# Multidisciplinarity in the Treatment Process: An Essential Element in Clinical Governance

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## Abstract:

Clinical governance includes different activities and tools that can be activated to increase problem-solving skills. The Multidisciplinarity in health care is a useful tool for problem-solving and is interwoven with other elements of clinical governance. The study underlines how different points of view and different professional approaches are able to increase the effectiveness and efficiency of the treatment process, thus increasing the quality and safety of the patient. Six professions involved in the care process of the examined structure allowed the exploration of the case study and the resolution of a management case. The analysis tests what has already been proposed in the literature and provides some useful reflections for future investigations. Qualitative analysis poses several hypotheses that still need to be deepened and tested through quantitative analyses related to the relapse of the case study.

Keywords: clinical governance, multidisciplinarity, problem solving, efficiency, effectiveness

## Introduction

Clinical governance represents a central shift in the relationship between the state and the medical (and other health care) professions (Carbon, 2005; Cusack & Sealey-Lapeš, 2000). It is also a response by the state to increasing problems with the regulation of expertise in an era of heightened consumer awareness of risk (Flynn, 2002).

The clinical governance is composed of elements Figure 1, in particular, education, clinical audit, clinical effectiveness, risk management, research and development and openness in risk management (Starey, 2001). All clinical governance activities are aimed at increasing effectiveness.

Clinical effectiveness is the measurement of efficacy, it must be expressed taking into consideration the appropriateness of the intervention and the quality/price ratio. The health services rendered must take into account medical innovations, be economically productive and efficient and must be safe for the patient (Davoodi et al., 2014). The development of new ways of working and promoting continuous improvement produce innovation. A fundamental principle of clinical governance is the ability to implement change and make it a continuous improvement, therefore not only the responsibility of the processes (Tradori et al., 2017). Therefore, it is essential to pursue a balance between innovation and responsibility. Systems and processes for responsibility should not be restrictive to hinder the development of new ways of work and continuous improvement (Peak, 2005).

Clinical effectiveness also aims to target the quality aspects of care (Tait, 2004; Taylor & Jones, 2006). All professions must feel able to change the way in providing their services, promoting effectively clinical risk management (Chiozza & Plebani, 2006; Lewis M & Noyes J, 2007). Process analysis, implementation of evidence-based and clear practices accountability system are useful tools not just for the decrease in error rates, but also to improve the effectiveness (Kavanagh, 2017). The medico-legal implications are mandatory to be respected. The operators are obliged to demonstrate their clinical practice, those who do not comply with these protocols will have to prove it by making the reasons for which the law has not been applied (Webb, 2010).

Risk management, health activity is a risky activity, so it is advisable to set up a risk management process. The risk is both for the patient and for the operator performing the performance, the purpose of this process is to minimize these risks (Cagliano, Grimaldi, & Rafele, 2011).

Risks to the organization are the low quality of service, to ensure a high quality of service it is necessary to have modern machinery, to have adequate means to guarantee privacy, to promote research(Starey, 2001). The responsibility of the health of the citizens is of the states that they must guarantee them adequate sanitary and social structures; therefore, the state should interact in strict contact with the public health (Azami-Aghdash, Tabrizi, Sadeghi-Bazargani, Hajebrahimi, & Naghavi-Behzad, 2015; Whitsel, Wilbanks, Huffman, & Hall, 2019; Wright et al., 2011). Health is a human right acquired and recognized in numerous states' constitutive laws, in addition to the existence of numerous supranational treaties aimed at gantry the health of the community (Fox, 2008; Luh, Cronk, & Bartram, 2016).

By the guiding principles dictated by the World Health Organization WHO (2011), starting from the assumption that there is evidence that a significant number of patients comes damaged by care, with consequent permanent injury, hospital admissions, increase in length of stay in the hospital and even death. So, different professionals like doctors, midwives, dentists, surgeons, nurses, pharmacists, social workers, dieticians and other operators, it may be difficult to coordinate them with the aim of to ensure safe assistance, unless the system has not been designed to facilitating timely and comprehensive exchange of information between all the actors involved in patient care. The WHO identifies in the publication that Patient Safety can be increased by knowing the theory of systems, developing awareness of guilt and then developing the culture of guilt, knowing recognizes the failures of the approach to be pursued is based on the person, having well clear what the violations may be, ensuring that the Patient Security models are respected. In order to make the whole process possible, it is necessary to develop interdisciplinarity by focusing on the whole process and the professionals involved in the centrality of the patient. Patient Safety leaders have defined it as: "A discipline, of the health sector, that applies scientific methods of safety, to achieve the objective of a system reliable delivery of care. Patient Security is an attribute of the health systems; it reduces the incidence and impact and increases recovery from events Adverse".

Applying the knowledge of in matters of patient safety in all health reactivities is achieved through:

- Establish relationships with patients;

- Understand the multiple factors involved in failures: look beyond a mistake or failure in care and understand that there may be many factors associated with an adverse event;

- Avoid blaming when an error occurs;
- Deliver evidence-based treatment;
- Ensure continuity of care for patients;

Being aware of the importance of caring for oneself: becoming aware of their state of health, if an operator is in difficulty should be encouraged to seek professional help;

Carry out the profession in an ethical manner every day. (WHO, 2011)

Clinical governance represents the context in which the different hospital professionals should also manage the clinical risk in an effective and continuously improved manner. Therefore, between the inter-

professional work, collaboration between several doctors of different specialties, coordinating manage to produce synergies, the key to making a winning team is the communication, essential to make appropriate decisions on care and to make the efficient team, the goal is an excellent clinical work of the team not of the single professional (Lamb et al., 2011).

Figure 1. The elements of clinical governance



Source: What is Clinical Governance Starey, 2001.

A growing emphasis on the work of teams of professionals in the healthcare sector generates different backgrounds to cooperate. Over time these groups have matured an ever-broader experience that they can spend on the health service. It is likely that such strong teams wish to acquire greater autonomy in order to improve the quality of their service (Kapur, McAleer, Persson, & Bjerre-Christensen, 2015).

The development of these increasingly numerous teams has also contributed to the development of clinical governance because it is essential to have various and shared rules in order to guarantee the best service for the patient (Wright et al., 2009). Currently, some laws regulate the interactions between professionals in different cases, all of them aimed at protecting the well-being of the patient, but, no standard rules are governing Multidisciplinarity (Elissen AMJ, Van Raak AJA, & Paulus ATG, 2011). All professionals involved in Multidisciplinarity processes are, however, obliged to respond legally to their activities as well as to medical professional responsibility, represented by competence, conscientiousness, prudence and devotion, and therefore ethical principles and associated moral values (Toader & Damir, 2014). In addition to the responsibility of each operator during the breastfeeding of the patient, it is necessary to take into account the hospital corporate responsibility, the hospital must supervise the work of its professionals and also has the task of providing the professional with everything necessary to ensure an appropriate intervention, in terms of training of staff and equipment (Hollowell, 1982).

It is widely believed that teams provide better care than those who work in isolation (Firth-Cozens, 2001).

The research aims to confirm the following hypothesis through the use of a case study and the objectives that the paper sets out are:

1) Confirm that Multidisciplinarity can be a risk management tool in clinical governance

2) Demonstrate that Multidisciplinarity and specific skills increase problem-solving leading to an increase in effectiveness and efficiency on the system and on the patient.

The case study takes into consideration the operating rooms inside the Pugliese Hospital in Catanzaro (Italy). The hospital deals with the treatment of highly complex diseases and, thanks to the presence of specific skills, even of pathologies that require high specialization, moreover, it is a provincial and regional reference point in the management of emergencies-urgencies and the relative continuity diagnostic-assistance for adults and small patients. The case study is based on clinical governance to relate to

multidisciplinarity, analyzing the different points of view of each pre-operative activity involved in the patient care process inside the hospital structure.

The following chapter describes the methodology applied to which follows the case study which analyzes the organization of the reference hospital taking into account the description of the points of view of the many professionals involved in Multidisciplinarity and clinical governance. In the discussion through the use of a case study, it is possible to identify how multidisciplinarity allows better problem solving and higher capacity in the process of clinical governance. The last chapter answers the research questions based on the case study analyzed.

### Method

The study was conducted through a case study, in particular, the management of the operating rooms of the "Pugliese Ciaccio" Hospital in Catanzaro (Italy) was analyzed. In the case study analysis, it is not possible to control the context, but it is possible to analyze the main characteristics (Benbasat, 1984, Yin, 1994). As such, case study enables a researcher to study contemporary phenomena in a real-life setting, where boundaries between context and phenomenon tend to be blurred (Stake, 1995; Yin, 1994). The analysis was conducted through the involvement of some authors in the process of mapping, analysis and problem solving of the problem encountered. In order to verify the problem-solving capacity and the fallout of the Multidisciplinarity approach within the risk management system were involved: a general surgeon, a pediatric surgeon, an anesthesiologist, a hospital pharmacist, a coroner, a psychiatrist. The analysis was conducted with semi-structured interviews presenting the problem analyzed. The interviewed actors are also authors of the article and have assisted the analysis in the revival of the relapse and of the process outputs.

To ensure the validity of case studies, data were collected through the presence and direct observation and presence during the internal meetings aimed at analyzing the case study. Furthermore, the triangulation guarantees the results relative to the collected elements. The data are original, and the case study and the analyzed sample presents elements that cannot be modified (Silverman, 2005, page 225). The flanking of qualitative analysis around the case guarantees the veridicity of what is expressed and analyzed (Glasser & Stauss, 1967). External validity is possible because of the characteristics related to the document. The generalization of research results in similar contexts is possible through the analysis of the elements (Eisenhardt, 1989). The analysis and the treatment were conducted taking into consideration also reliability as the scholars usually would need to do when talking about case studies. "Reliability" refers to the absence of random error, enabling subsequent researchers to arrive at the same insights if they conducted the study along the same steps again (Denzin & Lincoln, 1994). Transparency and the methodological approach of analysis and the replication of the case study analysis (Leonard-Barton, 1990).

#### Discussion

The study begins with the analysis and management of the staff in the operative block. The optimal management of an operating room is a set of activities aimed at maximizing the efficiency of the hospital, in other words, the increase in clinical cases that can be faced daily with the simultaneous minimization of the required resources, the related costs, and the clinical risk.

The health systems are increasingly relevant to these aspects as they are part of the process of corporatization started at the end of the 1990s. In our healthcare system, therefore, the decisions made in the organizational and operational fields are becoming increasingly important: the operating activity is rationalized by making maximum use of human and structural resources in order to increase efficiency and keep costs down. This process is taking place following the recommendations coming from the Ljubljana Charter; a document signed on 19 June 1996 by the Health Ministers of the member countries of the World Health Organization.

The basic principles of this card are:

- A. the accountability of the actors;
- B. the qualification of the structures;
- C. the activation of continuous improvements in the quality of the service;
- D. performance verification;
- E. the equation between public and private health structures.

The basic principles for managing change (Adeleye, Sule, & Tobun, 2014), correlated with risk management and clinical governance are therefore illustrated in the document, and among these we find:

- 1. pay attention to citizens' opinions;
- 2. remodel health processes;
- 3. reorganize human resources;
- 4. strengthen managerial skills.

The context is represented by the operating block of a large regional Hub in which different professional figures work (doctors, nurses, Oss) whose objective is the execution of surgical interventions in safety. The context involves the simultaneous presence of the following actors: surgeons, nurses, anesthesiologists and other health workers (radiologists, engineers, healthcare workers, etc.).

The management of an operating block must necessarily take into account the need to organize the activity of these professions at the same time, with the aim of maximizing their efficiency. It is, therefore, necessary to have an overview of the problem: it is not enough to organize each of the categories efficiently and individually to achieve the optimal configuration of the operating room, but the activity must be planned to take into account the interactions and relationships between the operators and evaluate the possible configurations. This problem, together with the growing attention paid to the high costs of the operating room, requires the presence of professionals who deal with this aspect.

Hence the need to simultaneously organize the activity of three or more professions, with the aim of maximizing efficiency. Therefore, the responsible Medical Director is to evaluate the structural complexity of the Programming Unit and at the same time the desired level of presence according to the volume of activity required.

In our opinion, the optimal configuration of the operating rooms must always be seen in a dynamic perspective, since elements that are not wholly predictable are intersected in the so-called "routine" work (e.g.: emergencies, maxi urgencies, sudden absence of personnel, presence of personnel in training, unforeseen unavailability of one or more operating theaters). Now, to achieve the optimal configuration of the operating block, it is necessary to plan the activity taking into account the interactions and relationships between operators and evaluate the possible configurations. The aim is to plan activities not only for short periods (to cope with unexpected events and individual cases) but also for the medium and long term in order to standardize operations and the quality of the service offered.

On the other hand, a decisive role is played by the satisfaction of the operational staff, as it makes the work environment more comfortable and can act as an index to measure the quality of the structure's work.

The use of operating theaters is mainly conditioned by four factors: the availability of rooms, surgical interventions (in election or urgency/emergency), surgeons and nurses. The most significant difficulties arise right here, namely the need to organize the pre- and post-operative phases, the unpredictability of the operating times themselves, the coordination of different professional skills, the planning of interventions in response to multiple needs.

Furthermore, the progressive growth of the patients' clinical severity must be taken into account, who are increasingly attentive to the level of health care offered to them in the face of a greater awareness matured by mass media that with increasing frequency and intensity face these issues. For this reason, in the context of management of health processes, it should always be kept in mind that the primary goal is patient care, which must be ensured an adequate level of service, and from here start with the subsequent analyses to improve the efficiency of the health structure. The aim is, therefore, to plan activities not only for a short period, facing unexpected events and individual cases but also of a medium-long term, in order to standardize operations and increase the quality of the service offered. However, efficiency brings with it a change generated by change and influenced by:

- Staff reduction
- New professional skills
- Changes in the skills system
- Request for high professional qualification
- Greater awareness of the role.

So, everyone's work is seen as a fundamental resource in the organization and people as a distinctive factor of competition. On the other hand, there is no doubt that the quality of the results is often provided by

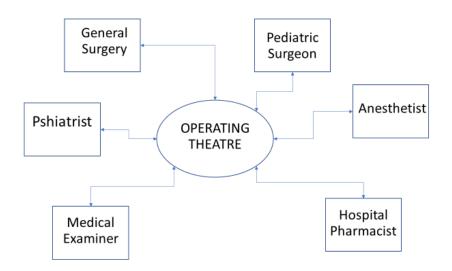
professionals who, through their commitment and their work, also make up for structural weaknesses and operational difficulties. Therefore, in organizations, the foundation must be the centrality of the valorization of people.

The participatory model (Group) is the best strategy to deal with the relationship between capital (top management) and work (Reina, 2008).

All those involved in the growth processes of the Organization end up determining the effects and overall performance, so much so that the Organization previously defined as "a set of stable social relations created to achieve lasting goals and specific objectives" (Stinchombe, 1965) becomes "a container of knowledge related to company activities, temporarily embodied in employees at a given time" (Baum-Singh, 1994). Several problems have been found that affect the efficiency/effectiveness of the activity.

In order to solve the problems encountered, it is possible to exploit professional Multidisciplinarity. Each figure indicated is essential within the clinical process Figure 2., in particular, the general surgeon plays the role of operating in surgery abdominal cavities in addition to the breast and thyroid gland, whose goal, moreover, is to cure or improve the prognosis of diseases affecting these organs. The pediatric surgeon is responsible for surgical operations in children and infants. The anesthetist has the primary task of administering drugs to sleep the patient who will have to undergo surgery. Before the operation, it has the task of assessing the patient's cardiological risk and formulates a treatment plan considering the clinical status of each patient. During the operation, the anesthetist will also check the patient's state of health for the duration of the operation; his operation is therefore strictly related to the work of the general or pediatric surgeon. The hospital pharmacist in addition to the production and distribution of the drug has the central role of the pharmacotherapy intervention aimed at healing or at least at the best quality of life for the patient; its function is continuously connected with the patient's stay in the hospital and other professional figures. The coroner performs his services in case of medical error, going to identify the error by preparing an expert report, performs a task then also of a legal type, the interaction concerning other professional figures takes place in case of errors. The psychiatrist deals with the prevention and rehabilitation of patients who have a mental illness have the task of selecting the type of analysis and therapy more effective and suitable for the patient.

Figure 2. The professions involved in the management and management of the operating theatre.



Source: own production

## a. Point of view of the General Surgeon

The complexity of an operating room is the set of professional figures that should be coordinated with each other to reach a level that must be optimal. For the Surgeon, in addition to the modalities and types of interventions to be carried out, both urgently and in the election, he focuses on the need for professional

training that can make the staff members of the company autonomous and motivated in the future. This is the basis of the target to be able to then improve in everything else. Motivated staff, improvement of quality and quantity, improvement of professionalism lead to a team that has the pleasure of sharing daily experiences with enthusiasm and "passion." If this is achieved, with the help of modern technology and the latest generation of surgical devices, a gradual and increasingly professional organizational path can be started by proposing Multidisciplinarity meetings and reasoning on the solutions of the critical issues that are to be faced and improved. A margin for optimization and standardizing procedures.

Criticality in General Surgery:

• the changeover times between one intervention and another are variable but always long in order to optimize the available time;

• staff not "motivated" for various reasons (economic, working time, work stress, environmental incompatibility, etc.);

• nursing staff dedicated to the management of that specific surgical specialty or similar (e.g., General Surgery - Vascular Surgery - Senology Surgery - Plastic Surgery) in small numbers;

• Surgeons who are not motivated for various reasons (do not feel taken into consideration, do not feel valued, have lost the 'desire' to do surgery, past experiences of malpractice that has blocked them professionally, etc.);

All he has listed is based on both medical and paramedical personnel and are, in my opinion, the main critical issues. There are others, but they are secondary to those listed so if the main ones are solved automatically the ones connected to them are solved.

# b. Pediatrician Surgeon's point of view

The pediatric surgical path in the operating block is carried out in two ways: in election and emergency, with the vast majority of the interventions carried out in the day surgery regimen (election with same-day discharge). The problems related to this path are based on the specific characteristics of the pediatric patient, who requires special assistance and their facilities, such as a dedicated operating room, a waiting room in which parents and patient stop before the surgical procedures and interact with the health. In day surgery, the particular brevity of the procedures would allow in theory the insertion of many interventions in a single session (operative session). Unfortunately, despite this, it is not possible to perform more than 4-5 interventions for some reasons that have been identified in:

- delay at the beginning of the interventions

- the excessive gap between one intervention and another

Another problem is that the presence of dedicated personnel (that is specialized in the nursing management of the newborn / infant) is not always assured. This may result in a further increase in the time required to perform the procedures and - in extreme cases - an increase in surgical risk.

The presence of personnel specific to the branch increases the motivation of the staff, while on the contrary, the unskilled staff tends to show reduced interest and, in the long run, demotivation.

## c. Anesthetist's point of view

The anesthetist doctor takes care of the entire surgical procedure of the patient, pre-, intra and post-operative. In this process, it must necessarily be assisted by dedicated and trained nursing staff.

Many large hospitals not only do not have those professional figures trained and dedicated to anesthesiologic/intensive nursing but also entrust highly skilled "professionalizing" tasks to highly qualified staff (such as the preparation and storage of material and tools). Surgical procedures that suitably trained personnel should take care of in the figure of the Healthcare Professional Operator (OSS).

The professional nurse, assisting the anesthesiologist in fact:

1. It will take care of the patient in full, giving the possibility to the doctor to manage the Anesthesia procedure in maximum safety (pre-operative assessment, assistance intraoperative and weaning / post-surgical rehabilitation, control of vital parameters and consciousness and pain control);

2. Will take care of the preparation of drugs according to medical prescriptions;

3. Will take care of patient monitoring in conjunction with the doctor.

4. Collaborate with the doctor to problem-solving in case of criticalities/urgencies that will be required to ensure greater resolution success.

The absence or the severe use of personnel, together with the lack of formation of the same, represent a severe problem that affects the proper functioning of the perioperative clinical-care system. The delays in preparation (medical examination, collection of surgical and anesthetic consensus, finding of vascular access), delays in the preparation of the anesthesia trolley, delays in patient positioning and induction of anesthesia, has inevitably and negatively affect the start times of the actual surgical act; in the same way, delays in the resolution phase of anesthesia will have an adverse effect on the transition time to the next intervention. The same critical issues will undermine the safety and quality offered to users.

### d. Point of view of the Hospital Pharmacist

The errors that occur in the drug therapy process are the primary cause of medical errors in the hospital (Kohn et al., 1999). The safety in the clinical process of the drug is a problem widely recognized in all national and international literature and today, alongside quality procedures that regulate the path of the drug, the strategy that can give the best results is unquestionably the implementation of the use of technological systems for the management of drugs and medical devices.

The digital technologies applied to the management process are designed to ensure an improvement in the quality of the processes through the introduction of modern management and control systems that allow a precise and reliable retrieval and management of assets, total traceability and reliability of the logistics flow. The automation of the processes has the purpose of overcoming the repetitive manual activities, in which human error is more easily found, to guarantee the traceability of the prescription, of the delivery and the administration, of optimizing the stocks.

Proper management of medicines and medical devices in hospitals allows always to have available all the resources necessary to ensure adequate assistance, avoid excessive stocks and presence of expired products in the ward and prevent adverse events, particularly in use of defined high-risk drugs.

The drug and device management process can be improved through different technical choices, such as computerization of processes and the installation of computerized cabinets. The digital technologies applied to the drug and medical device management process are aimed at overcoming repetitive manual activities, in which human errors are more readily found; guarantee the traceability of prescription, delivery, and administration; optimize stocks. The use of electronic cabinets allows the reduction of intervention times with optimization of the use of staff, more appropriate management of clinical risk and the maximum versatility of operating theaters.

The experience of computerized management of medical devices in operating theaters is watched with increasing interest, also for the responsibilities and costs that this management implies. To date, the experiences implemented are with computerized cabinets that have a particular structure for the management of room devices, including surgical instruments and prosthetics. Through the adoption of electronic lockers, the patient can be recognized through an identification code (barcode), reported

On an electronic bracelet, to which will be associated with a medical record, a prescribed therapy and the procedural kits of medical devices, necessary for the surgical intervention to which the patient will have to undergo. Pharmacists will load the cabinets with the basic kits, also equipped with an identifying bar code, to guarantee each patient the correct dose of the drug in a single sachet and the necessary medical devices.

The user performs all the operations of interaction with the system, from the login to the patient therapy display to the printing of reports in real time. Thanks to the direct interface and the use of touchscreen technology, the appropriately authorized personnel will be able to take prescribed drugs/procedure kits in a few seconds and quickly enter data. Also, at the time of access to the system, all transactions such as patient name, patient clinical data, description and amount of drugs taken, are automatically recorded and transferred to the pharmacy console to update the stock.

The composition of the enclosures of the computerized cabinet is freely configurable and makes it possible to manage the content according to targeted control logic (single dose, single article) or in procedural kit mode, created according to the clinical treatment to be performed. The system is expandable, flexible, modular and allows the housing of all sizes of catheters, stents, flasks for counter-impulses, introducers and guide wires, ensuring complete traceability of uses and an always updated inventory.

The withdrawal times from the moment of product selection are almost immediate. This rapidity ensures prompt intervention and makes it possible to use these computerized systems in critical areas such as

operating theaters. In particular, in the operating room mode, in addition to the consumption per patient, details on specific clinical practice are recorded, staff present in the room, duration of intervention and service. Another cost-effective use of computerized wardrobes is the management of medical devices in the operating room, where controlled access and traceability are essential elements for the management of often costly devices.

The real-time knowledge of consumption and stocks will also make it possible to optimize inventories of pharmacy and the various local warehouses, also allowing the monitoring of the use of drugs and medical devices in the operating block.

It will be possible to manage in real time the prosthetic material present in the operating block with:

- real-time control of the inventory of the prostheses in the operating block;

- control of the effective use of prostheses to avoid discrepancies between the material used and the material charged

The appropriateness of inventory re-ordering requests will significantly reduce the number of urgent requests, making the workload of both designated nurses and pharmacists more uniform.

In Pharmacy it will become possible to know and analyze, in real time, both the inventory and the consumption of the operating unit. Consumption can be analyzed up to the individual patient level as well as a single user.

The inventory reorganization procedure (management of the underbody) takes place automatically without requiring intervention by the department staff. The procurement requests will always be updated and related only to the strictly necessary products and quantities needed by the department (optimization of supply). This automatism avoids loss of time between when the sub-key is reached and the signal at the U.O. of Pharmacy.

In conclusion, through the installation of computerized cabinets, different objectives can be achieved:

# 1. Clinical:

- reduction of transcription/interpretation errors;
- greater control over therapeutic profiles;
- reduction of administration errors and related adverse events;
- control and traceability of therapy and medical devices;
- The possibility of integration of data related to treatment within the medical record.

• Product rotation ratios, expiry dates, production batches, item codes, and obsolete items are documented and managed.

• Reduces inventories concerning value and size.

# 2. economic and logistics:

- optimization of pharmaceutical spending;
- real-time control and reduction of the quantities of general and departmental warehouses;
- total traceability of drugs from the pharmaceutical warehouse to the ward/patient;
- total traceability of the flow of drugs and devices (warehouse/patient);
- It helps control procurement processes;
- Helps to create more effective reorders and improves make-up processes.

# 3. Administrative

• quantification of individual patient expenses;

• allows the allocation of material uses to the various hospital departments in a particular and detailed manner.

The Multidisciplinarity and multidimensional approach emerging from the adoption of the HTA tools can be used to provide an answer to the current problems of optimization of investments involving the health structures, perpetually under the economic pressure dictated by technological evolution.

# e. Point of view of the Legal Doctor

The role of the coroner in this context is the management of clinical risk aimed both at preventing avoidable errors and at limiting their possible harmful effects, and, therefore, at guaranteeing patient safety. The prevention and protection methodology used makes use of a reactive approach that starts from an adverse event and reconstructs the sequence of events backward in order to identify the factors that have caused or contributed to the occurrence of the event. A proactive approach that starts with the review of existing

processes and procedures, identifying the critical points at different stages. This approach can also be used in the design and design of new procedures, processes, and technologies to create protective barriers that prevent error.

The operating room is statistically one of the healthcare environments with the highest levels of clinical risk and risk related to workplace safety. Among the risks that occur, there are those related to communication, to the identification of the right patient and the right place, to the infectious risk and the retention of the material in the surgical site. Communication in the operating theater is an aspect that might seem secondary, but which is essential for peaceful and functional activity. Company choices depend on an effective communication process, and the same is directly proportional to the choices of professionals, both in the strategic and implementation fields. The operating team - and therefore the patient - depend on information, which must be documented, verified, signed and shared. Interdisciplinary communication must be promoted at all levels; every operating room professional must communicate every single data, including errors and critical issues.

It is related to the surgery, whether referring to the patient, another operator or surgery.

The decisions in the operating room also depend on those of the relative operative unit. Therefore, before any intervention, but also in the intro and the post-operative, the information flows between the two sectors must be precise and constant.

The security tools, such as briefing (short comparison), focus group (common methodology of social research), clinical audit (systematic comparison of care) constitute an essential opportunity for internal communication.

An essential tool for communication is the communication plan in the operative unit and for the management of relations with the other operative units and the involvement of all the staff. Its elaboration constitutes an opportunity for comparison and analysis of the activities of the operative unit and therefore allows already an improvement of the activities themselves as well as interpersonal and group relationships.

The elaboration of the plan favors the comparison on all the problems connected to it, the sharing of guidelines favors the operational synergy, in particular, the interprofessional one and the discussion of the single case allows a deepening of the options. The value of communication with patients and family members as a tool for gathering information, and in particular its priorities and expectations, but also participation and education, in an integrated and coordinated way among operators, must be a central aspect of the plan.

The communication processes within the team in all phases of care profiles must be designed, with the introduction of appropriate methods and tools; particular attention must be paid to the information system and to both the verbal and written procedures for transferring deliveries.

The most frequent methods and tools for organizational communication include meetings, documents containing guidelines and procedures, circulars, minutes and reminders.

It is useful that the implementation of the plan has feedback with monitoring over time of the impact of the corrective measures introduced, such as the application of protocols and checklists, elements of growth for the organization and useful risk prevention tools in surgery because it increases staff motivation and trust in the system.

Therefore, the effectiveness of interpersonal communication and the degree of collaboration are critical factors for the success of the interventions and the reduction of related risks.

Finally, training confirms an indispensable tool for inducing change and creating a culture of safety for all the operators involved. Strengthening the skills of professionals through training activities, contextualized and centered on training needs, promotes in healthcare professionals, at any level, the awareness of the importance of their role in promoting the appropriateness, quality, and safety of care.

f. Psychiatrist's point of view (The Unlocking of the Operating Block)

If the topic of interest is the management of personnel in an operating block with the target of optimizing the clinical assistance pathways for increasing safety, considering among the objectives the increase in volumes (patients operated), the reduction of costs and minimizing resources:

• To make a careful and meticulous analysis of the type of request and demand made (very often many solutions are hidden in the premise and even more often the solutions are not found because the questions are poorly formulated and much more).

- Take the careful and meticulous analysis of the group context from the historical, cultural point of view
- Follow two principal directions: System and individuals
- Know the constitutional status of the group system
- Consider its positioning and horizontal and vertical ratios with other subsystems
- Consider in what basic assumption it is and its emotional state
- Consider time and space factor
- Consider the phase in which the group of its life cycle is located
- Actively listen to the group and individuals
- Analyze the profile of people by identifying temperaments and character notes, values and beliefs
- Map the emotional intelligence of the individuals who are part of it
- Map the potential of individuals
- Map adaptation skills and test the degree of resilience of the group and individuals
- Identify the group leader, leader, and eventual eminence
- Trace communication styles

So, draw a map as accurate as possible of the critical issues, obstacles, resources, strengths of the group and also of individuals who participate, identify any bad apples. Traced a suitable design of intervention has already acted as it has already traced the goal well prepared and written following the rules of SMART.

• All members of the group need to look more or less towards the same direction and with the same goal and purpose

- We need to act on intrinsic and extrinsic motivation
- Communication channels must be activated

About staff motivation, recipes are not so complicated because they dwell in the old mechanisms of communication and emotional management.

As far as tracing procedural models helps, protects, efficiently, as far as predictive algorithms are followed and result from evaluation with numbers applied, they represent all means whose ultimate goal is to optimize the Service, but nothing is obtained if it does not induce the worker to go to work with a smile. It is wellness and its gratification that makes you go to work with a smile. This is the most potent conditioning of self-realization.

This simplification has its biological correlation in the self-generation of pleasure molecules, such as dopamine, which induces one to seek gratification. The release of dopamine leads to get up with desire and motivation in the morning and go there in that place because the professions have something to do, something that makes and that is in line with values and beliefs that gives a sense and a direction and value to identity.

When working in harmony and with the pleasure of doing things, time runs faster and weight becomes light and attention is kept more in time so that concentration is always at the top, the risk of error is reduced, and safety increases and it is possible to do more interventions in units of time with increased volumes in safety. So, we need to bring people into Flux by making them feel like individuals in a group. One is in flow (Flow) when one is present in what one does, one is there in the here and now and yet one is in contact as well as oneself with the whole system.

To recreate well-being, it is also necessary to act on the climate of the system so that it can turn into a more cooperative and competitive climate, work hard on the sense of belonging to the system and make individuals feel part of the system. Identify positions, clear and well-defined roles to people and professionals so that they can form a working group, act on the flexibility and resilience of the system itself, discover the self-contained basic assumptions and empowering resources, always remembering that the system is more and more than the sum of the individual parts.

All this must be evaluated with test doses, scales at individual and group level at time zero, t1 and final in order to evaluate the outcomes of the intervention and number how much the staff management intervention has influenced the achievement of the objective of the efficiency of the service with increased security.

It is the own Set Mind that conditions individuals and their actions, they are the learned or consciously chosen conditioning that lead to action, we need to act on the emotional intelligence of individuals to change the direction of groups and give new life and dynamism to the group itself remembering that even a working group can be powerfully therapeutic for the individual.

It is necessary to teach to give small regenerating gestures because it is from the first step that one begins to walk and if the leader, the leader, the manager enters to work with a smile, for the group, besides being another story, of course, will be much more likely to meet a more efficient and secure future.

The concepts of quality assurance are of fundamental importance the clinical audit with the aim of pursuing the improvement and monitoring of the provision of health care (Georgiou & Pearson, 2002). Different solutions are proposed which vary according to the professionals involved because from the emanated theory different cracks emerge; the Multidisciplinarity can lead to an unclear and timely communication, the adequacy of staff training and the necessary material for surgical interventions.

• Improve communication through staff briefings/audits/ meetings involving the various specialist working groups. These tools allow stakeholders to communicate effectively at different levels, making critical issues, mistakes, and possible solutions are known (Griffiths, Noon, Campbell, & Price, 2003)

• Change working time (starting nursing work at 7.00 instead of 8.00)

• Reduction of waiting times between one intervention and the other with the start of operations at 8.00. Regarding this point, the operating programs must follow the ministerial guidelines and adhere to precise deadlines (the presentation of the weekly programs must take place at least seven days in advance, the daily schedule by noon on the previous day). In order to provide effective and productive healthcare that takes into account the clinical aspects of the individual user and business needs. In this sense, it is also possible to reduce waiting times between one intervention and the other with the application of company procedures and internal rules

• Computerization of procurement procedures and preparation of virtual cabinets with preformed kits for individual interventions (sterilization service outsourcing)

- Continuous training of the personnel of the sector
- Training through delegation
- Anesthesia nurses

Identification of a strategic plan includes coordination of more professionals and the action plan with the strengths and limits encountered.

The proposed strategic plan is aimed at improving the well-being of staff because it is associated with better patient care; it is recognized that the provision of Multidisciplinarity care is proportional to the effectiveness of teamwork. Therefore, organizing professionals in teams with appropriate professional skills improve the welfare of professionals and thus decrease the likelihood of error (Ahmed, 2019).

In the search for solutions to the problems outlined above, we have oriented ourselves according to a twofold criterion: one linked to one's own "direct experience" of operators in the sector and one linked to HRM (Human Resources Management) experiences, in which specific literature identifies some cornerstones among which the work of Shantz A. (Alfes, Shantz, & Arevshatian, 2016). In this study, the HRM practices and the performances of different working groups are analyzed. The results highlight the extreme importance of the use of engagement and empowerment techniques in personnel management, associated with continuous training and effective communication between the various levels.

The continuous training of employees naturally leads to greater commitment with consequent higher levels of organizational effectiveness and efficiency, associated with an increase in safety and quality, helping to reduce human error. Finally, training leads to a better perception of one's role and self-image.

The second level of the approach according to the techniques of HRM involves the implementation of individual development programs, which offer staff the opportunity for professional growth, not only to achieve results through their work. It is also essential to learn how to manage the "emotional fatigue." Which translates into a greater commitment to the institution of belonging (in this case" Hospital ") with performance over time.

The third approach involves the involvement and participation of employees in decision-making processes concerning their work as a resource to stimulate autonomous and quality-oriented behaviors. Structuring these opportunities with different tools (audits, briefings, etc.) reinforces the sense of engagement and responsibility towards one's work.

The fourth cornerstone is represented by effective communication between managers and workers focused on the objectives of all personnel, aimed at developing greater awareness of their role and activating

precious emotional resources that strengthen the involvement (empowerment) of individuals concerning the strategic objectives of the organization.

Considering the above considerations, we can state that the integration of this process indeed leads to an improvement in the quality of the services offered to patients. Not negligible, they can certainly translate into growing professional skills (valorization of merit, provision of performance bonuses achieved by individuals and organizational units in a field of rights/duties). The central point, however, is the satisfaction of the recipient's interest, i.e., the patient, who must be satisfied with the services described above. After the strengths of the model are measurement and evaluation of the performance element fundamental to measure the work, it must be prepared in qualitative and quantitative terms.

From the negative point of view, on the other hand, the blocking or delay of the turnover of the staff involved was found. The application of this process could create application uncertainties (personal interpretation of the standard). Of central importance is the incentive system that in this model is weak to be stimulated, the worker must be subjected to incentive and reward systems to stimulate interest.

Other aspects of non-simple implementation are the overcoming of difficulties in communication (with and between Operational Units and with the staff belonging to the Block);

It is necessary to have explicit objectives/indicators (use of result indicators that do not consider other added values, for example, the performance indicator ". The number of hours of operation / N. total hours of the session" underestimates essential variables such as the use of new technologies, which often require more time of realization), the positioning of the patient, presence of operators in training at the operating table, etc ...).

### Conclusion and remarks

The orientation of this process of integration between clinical governance and Multidisciplinarity is the "modernization" of professional self-regulation. Policies on health harmonization at European and national level are becoming major imperatives for the training and education of health professionals (Todorka, 2011). Medical health professionals must become more open and accountable for their clinical performance

and will be asked to share the results with their medical director. These data will also be evaluated to be able to check the actions of the doctors and the quality of their services. The unit for quality improvement and greater professional responsibility must be managed entirely and systematically and has a statutory duty has been made.

From a theoretical perspective, clinical governance is not the governance Ned (Rhodes, 1997) as 'governing without government,' based on self-organized inter-organizational networks having signed.

Healthcare personnel continues to be the most important resource within the organization. The risk must be managed through resource planning and organization; implementations of ICT tools must be taken into account (Mora et al., 2017). Staff training is still a tool connected to the ability to work in an equal capacity and problem solving. Leadership skills and the appropriate training of managers must also include the ability to create an organization and a system able to enhance the human resources available and exploit the specific skills (Bert et al., 2016; Brescia et al., 2016). Considering what has been analyzed, it can be said that Multidisciplinarity has a positive impact on the favorable resolution of clinical cases and is a means of pursuing effectiveness and efficiency. Multidisciplinarity can be considered a link between all known processes of clinical governance. The case study is marginal but can be extended and applied to all hospitals that are similar to the pedal taken into account. The objective underlying the above analysis is to pursue effectiveness and efficiency by the clinical process increasing patient safety and quality of service (Biancone et al., 2017).

The study is limited to one case. It should be re-examined in other departments to confirm the deductions. Despite this, the results of the study are replicable in all hospitals in Italy, organized according to the same structure and protocols defined by the Italian Ministry of Health with lawn. 833 of 1978 and subsequent updates.

Future analyses could be based on the effects on the governance and the hospital company of the introduction of departmental meetings. Will they be able to solve the problem of induction definitively? Is a

standing committee made up of several disciplines able to increase the effectiveness of risk management in clinical governance? Up to what number the involvement of different professionals is able to increase efficiency and effectiveness also linked to management times?

#### **References:**

- *i.* Adeleye, I., Sule, A., & Tobun, S. (2014). Managing Change in Health Care: A Case of UTHI. South Asian Journal of Business and Management Cases, 3(2), 139–147. https://doi.org/10.1177/2277977914548345
- *ii.* Ahmed, I. (2019). Staff well-being in high-risk operating room environment: Definition, facilitators, stressors, leadership, and team-working—A case-study from a large teaching hospital. International Journal of Healthcare Management, 12(1), 1–17. https://doi.org/10.1080/20479700.2017.1298228
- *iii.* Alfes, K., Shantz, A., & Arevshatian, L. (2016). HRM in healthcare: the role of work engagement. Personnel Review, 45(2), 274–295. https://doi.org/10.1108/PR-09-2014-0203
- iv. Azami-Aghdash, S., Tabrizi, J. S., Sadeghi-Bazargani, H., Hajebrahimi, S., & Naghavi-Behzad, M. (2015). Developing performance indicators for clinical governance in dimensions of risk management and clinical effectiveness. International Journal for Quality in Health Care, 27(2), 110–116. https://doi.org/10.1093/intqhc/mzu102
- v. Baum, J. A. C. and J. Singh (1994), 'Organizational hierarchies and evolutionary processes:
- vi. some reflections on a theory of organizational evolution,' in J. A. C. Baum and J. Singh (eds),
- vii. Evolutionary Dynamics in Organizations. Oxford University Press: New York.
- viii. Benbasat, I. (1984). An analysis of research methodologies. In F. Warren McFarlan (Ed.), The Information systems research challenge (pp. 47-85). Boston, MA: Harvard Business School Press.
- ix. Bert, F., Brescia, V., Gualano, M. R., Puddu, L., & Rainero, C. (2016). Aziende sanitarie e gestione del "cambiamento": la formazione del personale. Sanità pubblica e privata 8–21.
- x. Biancone, P., Tradori, V., Brescia, V., & Migliavacca, A. (2017). Quality and control in the healthcare: a win-win mix?. International Journal of Business and Social Science, 8(7), 221-228.
- xi. Brescia, V., Rainero, C., Puddu, L., Gualano, M.R., Bert, F., (2016). La formazione come strumento di management in sanità. SVILUPPO & ORGANIZZAZIONE 56–67.
- xii. Cagliano, A. C., Grimaldi, S., & Rafele, C. (2011). A systemic methodology for risk management in healthcare sector. Safety Science, 49(5), 695–708. https://doi.org/10.1016/j.ssci.2011.01.006
- xiii. Carbon, C. (2005). Continuing professional development and clinical governance: the role of scientific societies. Clinical Microbiology and Infection, 11(s1), 24–27. https://doi.org/10.1111/j.1469-0691.2005.01086.x
- xiv. Chiozza, M. L., & Plebani, M. (2006). Clinical Governance: from clinical risk management to continuous quality improvement. Clinical Chemistry and Laboratory Medicine (CCLM), 44(6). https://doi.org/10.1515/CCLM.2006.127
- xv. Conception for building up a Multidisciplinarity team as educational technology. (2011). Procedia Social and Behavioral Sciences, 28, 739–742. https://doi.org/10.1016/j.sbspro.2011.11.136
- xvi. Cusack, L., & Sealey-Lapeš, C. (2000). Clinical Governance and User Involvement. British Journal of Occupational Therapy, 63(11), 539–546. https://doi.org/10.1177/030802260006301107
- xvii. Davoodi, R., Soltanifar, A., Rahmani, S., Sabouri, G., Hoseini, M. Z., Takbiri, A., & Koleini, F. (2014). Clinical Governance: Efficacy of Establishment in Mashhad Hospital, 2(1), 5.
- xviii. Denzin, N. K., & Lincoln, Y. S. (1994). Handbook of qualitative research. Thousand Oaks & London: Sage.
- xix. Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14, 532-550.
- xx. Elissen AMJ, Van Raak AJA, & Paulus ATG. (2011). Can we make sense of Multidisciplinarity co-operation in primary care by considering routines and rules? Health & Social Care in the Community, 19(1), 33–42. https://doi.org/10.1111/j.1365-2524.2010.00946.x
- *xxi.* Firth-Cozens, J. (2001). Cultures for improving patient safety through learning: the role of teamwork\*. Quality in Health Care : QHC, 10(Suppl 2), ii26–ii31. https://doi.org/10.1136/qhc.0100026..
- xxii. Flynn, R. (2002). Clinical governance and governmentality. Health, Risk & Society, 4(2), 155–173. https://doi.org/10.1080/13698570220137042
- xxiii. Fox, D. M. (2008). Public Health & Human Rights: Evidence-Based Approaches. JAMA, 299(13), 1609– 1610. https://doi.org/10.1001/jama.299.13.1609

xxiv.	Georgiou, A., & Pearson, M. (2002). The role of health informatics in clinical audit: part of the problem or
	key to the solution? Journal of Evaluation in Clinical Practice, 8(2), 183–188. https://doi.org/10.1046/j.1365-
	2753.2002.00323.x
xxv.	Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory: strategies for qualitative theory.
	New Brunswick: Aldine Transaction.
	Criffide D. D. C. Neer, I. M. Crumbell, E. A. & Drive C. M. (2002). Clinical environments and channing

xxvi. Griffiths, D. P. G., Noon, J. M., Campbell, F. A., & Price, C. M. (2003). Clinical governance and chronic pain: towards a practical solution. Anaesthesia, 58(3), 243–248. https://doi.org/10.1046/j.1365-2044.2003.03088.x

*xxvii.* Hollowell, E. E. (1982). Does Hospital Corporate Liability Extend to Medical Staff Supervision Hospital Law Review. Law, Medicine and Health Care, 10, 225–236.

- *xxviii.* Yin, R. K. (1994). Case study research: Design and methods. London: Sage.
- xxix. Kapur, K., McAleer, S., Persson, F., & Bjerre-Christensen, U. (2015). Improving the effectiveness of shortterm courses for Multidisciplinarity health care professionals. Practical Diabetes, 32(5), 180–185. https://doi.org/10.1002/pdi.1953
- xxx. Lamb, B. W., Sevdalis, N., Arora, S., Pinto, A., Vincent, C., & Green, J. S. A. (2011). Teamwork and Team Decision-making at Multidisciplinarity Cancer Conferences: Barriers, Facilitators, and Opportunities for Improvement. World Journal of Surgery, 35(9), 1970–1976. https://doi.org/10.1007/s00268-011-1152-1
- *xxxi. Lewis M, & Noyes J. (2007). Risk management and clinical governance for complex home-based health care. Paediatric Nursing, 19(6), 23–28.*
- xxxii. Luh, J., Cronk, R., & Bartram, J. (2016). Assessing Progress towards Public Health, Human Rights, and International Development Goals Using Frontier Analysis. PLOS ONE, 11(1), e0147663. https://doi.org/10.1371/journal.pone.0147663
- xxxiii. Mora, J., Iturralde, M. D., Prieto, L., Domingo, C., Gagnon, M.-P., Martínez-Carazo, C., ... Keenoy, E. de M. (2017). Key aspects related to implementation of risk stratification in health care systems-the ASSEHS study. BMC Health Services Research, 17. https://doi.org/10.1186/s12913-017-2275-3
- *xxxiv.* One model of healthcare provision lessons learnt through clinical governance. (2010). Journal of Forensic and Legal Medicine, 17(7), 368–373. https://doi.org/10.1016/j.jflm.2010.05.011
- xxxv. Peak, M., Burke, R., Ryan, S., Wratten, K., Turnock, R., & Vellenoweth, C. (2005). Clinical governance–the turn of continuous improvement?. Clinical Governance: An International Journal, 10(2), 98-105.
- xxxvi. Reina R, Gestione del personale e cambiamento organizzativo nella PA, Rubettino 2008.
- xxxvii. Rhodes, R. A. W. (1997). Understanding governance: policy networks, governance, reflexivity and accountability. Open University. Recuperato da https://eprints.soton.ac.uk/336524/
- xxviii. Silverman, D. (2005). Doing qualitative research. London: Sage.
- xxxix. Starey, N. (s.d.). What is clinical governance?, 9.
- xl. Stake, R. E. (1995). The art of case study research. Thousand Oaks: Sage.
- *xli.* Stinchcombe, A. L. 1965. "Social Structure and Organizations." In Handbook of Organizations ed James G. March. Chicago: Rand McNally
- *xlii. Tait, A. R. (2004). Clinical governance in primary care: a literature review. Journal of Clinical Nursing, 13(6), 723–730. https://doi.org/10.1111/j.1365-2702.2004.00949.x*
- xliii. Taylor, L., & Jones, S. (2006). Clinical governance in practice: closing the loop with integrated audit systems. Journal of Psychiatric and Mental Health Nursing, 13(2), 228–233. https://doi.org/10.1111/j.1365-2850.2006.00945.x
- xliv. Tradori, V., Biancone, P., Brescia, V., & Migliavacca, A. (2017). Quality and control in the healthcare: a win-win mix?. In 7th Global Innovation and Knowledge Academy (GIKA) Conference (pp. 1-12). Thomson Reuters.
- xlv. Toader, E., & Damir, D. (2014). Medical Responsibility as Moral and Ethical Foundation for the Professional Conduit. Procedia - Social and Behavioral Sciences, 149, 955–961. https://doi.org/10.1016/j.sbspro.2014.08.314
- xlvi. Whitsel, L. P., Wilbanks, J., Huffman, M. D., & Hall, J. L. (2019). The Role of Government in Precision Medicine, Precision Public Health and the Intersection With Healthy Living. Progress in Cardiovascular Diseases, 62(1), 50–54. https://doi.org/10.1016/j.pcad.2018.12.002
- xlvii. WHO | WHO Multi-professional Patient Safety Curriculum Guide. (s.d.). Recuperato 8 marzo 2019, da http://www.who.int/patientsafety/education/mp\_curriculum\_guide/en/
- xlviii. Wright, A., Bates, D. W., Middleton, B., Hongsermeier, T., Kashyap, V., Thomas, S. M., & Sittig, D. F. (2009). Creating and sharing clinical decision support content with Web 2.0: Issues and examples. Journal of Biomedical Informatics, 42(2), 334–346. https://doi.org/10.1016/j.jbi.2008.09.003

xlix. Wright, A., Sittig, D. F., Ash, J. S., Bates, D. W., Feblowitz, J., Fraser, G., ... Middleton, B. (2011). Governance for clinical decision support: case studies and recommended practices from leading institutions. Journal of the American Medical Informatics Association, 18(2), 187–194. https://doi.org/10.1136/jamia.2009.002030