they represented more than 60% of professional diseases.

3.2 An inadequate organization of information flows

Strategic information is "all the data used in the decision-making process" (Joffre, Koenig, 1985)and actors use a strategic information system to gain a competitive advantage for the organization (Tardieu, Wiseman, 1996). In the case of hospitals, it seems that strategic information and the strategic information system do not exist. There is a lack of formalization which makes the transmission of reliable information within acceptable time-limits difficult.

Hospitals suffer from the compartmentalization of units and categories of personnel preventing consultation and coordination and affecting the quality of patients' treatment. The discrepancies between design functions and execution functions prevent a global and therefore effective approach to the patient (Moisdon, Tonneau, 1999), and demonstrate that the communication flows are not adapted to the organization of work.

3.3 Failures in the management of the time of persons and activities

The effectiveness of work depends on respecting plans, time-limits and a good estimate of realization times. The diagnostic of hospitals shows that quite often work is postponed and time-limits are not set. This leads to a cascade of quality defects and demotivates people. Some actors try to improve their management of time but changes in individual practices are hindered by collective practices. Hence it would be necessary to have collective learning of individual practices. The absence of commonly agreed preventive actions impedes the process of collective learning. An analysis of time in order to determine the value-adding criteria, real urgency and preferable evolution of a person's activities should be carried out (Savall, Zardet, 1995) in order to rank priorities, re-focus activities on the function and anticipate dysfunctions.

3.4 Failures relating to the management of the workload

The diagnostic shows that the workload is too heavy on the one hand and badly distributed on the other . This is partly due to the absence of a policy of care which is clearly defined and integrated into the "establishment's project" defining the role of each person and the distribution of tasks. Although medical professions are regulated by law, frontiers between categories of personnel remain blurred, hence the shifts in functions. In the hospitals studied, neither the roles, nor the interactions between functions and jobs are precise, a fact which creates professional discrepancies, bad relationships within teams and a lack of delegation and coordination.

Information about nursing care is contained in the patient's file, which is the basis for the work organization. Montesinos (1974) proposes to appoint a referring manager, whose role would be to observe the work that is done and measure it objectively. This expert would act as an interface among the categories of medical personnel, so that this approach would be understood as a means of improvement and not of control.

The evaluation of the workload and its quality can be done through a number of techniques such as the Nursing Research Project, an experiment in Quebec where an evaluation of the workload of activities, such as care activities, is taking place. The collection of information is done daily from the planning of care, acts are then numbered and classified according to tasks related to the patients' needs.

3.5 The mismatch between the training system and the needs of the units

The training provided within the studied establishments is ill-adapted, sometimes inexistent, and affects the competencies of actors. Training is an investment which can only be fully operative if it is integrated into the general policy of the establishment, the management of human resources and the organization of work with a view to improving the management of the organization and the services it renders.

Training can also aim at the development of "a general culture and a basic strategic culture" (Levy-Boyer, 1993). It should permit improved competencies in relation to individual responsibilities, so that individuals are able to react in a situation which may have evolved since the initial competencies were acquired. A number of top managers are not yet convinced that training is a tool to reduce costs, improve quality and motivation (Saint-Sauveur, 1998). The studied hospitals did not show the desire/the inclination to have training policies which would enable them to have the competencies needed.

3.6 The failures of the decision-making process and implementation of objectives

According to Desreumaux (1992), the strategic summit must ensure the link between the organization and the external environment and make strategic choices. In the studied hospitals, the strategy actors make decisions without consulting the persons and units concerned. The implementation of the strategy implies an articulation between decisions, actions and available resources. The diagnostic shows that the strategic objectives do not fit the resources available or vice versa. This situation can be explained by the lack of negotiation of means when objectives are set, a failing communication system between top and middle management, and the absence of monitoring of implementation (Savall, 1984). As a result, hospitals are unable to face the number of patients they receive in spite of an increase in the number of available beds.

Establishments have difficulties in implementing a strategy which is understood and deployed due to a lack of participation of the personnel, who are not listened to and do not have the tools and common working methods required.

4. Conclusion

The transverse diagnostic of seven hospitals has shown the stakes of quality and the importance of non-quality. Even though the results cannot be fully generalized, this study shows that quality defects both affect the management and the operations, and have an impact on the quality of care delivered to patients and on the establishments' economic performance. Management is affected by the organization of work (23.5% of the identified defects), in-house training (7%) and strategic

implementation (15.4%). Operations are affected by working conditions (21%), communication-coordination-consultation (16%) and time management (16.5%). These defects entail high hidden costs which impair effectiveness and economic performance. On the basis of the collected data, it can be estimated that hidden costs represent at least a third of labor costs. Due to the difficulty of extracting the relevant data, it has not been possible to make a full evaluation of all hidden costs, especially those originating from non-production and non-creation of potential. However, it can be assumed that they would significantly increase the global amount of costs. Further research will also investigate possible correlations between non-quality and costs: do certain quality defects generate more hidden costs than others, or are certain quality domains more affected by certain components of hidden costs?

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