Juniper Online Journal of Public Health
ISSN: 2573-2153

Research Article
Volume 9 Issue 1 - May 2024
DOI: 10.19080/JOJPH.2024.09.555752

JOJ Pub Health

The Decision-Making Process in Intensive Care Unit. Theory and Application of Empirical Phenomenological Research

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Submission: April 20, 2024; **Published:** May 15, 2024

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Abstract

The aim of this research is to analyze the complex and various factors implicated in the decision-making process surrounding the issue of infection in intensive care units in Italy. Through an empirical phenomenological approach, we explored the various factors influencing these decisions, highlighting the importance of communication and collaboration among healthcare professionals in making these difficult choices. In this qualitative research three ICU's departments were studied. Many factors, from the relationship of departments with the microbiology's laboratory to the organization of professional's turnover, the structural diversity of each department, the leadership's style, and the relationship among clinicians and with patients or families, gathered through interviews and observed dialogues have been considered. According to the research, the factors that are likely to have a good impact on the decision-making process, with a relevant improvement of the quality of care are: the high level of cooperation among clinicians with a constant updating of specialization, trying to mediate between protocols and the global vision of the singular case; the well-organized spaces, open to family helping patient's recovery; the importance of prevention's practices; the tempestive and digitalized data coming from microbiology's laboratory; the acting of some virtues, especially courage, responsibility and reflexivity.

Keywords: Intensive care unit; Infection; Bioethics; Empirical Phenomenology; Hermeneutic; Narrative Medicine; Evidence-Based Medicine

Abbreviations: HAI: Hospital-Acquired Infection; BSI: Blood Stream Infections; UTI: Urinary Tract Infections; EPM: Empirical Phenomenological Method; IPA: Interpretative Phenomenological Analysis; HOD: Head of the Department; CPFA: Coupled Plasma Filtration Adsorption

Introduction

Intensive Care Units are contexts characterized by complex decision-making processes. Decisions are taken fast and involve a diverse array of medical health professionals. A peculiar aspect of the complexity of these decisions, among others, relies on the treatment of patients who may present more than one comorbidity.

The qualitative analysis of decision-making process in ICU, associated with quantitative data on infections, show different styles of narration, in terms of communication and interpretation (expressions, questions, doubts, silences), can contribute to establish different typologies of decision-making managing communities. Phenice (Phenomenology of Infection in ICU), started through an Italian association mandated to monitor and to evaluate the quality of care in Italian ICUs (GiViTi), gathering both clinical and structural information. This Italian network involves 200 intensive care Italian departments, and it is currently coordinated by the Clinical Data Science Laboratory of IRCCS[1]. The project is qualitative research conducted to complement the quantitative analysis that monitored the problem of infection in ICU. Data was gathered in three different ICU departments of three hospitals located in Florence, Turin, and Treviso. The outcomes clarify how three different styles of narration among clinicians contribute to setting up three different managing-communities, and ultimately three different department's qualities of clinician and patient's wellbeing. The clinical practice in ICU is characterized by three main elements that sometimes collide with one another: the exceptional seriousness of patients, the extraordinary technological deployment and the great clinician's responsibility assumption in choices. Choices are often crucial if not life or death situations for patients, but at least a major contributor for quality of life.

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Before COVID-19 pandemic started, nosocomial infections were a relevant problem in ICU: a risk for the patient's life as well as a noticeable increase in healthcare costs. Indeed, infections increased comorbidities and the consequent patient's recovery. In 2017, infections related to healthcare assistance were about 8,1%[2]. Hospital-Acquired Infection (HAI) in Intensive Care Unit usually become evident 48 hours after recovery. ICU's patients are more prone to HAI because they are often subjected to invasive procedures, causing them to experience extended recoveries with negative consequences both for the patient's wellbeing and healthcare costs. Main HAI infections correlated with high mortality are pneumonia, bloodstream infections (BSI), urinary tract infections (UTI) making prevention of these infections extremely important[3]. The research shows a variety of assistance's quality among different ICU departments in Italy.

Which factors lie behind the differences among departments? This qualitative research, led through the Empirical Phenomenological Method (EPM), is an efficient way in which narrations among clinicians and nurses highlight the elements characterizing the optimal contexts in terms of decision-making processes, and thus a high standard of care. Differences among departments depend on many interconnected elements, such as different organizational models, communication styles, staff turnover, human resources management, shared culture, leadership styles, relational dynamics as well as structural environment. The qualitative analysis of these three departments is focused on the problem of infection because it often happens that prevention protocols and sub-optimal therapies have a negative effect of selecting micro-organisms capable of resisting anti-biotics, severely compromising future therapeutical options.

Methodology

The dialogues and the narrative exchanges among healthcare professionals and between the latter and the patients are the object of this research. The ways in which information is investigated and the questions are phrased, impact clinical outcomes are the dialogues in which clinicians confronted interconnected patient's symptoms in uncertain situations, so the conversational acts that built the decisional process of clinical intervention. Qualitative tools of EPM's method are direct observations, interviews, narrations and groups conversations. The EPM applied to this research imposes an *emergential epistemology*, which means that the object - the conversational acts that built the decision process of clinical intervention - contaminates both the researchers and the research's method itself. Such method is based on epistemological assumptions that have their roots in the phenomenological, hermeneutical, and enactive epistemological paradigms [1]. This means that there is an active influence of the object (clinical conversational acts) on the subject researching. This recursive return from the object to the subject and back is typical of Phenomenology and Hermeneutics.

Research experiences are epistemological journeys requiring continuous decisional acts that could modify the initial research's pattern. This is why repeated critical analysis of research patterns and questions were performed by researchers. "The meaning is in fact always the direction indicated by a possible question. The authentic sense must correspond to the direction opened and defined by a question" [2]. The method is both empirical and phenomenological: empirical as it analyses conversational acts among clinicians; phenomenological because a continuous exchange between subject (researchers) and object is required.

Researchers need to keep significant cognitive and ethical postures such as attention, critical reflection, epistemic humility, and respect. EPM teaches that the object is the concrete singular essence of the phenomenon. In this context, concrete singular essence of the phenomenon consists of the narrative and decisional acts made by clinicians to address the patient's infections. After gathering a wide quantity of these essences for every context, researchers arrived at a point of data saturation. With a great quantity of conversational acts, researchers proceeded then to categorize principal typologies of discursive acts that solved the problem of infection, such as the participative posture of clinicians, their attitude to research, and their level of cooperation. A group of behavioral or linguistical acts' essences, useful to positively solve the problem, were highlighted.

After gathering this data, another epistemological step was taken: the interpretation phase, modelled on the IPA (Interpretative Phenomenological Analysis), using the original hermeneutical method of interpretation. Many conversational transcriptions between clinicians were gathered, codified, de-composed, explained, and interpreted. Explaining means to interpret as Gadamer teaches: "explanation is not a subsequent and accidentally added act to comprehension, but understanding is always explanation, and explanation is therefore the explicit form of understanding" [2]. This process is essential in a complex context as ICU, where patients often have numerous comorbidities. Since more than one pathology could coexist in the patient, sometimes it happens that clinicians disagree because therapies could be antagonistic. In this sense, specialists must cooperate with anesthesiologists, surgeons, neurologists, physiotherapists, speech therapists, psychologists, radiologists, nurses etc. They need to cooperate in the same case, the same patient, trying to find harmony.

To find the best clinical practice many factors were analyzed: settings, conversations, leadership styles, therapeutic strategies. ICU decision making processes are characterized by velocity even if sometimes clinicians do not have all the necessary information

[2]https://www.aogoi.it/notiziario/infezioni-ospedaliere-iss/.
[3]https://www.epicentro.iss.it/sorveglianza-ica/sorveglianza-terapia-intensiva.

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to decide. In all these cases it is applied the principle of *limited rationality*. The fuzzy logic that characterizes these clinical contexts has its origin in Boolean systemic theory that denies that a statement can be only totally true or totally false, asserting that a statement grade of true can range from 0 and 1. Clinicians often make a choice using a cognitive modality based on approximation, using determined probability's grades, due to the high level of uncertainty of elements. As a matter of a fact this situation is called an *uncertainty technique*.

Clinicians in critical care do not have sufficient information to understand the global case. Sometimes this uncertainty is overcome by experience: this technique is called *heuristic device*. Experience cannot be the unique parameter that can lead clinical decisions, indeed when it is not correctly oriented it can lead to clinical bias. But if experience is oriented by a critical, attentive, and reflexive attitude, it can play an essential role to support decision-making process. In fact, guidelines are not sufficient to bear clinical choices: they should be improved by critical reasoning, good leadership, and correct application of experiences. Guidelines help proposing proved strategies, but sometimes clinicians feel difficulties in decision making processes because of the excessive standardizations that are not repeatable in the context or case that they are facing.

Research highlighted that protocols sometimes impoverish clinical-patient relationship transforming clinical practice in a routine actioning with lacking incomplete therapeutical results. "The price for a technologically sophisticated medicine seems to be impersonal, calculating treatment from revolving sets of specialists who, because they are consumed with the scientific elements in healthcare, seem divided the ordinary human experiences that surround pain, suffering, and dying. Whether to protect themselves from the sadness of taking care of very sick people or to guarantee the objectivity of their clinical judgement, doctors seem to operate at a remove from the immediacy of sick and dying patients, divided from sick people by deep differences in how they conceptualize illness, what they think caused it, how they choose to treat it, and how they respond emotionally to its presence" [3].

In this research we would like to highlight the good practice of analytical and cooperative approaches that try to shift guidelines, and the importance of constant feedback among team members. The analysis of conversational acts in ICU underlines different team styles, suggesting the better elements that facilitate choices, in which the reference to guidelines is conveniently and critically valued and weighted from the clinician's community. This project was properly activated due to multi-resistant infections consequences' gravity and frequency. The research took place in the field and short ethnographies were gathered during repeated period of one-week observations in departments. Data was gathered through field notes, audio registrations, interviews, and observation of department meetings, monitoring the patients' clinical evolution, turnover, staff's organizational practices. The aim was to understand the connection between the specific department analyzed and the infections' incidence related to it. Research's questions were decided after the first observation period, and they are:

- How do these three departments prevent and face infections?
- How does the department re-organize itself, having to face this problem?
- Which kind of cooperation, leadership and decision-making models are used to face the problem?

All the gathered materials (field notes, interviews, dialogue registrations) were decomposed, analyzed, understood, and interpreted using a code called Coding Phenice in which narrative material was divided into nine categories:

i. Informative acts: to bring the information into context (data request, data providing). It can be descriptive (to photograph with words the phenomenon) or narrative (reconstruction like a movie of the clinical action's sequence).

ii. Assertive acts: declaration of agreement or disagreement, clarification of personal position.

iii. Problematizing acts: raising doubts, posing problems, questioning a thesis, opening new scenarios and other acts that provoke critical thought.

iv. Regulative acts: conversational moves that regulate the conversation's flow.

v. Co-constructive acts: finding shared explanations, completing other's sentences, or adding some elements or simply mirroring what is said by others.

vi. Development acts: conversational moves that recall another's ideas developing them into new plans.

vii. Evaluative acts: evaluation of some ideas, procedures, or job's organization.

viii. Deliberative acts: deciding about a problem, suggesting, or proposing something.

ix. Meta-reflective acts: thinking on own thoughts, opening to moments of deep cognitive intensity in the group.

Narrative material was classified in categories and comprehended to find what Gadamer calls a *harmony on contents*. Description and comprehension of human life need one another in the hermeneutic circle. Gadamer writes about it: "understanding the whole starting from the parts and the parts starting from the whole [...]. What we must do is broaden the unity of meaning understood in concentric circles. The criterion for establishing the correctness of interpretations is the agreement of the particular in the whole" [2]. Codes emerge from words gathered through

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dialogues or interviews. This kind of coding was built through a recursive path. The labels arise from the analysis of a unit, but when applied to the next unit they could have been modified, making it necessary to return to the material already analyzed. Researchers had to reset it, rebuild it, and go to another unit because they couldn't pretend that codes work the same way from one place to the other. There is a difference for each case, so we cannot expect to arrive at general theories. The inductive logic of the phenomenological method is a *time-consuming logic*, which requires a lot of time and does not act on speed, but qualitative researchers have the ethical obligation to remain in compliance with reality.

Results

In contexts of critical-care the right teamwork is characterized by the cooperation among the operators, but it is challenged by difficult context elements. The presence of many comorbidities in the patients in which every specialist values his/her field of knowledge create a conflict between the focalized view of consultants (neurologist, infectiologist etc.) and the global view of the anesthesiologists that is centered mainly on life-sustaining treatments just for the survival, avoiding taking charge of solving specific patient's problems. In these two contrasting views of the patient - between his/her general survival and his/her specific pathologies – is common to witness conflicts between the main coordinating anesthesiologist's and other specialists. A good anesthesiologist should be able to listen, understand and interpret every specialist's contribution, cooperating with others for the global good of the patient. Conflicts are often inevitable, but they should be used as a resource on the way of improving reflectivity and cooperation in the research community.

Through this qualitative research, the differences between the Firenze, Torino and Trieste's setting are explicated highlighting the difference between good leadership practice and a negative one. Toxic leadership is indeed characterized by rigidity, unviability of receiving critics, scarce planning ability, reduced empathy, incoherence, hedonism, and little trust in colleagues. On the other hand, positive leadership is characterized by cooperation, learning from errors, active participation, competence, attention to other's needs, communication, sharing of responsibilities, trust in the team improving its lived and so its clinical outcomes. One element that negatively affects decision-making processes is the dynamic of shifts. These aspects are analyzed in the field of human factors and non-technical skills. Human factors are indeed all the cultural, relational, social, communicative, environmental, and organizational factors that influence daily clinical actions. On the other hand, technical skills are all the competences that allow clinicians to improve the department's atmosphere and to optimize clinical practices. These two factors, the one external and the second internal to the clinical subject, are connected to two elements that stiffen decisional process. The first one is the perception of a crushing sense of responsibility, the second one is the fear of errors.

The sense of responsibility can have two different scenarios. On one hand, it could help clinicians to consider ethical aspects of their job, encouraging them to have more comparisons in the team with the aim of reducing possible negative implications. On the other hand, if the sense of responsibility becomes oppressive, it could lead clinicians to feel all the weight of the situation on their hands, letting their decision-sharing as an implicit renunciation. The other element related to the poor sharing of decision making is the fear of error, that is very frequent especially in context of Critical Care, but it is just in the last period that it has been considered to negatively impact patient outcomes.

Some skills are positively correlated to a positive impact on patient's outcomes, especially the capability of cooperating with the clinical team to find good choices avoiding errors. To improve a patient's clinical outcomes, it is essential to improve non-technical skills for the health-care staff, reducing in this way all the negative human factors that could negatively influence decision-making. Sharing decision-making process is important also to manage the risks. It is related to the incapability of predicting those events that could make failing the clinical action leading to negative outcomes for the patient. Risk is a variable that belongs to clinical practice, but errors have more weight in critical patients. The risk management in this department shows the gap between technical elements, such as the patient's monitoring under many different medical devices, and the human elements that characterize the decision-making process. Indeed, despite the evolution and increase of clinical tools, the human element must always gather information and filter it through the clinician's professional experience and the clinical patient's history, trying to find the better decision.

There are two main processes to manage clinical risk. The first one is procedural, which means finding the safest strategies through guidelines and protocols. The second one is qualitative, that is the critical reflection required to avoid the standardization of clinical practice and that helps in limiting repeated errors. These two approaches are not in contrast, but they should be associated in a clinical practice that should be both well informed but also reflective. Charon describes the clinician's reflective attitude in this way: "clinical practice is consumed with *emplotment*. Diagnosis itself is the effort to impose a plot onto seemingly disconnected events or situations. We test one diagnostic algorithm after another [...] in the effort to categorize this set of events, in the *effort to employ it*.

The clinician endowed with the gift of plot - and aware of the abysmal echoing of deception possible with illness - will search out with great inventiveness and range of diagnostic powers, this gift teaches the listening doctor or nurse how many different plots there might be hidden within a simple recitation, how many motives and antecedents might be at work and how many different points in time might be considered the beginning of the story. The

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plot-strong clinician will not stop with the obvious or the evident story. The plot-strong clinician with the obvious or the evident story line but will keep looking - generatively, creatively, hopefully in collaboration with patient - to construct a wide and deep and varied differential diagnosis" [3]. How can clinicians learn to be well reflective while they are also up to date with protocols? This is the inner question that led to this qualitative research.

First department

Organization structure and decision-making processes

The teams of both clinicians and nurses initially seem to be aligned, to operate in a cooperative manner. During the meetings, the Head of the Department (HOD) requests and provides data, as well as contributions to phrase and re- formulate sentences often initiated by other members of the team. This modality of interaction can be identified as co- constructive[4]: a certain degree of syntony and cooperation emerges both in communication and decision-making processes. The HOD's habit of sharing doubts and uncertainties gears interlocutory reasoning, information sharing in cognitive processes, discussion of more than one point of view, as well as a shared understanding of the case among the members of team involved in the treatment. Decisional acts follow discursive acts; indeed, the best decisions are the fruit of the research's practice and ongoing dialogues in the group. For instance, with reference to the inclusion of discursive acts in the decision-making process, it was often the case that the opinion of the anesthesiologists was integrated in the overall evaluation of the case by other specialists. Similarly, data provided by nurses were also considered by the case management team. The appraisal of each opinion in the final decision is usually taken hastily and conditions in which data are difficult to verify. In one of these verbal interactions that considered more than one opinion and was concluded with a clinical decision, the status of the infection was evaluated. It is important to notice the high cooperation level among the staff.

Factors impeding the implementation of protocols.

According to the narrative report, which was made available, several factors impeded the performance of medical procedures, especially in relation to the optimal protocol for the isolation of infected patients, possibly leading to a rise in the number of infections. For example, the ventilation system is not appropriately located and needs to be frequently moved and the space between beds is not sufficient to secure an adequate isolation between patients, ultimately leading to the impossibility to apply protocols and the accompanying procedures. Narrow and confined spaces limited the possibilities to engage in a policy of openness towards hospitalized patients, in addition to making the work of healthcare workers more difficult. As stated in a narrative diary by a nurse: "... the relatives need to constantly move to let staff pass.

Curtains are available and could be used to improve privacy for the patients and their families, but they remain unused [ed. note, due to lack of space]. I realize that the relatives are, in most cases, standing next to the patients: only a couple of beds that are close to the side walls have space for a chair, which in any case must be fitted between the bed and the wall, in a position that is not very comfortable." [4]. Furthermore, while the staff rooms are equipped with windows that let natural light filter in, the patient rooms are 'blind', located between two corridors, they have no external view and are constantly illuminated by artificial light. "We experience a situation of claustrophobia given by the almost completely artificial lighting: in fact, the rooms overlook the main corridor on one side and on what is called 'the dirt corridor' on the other, i.e. a corridor used mainly by the OSS and the cleaners, where the cleaning trolleys are located, and this makes the rooms without direct access to natural light" [4].

There are many narrative interviews that witness the inadequate space of the department's structure. The absence of windows creates a muffled and timeless environment where the distinction between day and night is lost. This estrangement from the rhythms of daily life does not stimulate patients' recovery and affects the treatment and recovery process. Another nurse, however, explains how she is unable to have constant visual contact with the monitor since she is in front of the fan; she says that the room is small, and many other things are missing.

The narrow spaces are inadequate to accommodate the devices necessary for the work of the ICU and negatively affect measures aimed at preventing and containing infections. In addition to this, structural problems also make the implementation of isolation management protocols problematic: "a patient has been here for 19 days, that would be a lot for me, or you are too! Even just for the fact of not seeing daylight, not seeing the sun rise or set, but always remaining with artificial light" [4]. Another problem related to the material department's conditions is the use of paper and not digitalized documentation. Indeed, clinical history is traced by three paper's tools: the clinical chart (specialistic medical reports, consults, clinical patient's diary), the nurse's chart (nurse's treatments, biological exam's report) and the *daily diary sheet*, that is useful to have a global view on the patient's trend, indicating pressure, saturation and other parameters and administered therapies. The daily follow-up of these tools is very important, but the lack of digitalization makes it very difficult to access data, especially when a pharmacological change, such as in the case of antibiotics for infections, is required.

Secondly, over the years the number of intensive care patients has decreased in favor of patients with chronic disorders, who remain in the department for prolonged periods of time. And, like

[4]The notion of "co-constructive" refers to a collaborative process in which the team leader contributes to shape ideas in a concerted manner with other members of the team. See Phenice coding in the methodology section.

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a vicious circle, the times are further prolonged precisely due to the onset of infections. The prolonged presence of chronic patients increases the risk of transmission of multi-resistant germs. The intensive care workers believe that the massive intake of non-critical patients in the ICU could lead the department to transform into a sort of hospice, i.e. a facility for terminally ill patients whose aim is to provide palliative care. This situation can lead operators to feel demotivated and stripped of their professional specificities. It is very important to take care of the clinician's motivation not to have bad consequences on the patient's management.

The third element that favors infections is the presence of nurse's staff not educated to serve intensive patients, while the fourth element is that the increasing of patients was not matched by an increasing of the intensivist staff, thus creating a situation of clinical overload work. Organizational aspects deeply influence a department's life. There are four kinds of shifts: one from 8:30 to 20:30, one from 8:00 to 16:00, one from 14:00 to 19:00 and one from 20:30 to 8:30. This kind of turnover is thought to guarantee continuity of caring and the constant clinician's presence. The nurse's shifts are shorter: from 7:00 to 13:15, from 13:00 to 20:15, from 20:00 to 7:15. In this way every patient is attended by three different nurses every day, two patients in neighboring beds, except for infected patients. In case of infection, the patient is exclusively cured by one nurse. Knowing the patient's story better is a way for focused caring and creating more cohesive work groups. Another element that needs to be considered is the management of mechanical therapies such as the ultra-filtration machine, an extracorporeal pump that sucks blood and passes it through a semi-permeable membrane with the aim of purifying the blood. This method is useful to support patients in phases of treatment decision's uncertainty. Ultrafiltration practices therefore represent a cutting-edge tool for the management of infectious phenomena.

However, it is a device that needs to integrate with other therapeutic practices and requires staff to familiarize themselves with a type of machinery that is anything but simple. The last crucial element of collisions is the fact that the laboratory of microbiology is external and far from the hospital, so specimens must travel, causing additional time to have the necessary data back. Delay in data's reception can cause communicative difficulties that can negatively affect infections' management. The second level of EPM investigation, after the structural organization of department, regards the process of identification and management of infections. The decision-making process occurs under the pressure of concomitant and not always aligned needs. On the one hand, doctors need to protect the patient's health (a concern which cause to empirically prescribe antibiotics), on the other there is the need to plan the therapy based on solid cognitive elements (a need that pushes in the direction of waiting). These conflicting demands require a decision-making process in which all the evident and latent elements available in the cooperative and research discussion among physicians are weighed adequately. The protocols for the management of infections are documents in which predefined patterns of behavior are outlined (both at a clinical and diagnostic level) and have the goal of outlining the practices necessary to prevent, contain, and combat infections.

In the Florence ICU there is a nursing protocol for the management of infected patients. It involves the assignment of a color code system which corresponds to a specific level of severity on the infectious level. For each color, prophylactic actions are foreseen to prevent the transmission of infections from patient to patient. From the narrative reports collected, a vision emerges of prophylaxis practices that move on the border between a regulatory universe (linked to Protocols and Guidelines) and the world of daily practice, which poses countless doubts, obstacles, and the need for cognitive and cooperative clarification to apply the rules responsibly.

Words taken from the following report express a decision-making difficulty: "We only do isolation for patients when it is indicated in the literature. This prescription is for those patients colonized or infected with multi-resistant pseudomonas, all Enterobacteriaceae suspected of being resistant to carbapenems, vancocin-resistant enterococci, and staphylococci with intermediate susceptibility to vancocin. These are the colonized or infected patients for whom we read in the literature that isolation is necessary. We have not implemented these procedures for MSA (ampicillin-resistant staphylococcus) because it would be impractical; 70-80% of our patients have MSA. I know it's not a justification but it's useless to do the procedures if we can't apply them. However, all patients must have standard precautions: hand washing when entering and leaving, gloves, an apron if there is direct contact; we call those standards that are read in literature" [4].

In the Florence ICU, an internal protocol is also in use to regulate the use of antibiotics. From narrative interviews with staff, the biggest problem that emerges is the appearance of multi-resistant germs. In the words of the head of the department: "especially in recent years, it is the gram negatives that cause big problems because we always have fewer effective antibiotics available. Together with my colleague, we worked to examine the microbiological mapping of our department based on the reports that laboratory microbiology provided us on the population of germs in the department. Based on this population and based on the antibiograms, over time there had been an increase in resistance to certain antibiotics that we had been using for a little too long. So, we changed the use of antibiotics a little, choosing classes of antibiotics that we didn't use so frequently. Not only that, in the literature there are works in which it is indicated, to try to reduce resistance to antibiotics, by rotating them, that is, alternating different classes and cycling them. For example, it is decided that for six months I will only use antibiotics. At six months I completely change the antibiotics. This is what we have been doing for a couple of years" [4]. Another view from

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the infection's responsible is the following: "Some are against the protocols because they say they are like a kind of brain death, in the sense that you go automatically.

In my opinion this is not the case. The same people never rotate in our intensive care unit. We also rotate colleagues who occasionally cover the holidays of those who perhaps stay here more permanently; colleagues who come from the room and who are therefore less familiar with antibiotics. Then create a protocol and the colleague will still be able to use the antibiotic treatment appropriately. Then if there are facets or situations, the protocol does not prohibit modification" [4]. Protocol has its utility despite the risk of automatism that could limit the clinical reasoning on a singular case. Using protocols doesn't mean avoiding adapting the treatment to specific situation. The reference to protocol is just one of the aspects considered by clinicians in the decision-making process.

To correctly interpret septic data, it is essential to see the global patient's situation. In this narrative sequence we can understand how is important to share diverse cognitive reasoning among clinicians, trying to identify the trigger cause. "Doctor 1: what do we have here? Nurse: hum. Doctor 1: well, for me an infection. Doctor 2: indeed, the platelets are high. Doctor 1: It's an infection, it's an infection. Nurse: but from a fungus. Doctor 1: well, in my opinion from my limited knowledge it is erysipelas. Doctor: well, I don't know, he's been taking tigiecline for seven days and if he has a skin infection, either the tigiecline doesn't work, or... Doctor 1: but then it's a reaction to the drugs. Head physician: I don't know this; it needs to be verified" [4].

In the analysis process is important to explicit doubts and hesitations. The EPM helped noticing how fertile for the reasoning to wait could be, to remain in the uncertainty, applying a sort of epoché in some moments of decision-making. Keeping attention fixed on the doubt without relying on standardized interpretation devices is an indication of the fact that this medical team is structured as a research community. In addition to the relationship with protocols, another difficult synergy to be found is the discernment among the anesthesiologist's and other specialized consultants such as neurologists, surgeons, infection disease specialists and hematologists. In these cases, it is essential to share responsibilities, doubts, proposals in a high cooperative level of dialogues. At the same time the cooperative relationship with a microbiology laboratory is crucial too. The lack of a mapping of the pathogens present in the department affects the ability to monitor the onset of multi-resistance phenomena.

This weighs negatively on decision-making processes involving infectious states, since this information is essential to guide doctors' therapeutic choices. The diagnosis, and the consequent therapeutic option, is the result of a decision-making process that is influenced by two sets of factors. The first is the need to have solid elements of knowledge (hence the tendency to delay decisions while waiting to have a more complete picture). The second is the need to intervene in a timely manner, before the patient's infectious status deteriorates too much (hence the tendency to make decisions in the absence of a complete picture). In every choice, doctors must be able to make a decision-making balance that considers both these aspects. Often it is a compromise between the need to act promptly and the need to broaden the patient's cognitive framework which could lead to delaying a change in antibiotic therapy.

The verbal exchanges analyzed show a high level of epistemic complexity. In these situations, doctors implement discursive acts aimed at finding the information they feel is missing, through the formulation of questions, and discursive acts aimed at problematizing, raising doubts. Doctor 1: "see, this urine culture came back positive for enterococcus." Department manager: "if it goes into the rectum, it is likely that there is enterococcus." Doctor 1: "eh, I really think so". Department manager: "and how many units? Have we it? Eighty thousand forming units". Doctor 1: "oh yes" [...]. Department manager: "but now did he have signs of infection or not?". Doctor 1: "no" [4]. Doctors develop considerations starting from the information available in the medical record, which however does not allow them to draw a certain picture of the patient's condition. The uncertain epistemic status of the available interpretations is codified by some lexical choices identified in these exchanges, such as "it is likely that" or "I think that". The need to broaden the cognitive framework regarding the patient's clinical status is expressed through a series of questions that investigate both the diagnostic and therapeutic aspects: "how many units of enterococcus are present?" [4].

The manager searches for information that has a certain epistemic status, since many data that the resuscitators have available are derivative, coming from external sources prior to hospitalization: "he told me that they had put it on him for three, four days [tigecycline]" [4]. This leads the manager to raise the doubt that the culture test present in the medical record is not indicative of an ongoing infectious process: "if it goes into the rectum, it is likely that there is enterococcus" [4]. The discursive actions implemented here by the manager invite the doctors to report on the patient's previous situation and to expose themselves by making first-hand assessments starting from the available indices, such as fever. Through these actions, doctors are encouraged to problematize the case and explain the reasons for an interpretation or decision, providing further information, evaluation, and explanation. Through such discursive acts they can obtain empirically based answers to the questions posed to the patient's infectious situation and thus guide the decision-making process.

Sometimes, resuscitators are reluctant to interrupt an ongoing treatment: it would mean changing the decision made by other doctors, in the absence of a framework that allows this

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to be done within margins of sufficient certainty. In an interview on the same day, one of the resuscitators talks about the decision to maintain the antibiotic therapy set, in a clinical picture characterized by epistemic uncertainty. "To continue… antibiotic protection because she had signs, she has… signs of ongoing infection… her whites tend to be very high because then in terms of hemodynamic parameters she has them which are quite good […]. Usually, different protocols and guidelines are not used. Let's say, Tygacil is not the first choice, but since there has been a previous antibiogram and having already started therapy, at this point we continue and look and then otherwise we change" [4].

In this case, the reasons underlying the maintenance of antibiotic therapy with Tygacil and despite it not being a first choice drug, are therefore linked to three sets of reasons: 1) the therapeutic cycle of the drug has not yet been interrupted, 2) there is no evidence clinical trials that may justify its early suspension, 3) the patient's picture appears characterized by a high level of indeterminacy and a precautionary principle requires that it be further investigated before making important therapeutic changes. In a subsequent exchange, however, the manager points out that the ongoing therapy with tigecycline covers gram positive bacteria, but not pseudomonas: this highlights the need to modify the antibiotic therapy so that it is more complete. Two further elements converge to support the doctors' decision-making process in this direction: the signs of sepsis that emerge from the clinical picture and the fact that the antibiotic therapy currently underway was prescribed before the patient entered the ICU and that it was not consistent with the internal protocols of the department.

The decisional balance thus leans in favor of modifying antibiotic therapy which sees the introduction of the carbapenem capable of covering pseudomonas. In these contexts, doctors are called upon to make complex decisions based on principles of *limited rationality*, i.e., the ability to make choices based on approximations that consider the limitations that influence their ability to manage complex situations. In this case the limitations concern the difficulties in finding all the information necessary for the management of infections. It follows that the decision is made to keep the antibiotic therapy unchanged until the results of the ongoing culture tests arrive.

In such situations the choice to wait is not an expression of inertia, but rather of a specific therapeutic decision. Sharing this choice does not only concern resuscitators, but also involves nephrologists, involved as consultants in the management of the case. From the comparison between resuscitators and consultants, the full weight of this wait emerges and how they attribute the reason for this wait to the work of the microbiology laboratory. In this context, doctors attribute the causes of slowness to the centralization of the service. Lack of access to the data expected from the laboratory is a limitation blocking the decision-making process. The elements that most characterize this field of ICU are four problematic areas:

- From the words of the operators, we may notice that the lack of IT adaptation represents a significant problem in the management of patient medical records, as it concerns both the transfer of delivery and information within the same department and between the different departments of the hospital.

- The lack of a unified medical record leads to difficulty in developing the complete clinical picture of the patient, since, for example, some information is present in only one of the tools available to the staff. This can hinder decision-making processes since it does not allow easy access to the complete picture of information regarding the patient, consequently hindering the doctors' reflection regarding the outcomes of the therapeutic action, and the problematization of his clinical state. In this regard, it should also be noted that there is no place where doctors can trace not only the decisions made but also the motivations that led to those decisions.

- The communication systems between the different departments of the hospital are also problematic: in fact, there is no unified communication system that allows the different doctors to have access to the patient's clinical history, to reconstruct the anamnesis. In some cases, it is in fact difficult to reconstruct the therapies to which the patient was subjected in different departments of the same hospital since there is no shared medical record. Consequently, resuscitators find themselves making decisions regarding the clinical state of the patient without being able to have complete awareness of the previous therapeutic actions carried out by doctors in other departments.

- The complexity of the clinical picture of the patients in this department is characterized by situations with a high rate of comorbidity. These are often elderly patients with significant post-operative complications or with pathologies with a poor prognosis. These clinical pictures, characterized by an unstable equilibrium, considerably complicate decision-making balances since it is difficult to determine which of the pathologies the patient is suffering from influence his clinical picture the most and what repercussions they may have on the therapeutic choices implemented by anesthesiologist.

Second Department

The hospital was built in the 1950s in the northern suburbs of Turin. Arriving at the ICU doctors' office, the first impression is that of an informal and very lived-in context. In the waiting room, a large notebook is available to family members in which to hand over thoughts, emotions, moods, and reflections. This is the "Intensive Care Diary": a tool that invites and encourages the expression of personal experiences by family members and allows them to be shared with people who find themselves in the same difficult situation, in a sort of intimate and indirect conversation.

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Staff invite you to also communicate with the department by removing a sheet of paper from the notebook and placing it in a special envelope. This tool of Intensive Therapy takes care of and gives great importance to the relationship with family members. The renovation of the department was progressive and followed several design lines: the architectural one, the technological one concerning the innovation of healthcare and IT equipment, the organizational one, relating to the medical and nursing staff. Finally, that training aimed at creating a patient-centered Intensive Care service model with close involvement of family members. With the opening of the renovated ward, access for family members at the end of life was promoted: in 2007 the opening hours were extended from 12:00 to 21:00 and, starting from 2008, the resuscitation unit is open 24 hours a day. To create this department model, it was essential to know that we could count on a highly motivated work group willing to deepen their training also in a direction that went beyond the purely technical-health dimension, in a multidisciplinary perspective and promotion of skills communicative-relational. What allowed the development of this working group was guaranteed by the primary school's students who embraced his initiatives, deepening their specialization through specific training experiences.

In this process the nursing staff and the coordinator also played a decisive role. In an interview, the Head Doctor explains how it is a question for doctors and nurses to move from the idea of the patient as an individual in a bed, separated from his family to that of an active member of a family system, in which the disease inevitably has repercussions: there is no entity that can be called 'patient'. A patient cannot exist alone because he is essentially part of a family relationship [5]. This ethical renewal of the department went hand in hand with the architectural one, in which there was a project to expand and renovate the hospital which also involved the Emergency Department and Cardiology. In fact, the objective was to expand the size of the Intensive Care Unit to transform it into a Multipurpose Intensive Care Unit aimed at guaranteeing, as requested by the Region, 12 beds.

From an architectural point of view, the department consists of a single large environment in which the hospitalization and medical and nursing work areas extend contiguously. There is a large open space in which the physical and symbolic barriers between patients, family members and operators are broken down, favoring the creation of a community atmosphere. In this new conception of space, relevance has been given to the dimension of contact and dynamism, so that the lives of patients are made more normal and less alienating. The needs related to privacy are however guaranteed by the separate curtains that can be pulled when needed, to restore the sense of a family circle when desired. The Head Doctor explains why he chose the open space, explaining that excessive isolation is not advisable and, indeed, when patients receive less stimulation, they are also more likely to become depressed.

The hospitalization area was designed to encourage the patient to anchor himself to external reality, through visual and auditory stimuli that keep him in everyday life and familiarity (clocks on the walls, paintings, monitors on the beds that transmit images, photographs and personal videos, radio broadcasts, etc.). The Primary wanted to give value to the reflective, emotional, and evocative contribution of the objects, following the indications of former patients. The care of spaces and objects, the atmosphere of lived familiarity that one breathes, can transform an institutional and aseptic context into a place of healing. For this type of ICU patient, in particular, the dimension of ordinary and everyday life is fundamental to be seen and recognized as patient-persons by the staff. The desk area (also called 'switchboard') is in this context the beating heart of the department: very popular and lively, where most of the bureaucratic work and the handover for the nurses is carried out. There are also other rooms, including two doctors' offices and a kitchenette, known as a 'tisaneria'. This is also a place of passage and informal verbal exchanges. For the operators, this place constitutes a treasure chest of intimacy where they can momentarily shed their official roles to meet in a more 'human' way.

The vocation of this department was born as a 'trauma center', therefore aimed at non-nosocomial patients. However, it also welcomes neurological or post-operative patients. Chronic cases are limited to those situations in which it is not possible to have them reabsorbed by the other departments. Furthermore, since the hospital is in a poor suburban area of the city, it is easy to encounter patients who come from socio-cultural contexts very different from ours, a reality that doctors are called upon to deal with. Often the intervention of the police is also necessary, while other times there may be problems with family members. The hospital is staffed by 35 anesthesiologist's, of whom around twenty are employed in intensive care, emergency room, and interventional radiology consultancy, while only around ten of them are dedicated exclusively to intensive care. The age range is quite young, between 40-45 years old. There are friendly subgroups in the team.

From the interviews conducted with the Head Doctor, strong attention to the care of the group comes to light, but also a respectful and personalized interest in each of its members, to enhance their specific qualities or aspirations. The atmosphere is informal, friendly, and respectful, sometimes even joking, aimed at playing down difficult situations. There are three types of shifts: from 8:00 to 20:00, from 9:00 to 17:00 and from 20:00 to 8:00. However, the 12-hour shift can be broken up if specific needs arise, such as maternity leave, or participation in conferences or courses of update. The function of the short shift (9.00-17.00) is particular and is called "weekly help": it is carried out by the same

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doctor for a consecutive week, so that he can support colleagues in bureaucratic work, coordinate the logistics of the service and, above all, maintain relationships with family members to maintain relationships with family members ensuring relational continuity in daily afternoon conversations. The head physician underlines the importance of this function by stating: "the families of patients hospitalized in intensive care have different needs: stress levels increase when these are not respected. First, there is the need to maintain hope and be able to ask questions and receive honest, understandable answers and to be able to obtain information at any change in the clinical situation of one's loved one" [5].

Afternoon interviews are opportunities for discussion with family members. But since they can have access at any time of the day as it is an open ICU, it is not uncommon to see the doctor at the foot of the bed conversing with patients and family members. A psychologist also collaborates with the department and dedicates two days of the week to listening and supporting patients and family members who feel the need. The protocols used for the management of infections are those internal to the hospital, conveyed by the Hospital Infection Centre (CIO), and the IDSA (Infectious Diseases Society of America) Guidelines. The relationship between the CIO, which is responsible for preventing, diagnosing, and managing hospital infections, and the ICU is very collaborative. The CIO documentation is provided to staff in both paper and digital format and the information is then summarized through graphs and flow charts displayed in the department. The training moments are accompanied by a daily discussion between the CIO operators, the ICU Infections Representative and the infectious disease specialist who collaborates with the anesthesiologists and the Nursing Manager of the department. Furthermore, the CIO manager carries out bi-weekly visits to the department to ensure direct discussion between operators on the problems they find themselves managing. This type of discussion, always updated in a climate of timely sharing between the anesthesiologist's and the nursing staff, with respect to the hospital's protocols, is a symptom of a compact work team oriented towards achieving a high standard of care.

The IDSA guidelines are also updated frequently, and the department representative has the task of monitoring these updates, also ensuring their dissemination among the staff. This material is distributed more informally than the internal protocols. The IDSA guidelines are very useful as they allow you to have reliable information on new developments in the pharmacological field, while receiving an objective evaluation, independent of those provided by the pharmaceutical industries. This way of proceeding leads to efficient management of infections and, nevertheless, to a prudent use of the hospital's economic resources. The combined use of these two tools also helps to address the decision-making balances that doctors face in the ICU.

In addition to the reference to these protocols, there are two indicators in particular that are decisive in identifying an infection and therefore become central in the decision-making process. These parameters are leu cytosis, i.e., the increase in white blood cells, the presence of temperature rise and the value of procalcitonin (PCT) or, alternatively, C- Reactive Protein (CRP). These values, however, take on different meanings depending on the various clinical pictures. Each indicator has a different weight depending on the clinical picture of the individual patient. Assessing a patient's infectious disease is a cooperative process in this department: the dialogue between professionals is constantly fueled, characterized by a great reflective capacity and a high level of professionalism. A model of participatory leadership forms, characterized by constant discussion within the team and by wide margins of delegation. The head physician wanted the resuscitators to divide the work into different areas of specialization: ventilation, nutrition, and infection. Since there is a high degree of cooperation in this department, there is no risk that specialization translates into a fragmentation of medical action.

Indeed, in this way each representative updates the group with the skills acquired. The Infections Coordinator plays a fundamental role in orchestrating the dynamics of the group: the coordinator has the final say in the most complex issues. The Head Doctor shows a lot of respect towards the Contact Person, and this is an important aspect that consolidates the climate of trust regarding this figure. This does not mean that the Head Doctor avoids acting as coordinator or expressing his own opinions, but the fact that he does not impose himself with *diktats* is an element that encourages discussion within the group and contributes to the richness of the internal dialogue. This climate of cohesion and mutual support has a positive effect on the management of more complex clinical pictures. This department is characterized by the fusion of various elements that determine its efficiency: cohesion and trust within the group, the strong sharing of the decision-making process and the attention to the specialization of each team member in their own area of expertise.

The therapeutic practices for the management of infections are divided, also in this department, between pharmacological practices and use of the ultrafiltration machine. Regarding drug therapy, in this ICU we tend to administer antibiotics according to the timely principle. In an interview, the Infections Representative states: "all the literature tells you that you have to use the right antibiotic, at the right dose, for the right time and as soon as possible. If you start the right antibiotic but it's late, the patient will die more [...]. Let's do empirical therapy yes if we can't afford to wait, yes!" [5]. The empirical use of the antibiotic involves the administration of broad- spectrum antibiotics before receiving the results of the culture tests is a choice grounded in the concern to not aggravating the clinical picture in cases in which it is not possible to intervene with a targeted therapy, or in those cases in which the use of laboratory tests is not conclusive.

The use of CPFA (Coupled Plasma Filtration Adsorption) ultrafiltration instead has the objective of supporting the patient

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during antibiotic therapy, blocking the evolution of the infectious state. The machine filters the substances from the blood that are released by the infection and which risk compromising the functionality of the organs. The CPFA representative states: "When you have an infection, you have a reaction from the host of the microorganism, which has an inflammatory response. [This] releases mediators that are pro-inflammatory. […] What happen? You have two areas of damage: one caused by these pro-inflammatory mediators and the other which is instead caused by the perpetuation of the anti-inflammatory response. So, what should cure physiologically actually becomes harmful because your immune system gets blocked [...]. And therefore, the infectious state worsens. Then CPFA removes the excess of pro- and anti-inflammatory mediators" [5].

On the one hand, we try to counteract the degeneration of the infectious state so that it does not worsen the patient's overall picture, and, on the other hand, it serves to give more time to other therapies that can resolve the septic state. It is a plasma treatment used in case of septic shock to eliminate inflammatory mediators, connected to the spread of the infection, which can lead to multi-organ failure. The Infections Representative states: "CPFA is an extra-corporeal purifying treatment used for sepsis […]. It is practically as if it were dialysis, with the difference that the blood separates into blood and plasma, and the patient's plasma... flows on a resin cartridge which absorbs the inflammation molecules [...]. In some patients in septic shock... it is a treatment that serves that purpose, it removes the mediators of inflammation" [5]. This type of technique requires a high degree of reflexivity; in fact, a constant evaluation of the overall clinical picture is essential to understand the effects on the evolution of the septic state. The doctors of this department also maintain relationships with external consultants, with other specialists (surgeons, neurologists, nephrologists, infectious disease specialists and radiologists) and with the microbiology laboratory. ICU doctors have weekly discussions with other specialists in team meetings, but informal discussions are also frequent. The relationship with the microbiology laboratory is instead discontinuous, but not problematic.

Sometimes, however, the data does not arrive promptly, so doctors are often forced to make decisions even in the absence of certain necessary information. In this case we talk about decisions made according to the principle of *limited rationality*. In this sense, each doctor in the department tries to compensate, by deduction, for the lack of data, since oftentimes in this context do not allow long waiting periods. In some situations, however, there is such a lack of data that it is not even possible to resort to the principle of *limited rationality*: in this case the decision-making process is blocked until the essential missing data is obtained. But in such situations, doctors do not limit themselves to passively waiting for them to act actively to find the missing information as soon as possible. In fact, a proactive attitude dominates in this department, through both formal and informal channels to unblock the decision-making process and resolve the septic situation. Following the qualitative analysis of the data collected, we highlight the elements that most characterize this department:

1. The ability, cultivated by the Head Doctor, towards his collaborators, to look at clinical cases through an investigative gaze. The organization of the working group is in fact divided based on specific areas of study for which individual doctors become the contacts. In this ICU the idea of keeping up to date on the development of research is very strong. The individual contact persons are then responsible for disseminating the information they obtain to all the other members of the team. This propensity for innovation and discovery spreads an exploratory attitude among anesthesiologist's that is functional in the search for new strategies to resolve clinical cases. In this way, the professionals of the department resort to a proactive attitude which is not limited to collecting data, but there is the concern to actively interpret them, rework them, looking for possible connections with other data of the clinical case. This attitude encourages the team to search for the best strategies to obtain the data necessary to conclude the decision-making process.

2. The other element that strongly characterizes this intensive care is the high level of collaboration and sharing, both between the specialists in the department and with the other consultant specialists. This creates a compact work team oriented towards achieving a common objective, namely the patient's health. This collaborative climate can only be kept alive thanks to the use of constant dialogue, fueled by a high degree of professionalism, a high reflective capacity, and a participatory leadership model in which large areas of delegation are associated with constant discussion. These aspects corroborate a climate of respect, trust, and cohesion in group work. The Head Doctor in this context has a central role, but not in an authoritarian-paternalistic sense, but as a facilitator who supports his collaborators in the process of clinical research and decision-making discernment. It is the high degree of comparison between doctors that prevents specialization from ending up fragmenting clinical action. In fact, the comparison pushes doctors to share the knowledge acquired while encouraging them to develop interpretations and clinical hypotheses based on the interconnections between the different areas. All this translates into a high standard of care.

Third Department

The hospital is a medium-large sized hospital (1000-1200 beds). It is a complex structure, equipped with all specialties, including transplant surgery, with the exception only of liver and heart transplants. There are three ICU departments which all belong to the anesthesia, resuscitation and intensive care department. The words of the Manager express a strong cohesion of doctors and nurses from the beginning. The layout of the beds in the ward is organized in a horseshoe shape. There is a lot of

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space between one bed and another so the staff can move easily in every direction. Each bed is associated with a steel trolley above which there are the daily sheets of the medical record and some attachments for consulting the results of the tests and various notes. In the trolley there are two drawers: one which contains the material for medical assistance, the other for the material used by nurses.

Next to the drawers there is a compartment that contains the folder that collects all the patient's clinical documentation. The staff is made up of ten anesthesiologist's, some of whom work in the Intensive Care Unit, while others complete their working hours at the Pain Therapy Centre or at the Hospital's Urgent and Emergency Medical Service (SUEM). The age and gender of the staff are equally distributed (6 females and 4 males between 48 and 58 years old). This is a historic group of doctors who have been working in this hospital for about twenty years. In this context, the leadership function of the department manager is shared. One of the doctors in the department uses the expression "democratic management" to describe this situation. The work is in fact managed in recognition of the greater expertise of some professionals and is aimed at sharing responsibilities. Relationships between doctors are not based on internal competition. A need for improvement is evident from the doctors' interviews and for this reason the colleagues look for each other, aiming for comparison and intelligent imitation.

These efforts are also the typical characteristics of the community of practice. In a community of practice, the bonds that unite individuals are consolidated on an affective and emotional register, so that the interests of the group come to prevail over those of a selfish nature. There are three types of shifts: long shift (9 hours and 30 minutes), short shift (6/7 hours), night and holiday shifts (12 hours). All shifts may be subject to extension depending on the needs of the department. It is a shift system that alternates phases of very intense work with phases of rest and relaxation. The division of shifts influences the degree of knowledge of the patients' history and the way in which reports of clinical evolution are made. The doctors of the department agree that this type of rotation favors the personal growth of younger doctors and their gradual assumption of responsibility.

In fact, in this type of organization young doctors are allowed to gain experience independently but in a protected environment. From the words of the interviews emerge the salient factors that characterize a community of practice, which also attract younger doctors: "The other group was younger, but I feel better here [...] because in the meantime there is the sharing of almost everything and then there is a lot of solidarity, if I were to have a problem I know that I can call at any time, I would certainly be helped, but by any of us [...] without exception and then let's say that the older ones, in quotation marks, the more experienced they always help, they teach the younger ones" [6].

The fundamental problem of the department emerges from the data and interviews carried out. The high number of patients and their frequent turnover contribute to putting the staff in difficulty due to overloading of the doctors on duty. The head of the department believes that this problem derives from the lack of a dedicated structure for post-operative patients (structure already foreseen in the project of the new surgical area of the hospital). In fact, in an interview it was stated: "They should be able to clearly divide the post-operative intensive care from the actual resuscitation; instead, here in the ward we have both resuscitation and intensive care. In the hospital we don't have a TYPE (Post-Operative Intensive Care), so we have to make room for those three, four patients a day who arrive for post-op [...]. [They are patients who] from the point of view of practical work it's not that they give you less than the others [...], you make the admission, you see the exams, you test him, you check the exams again, you discharge him the next day, in the end you worked a lot in a short, very concentrated time [...]. At most, the critical patient who comes to you with septic shock certainly gives you work especially on the first and second day, but after that he becomes more and more stabilized" [6].

The presence of post-operative patients, however, does not have a negative impact on the problem of infections. On the contrary this type of patient (which is half of those present in the ward) reduces the risk of infections since in this way they are diluted a little critical patient, i.e. it is unlikely that two patients of this type will remain close together for a long time. The nursing staff is made up of 34 units, of which 28 are full-time and 4 part-time. There are three types of shifts: morning (from 7:00 to 14:15), afternoon (from 14:00 to 21:15) and night (from 21:00 to 7:15). This organization also includes the availability of three wildcard nurses, who have the task of supporting colleagues in every need, even if they must primarily deal with the management of patient admissions and discharges.

The considerable complexity of the staff rotation mechanism emerges from the conversation with the nursing coordinator. Each nurse follows a maximum of three patients, depending on how critical of the pathology is, and it is the nurses themselves who decide to take charge of the patients. The interviews reveal a working climate typical of a real working group, characterized by the integration of psychological bonds that are created thanks to the increase in mutual trust, collaboration, sharing and negotiation skills. For a working group to have these characteristics, certain structural variables must occur, including the clarity of objectives, the definition and explanation of the working method, the definition and clarity of roles, and variables relating to the quality of communication and climate. To build a real working group, the leadership function which is defined as circular, and service-oriented is also essential. From the interviews there is always a high level of participation during meetings or training events. The training meetings are organized starting from the needs expressed

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by the nurses themselves.

Furthermore, given the great physical and mental strain of working in the ICU, a meeting with the psychologist is organized monthly with topics chosen in agreement with the staff, including: the end of life, a traumatic event that occurred in the ward (the death of a child) and the recent opening of the department to family members. Also typical of the nursing staff is the low level of turnover: there is in fact a historic core of nurses who have been working in that department for twenty years. The new ones are placed in observation, they are accompanied and are asked to adapt to the collaborative climate of the group. In fact, among the nurses in the department there are relationships that are not only working: they also hang out outside the hospital, sharing a lot of free time. A professional community does not automatically become a community of practice, which occurs thanks to the quality of relationships based on mutual respect and trust.

From the interviews it emerges that this is the substratum that makes authentic dialogue possible, the sharing of knowledge and discussion aimed at exploring a plurality of perspectives, the questioning of one's own beliefs, the sharing of ideas and the consensual acceptance of decisions. Doctors and nurses collaborate in a climate of trust and esteem. The two groups are harmoniously integrated. Regarding the problem of infections, in this department, too, a specific area of specialization of doctors has developed over time based on their mutual interests, aptitudes and skills.

The true community of thought is achieved when technical skills integrate well with relational and personal ones: in this case the sharing of knowledge leads to a fruitful synergy and a virtuous circle in which everyone learns from the other and the community grows in a broader sense. From a conversation dedicated to the management of the problem of infections it emerges that the line is shared even on this delicate point: "The problem of infections in intensive care is most often not due to under-treatment, but due to antibiotic over-treatment. Our patients are subject to very high antibiotic pressure, partly because in intensive care there are many infections, it's true, but partly because [having] many patients with altered inflammatory parameters, we perhaps have an excessive use of antibiotics, and this is one of the current problems and challenges because many multi-resistant pathogenic bacteria are emerging. We must be very careful about how we use our antibiotics because they are not 'free', because the unintended effect of excessive use of antibiotics is the development of greater resistance on the part of micro-organisms" [6].

We try to use antibiotics where there is evidence; no broad-spectrum antibiotics at all. To proceed with such caution, collaboration between doctors is essential for decisions in the infectious field, which are made only after discussion together. This way of proceeding has been the case for many years in this department. "With us it works that if you admit pneumonia from home from the emergency room at two in the morning, that gentleman will have the exact same treatment as if he arrived at nine in the morning, when the three best people in resuscitation are here. This is what makes the difference, and we do it because we get along [...]. It's clear that we really can't love each other madly, it's normal, but what I do he would do too, you would do it too because it's shared. It's not like I do it, then you come along and say, 'what nonsense', because look, in many places it's like this: you do therapy, the other person undoes it for you, another person changes. No eh! Here there is a line, and it is a shared line, and, in my opinion, this is important [...]. Always arguing yes, but it's not that it isn't a reason to start late. However, the management of the infection is an emergency, like respiratory failure [...] if the problem of the infection arises at night it is not that the colleague is waiting for the morning to talk together. Anyone must be able to initially deal with the infectious problem, in the sense that anyone knows what procedure to implement, i.e. blood cultures, broncho-aspiration, etc., and anyone is able to choose empirical antibiotic therapy. Then, if there are any doubts, even at night, first you call [on the phone], secondly there is an infectious disease specialist you can ask for an opinion who, if he is not present, is available [...]. You cannot not leave or leave late when faced with an infection because [...] there are now proven, serious studies [...] which demonstrate that leaving 24, 48 hours late means having enormous increases in mortality" [6].

Comparison is also fundamental in the transition from empirical therapy to a targeted therapy. It is important to decide based on the patient's history, the infectious disease specialist is consulted if there are specific cases, rare pathologies, or patients coming from the infectious diseases department. Over time, intensive care has also consolidated the relationship with the microbiology laboratory: this synergy is fundamental since doctors can telephone the microbiologists and be promptly informed on the progress of the cultures (whether a positive or negative gram is growing). Another element that has proven important over the years is also the prevention of infection risks. Hand washing, for example, is a simple factor but one that should not be overlooked in the slightest in prevention.

In this department, in fact, there is a lot of attention to this aspect: "You can use gloves, but if with the same glove with which you touch the infected pee after having emptied the urinometer you go for broncho-aspiration, or you touch an area in where there can be another device is very wrong [...] even if you have gloves, you protected yourself, but you did not protect the patient" [6]. The recommended procedure is washing your hands, putting on gloves, take off gloves and wash your hands. These are operations that take a lot of time but are fundamental. A nurse who has long experience in the ward even dares to assert that the use of gloves can even be dangerous and that operating with bare hands, washing your hands well and repeatedly would be the most correct behavior.

How to cite this article: Maria Caterina Salvini, Luigina Mortari. The Decision-Making Process in Intensive Care Unit. Theory and Application of Empirical Phenomenological Research. JOJ Pub Health. 2024; 9(1): 555752. DOI: 10.19080/JOJPH.2024.09.555752

From the analysis carried out on decision-making in the management of infections, a staff emerges characterized by profound mutual knowledge, therefore familiarity, responsibility, and trust. The brevity of the meetings, compared to the other departments of the Phenice studio, is in fact due to this specific context. During the day, in fact, there is constant communication and discussion, which is why meetings are transformed into quick update sessions. This way of exchanging information is influenced by both epistemic and socio-relational aspects. From an epistemic point of view, the value of the exchange of information is richer and more fertile when a doctor who is not aware of the clinical case is present in the meeting. From a socio-relational point of view, however, the presence of an elderly doctor, i.e. an expert, not informed about the patient's condition, positively influences the quality of verbal exchanges and the decision-making process.

Meetings are not the only moment for a fertile information exchange: the high degree of reflexivity belongs to individual doctors who are able to retrospectively reconstruct complex paths of thought, who have supported and motivated competitions of therapeutic actions. From the verbal exchanges in the team, during the decision-making balances to manage infections, reflexivity also emerges from the sharing of doubts that can surface even after having prescribed an initial therapeutic approach. The elements that most influence the quality of information transmission between doctors are the structure of shifts and work assignments and the formal and informal roles that doctors assume in the department. From the verbal exchanges collected, one can gather that the distribution of tasks during the shifts implies the need for an effective verbal exchange in which doctors help their colleagues to have constantly updated cognitive access to the patient. For example, the doctor who worked the night shift must update his colleagues in the morning on the patient's status, but it is the referring doctor of the week who must connect this information to the broadest possible picture of the patient's clinical path.

A senior doctor who is expert but not informed on the matter can stimulate discussion by asking questions that prompt other doctors to account for the therapeutic choices made. This stimulus function can lead to the emergence of contrasting visions within the group regarding the development of the diagnostic framework. For this reason, it is important that the climate of the organization is characterized by familiarity, respect, responsibility, and trust. In this way, conflicts can be easily overcome in short meetings in which shared choices can be reached. Autonomy of individual doctors in the moment of breaking down the case and group sharing in the moment of re-composition and final choice are characterizing elements of this working group. The high degree of communication understanding and trust present in this department leads to short meetings: if on the one hand this understanding is a strong point, on the other it can reduce the value of update meetings which risk being devalued by under-using them with respect to the potential they may have for the discussion of clinical cases.

Limitations

There are mainly two limitations that can be related to qualitative research conducted in the clinical field using the empirical phenomenological method. One limit could be that the pattern has not been previously completely determined from the start. However, this characteristic is part of the qualitative research in which the situational review depends on the experiential-changeable nature of the investigated object. Re-modulations should be operated in qualitative research because the pattern depends on what emerges from the field's analysis, as happens in the naturalistic inquiry. The research question is set as the beginning of the path but requires continuous revisions of the research design and in this inexhaustibility the hermeneutic nature of the investigation exists. "What understanding starts from [...] is that something speaks to us, challenges us. This is the first and supreme of all hermeneutic conditions. We already know what is required with it: a fundamental suspension of all prejudices. But every suspension of judgements, and therefore also, and above all, of prejudices, has, logically seen, the structure of the question. The essence of the question is to pose and keep possibilities open." [2]. The second limit could be the impossibility of finding general irrefutable outcomes of general value, but in some experiential areas like medicine, research could just arrive at local situated values. In qualitative research it is not possible to ignore the dimension of singularity. In this sense, the empirical phenomenological method, which aims to seek their singular concrete essence in the narrative analysis of experiences, presents itself as an adequate method to seek orientation in the multiplicity of factors that characterize a clinical context such as that of intensive therapies which find themselves dealing with the problem of infections. Not only can the clinical context be evaluated in its singularity, but also because that social context is an integral and inseparable part of the clinical method itself, with which medicine approaches its cases to be resolved. Medicine itself is in fact the science of singularity that analyses the clinical cases of individual patients.

Conclusion

The purpose of this qualitative research lies in the metacognitive attempt to understand and connect the qualitative and quantitative aspects that characterize hospital intensive care departments that must deal with the problem of infections every day. This investigation is essential in the attempt to reflect, like a mirror, portray in a single report, the functional and non-functional elements of each department to allow the team to improve its organizational structure and/or its decision-making style. Let us now summarize the salient points that favor good management of infections in intensive care, emerging from the three fields. The first challenge that doctors find themselves managing concerns the need to mediate between protocols and the global vision of the individual patient.

Non-secondary elements regarding the structural context are

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the spaces must be well organized and not cramped, the records must be digitized to facilitate their use, the shifts must be organized efficiently so that there is continuity in treating patients, and the relationship with the laboratory of microbiology must be fast and efficient. It was also found that prevention is very important, especially in washing hands and carefully changing gloves. Looking for creative ways to cultivate relationships with patients and family members, as seen with the use of the diary-notebook in which family members can express their thoughts and emotions regarding the experience they are experiencing, is essential to keep the environment alive, stimulating, and open to families. This is also useful in avoiding depression and speeding up the recovery of patients. It is important for doctors to develop a high level of specialization in the context of relationships with their peers. The fruitful decision-making process is characterized by the following elements: harmony, cooperation, dialogue, interlocutory and doubtful reasoning, discernment, mutual respect, trust, constant comparison, and exchange of information. The democratic leadership style and the presence of an expert senior doctor, not familiar with the case, proved to be positive, as it helps to develop retrospective activity and reconstruction of the case in others. Gadamer writes about dialogue: "in contrast to the rigid form of written enunciation: in it the language, through question and answer, through giving and receiving, through the contrast and coincidence of opinions, achieves that communication of meaning which then, in the form of the literary tradition, will constitute the specific object of the hermeneutic work" [2].

The development of the capacity for judgment through the narrative element is the ingredient that makes the resolution of the case fertile: "such act of telling are ultimately ethical acts determined by collective responsibilities toward ourselves and others" [3]. Among the virtues identified by the material examined, courage, responsibility, and reflexivity emerge eminently. The virtue of courage is that which serves to expose one's vision, even at the cost of coming into conflict with the majority. The virtue of responsibility consists in feeling called to seek the good in every moment and in every context, taking one's task and the person in front of one seriously, despite the fear of error. Reflexivity is the virtue that emerges as essential in exchanges between doctors and nurses as it allows for a fertile discussion on individual cases. The more the way of proceeding, communicating, discussing, and making decisions reflect these virtues, the more a context of high standard of care has been observed [7,8].

References

1. Mortari L (2022) *Fenomenologia empirica* - Il melangolo, Genova, Italy.
2. Gadamer HG (2004) *Truth and Method*. Continuum Publishing Group, London, UK.
3. Charon R (2006) *Narrative medicine. Honoring stories of illness*. Oxford University Press, New York.
4. Mortari L (2014) *Decidere in terapia intensiva. Una ricerca fenomenologica* - Il campo di Firenze. QuiEdit, Verona, Italy.
5. Mortari L, Silva R (2015) *Decidere in terapia intensiva. Una ricerca fenomenologica* - Il campo di Treviso. QuiEdit, Verona, Italy.
6. Mortari L, Messetti G (2016) *Decidere in terapia intensiva. Una ricerca fenomenologica* - Il campo di Torino. QuiEdit, Verona, Italy.
7. (2024) Infezioni ospedaliere. Peggiorano i dati nell'assistenza per acuti mentre migliorano nelle terapie intensive. Nonostante trend in calo sempre alta l'antibiotico resistenza. I dati Iss. AOGOI Associazione Ostetrici Ginecologi Ospedalieri Italiani.
8. (2023) Sorveglianza delle ICA nelle Unità di Terapia Intensiva. Istituto Superiore di Sanità, EpiCentro - L'epidemiologia per la sanità pubblica.

DOI: 10.19080/JOJPH.2024.09.555752

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