Performing under pressure:
A framework for understanding healthcare performance in complex, dynamic and unpredictable situations in Ecuador

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Abstract

Aim: This study examines the performance of healthcare professionals in a variety of high-pressure scenarios.

Methodology: In order to gain a broad, detailed, practical understanding of ‘pressure’ and its impact on performance, a wide range of clinical scenarios were analysed using a Grounded Theory approach. A total of forty-five interviews were undertaken with key health professionals (medical doctors, nurses, paramedics) in a variety of locations including the Galapagos Islands, the Amazon Region, the Andean Highlands, and the Pacific Coast. Using participants as field observers, diverse scenarios were captured: emergency field work, natural disasters, emergency departments, large and small medical facilities, intensive care units and operating theatres.

Results: The research took an ‘emic’ approach to understanding ‘pressure’, whereby participants identified scenarios that were important to them and how they experienced ‘pressure’ personally. Three broad interacting categories of factors contribute to ‘pressure’: personnel, clinical complexity, and the context in which teams operate. These factors are not static, and using dramaturgical analysis, I developed a ‘performative matrix’ that helped deepen understanding of performance under pressure as a dynamic, collectively-determined social phenomenon shaped by facilities and systems (staging); teams and personal qualities (roles and actors), and case complexity (plots and storylines).

Conclusion: The study contributes to the body of knowledge regarding the understanding of performance under pressure and, rather than capturing a static view of individuals and outcomes, this study models performance as a complex unfolding of collective drama. Using
this model provided the ability to conceptualise and analyse performance under pressure and to propose pathways for optimising performance in uncertain and dynamic scenarios.
Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

(Signed)

Alicia Zavala Calahorrano
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Chapter 1  Introduction

1.1  Introduction

Clinical decision-making is front and centre to every medical practitioner’s practice. Factors influencing the decision and treatment for any patient are multifaceted. Undertaking this research has provided an opportunity to reflect and examine ways clinicians make, implement clinical decision-making and perform through the different stages of the consultation process. Moreover, I will examine performance and decision-making processes in both pressured and non-pressured situations. This research aims to create a better understanding of how clinicians make and implement clinical decision-making and perform through the different stages of the consultation process. The world has never faced such an enormous scale of humanitarian need (Blaikie, Cannon, Davis, & Wisner, 2014). Those working in the health system have a responsibility to ensure collective actions result in better health outcomes, guaranteeing populations have access to timely and efficient health services in times of emergency. In practice, this involves ensuring the system at all levels has in place accurate or judicious responses to managing emergencies (based on incident management). This entails adequate and coordinated mechanisms that include all relevant stakeholders, undertaking joint assessments and planning with peers, by sharing health information and providing logistical and operational support during an emergency response. This thesis addresses a challenging landscape for healthcare professionals and endeavours to analyse performance of health professionals at a national level and how it has adapted to the many challenges of both internal and external conditions. This research showcases scenarios that identify the factors that influence the responses of health professionals in diverse and changing scenarios and examines their performance under pressure in extreme crisis situations. The aim is to develop a model to understand clinical performance, identify the factors and critical points to
provide strategies for improvements to be more efficient. The central research question was “How do different factors affect clinicians’ performance and clinical decision-making when performing under pressure in everyday activities?” to identify the phenomena of performing under pressure. To address that question a series of individual interviews were conducted. Also, it was necessary to identify “What is the concept of pressure in a working environment of healthcare professionals?”

This thesis addresses how healthcare professionals perform in less predictable medical situations, and how health professionals perform in various scenarios their daily activities in the different regions and conditions in Ecuador.

Grounded Theory was used to examine a variety of scenarios that unfold in life-threatening situations has permitted an analysis of human interactions when performing in complex situations. This builds an understanding of the factors and strategies for a more efficient response.

This thesis assists in helping health sector partners in disaster management to understand the multiple components that comprise a response to health emergencies. This thesis illustrates the effect of pressure on health professionals when performing under pressure in difficult circumstances and their response to a crisis situations. This research highlights the performance of health professionals in their daily activities in a broad range of scenarios while performing actions that includes clinical management, partner coordination, planning and information, health operations, operational support and logistics, core services (administration and human resources), and external relations.

The study addresses “What is the concept of pressure in a working environment of healthcare professionals? And considers the nature of performance under pressure and decision-making
in a patient’s life-threatening condition and identifies the difference in application between standard and under pressure situations.

After, gaining a clear understanding of the health professional's performance from the analysis and influencing factors that shape their decision-making process and performance under pressure, a tool to analyse performance was constructed. The performative matrix will assist managers and clinicians in examining the performance and response in crises to various events, and to identify the critical points to inform strategies that will enhance clinical practice under pressure in emergency situations and natural disaster areas. Informed by the findings of this analysis of performance, recommendations were developed that highlights how to enhance and improve the performance of clinicians who operate under high-pressure conditions. The quality and efficacy of decisions taken by health professionals are crucial for the high quality clinical outcomes and patient safety. This study emphasises the effect pressure has on decision-making of healthcare professionals who perform under pressure in difficult circumstances.

1.2 Introducing the researcher

This thesis was undertaken in Ecuador, my home country, where I am a medical practitioner with twenty years’ experience. This experience has covered practice from the largest emergency department in Quito: with the ambulance service attending emergency situations; the Red Cross during two volcanic eruptions; attending floods on the coast and during the H1A1 influenza epidemic. Ecuador is one of the countries within the Americas with diverse fauna, flora, environments, and climatic conditions. This diversity comes with many associated challenges for people living and working within this environment. Ecuador is a country with many distinct ecosystems from the Andean mountains ranges with snow-covered volcanoes, glaciers and tectonic lakes; the Amazon jungle with tropical and
mangrove forests and particular associated wildlife; the Pacific coast; and the Galapagos Islands, one of the natural paradises of the planet, which is almost a thousand kilometres away from the mainland.

1.3 Ecuador’s demographic profile

Ecuador’s socio-economic situation affects the population in different ways. The government has increased social spending to improve these problems; however, critics question the efficiency of the implementation of its national development plan (Senplades, 2013). Access to the plan was by asking the citizens to send children to the school and have medical check-ups regularly. This approach helped children to improve the level of education and healthcare (Lucio, Villacrés, & Henríquez, 2011).

Ecuador has a small, growing immigrant population receiving refugees from largely from Latin America; with 98% coming from refugees fleeing violence in neighbouring Colombian (Poe & Isacson, 2009; Shedlin, Decena, Noboa, & Betancourt, 2014). According to the census of July 2015, Ecuador has 15,868,396 inhabitants; of them 1.726 million are in Quito the capital, and 2.709 million in Guayaquil, the second biggest city (Villacís, Carrillo, & Martínez, 2011). The official languages are Spanish (93%); Quechua (4.1%) and, other indigenous languages (0.7%), Ecuador is extremely susceptible to natural disasters. In the coastal region, the weather is variable and is very sensitive to the El Niño Phenomenon producing floods (Vos, Velasco, & Labastida, 1999). In the Andean region, earthquakes, tremors, and volcanic eruptions are the main threats. Frequent earthquakes; landslides; volcanic activity; floods; are concentrated along the Andes Mountains; Sangay (elev. 5,230 m), which erupted in 2010, is Ecuador's most active volcano. Other active volcanoes in the Andes include Antisana, Cayambe, Cotopaxi, Guagua Pichincha (Canuti, Casagli, Catani, &
Falorni, 2002), Reventador, Sumaco, and Tungurahua which was active from the last 16 years (Tobin & Whiteford, 2002).

Ecuador has a tropical climate that varies with altitude and regions (Vuille, Bradley, & Keimig, 2000). The weather can be extremely variable even during the same day. There are two main seasons, although the seasonal changes less defined than before: December to May (winter), when the weather is warm and rainy, and June to November (summer) is the dry season, with cooler temperatures.

Ecuador provides a unique geographical location and demography as it straddles the equator on South America’s west coast. Its diverse landscape encompasses the Amazon jungle, Andean highlands and the wildlife-rich Galapagos Islands. The capital is Quito, which is situated in the Andean foothills at an elevation of 2,850 metres. From the deep core of the Amazon rainforest, to the highest peaks of the Andes, and from the Pacific coastline to the ancient Galapagos Islands (McBirney & Williams, 1969), each geographic come with its own specific challenges and in particular health related challenges for both the residents and the healthcare professionals. Language barriers, climate changes, natural disasters, accidents, acute infectious diseases, mosquito borne diseases, childhood infections and diseases, chronic non-communicable diseases such cancer, diabetes and hypertension all combine with difficult terrains and access make Ecuador face a challenge to work on public health.

For the purposes of this study, the researcher travelled for five months through the Ecuadorian territory to acquire the variants for this thesis that reflects decision-making under pressure within this context. During the data collection phase, the geographic environment posed many challenges that the researcher encountered firsthand. Daily, healthcare professionals’ live with the possibility of volcanic eruptions, floods, earthquakes (17th April 2016) or epidemics, all of which are significantly influenced by geographic and climatic
conditions. Consideration was given to healthcare workers in hospitals where the technology was available, but the lack of qualified professionals or government financial support inhibited the role of pathologies and radiology departments. Hence, people who required medical attention could not access the service due to this lack of professionals in those areas.

Because of the diverse conditions and situations where the data was collected, the results from this study can be used to understand different clinical realities within different contexts, not only in Latin America, but also globally. In this study, interviews were undertaken in different settings in separate regional hospitals in Quito, Guayaquil, Machala, Tena, Macas, San Cristobal Island, and Sucumbíos. The clinicians chosen to participate in interviews were from a diverse range of healthcare professionals working at the coalface in different settings: large hospitals with emergency departments, theatre rooms, Intensive Care Units, small medical centres in isolated places; doctors, nurses and paramedics working in ambulances; fire-fighters in the streets, and other healthcare professionals training for evacuation procedures in case of volcanic eruptions. Other health professionals were training to rescue patients from collapsed structures in the event of an earthquake. The researcher interviewed paramedics who had worked in ambulances helping people involved in political strikes in Quito, as well as working near the Colombian border, with refugees living with the threat of paramilitary forces. Interviews were also undertaken with staff working in hospitals preparing for the winter season utilizing the lessons previously learned to confront floods and health problems that occur in the winter months such as the current dengue, malaria, or zika virus. The researcher also interviewed doctors and paramedics who had rescued people lost in the jungle, and doctors who were working in health facilities that are only accessible by helicopter.
Figure 1.1 illustrates the 25 provinces of Ecuador showing the different medical facilities, with different levels of complexity of medical attention, together with the number of professionals that were interviewed.

Figure 1.1 The 25 provinces of Ecuador and distribution of health facilities and research respondents
1.4 The healthcare system in Ecuador

The structure of the health system in Ecuador is organised to meet the needs of the population taking into account: the epidemiological profile of the area, the characteristics of the population to be served, the medical services that are frequently used; and the geographical distribution. However, there are economic, cultural and geographic barriers that limit access to health services and especially affect poor populations, mostly indigenous, living in rural areas (Lucio et al., 2011).

The actions of the healthcare system in Ecuador are thus, limited by centralised and unequal distribution and access to services. A lack of an integrated policy on human resources, inadequate institutional coordination, the paternalism of public and private institutions, the high cost of inputs and technologies were all factors behind health reforms that began in the early 1980’s. However, the whole system has suffered some changes in recent years as a result of the implementation of actions related to the total reform of the National Health System based on principles of universality, equity and free of charge services. The National Development Plan, called the National Plan for the Good Way of Living (Senplades, 2013), established the implementation of a comprehensive and integrated protection and service provision. The government has set up the priority for social investment in health and education for the entire population.

The network of health services under the Ministry of Public Health Minister of Ecuador (MSP) is structured in two levels of decentralisation: the provincial (provincial health) and cantonal (health areas). The health system in Ecuador is divided into two sectors private and public. As in other countries, the social security system is financed by amounts drawn from employers in the formal sector. The public health system coexists with privately funded
hospitals and health services for the wealthier sector of the population and public health interventions and welfare networks for the poor (Lucio et al., 2011).

The health services in Ecuador are organised by levels of complexity consisting of three tiers: the first level of complexity (low complexity) is comprised of small healthcare facilities which provide outpatient care, health promotion, disease prevention and health recovery. These facilities also provide motherhood services, delivery care, emergency and basic dental services. These centres work with the community promoting essential environmental sanitation activities. Primary hospitals and general hospitals are part of the second tier of complexity (intermediate complexity). The difference between the first and second tier is the provision of surgical services and short-stay hospitalisation. These primary hospitals provide outpatient care and hospital general medicine, gynaecology and obstetrics, paediatrics and emergency surgery. Overall, these facilities offer some specialisation according to the epidemiological profile of the area of influence; it also has auxiliary diagnostic tools and treatment services. Specialised hospitals are the third tier (high complexity); these hospitals provide local healthcare for the community, as well as at regional levels. These hospitals are also related to the education system performing teaching activities with different Schools of Medicine, as well as being involved in research activities.

1.5 Statement of the problem

Due to the global increase in population around the world, the complex socio-economic factors that affect the community and all the consequences related to this element including migration from the rural and remote areas to the major cities, and problems related to the provision of health services in the countryside with a limited number of professionals, will be considered. Then the delivery of health services will be relevant, as the system needs to adapt to the different characteristics of the population it is serving. Consideration will also be
given to how this situation may affect the performance of health professionals who work in places that have been considered stressful or high-pressured. Do these factors include the conditions generated by climate change, or natural phenomena, in a variety of geographical locations in centre facilities that deliver health service? There have been efforts for the implementation of procedures for clinical decision-making under normal conditions; errors in performance are still on the rise, worldwide (Kohn, Corrigan, & Donaldson, 2000; Makary & Daniel, 2016). To what extent are protocols, procedures and algorithms applied under life-threatening conditions and which are the factors what modify health professionals’ response under difficult circumstances?

How do health professionals face the dilemma of how to choose the best clinical option for a patient? Moreover, how can the health professionals achieve the goal of zero errors under controlled conditions in real situations? Are protocols and procedures relevant and efficient? Does it create situations that put the patient’s safety at risk? It is important that recognition be given to the wide spectrum of personal, clinical, patient, environmental, climatic, and system pressures for healthcare professionals as affecting factors in the performance and decision-making process in health services and social activities. Essentially, the core question of this thesis is centred around the determination of factors affecting accuracy of decision-making during high-pressure conditions. The question is *What are the factors affecting the accuracy of decision-making when decisions are made under pressure?*

### 1.6 Significance of the study

The purpose of this study was to understand how health professionals understand, define and describe pressure and how it impacts on their clinical decision-making and performance.

It is important to recognise the meaning of pressure for healthcare professionals in relation to their performance and decision-making process, and whether this pressure is sporadic or even
more acute under specific conditions. This thesis will contribute to the body of knowledge for healthcare management by increasing the understanding of medical services and the factors that impact clinical decision-making under pressure situations. The thesis will promote the decision-making process as one of the most central elements of clinical practice in improving the quality of healthcare outcomes and in an endeavour to avoid human error. The outcomes of this thesis will enhance and strengthen the diagnostic, treatment and team processes to improve quality of the healthcare delivery.

1.7 Expected study outcomes
This thesis will explore the decision-making process and performance inside of the consultation process of clinicians in their normal activities in medical facilities, operating theatres, clinical ward, emergency departments, and Intensive Care Units; as well as under challenging difficult and uncertain situations in natural and manmade disasters.

The expected goal is the understanding of factors affecting healthcare professionals’ performance and decision-making, under pressure situations, to improve clinical outcomes. A thorough understanding of this process will enable the development of a model to understand health professionals’ performance in normal and under high-pressure situations, which can be effective, and incorporated as a tool for managers to improve teamwork, as well as assist with error management.

1.8 Methodological approach
This thesis presents the answers of the central research question is, “How do different factors affect clinicians’ performance and clinical decision-making when performing under pressure in everyday activities?”
During data collection, the participants’ experiences gave the researcher access to precious information. These experiences have left a deep imprint, not only in their professional life, but also in their procedures and their decision-making process for the same or relatively similar circumstances.

Grounded Theory was the chosen methodology. It offers many benefits as it is suitable for the exploration of compound multi-layered phenomena. It is also well-equipped for research of social associated topics and presented an advantage about how the data was obtained in this study.

Four broad categories emerged to support the understanding of a classification of factors that affect the performance of health professionals in Ecuador. In addition, the analysis did not conclude there; when the other research questions was “What is the concept of pressure in a working environment of healthcare professionals?

Then, it was necessary to understand how the factors that generated pressure interacted within the context of performance. Thus, the dramaturgical analysis approach was used to understand the concept of how the factors come together to affect performance. The dramaturgical analysis helped to build a metaphor between the scenarios (stage) the healthcare professionals (actors) and the implementation of work (performance). The analysis of the actors (performance), circumstances, in a timeline where the situations occurred. This analysis underpinned the discussion of the development of an instrument to analyse the performance of health professionals in different scenarios. Then, during the discussion metaphors are presented to compare musicians and heath care professionals in early stage of the learning process.
1.9 Importance of the study

There are five essential factors that determine the health of a population. These factors include genetics, the physical environment, the social environment, lifestyle, and health (Aboumatar, Carson, Beach, Roter, & Cooper, 2013). As a consequence, a patient’s health decisions are made by combining three factors: evidence, values and available resources, to help determine health outcomes (Williamson et al., 2012; J. Williamson, 1973). An effective clinical consultation is built on a firm foundation of patient-doctor communication. It is used to understand how shared decision-making approach (SDMA) is essentially connected to the entire clinical consultation process (Elwyn et al., 2012). However, it is broadly accepted that healthcare decisions require the integration of research evidence and individual patient preferences. The understanding of the factors affecting the health professional performance is linked to improvements in the learning process inside of the healthcare system. This research attempts to build a theory that integrates a sociological standpoint of health professionals’ interactions performing under standard and difficult circumstances in different scenarios and its impact on a public health to consolidate theory into practice (Carnine, 1997; Haynes et al., 2009; Knapp & VandeCreek, 2004; Shook, Johnston, & Mellichamp, 2004).

In the next chapter, the literature on decision-making in pressured situations will be critically analysed.
Chapter 2  Decision-making under pressure

This chapter will incorporate the literature which is related to the concept of decision-making process under pressure, to gain a detailed understanding of the topic and to highlight the current gaps in the literature related to this subject. This chapter will also describe the factors that are related to working under pressure for healthcare professionals.

2.1 Clinical decision-making processes under normal conditions

The decision-making process has been studied in several medical areas including risk assessment, test selection, root-cause problem identification, and plans for treatment implementation.

Converse (1993) adapted the study of the decision-making process from the theoretical framework into reality. The naturalistic decision-making program attempts to explain how people embrace their responsibility to select in real time, the right choice. Researchers have also found that subjects who are under stressful circumstances can achieve, develop and perform tasks according to the surrounding conditions (Brehmer, 1992; Converse, 1993; Zsambok & Klein, 2014).

Another influence on the decision-making process is the patients’ understanding of previous events and circumstances, beliefs, and treatment objectives, as well as the doctor’s expertise; it could also be related to the surrounding conditions, and patient relationships (Berger, 2015). At any point in the process, the problem or situation that is going to be solved could become even more complex; hence, the unexpected outcome of one process could be the beginning of another. Complications create new problems, with adverse effects generating new challenges to be solved inside of the process of a disease (Fox, Cooper, & Glasspool, 2013; Zsambok & Klein, 2014). Wilson (1995) described hospitalisations in Australia and concluded that 50% of adverse effects and complications could be prevented. Problems in
communication between clinicians and patients could as a result produce diagnostic errors. Moreover, complications are more likely to occur in misunderstandings of treatment instructions or non-treatment adherence (Gellad, Grenard, & Marcum, 2011).

2.2 Decision-making frameworks

Any decision-making challenges include how doctors face different situations and perform under stress when they encounter problems with patient treatment goals, as well as possible adverse effects and complications. Other circumstances related to doctor performance include culture; lack of expertise; structure of organisations; and settings restrictions (Fox et al., 2013). Shanteau (1992) reported that skilled decision makers have many competencies, abilities and aptitudes that allow them to focus on rational choice and human cognition in every decision. These studies have provided a framework and assisted in the understanding of the importance of tool design and clinical expertise in diagnosis and treatments (Fox et al., 2013).

Fox et al.’s decision-making model describes three steps: a) introduction of choices, b) description of options, with the integration of patient decision support, and c) assessing patients to explore preferences, choose between the options and deliver a decision for the treatment plan. This process can lead to the prevention of complications, adverse effects, as well as the avoidance of problems with patients and families (Emanuel & Emanuel, 1992). Therefore, the shared decision-making process could be a key factor for improvement due to its emphasis on communication skills.

As shown in Figure 2.2 Fox (2013) described the decision-making process as having the following features: The cycle of decisions begins with a series of decisions which are required to achieve a goal; these decisions are related to a number of previous events and decisions, which means that a decision is not self-determined. It is also important to
remember that decisions could be affected by different settings and internal conditions which are consequences of prior actions. The fact that doctors’ decisions have been adopted and performed in real time also needs to be taken into consideration.

In the cycle of decision-making, once a decision has been made, one cycle ends, and another cycle begins.

![Decision-making cycle](image)

*Figure 2.1 Decision-making cycle (Fox et al., 2013)*

In the medical field of decision-making patterns: (Drummond, 1996) postulated a brief standard for decision-making by practitioners:
As illustrated in Figure 2.2 (Drummond, 1996) labelled a mnemonic strategy for clinicians, which refer to the usual process for the daily patient assessment in hospital wards. The mnemonic assists clinicians as to when to follow a patients’ progression of symptoms during their hospitalisation. This mnemonic formula helps the medical team to explain the evolution of sign and symptoms and to understand whether the patient’s clinical condition is in agreement with the therapeutic plan. This evaluation mixes subjective and objective questions that are associated with the patient prognosis. In the Figure 2.3 the circle of assessing the patient (Fox et al., 2013) is shown. This is called SOAP, which stands for “Subjective”; “Objective”; “Assessment”; and “Plan” (Fox et al., 2013). The assessment plan for hospitalised patients is described as follows: The first part of the information requested by
the doctor is subjective and is related to the patient’s evolution of signs and symptoms in their timeline of hospitalisation, and how the patient feels with the treatment. The second part is the actual data collection of patient’s vital signs and blood tests or X-ray results. It does not require a particular order for data collection; however, the decision may not be adopted until all the information has been collected and collated. Assessment is the evaluation of the patient’s condition and its correlation with the tests findings. Finally, a description of the “Plan” which is going to be implemented during the next few hours or days at the hospital is prepared. The description of examinations and next instructions for the patient to be followed by the medical team are written.

Figure 2.3 The cycle for assessing the patient (Fox et al., 2013)
However, because clinicians know what to attend to first (triage) they can find solutions for problems; decide what is relevant to the outcomes; and when exceptions to the rule must be made (Fox et al., 2013).

In other clinical decision-making approaches the domino model is a computational structural design that employs a framework in which cognitive processes are represented by the decision-making cycle (Fox et al., 2013). The computer program “PROforma” which is related to the logical processes of the domino task model, has been demonstrated with a wide variety of decision processes that practitioners could find easy to implement and use. The program has been used for NHS direct triage services in the United Kingdom to set up many clinical protocols and applications, which are in everyday use (Patkar et al., 2012; Sutton & Fox, 2003). The program applies relevant knowledge to help doctors interpret data that has been collected to construct and consider arguments for and against several decision options (Fox et al., 2013; Sutton & Fox, 2003).

2.3 Decision-making processes in diagnosis and treatment under normal conditions

Clinical evidence-based practice describes the interaction of doctors’ decision-making processes within three essential areas: the best available evidence, clinical expertise, patient values and organisational goals (Wears & Leape, 1999). Medical doctors can effectively adopt evidence best practices within their decision-making processes by utilising the most significant and available medical clinical research, by applying their professional judgement and including their knowledge of the patient’s values. These factors encourage health professionals to use evidence-based practices, critical thinking skills and judgment to improve clinical outcomes (Spencer, Detrich, & Slocum, 2012).
In order to understand the concept of an effective and efficient decision-making process under pressure, the use of evidence-based medicine and clinical decision-making under normal conditions must first be understood (Spencer et al., 2012). In normal circumstances, the clinical decision-making process begins with the question of what the patient’s problem is and what the given situation that brings the patient into the consultation process is. The beginning of the process is the most important part as the first question is the key to generating an appropriate response and for clinicians, the question is vital for a successful diagnosis. Every time a medical professional begins the consultation process, it must be followed by a clear understanding of the different surrounding circumstances that are pertinent to a diagnosis (Spencer, 2012). As a consequence, the first interaction with the patient is crucial to begin the data collection that is related to the patient's illness. This information must be as clear and concise as possible. The second step is to group the symptoms and signs reported by the patient. This syndrome grouping becomes the foundation to determine the first diagnostic attempt. The hypothesis needs to be validated, approved or rejected. The information collected is processed into different categories to determine an acceptable level of evidence and provide a proper diagnosis. The next part that follows the syndrome grouping is the selection of the evidence-based medicine related to the initial diagnosis to determine whether to accept or discharge the original diagnosis or if further investigation is required (Spencer, 2012).

The next level in the clinical decision-making process is to determine the link between the surrounding factors, symptoms and patient values. The doctor formulates some questions that bring clarity to the diagnosis and identifies other related factors. This process helps to re-formulate the initial questions. The professional needs to rephrase questions, and the professional should continue asking the necessary number of times to gain a better understanding of the problem. Therefore, the communication between doctor and patient
within the medical encounter is fundamental in this process (Levinson, 1997). Communication plays an intricate role in decision-making allowing physicians and patients to progress to the next level of dynamic interaction and helps to identify the best pathways for treatment (Levinson, 1997). As a consequence, the patient can have a clear understanding of the instructions. In turn, the evidence-based-medicine can be managed to confirm or deny a doctor’s diagnostic hypotheses (Levinson, 1997).

Once the diagnosis has been determined, the possible treatment options can be discussed with the patient, to ensure a positive clinical outcome. It is crucial to reach an amicable agreement between the patient and the doctor. Again, a fundamental part of the medical model is communication and mutual trust where empathy, not just knowledge about technical aspects of support is vital. The model assumes the cultivation of genuine patient care where doctors are sensitive to personal considerations for improvement when selecting a treatment, maintaining positive patient outcomes (Charles, Gafni, & Freeman, 2010). Therefore, a healthy balance between professional judgements and patient expectations is required.

Finally, after the treatment selection, the healthcare professional must be able to adapt the treatment to the patient’s reality, while the protocols, manuals, and medical procedures have been established to determine medical actions, to achieve quality healthcare and maintain patient safety standards.

Treatment options are discussed as part of the decision-making process within these medical consultations and are the final outcomes occurring further down the track. The final clinical outcomes are related to positive or negative clinical results about the medical problem that has been discussed, as well as the patient treatment satisfaction (Charles, 2010). Another outcome relates to adverse effects of medication, treatment adherence, and the result that involves whether the patient has a medically stable condition. It must also consider whether
the initial condition improves, or no change exists, becomes worse, than the original or the problem has moved into a critical clinical condition affecting patient clinical outcomes (Charles, 2010).

2.3.1 Sense making

Clinical decision-making processes, however, have different characteristics when performed under pressure. Wennberg (2002) argued that there is a broad range of variations on diagnosis and clinical and surgical treatments of the various clinical conditions related to various hospitals in the United States. The two most important reasons found for these differences were hospital capacities and scientific uncertainty of the understanding of what the correct treatment is. As a consequence, the variations in different surgical techniques trying to obtain the greatest benefit for patients have been seen in conventional medical practice over the years. Doctors can also often differ among themselves about the efficacy of a particular treatment, and they can be very confident about the positive outcomes of their treatment decisions. This situation has been characterised as the micro-certainty, and macro-uncertainty phenomenon (Parascandola, Hawkins, & Danis, 2002). The study of the shared decision-making process is necessary to understand the relationship between clinicians and patients.

2.4 Shared decision-making model in a standard consultation

The following concepts constitute a shared decision-making model in the context of a standard medical consultation;

**Shared Decision-making** - is a process within the normal consultation process that required the involvement of doctor and patient and has the following characteristics:

1. There are at least two participants;
2. Both parts share information in two directions;

3. Both parts are committed to arriving at a consensus or agreement for treatment; and

4. The agreement for the treatment is implemented to improve the clinical outcomes.

Decision-making aids are protocols, standards, or evidence base tools designed to improve the clinical outcomes. These tools are used to help patients to understand in some cases about the treatment options; others are applied to help patients to fulfil the medical instructions (O'Connor, Llewellyn-Thomas, & Flood, 2004).

There are two main elements to consider in the usage of a shared decision-making approach (SDMA). Firstly, shared decision-making facilitates the data collection for the doctor. Secondly, it requires the physician to present to and consider all treatment options with the patient. Thus, the quality of decisions allows the patients to improve their satisfaction with the whole process and treatment with all of this process under controlled or normal conditions. Therefore, the information which the patient brings to the consultation is essential for identifying the correct options for diagnosis and for choosing a treatment option, as well as for the availability of treatment options and clinical outcomes, as the responsibility for the whole process should be shared by both the doctor and the patient. Inside of that thinking process, it is necessary for the physician and patient to consider the assessment of the available options related to individual preferences, the health status, and the possible treatment outcomes to be obtained (Frosch & Kaplan, 1999; Hausman, 2004). As a consequence, to achieve the best clinical outcomes the engagement and active participation of doctor and patient in treatment decisions is required (Drummond, 1996). The Australian healthcare system has consistently strived to improve clinical outcomes through a variety of strategies (Duckett, 2004). Australian healthcare organisations endeavour to improve clinical outcomes for patients who attend hospitals and especially emergency departments (Duckett,
During the last twenty years, research has been related to quality improvement in the patients’ outcomes and treatments (Aboumatar et al., 2013; Berg & Black, 2014). There is increasing evidence to show that different strategies have taken place to produce behavioural changes. Examples of these strategies are the efforts made in the public health system to introduce the Shared Decision-Making Approach (SDMA) which have been introduced in many public healthcare systems worldwide, for example, in Germany (Deinzer, Babel, Veelken, Kohnen, & Schmieder, 2006), as well as in Canada (Liu et al., 2013) in order to improve the quality of medical consultations in the primary healthcare system (Légaré et al., 2012; Légaré et al., 2011). SDMA has been found to have had a positive impact as a model to improve treatment (Aboumatar et al., 2013; Deinzer et al., 2006; Elwyn et al., 2012; Elwyn et al., 2013; Frosch & Kaplan, 1999; Joosten et al., 2008; Tinsel et al., 2013). The Australian healthcare system has adopted from the primary health system model, the Ottawa Decision Support Framework (Boursicot et al., 2011). However, while this model is satisfactory for primary healthcare settings, it has a limited application under specific conditions, such as high-stress conditions, especially about one particular factor, patient safety (Boursicot et al., 2011). The Ottawa Recommendations provide a framework for the primary healthcare system working under non-stress conditions (Boursicot et al., 2011). In this context, doctors follow and use established procedures and standards in consultations of the primary healthcare system under controlled conditions. This framework has also been successfully applied in Canada (Boursicot et al., 2011) and Germany (Tinsel et al., 2013). Regarding its application, the framework has been applied to patients with stable chronic conditions for instance hypertension and diabetes. However, while its effectiveness has been applied under control situations, there is little evidence that the model could be applied under pressure situations or other situations such as unknown details of the patient, mental health acute conditions, or children alone. All these conditions relate to the rights for patients to be
informed about their health status, and the availability of treatment options. It is essential for doctors to enquire and investigate how this decision-making process and evidence-based medicine can interact under high-stress conditions, and how their decision-making processes are adversely or positively affected by the uncertainty of internal or external conditions. Boivin, Lehoux, Lacombe, Burgers, and Grol (2014) argue that behavioural interventions and other more complex strategic patient interventions demonstrate that doctors and patients can cooperate through all the stages of the decision-making process to improve clinical outcomes. Hence, illustrating the importance of including the patient’s concerns and opinions which are related to their health problems. Patients require information about treatment options, possible complications, and the potential adverse effects in a variety of treatments. Therefore, the physician and patient can consider all the options, and then make a final decision based on agreement according to procedures and standard conditions. The best choice should suit the patient in light of the need to address the treatment guidelines that will provide improved clinical outcomes (Joosten et al., 2008; Légaré & Witteman, 2013; L. Politi et al., 2011).

SDMA is an integrative model, which appears to be in between a paternalism mode, where the doctor takes the decision for the patient, thinking of the patient’s best interest or an informed choice model, where the patient makes the decision (Kilner & Sheppard, 2010). In this example, physicians pass on knowledge so patients can understand treatment options. Despite the evidence of the positive impact of this decision-making approach (Butow et al., 2004; Charles et al., 2010; Deinzer et al., 2006; Légaré et al., 2010), it has not been implemented within routine medical practice in Australia (Duckett, 2004; Edwards & Elwyn, 2009).

SDMA is one of the strategies to improve the communication skills within the doctor-patient relationship (Légaré et al., 2012; Zsambok & Klein, 2014). Decision-making could be
defined as a process or group of processes, which is the result of the selection of one option from a range some choices. In more recent studies, responsible decision-making highlights personal ownership and selection of the correct option under certain conditions in specific time conditions. Therefore, responsible decision-making requires the explanation of how decisions are made and require the integration of multiple data resources (Carver & Turoff, 2007). SDMA is an ideal model of consultation for the medical paradigm. The aim is to provide a clear understanding of the shared decision-making approach and medical treatments. This is important to identify relevant characteristics, and consider different issues between forms of shared decision-making, patient autonomy and treatment adherence (Charles, Gafni, & Whelan, 1999; Matthias, Salyers, & Frankel, 2013). The particular decision-making context needs to concentrate on the main points within the disease process to generate treatment options, which can produce different possible outcomes.

The shared decision-making model includes patient centred care (PCC) that is leading modern medicine and health-care planning, promoting effective guides for healthcare delivery. When there is a consensus between patient and practitioners regarding the treatment that is going to be implemented, the better clinical outcomes could be obtained. The shared decision-making approach (SDMA) closely dovetails with the concept of patient centred care (Tinsel et al., 2013) as there is a great emphasis on the active contribution of both participants in the decision-making process under normal conditions, and the importance of finding the optimum model through this mutual participation process.

Improvement in these processes should facilitate engagement and productive outcomes in response to treatment decisions (Sandman et al., 2012). As a result of the improvements in healthcare, SDMA and the Shared Treatment Decision Model (STDM) can affect the quality of care delivery and the conditions under which they are applied, has gained importance from
a patient satisfaction and cost perspective (Joosten et al., 2008). SDMA and evidence-based practice are both important in medical consultations and have a strong association with positive clinical outcomes (Turner, 2013). At the same time, clinical outcomes and patient satisfaction indicators are significant as they play a fundamental role in cost control. Therefore, a positive doctor-patient relationship is essential to improve treatment adherence and prevent adverse effects. These statements highlight that SDMA and Evidence Based Medicine (EBM) could be one of the solutions in this area (Emanuel & Emanuel, 1992).

There have been four models established for the decision-making process: Paternalism; Shared Decision-Making Approach; the Interpretative Choice Model and the Agent Centre Model. Paternalism is where the professional makes the decision based on what they believe to be in the patient’s best interest; contrary to the informed choice. The patient makes the decision based on the information received from the professional. The Paternalistic Model has its origins for the medical profession in the Hippocratic Oath. According to this oath, medical decisions may vary. However, these decisions do not involve patient decisions in the process. Doctors may also go against patient’s requests. It could be understood doctors not seeing the patient as autonomous agents. If a physician, knowing someone’s preference, acts to fulfil their preferences, without their either participation in the decision-making process or to have authorised the other person to make the decision on their own, professionals would be acting in a paternalistic form (Emanuel & Emanuel, 1992).

The utilisation of Shared Decision-Making Approach to prevent chronic diseases should contribute to developing and implementation of safety actions for patients reducing the risk of adverse effects and complications during treatments (Bosworth et al., 2011). As a consequence, complex multifactorial intervention strategies need to be carefully interpreted. Traditional perspectives of SDMA concentrate their attention on the medical encounter when
a decision is made to a treatment plan (Halcomb, Patterson, & Davidson, 2006). The model used to understand how SDMA is necessarily connected to the entire clinical encounter. However, it is broadly accepted that healthcare decisions require the integration of research evidence and individual preferences (Ruppar, 2010). SDMA also promotes safety actions for patients to reduce the risk of adverse effects and complications during treatments. It is possible that specific strategies do not work independently; and as a consequence, complex multifactorial intervention strategies need to be carefully examined (Tinsel et al., 2013).

There is some uncertainty about how SDMA differs from other decision-making models when they are used in the clinical settings to diagnose and treat chronic diseases. This problem could relate to a general lack of clarity, as to how the patient and physician can take part in the SDMA (Rosenfeld, Shiffman, Robertson, & Department of Otolaryngology State University of New York, 2013). The shared information could enhance or reduce the effectiveness of this model. There is the possibility of a variety of different implications that are determined by the decision-making process. However, there is a potential conflict between ethical ideals underlying decision-making models such as paternalism and patient choice models, that are emphasised in healthcare ethics (Halcomb et al., 2006). Under normal conditions in a consultation process, doctors listen and respect patients’ requests and requirements and continue the diagnostic and treatment to produce positive clinical outcomes (Casali & Day, 2010). This approach may ground a middle position which embraces the patient’s ability to make well-informed choices with the physicians’ support. SDMA recognises the importance of these different aspects that bring complementary areas of expertise together for better quality outcomes. Communication and trust between doctors and patients during the consultation process are essential for collaborative agreement treatment and positive clinical outcomes under standard conditions (Tinsel et al., 2013). Shared information helps to support the patient achieving a concrete treatment plan. This approach
should contribute to building a productive and mutually beneficial relationship between doctors and patients within the medical encounter, under normal conditions. This treatment model advances mutual respect and trustful communication between clinicians and patients. As a consequence, it is likely SDMA would produce positive patient outcomes.

The *Interpretative Choice Model* this is where the professional helps patients to interpret their preferences in any given situation and then leaves it to the patients to find the decision. The idea involves patient choice; this is sometimes called informed choice or the consumer model of medical decision-making. This model is different from the paternalistic model because patients have the autonomy over their decisions about the best option. Therefore, the patient establishes their rights to make the final choice when they are provided with alternate options among existing choices (Emanuel & Emanuel, 1992). The idea of the medical shared decision-making model strongly correlates with healthcare ethics and balancing the autonomy of the patient. This medical model has evolved during the last 40 years. The patient rights are at the core of this movement, which is based on the choice of whether to accept or decline offers of healthcare, and the patient’s right to be well-informed about alternative options (Spencer et al., 2012). The *Agent Centre Model* is where the professional makes the decision based on the preferences that are expressed by a patient and without any influence by the practitioner. Thus, as a first step, the conceptual analysis will be used to shed light on how the idea of shared decision-making can be understood. On this basis, a normative argument will be made about these different understandings, which is underpinned by relevant core values of the health-care context. One important consideration of a general nature is the sharing in any model of SDMA, should involve what it is called high-level dynamics (Hausman, 2004).
There are different levels or grades of high-level dynamics that are located between the paternalism and patient choice models that are as follows according to Hausman (2004):

- **Shared Rational Deliberative Patient Choice** and **Shared Rational Deliberative Paternalism**, respectively. They are two distinctive versions of SDMA that are not reducible to paternalism or patient choice although they still contain the element of high-level dynamics;

- **Shared Rational Deliberative Joint Decision**, and **Professionally Driven Best Interest Compromise**. The decision depends on balancing the values of the patient’s best interest with patient autonomy and patient adherence;

- **Shared Rational Deliberative Joint Decision** and

- **Professionally Driven Best Interest Compromise** since the joint decision and consensus may often not be forthcoming even when high-level dynamics of sharing is in place.

The aspects of paternalism and patient choice models are mixed in various aspects in actual clinical practice (Künzle, Kolbe, & Grote, 2010). Different clinical approaches could model the relation between physician and patient. The doctor’s role and patient treatment are affected by a different kind; amount, as well as, the flow of information (de Vries, Ramrattan, Smorenburg, Gouma, & Boermeester, 2008). For example, regarding hypertension, there is increased evidence, that supports the implementation of strategies to improve the adherence to blood pressure lowering medication using SDMA and SDMA aid tools (Ray, Nawarskas, & Anderson, 2012). These strategies include the implementation of self-reporting blood pressure monitoring and cardiovascular risk assessment factors, evaluation of treatment adherence, clinical outcomes and long-term behavioural changes. The usage of decision aid tools will encourage patients to be aware of their cardiovascular risks and to enable doctors to provide effective treatment options to improve treatment adherence (Aboumatar et al., 2013;
Ray et al., 2012; van de Steeg-van Gompel, Wensing, & De Smet, 2010). Howes (2013) study in hypertension demonstrates the effectiveness of communication as a strategy to improve the quality healthcare outcomes in those clinical conditions. Some difficulties or barriers related to the complete implementation of the SDMA have been identified in Australia. The obstacles in applying SDMA are related to communication processes, the time for consultation and the impossibility of deploying all the information as guidelines are not in place for some procedures.

SDMA, based on the communication skills of doctors and patients, relies on the accuracy of medical decisions and fulfilment of the indications of the treatment plan. Correct understanding is required of the information given by the patient, and all the patient related factors such as background, beliefs and expectations (Coran, Koropeckyj-Cox, & Arnold, 2013). It is necessary to explore these factors about the complete implementation of the SDMA in chronic diseases (Tinsel et al., 2013). Decisions are crucial, but they totally depend on the level of understanding and the development of skills to communicate adequate information to the patient. Uncertainty is a factor that influences the decisions and clinical outcomes (Légaré et al., 2012; M. C. Politi, Lewis, & Frosch, 2013). The usage of the SDMA and decision aid tools as strategies to lower the levels of uncertainty within the decision-making process confers the possibility of standardisation of the shared information (Politi et al., 2013).

The most important factors that are involved in a good doctor-patient relationship are the trust and communication skills. These aspects are critical when providing and delivering medical services. As a consequence, this relationship is paramount to generate quality improvements in patient outcomes (Edwards & Elwyn, 2009; Elwyn et al., 2012; Elwyn et al., 2013).
According to this paradigm, there are several technical and external barriers which have an impact on the general practitioner's ability to improve their treatment efficacy (Howes et al., 2013). An example, which highlights this point, is that practitioners have the ability to acquire knowledge and the required skills to deliver counselling and advice to the patients. Howes (2013) describes an overwhelming lack of success in medical practices. There are two technical factors about this lack of success, which are the patient’s ambiguity and reluctance to treatment. There are also external factors, which do not allow patients to make informed and wise choices; these include problems related to the time of consultations and different schedules and access to specialists.

An alternative approach is to focus on improving the doctor’s confidence, skills and resources in the consultation process to enable them to engage the patient in a ‘dialogic’ practice that will lead to better treatment adherence and positive clinical outcomes (Fiscella et al., 2004). One way of achieving this is through the use of SDMA (Matthias et al., 2013). Informed decision-making is a two-way communication process between the patient and the healthcare practitioner; it is related to the patient-centred healthcare model (Braddock III, Edwards, Hasenberg, Laidley, & Levinson, 1999; Charles et al., 1999; Gardner, 2012). The highlighted principle is based on ethical standards; patients have the right to decide what is appropriate; as they consider their value system that includes their beliefs, priorities and personal circumstances. It includes the right to accept or decline the offer of personal healthcare and to change decisions. To put into practice and respect patient rights of access to personal information (Frosch & Kaplan, 1999).

Informed consent in a healthcare context is a legal principle that reflects an individual agreement regarding a proposed treatment. In this regard, the informed consent is an agreement between the doctor and the patient. It is related to the treatment which is going to
be performed and includes legal protocols. It stipulates that a patient has received the relevant evidence, facts and information to make an informed decision and that they have authorised for the healthcare actions to be performed (Frosch & Kaplan, 1999).

Finally, the methodology applied in consultation has a direct effect on the treatment adherence and clinical outcomes. It is related in several studies as one of the most important factors to improve clinical outcomes (Turnbull, 2008). In an ethical sense, it is a dialogue that provides the patients with voice and the opportunity to engage with healthcare providers. Also, it supports the patient to take a decision to agree or not with the suggested treatment. As far as possible, the patient should be advised in plain language about diagnosis, recommendations for healthcare, which include the expected benefits, common adverse and side effects, as well as alternative treatment options. The patient should also receive advice and explanation of the expected outcomes, recovery time. Also, any significant implication related to short and long-term health outcomes (physical, emotional, mental, social, and sexual) should be provided (Turnbull, 2008).

Based on the literature review, SDMA as a medical model of consultation has a different approach in the medical field (Stacey et al., 2014; Tinsel et al., 2013). This model leads to increased patient interaction, treatment adherence and patient satisfaction under normal or standard conditions (Perret-Guillaume et al., 2011; Sheridan et al., 2014). It has supported interventions and allowed physicians and patients to intervene and engage in conversations to assist patients with their treatment decisions. In this model, physicians pass on knowledge so patients can understand treatment possibilities. Despite evidence of the positive impact of this decision-making as an approach (Butow et al., 2004; Charles et al., 2010; Deinzer et al., 2006; Légaré et al., 2010), it has not been implemented within the routine medical practice (Edwards & Elwyn, 2009).
In addition, Carling (2010) identified key communication-related factors fundamental in decision-making in medical care for patients. These factors include the application of ethical principles and interaction with patients, to acquire sufficient information from patients to formulate diagnoses and appropriate treatment plans. The doctor takes into consideration patient’s goals, values and concerns, which are important to establish empathy and guidance for patients. Furthermore, the shared decision-making approach as a model of consultation is essential for treatment adherence and clinical outcomes in chronic diseases. Treatment adherence might be influenced by additional factors for example patients’ health beliefs and attitudes in front of chronic diseases.

These beliefs and attitudes of a patient affect the relationship between the model of consultation, knowledge and treatment satisfaction due to the positive relationship seeking and improved clinical outcomes. In conclusion, this study highlights the importance of enhancing the ability of doctors to use the shared decision-making and evidence base practice within the medical consultation. This approach includes information about potential risks, associated complications and details of the decision of receive or not the proposed treatment (Naccarella, Greenstock, & Brooks, 2012).

2.5 Clinical decision-making in dynamic and unpredictable situations

2.5.1 Sense making in unpredictable situations

The human ability to understand the surrounding conditions and to produce an action resulting from a stimulus is part of sense making. It is how people know the reality they are facing and as such. ‘A person never knows what the journey would be like, until he does it (Weick, 1988).
Someone can understand the reality only when they are immersed in that reality, then the value of that experience will help to face and embrace that reality. The situation will regulate the appropriate action. This is illustrated by the case in the following paragraph that relates to the case of Union Carbide’s procedure for dealing with gas leaks:

*The Bhopal plant’s operating manual for methyl isocyanate offered little guidance in the event of a significant leak. After telling the operators to dump the gas into a spare tank if a leak in a storage tank cannot be stopped or isolated, the manual says: ‘There may be other situations not covered above. The situation will determine the appropriate action. We will learn more and more as we gain experience (Diamond, 1985, p. 7).*

Weick (1988) indicates that sense-making in crisis conditions is made more difficult because action that is instrumental to understanding the crisis often intensifies the crisis:

*This dilemma is interpreted from the perspective that people enact the environments which constrain them. It is argued that commitment, capacity, and expectations affect sense-making during the crisis and the severity of the crisis itself. It is proposed that the core concepts of enactment may comprise an ideology that reduces the likelihood of a crisis (Weick, 1988, p. 1).*

Special consideration of the consultation process inside of high-stress areas defined as areas of high uncertainty needs to be made. This particular factor determines how doctors collect information, arrive at a diagnosis and provide treatment for patients located in the regions considered of high stress at hospitals. Crises can threaten the most fundamental goals of an organisation due to their low probability; these events stand firm interpretations and impose severe demands on sense-making.
The less adequate the sense-making process directed at a crisis, the more likely it is that the crisis will get out of control. That straightforward proposition conceals a dilemma because people think by acting. To sort out a crisis as it unfolds often requires action that simultaneously generates the raw material that is used for sense-making and affects the unfolding crisis itself such that ‘there is a delicate trade-off between dangerous activity that produces understanding and safe inaction, which creates confusion (Weick, 1988, p.1).

According to the literature, there are clear limitations of SDMA in emergency departments. In such situations, clinicians may not be able to collect all the appropriate information from the patient, and may not have all the information needed to arrive at a diagnosis, and additionally, consult patients about their treatment preferences. At the same time, not all health problems are appropriate for the application of an SDMA. As an example, with the diagnosis of acute appendicitis, the only reasonable treatment is an appendectomy; therefore, the shared decision-making model will not apply for treatment options (Frosch & Kaplan, 1999).

2.6 Factors affecting clinical decision-making and performance

The doctor’s role in society has always been considered important in community life (Groopman, 2007). Furthermore, physicians due to their scientific knowledge and close contact with the community, have the potential to engage with patients and encourage them to achieve quality healthcare outcomes (Paice, Heard, & Moss, 2002). Therefore, the doctor-patient relationship is invaluable (Szasz & Hollender, 1956).

The positive relationship between doctors and patients may optimise the medical treatment. For example, doctors’ communication skills are built on patient trust. This process is related to trust and confidence that patient develops during this consultation process, and it will help
ensure patients follow the instructions and treatment adherence. It is needed to establish an adequate relationship between doctor and patient, to allow patients to understand the diagnostic plan and discuss the treatment options.

The connection between these critical factors communication, evidence-based practices and trust, are essential to the shared decision-making approach. It will help the patient to engage in the treatment plan and follow the treatment instructions (Tinsel et al., 2013). The improvements to their quality of life could also give the patient a perception of satisfaction with the treatment. The considerations include multiple aspects of patient care which medical doctors need to address: respecting the patient’s values and preferences, as well as their ability to communicate and educate patients (Stacey et al., 2011). Also, the total management of patient care to preserve the integrity and provide emotional support should be considered.

One aspect of this research study centres around the relationship between doctors and their patients, based on seven concepts. These are illustrated in Table 2.1 as follows

*Table 2.1 Doctor-patient relationship (Stacey, Legare, Pouliot, Kryworuchko, & Dunn, 2010).*

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Authors</th>
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<tbody>
<tr>
<td>How people make choices</td>
<td>(Tversky &amp; Kahneman, 1974)</td>
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<tr>
<td>Social psychology</td>
<td>Bond, Carlson, Keeney, (2008).</td>
</tr>
<tr>
<td>Decisional conflict</td>
<td>Limayem (2000)</td>
</tr>
<tr>
<td>Social support</td>
<td>Baillie (1988);</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>(Bandura &amp; Cervone, 1986)</td>
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<tr>
<td>Levels of physiological stress reactions, self-</td>
<td>Holmes (2002),</td>
</tr>
<tr>
<td>regulation of refractory behaviours, and</td>
<td>Ochsmann (2011)</td>
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<td>response to failure</td>
<td></td>
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</table>
Table 2.1 shows the relevant studies on the doctor-patient relationship describing the key elements to developing and maintaining this important relationship. These factors include excellent communication skills, leadership, teamwork, and shared decision-making of the doctor-patient relationship within the medical consultation under normal conditions. Also, the utilisation of evidence-based knowledge helps to identify the diagnostic and relevant treatment options (Coomarasamy & Khan, 2004). As a consequence, the SDMA and evidence-based practice are founded on adequate communication skills that encourage the development of mutual trust. This provides a positive approach to solving problems such as misunderstanding or miscommunication, which are barriers to effective communication (Gellad et al., 2011; Rosenfeld et al., 2013; Wears & Leape, 1999).

An adequate decision-making approach will help to avoid medical error and adverse effects for patients (Ehsani, Jackson, & Duckett, 2006; Emanuel & Emanuel, 1992; O'Connor et al., 2004). Furthermore, it helps to achieve the primary objective of the treatment plan, which is patient well-being (Hausman, 2004). At the same time, clinical outcomes and patient satisfaction indicators are essential as they play a vital role in cost control. Therefore, a positive doctor-patient relationship is crucial in improving treatment adherence and may prevent adverse effects that in the long-term contribute to effective cost control.

SDMA is important within the medical consultations due to the strong association with solid communicational skills (Turner, 2013). These statements highlight that SDMA could be one of the solutions for maintaining quality in clinical decision-making, not just during controlled but also in stressful situations (Emanuel & Emanuel, 1992).
2.6.1 Scenarios and their impact on performance

The effect of stressful conditions has been studied in high-risk environments such as police, aviation, and emergency healthcare systems to improve the quality of outcomes for users and workers. Considering the effect of stress in emergency areas is challenging because it is difficult to anticipate when stressful events might occur in crises and emergencies (Jones, DeVita, & Bellomo, 2011; Matteson & Ivancevich, 1987). This is the reason why researchers have formulated several methods to examine the effects of stress, from retrospective reviews of critical aviation incidents, and procedural simulations under stress, such as evacuation procedures for fire or floods (Jones et al., 2011; LeBlanc, 2009).

Different scenarios, systems and personal conditions could affect workers with Jackson (2014) arguing that the combination of specific situations could produce stress in workers, and the particular form of how individuals could react in different ways to the same situations. As an example, Jackson et al. (2014) claimed that the combination of two distinct factors: the lack of sleeping hours and predisposition of falling asleep reduce alertness and performance in night work, thus increasing the risk of injury. Akhtar and Utne (2014); Querstret and Cropley (2012) reported that accidents were three times more likely to happen in the workplace at night, rather than in the morning; Womack, Hook, Reyna, and Ramos (2013) suggested that sleep deprivation is associated with impaired judgement. Injury risks are likely to be at their lowest on morning shifts and highest in night work. Fatigue may also influence the risk of accidents (Akhtar & Utne, 2014). During daily activities, people are inundated with of all forms of information (Pottier et al., 2013; Querstret & Cropley, 2012; Weinberg, Cooper, Sutherland, & Bond, 2010), therefore cognitive system can become overloaded and decreases the attention (Chajut & Algom, 2003). The capacity of processing information is restrained due to stressful conditions (Chajut & Algom, 2003). Some studies
have identified poor performance is more likely to occur under acute stress (Harris & Cumming, 2003; LeBlanc, 2009). Meanwhile, other studies showed improvements in performance and enhanced learning (Harvey, Bandiera, Nathens, & LeBlanc, 2012; LeBlanc, 2009; Pottier et al., 2013). However, the selective attention mechanisms during the stress-related events remain uncertain.

2.6.2 Police and security personnel

Recent years have seen an increased awareness of the causes and consequences of work environments and the impact on police officers and security personnel (Kroes, 1985). Diestel (2011) identified the symptoms of cop burnout as one of the most prominent symptoms of stress (Ekstedt, 2005; Mowday, Porter, & Steers, 2013). Stress can produce physiological effects on employees; it can influence mental health and affect the overall performance and effectiveness of the organisation (Gershon, Barocas, Canton, Li, & Vlahov, 2009; Mowday et al., 2013). Some of these physiological symptoms include exposure to violence, alcohol consumption, physical and emotional exhaustion, and lack of sensitivity (Davey D, 2001; Violanti & Aron, 1993). There are other organisational indicators of stress such as absenteeism. It is estimated that more than 70 percent of all absenteeism is due to stress-related illness (Tang & Hammontree, 1992). Violanti and Aron (1993), Patterson (2003), and Pflanz and Ogle (2006) identified the relationship between the perceived stress and years of exposure to this working experience. Indeed, stress recognition has changed the image of police and safety organisations concurrently assisted in reducing work non-attendance and inappropriate behaviours which affect others. These studies have been important to train police managers to build policies that take stress into account to enhance the quality of work life for police and security personnel. These actions decrease staff turnover and improve job
Outside of healthcare, other industries offer insights into decision-making under pressure.

### 2.6.3 Aviation

The aviation sector and the National Aeronautics and Space Administration (NASA) identified human factors as a common cause of air crashes (Helmreich, Merritt, & Wilhelm, 1999). Human factors were related to problems in flight operation processes, such as decision-making, interpersonal communications, and leadership. The aviation industry focuses on patterns of learned behaviours, related to human security, to prevent human error (Helmreich et al., 1999; O'Hara, Higgins, Persensky, Lewis, & Bongarra, 2004). Helmreich et al. (1999) describe these errors in aviation, and methods to improve and manage individual errors through teamwork. Teamwork training plays a crucial role in aviation systems improvement (Helmreich, 2000). These findings have led to the development of a training program called Cockpit Resource Management to improve flight deck communications (Helmreich et al., 1999).

### 2.6.4 Emergency areas

The aviation industry and emergency medicine share a high demand for attention, concentration and fast decision-making under high-stress conditions when human life is at risk (Helmreich, 2000; Helmreich et al., 1999; O'Hara et al., 2004; Prince & Salas, 1993). An example of research looking for healthcare improvements and stress reduction is medical teamwork (Edmondson & Lei, 2014; LeBlanc, Woodrow, Sidhu, & Dubrowski, 2008; Wahr et al., 2013). Studies of the relationship between the aviation industry and teamwork at hospital emergency departments have contributed to an improvement in communication skills of medical teams during emergency procedures (Carmeli, Tishler, & Edmondson, 2012; Edmondson, 2003; Harvey et al., 2012; Kilner & Sheppard, 2010; Maguire, Bremner,
Bennett, & VanBrackle, 2015; Morey et al., 2002; Nembhard & Edmondson, 2006). As a result of these studies, medical staff could use similar team structure and team knowledge as the aviation industry to mitigate their changing environment (Edmondson, 2012; Edmondson & Lei, 2014; Sexton, Thomas, & Helmreich, 2000).

One of the major concerns in healthcare around the world is patient safety and quality healthcare delivery in critical situations (de Vries et al., 2008; Parascandola et al., 2002; Vincent, 2011). Donabedian (1980) argued for the necessity to deliver high quality and safe medical procedures for all. Thus, the quality of care for populations could be defined as the capacity to provide adequate care, underpinned by an efficient and equitable platform, and when combined produces better outcomes in health and human well-being (Donabedian, 1980).

Carling et al. (2010) identified key communication-related factors which are essential for decision-making in healthcare for positive clinical outcomes in non-stress related situations, including:

1. Doctors consider patient’s goals, values and concerns as important factors for establishing empathy and assisting the doctor in obtaining enough information to formulate diagnoses and appropriate treatment plans, as well as guidance for patients (Carling et al., 2010).

2. Patient beliefs or attitudes affect relationships with the healthcare professionals and as a result affects clinical outcomes and patient satisfaction. Furthermore, these are the basic foundations for correct diagnosis and treatment; as a logical consequence of this process right clinical outcomes can be expected (Carling et al., 2010; Harvey et al., 2012; Tversky & Kahneman, 1986).
Clinicians are not always able to control the circumstances of the consultation process, and the quality of the consultation as the clinical decision-making and outcomes can be affected (Harvey et al., 2012; LeBlanc, 2009; Légaré & Witteman, 2013). For example, in high-stress settings, such as emergency departments, intensive care units, operating theatres or delivery rooms, external factors often play a significant role in decision-making processes (Helmreich & Davies, 1996; Tversky & Kahneman, 1986). These decisions could be affected by doctors’ personal factors, short consultation times and requirements to make decisions and act quickly, as well as, the pressure of patients waiting to be seen, often in difficult surroundings (Helmreich & Davies, 1996; Hsia et al., 2011; Légaré & Witteman, 2013; Rathlev et al., 2007). The accuracy in collecting data, selecting the clinical evidence and the decision to support or oppose a diagnosis could be affected by stressful conditions.

Stressors and clinical outcomes also should be analysed in the context of different scenarios, systems, personal circumstances and times that are related to how people react, the decisions they make and the outcomes. An example of how different scenarios could affect performance is the case of the emergency department in a hospital, where the four-hour time reform has been applied. This refers to the time when the patient arrives for attention to the time they are discharged home or to another ward within four hours. The analysis of this situation from the patient’s point of view this time frame has a positive impact on patient satisfaction. However, a four-hour time reform is not always evaluated positively if the patient perceives that this time frame is related to a lack of quality care and poor decision-making. From the clinician’s point of view, this additional stressor to the complex environment they already have could affect the scenario regarding decision-making processes and fast actions that are required in this area. As a possible consequence of the four-hour reform, it could create more problems related to accuracy and outcomes, rather than patient satisfaction for a short consultation time. For clinicians, many factors contribute to the
analysis of the emergency areas. Risser et al. (1999) explained that medical staff composition could vary from one day to another, and even between hours. Due to their particular work schedules and distribution (24 hours per day, 365 days of the year), healthcare institutions face different scheduling situations with staff, because a variety of circumstances, such as, vacations, illness, changing wards and areas (Barrett, Gifford, Morey, Risser, & Salisbury, 2001; Helmreich & Davies, 1996). In addition, high rotation rate had been related to adverse effects (Morey et al., 2002). The uncertainty of the scenario, the rules are given by the different health systems and the personal situations, all of these stressors interact in different levels and could affect attention levels, memory, decision-making processes and outcomes of these decisions could be different for each patient.

Organisational processes and hospital general performance are being measured by quality indicators (Chassin & Galvin, 1998). The relationship between productivity and outcomes have been limited to measurement difficulties (Edmondson, 1999). The length of time of consultation is not the most important indicator of the efficiency and productivity of medical consultations at emergency departments (Hsia et al., 2011; Jones et al., 2012; Lowthian et al., 2012). Hence, the final clinical outcome is the real indicator which must be taken into consideration to evaluate the efficiency and effectively of the emergency systems (Ehsani et al., 2006; Lowthian et al., 2012).

2.6.5 Emergency medicine

The emergency medicine, aviation and those operating nuclear reactors have common high demands on mental processes in which lives are involved (Helmreich et al., 1999; O'Hara et al., 2004). The Emergency Team Coordination Course (ETCC) is structured taking into consideration five points: maintaining group organisation and environment, applying the
problem-solving methodology, maintaining communication, planning execution, managing workloads, and improving group skills (Risser et al., 1999).

2.6.5.1 Emergency departments

The increased demand for hospitals causes a bottleneck in all medical services. A significant part of this problem has been caused by the shortfall of medical staff; this is not always the case. Therefore, access to medical services could be affected by the length of consultation time used by doctors trying to bring more coverage to the patients who ask for medical attention (Rathlev et al., 2007). As a consequence of the shortfall of human resources, long waiting periods to book a consultation with specialists for patients cardiovascular diseases complications have appeared as a public health problem (Rathlev et al., 2007). In order to explore this issue and the different factors which could affect the doctor-patient relationship, the internal and external situations which could influence medical staff who could be severely affected by variability are mentioned (Rathlev et al., 2007). This variability of the medical staff could be produced due to different causes such as illnesses, vacations, or training (Litvak & Bisognano, 2011). These fluctuations are not considered most of the time; as a result, the entire hospital programming, timetables, plans in areas such as wards, emergency, surgery and delivery rooms may change and affect patients (Litvak & Bisognano, 2011; Rathlev et al., 2007).

Ardagh et al. (2012) expressed concerns about the quality of emergency services at hospitals and have worked to improve the quality of the medical services in emergency rooms in two critical areas that modify the procedures to achieve better outcomes in patient treatments. These communication skills are related to the efficacy and efficiency of the treatment plan indications, as well as the research for the application of the SDMA and EBP within the consultation in high-stress areas in hospitals. The reviewed indicators related to, which
includes the time, patients who are waiting for attention at the emergency room; the length of
time patients are discharged and send home or up to the wards, and the time in which a main
surgery or procedure could be performed (Jones et al., 2012). Validation of the indicators
was conducted by the National Research Process in New Zealand, which ensured the
continued improvement of the quality and safety of patients in emergency rooms (Jones et al.,
2012).

There are five specific characteristics related to this shared decision-making process. The
first characteristic is the effective communication between primary care providers, general
practitioners, and patients in hospital. Internal and external factors could affect the
communication process; these include different cultural backgrounds, and languages. The
second characteristic is time. The length of time of a particular procedure which is performed
in an emergency room in hospitals, when time is crucial for acute and chronic diseases such
as stroke, heart attack, or trauma. The third and fourth characteristics are the access and
pertinence of the care provider and the medical attention process. The final feature is patient
satisfaction in regards to the waiting times and the patient’s perceptions of quality and
experiences (Litvak & Bisognano, 2011).

Patient satisfaction can be evaluated through indicators such as the number of patients
leaving the emergency room without being seen (Hsia et al., 2011). This indicator highlights
the number of complications and deaths of patients who leave the hospital before medical
attention is provided in the emergency. This factor is directly related to long waiting times at
emergency areas and the importance of reducing hospital re-admissions (Jones et al., 2011).

These indicators should be addressed concerning patients in both consultations of emergency
departments, as well as, in regular medical consultations. It is important to consider patient
safety and satisfaction when performing faster procedures in individual cases such as,
myocardial infarction, appendicitis, neck or femur fracture, the beginning of antibiotic treatment in severe infection, asthma and the waiting time for analgesia (Jones et al., 2011). Part of the Australian healthcare reform is orientated to improve efficacy and efficiency of the hospital at emergency areas. One of the primary objectives is to bring the attention of patients at emergency areas from the time they arrived to the hospital to the time patients go home must be in four hours. The hours at emergency could work as a predictor indicator of the quality of care for patients. Fewer hours in emergency areas could improve clinical outcomes, as well as, fewer days of hospitalisation, which in turn reduces hospital operational costs. For the four hour-model target to be successfully implemented, the human resources gap and the above indicators must be considered in responding to adverse events and mortality with patient admissions (Hsia et al., 2011; Richardson, 2006). Importantly, there needs to be a behavioural change by medical staff in order to understand their vital role and the necessity of reinforcement on communication skills within the medical consultation. Jones et al. (2011) suggest that the process of quality improvement is necessary to review and redefine time-related, as well as, clinical indicators. These enhancements should be integrated into a comprehensive framework designed to provide and increase patients’ safety in emergency areas, which is crucial for all the medical healthcare systems (Lowthian et al., 2012). Doctors in stressful situations are involved in complex environments; patients go to the emergency departments more frequently with chronic diseases and symptoms associated with cardiovascular complications like angina or stroke (Australian Bureau of Statistics, 2013). Patients do not follow the treatment indications, due to several causes, such as communication problems from short consultation time and misunderstanding of the prescribed medications. Thus, chronic diseases maybe be related to non-treatment adherence and lack of behavioural changes and require long-term behavioural change and information based consultations (Casali & Day, 2010).
2.6.5.2 Medical teams

The number of healthcare workers in a ward depends on factors such as staff availability and patient volume. In this model, the work is sustained by a shared set of healthcare workers’ skills rather than permanent assignments to carry over from day to day (Wakefield et al., 2012). Decision-making and problem-solving processes are strongly required even though final outcomes rely on other circumstances (Wears & Leape, 1999). Scally and Donaldson (1998) said individual skills alone do not ensure good performance by themselves, however, are essential for final collective outcomes. It is also important to remember that behavioural, medical skills do not replace clinical skills (Risser et al., 1999). Empirical beliefs have shown a link between individual skills, performance and health outcomes (Wakefield et al., 2012). Even though a strong leadership is crucial to the active followership work, individual performance is also vital (Kortteisto, Kaila, Komulainen, Mäntyranta, & Rissanen, 2010).

A medical team composition may vary depending on context and different area’s needs, as well as, the complexity and levels of performance of the organisation (Risser et al., 1999). Risser (1999) claimed medical staff composition would vary from one day to another, and even between hours. Due to their particular work schedules distribution (24 hours per day, 365 days of the year), healthcare institutions face different schedule situations with the medical staff because of changing life circumstances such as vacations, illness, changing wards and areas. High rotation rate had been related to adverse effects (Morey et al., 2002). Clinicians work with a collective mind in multidisciplinary groups, towards a common objective: the patient’s healthcare (Braithwaite et al., 2005; Maguire et al., 2015).

2.6.5.3 High-performance work systems.

High-performance work systems (HPWS) have been described as “a group of separate but interconnected human resource practices that are together recruiting, selecting, developing,
motivating and retaining employees is a goal” (Zacharatos et al., 2005, p. 79). There is evidence that (HPWS) in their individual and collective components have a strong relationship with organisational performance (Batt, 1999, 2002; Delaney & Huselid, 1996; MacDuffie, 1995; Youndt, Snell, Dean, & Lepak, 1996). Paauwe and Richardson (1997) suggested HPWS were related to human resource management outcomes and organisational performance. Therefore, better results could be achieved through high-performance work activities and procedures (Combs, Liu, Hall, & Ketchen, 2006). Furthermore, Dickinson et al. (2011) defined the relationship between HPWS and quality of patient care as an organisational performance measure. For example, a study of nearly 1,500 clinicians found that key components of HPWS, such as efficient teamwork were associated with the job and patient satisfaction. One of the important factors that underpin HPWS is human resources administration. Human resources management is responsible for building an appropriate environment in workplaces to improve communication and decision-making processes, to produce better outcomes (Whitener, Brodt, Korsgaard, & Werner, 1998; Zacharatos, Barling, & Iverson, 2005). As a result, an effective human resource administration inspires their workforce to achieve the aims of the organisation.

Zacharatos et al. (2005) considered as representative of HPWS: security, selective hiring, contingent reward, extensive training, teams and decentralized decision-making, reduced status distinctions, sharing information, transformational leadership, high quality work (defined as appropriate workload, role clarity, and employee control) and measurement of management practices. HPWS practices are supposed to affect performance by developing employees’ abilities and accountability to complete their daily jobs (Guthrie, 2001; Huselid, 1995; Preuss, 2003).
2.6.5.4 Medical leadership

According to Bohmer (2012) leaders need to work consciously to develop or improve procedures in healthcare institutions. Clinicians understand medical sciences and organisational objectives due to the knowledge; they would be able to design, build and organise medical services to improve clinical outcomes (Curry & Ham, 2010), working on a team level and communicational procedures (Edmondson, 2012; Havyer et al., 2014; Haynes et al., 2009; Neily et al., 2010).

Health requires medical leadership because physicians are empowered by professional affiliation (Bohmer, 2012). Doctors may be able to influence their peers’ behaviours, due to their understanding of the medical sciences complexity and dynamics (Bohmer, 2012). The role of doctors as leaders was reinforced with the creation of the NHS in 1948 (Kelly & Glover, 1996), Griffiths Report (1983) and Darzi Report (2008). Leadership needs to respond to the complexity and performance of health organisations (Lorsch, 2010). Therefore, the interpretation and description of leadership levels are related to the complex nature of clinical and surgical decision-making diagnosis and treatment processes (Bohmer, 2012; Glouberman & Mintzberg, 2001; Lorsch, 2010).

2.6.6 Patient outcomes and safety

Patient outcomes evaluated from the patient perspective are strongly related to perceptions of safety, time, efficiency and effectiveness of the service and how the service is delivered (Litvak & Bisognano, 2011; Rathlev et al., 2007). For example, one of the main concerns that has been identified as a problem within the doctor-patient relationship is time management limitations, the enlargement or shortening of the consultation beyond optimal limits that affects the possibility to deliver a message (Rathlev et al., 2007). This may lead to adverse events, cause the patient and family members’ dissatisfaction and possibly add cost
to the healthcare; then, indicators of individual and organisational performance may provide an understanding of the given situation (Rathlev et al., 2007). As an example, in the Australian study, Ehsani (2006) identified a relationship between adverse effects and the rising cost of medical services. According to Ehsani (2006), there are three indicators for adverse effects: length of stay, costs of healthcare and in-hospital mortality. A strong relationship between pre-existent co-morbidities, healthcare complexity and resources used has been associated with the adverse effects occurrence. Also, days of stay were found as a predictor, as well as, an indicator of adverse events (Ehsani et al., 2006).

Patient mortality and reduction of adverse events are indicators, which have been used as a particular clinical outcome, as well as, patient satisfaction indicators (Duckett, 2004). Patient satisfaction has been confirmed as a valid measurement of clinical patient outcomes; therefore, an appropriate measure of the quality of care. Adverse events have been used as indicator of quality in healthcare (Gray, 2001).

2.6.7 Human factors

2.6.7.1 The relationship between attention, memory and decision-making under pressure

Selective attention was first described by MacLeod and Rutherford (1992). It can be an element of the stress response. Also, it is associated with threat-related information and with aspects of the stressful condition (MacLeod, Rutherford, Campbell, Ebsworthy, & Holker, 2002). Selective attention is a process that allows the focus to be directed at the stimulus and avoids cognitive processes to be overload. Selective attention also determines the relationship between a stressor and the task being performed (Mathews & Mackintosh, 1998). It is the filter that regulates what information is necessary and that should be disregarded. As a consequence, limited resources are assigned to the task being performed (Chajut & Algom, 2003). Chajut and Algom (2003) claimed what selective attention is enhanced under high-
stress conditions. Also, he described a positive relation between stress and selective attention; as pressure increases focus becomes more selective. Therefore, stress would be beneficial when a task requires the exclusive focus on specific target information (Chajut & Algom, 2003).

As an example in the medical field, as part of the practice at emergency departments and intensive care units the task being performed is related to the source of the stress (a patient), as a consequence, selective attention is directed to the work itself (Cumming & Harris, 2001). The subjects’ attention will be focused on the source of the stress and will exclude stimuli that are unrelated to the task. External factors, such as light, noise, as well as the information generated from team members might be excluded from the task being performed which is the source of stress (Harvey et al., 2012). Although, there are contradictory findings regarding the effects of stress on selective attention; there is consistent evidence that divided attention into tasks, and the integration of information from several sources are vulnerable to the consequences of stress (Cumming & Harris, 2001; LeBlanc, 2009).

2.6.7.2 Characteristics of healthcare professionals and susceptibility to stress

Stress definition

Hans Selye (1936a) described for the first time stress in his ground-breaking report that “Stress is a nonspecific response of the body to any demand presented to it” (Selye, 1936a, p. 32). He described the effect of stressors in rats and called it the alarm effect. Selye named stress the response and stressor agents that produced a reaction. He also defined the concept of the General Adaptation Syndrome as a subsequent response to a prolonged stressor over the time (Selye & Collip, 1936). Although the idea of stress has changed, the meaning continued the same; a condition that in spite of a different kind of agents always induces a
similar, though not same, neuroendocrine response. This biochemical response increases the adrenocorticotropic hormone secretion (ACTH) from the hypothalamus and raises the production of glucocorticoid hormone by the suprarenal adrenal cortex (Zoratti & Szabó, 1995).

Recent definitions of stress are strongly related to the concept of homoeostasis, an alteration of the internal equilibrium which produces different patterns of adaptation to the stressors with physiological and behavioural responses (Chrousos, 1998). The adaptation processes are related to the susceptibility of the subject to the stressor and the ability to cope with it. Lofquist and Davis (1969) defined stress as a person-environment relationship between particular characteristics of a person and the possible causes of stress at work settings. Even though it is not directly stated, it seems like individuals are "under stress" particularly when the environment requires more of the person's capabilities or skills and the subject feel threatened not be able to meet the expectations or the environment fails to provide the needs of the individual (Schuler, 1980). And Cooper, Marshall, and Cooper (1976); S. Johnson et al. (2005) claimed that occupational stress is when an individual is overwhelmed with negative environment factors such as difficult working conditions, work overload or role conflicts associated with a particular work. A person is "under stress" when the mechanisms of adaptation to a new reality fail, due to the negative environmental factors. Stressors are understood as demands or constraints rather than opportunities (McGrath, 1976).

2.6.7.3 Distress versus eustress

Cannon (1914) and Selye (1997) considered catecholamines the response to pain or extreme emotions, as well as the short duration of the alarm reaction phase. Selye and Collip (1936), and Vale, Rivier, Yang, Mlinick, and Guillemin (1978) suggested that not only catecholamines (adrenal-medulla) but also corticoids (steroids adrenal cortex) under the
stimulus of adrenocorticotrophic hormone (ACTH) and hypothalamic releasing
factors/hormones play a role in the stress reaction. Also, Selye (1936b) and Breitwieser and
Szabo (1985) established the role of glucocorticoids as responsible for most of the
morphological manifestations of distress, especially, in the stages of resistance and
exhaustion. Raiteri, Del Carmine, Bertollini, and Levi (1977) characterised the positive and
adverse effect of stressors and the different reactions that stressors could produce. In this
form, he hypothesised that the brain cortex was able to recognise different substances
produced when you are happy, sad or worried. Also, the time of exposure to the stimulus
could affect the reaction and how the organism will react in front of this stimulus. Selye
(1997) based on the answer to this observation defined the terminology of distress and
eustress.

Eustress was defined when the stressor turns on the alarm systems; the reactions induce
actions which could contribute to a positive outcome (Selye, 1997). An example of this it
could illustrate how people react to undertaking an exam. Several students could react in a
positive way regarding memory and attention under stressful conditions and pass the exam;
however, others could fail the exam in the same circumstances. Distress was defined as a
reaction produced by a stressor during an extended period. The outcome of this prolonged
exposure creates an adverse effect on normal life and performance. Based on his
observations, Selye (1997) said that although individuals could be exposed to the same
conditions, the difference is established in the way people react to it. This axiom is
paramount for the human resources areas because this personal appreciation of the reality
could affect workers’ performance, certain individuals can perform better than others under
stressful conditions. A variety of daily incidents around the world influence stress levels
particularly in hospital emergency departments (Eysenck, Derakshan, Santos, & Calvo,
2007). Early intervention strategies have been studied (Weinberg et al., 2010). However, the
impact of significant traumatic stressors during the timeline events should be investigated. Avey, Wernsing, and Luthans (2008) defined job stress as an adaptation to an external stimulus that influences behaviours and produces physical and psychological consequences for the members of the organisation. These stressful situations often result in psychosomatic illnesses in workers and affect their performance in organisations (Gershon et al., 2009; Pflanz & Ogle, 2006; Querstret & Cropley, 2012). As a consequence, stress has arisen as a major issue for studies of organisational behaviour and training (Avey et al., 2008; Lazarus & Folkman, 1984).

### 2.6.8 Teamwork

Brannick, Salas, and Prince (1997) defined a team as two or more individuals working together in order to achieve specific objectives. Teams have their patterns of communication, coordination and adaptation to different circumstances. Team members share goals and resources; however, they have task specific competencies, as well as specific work roles. Teamwork theory has focused on some factors which could modify teamwork task performance such us: outcomes as efficiency parameter (McIntyre & Salas, 1995) how team members are organised (Salas & Cannon-Bowers, 2001) work environment and team member characteristics (Salas, Cooke, & Rosen, 2008).

Aviation and nuclear energy industries have common structured learned behaviours related to human security which seek to prevent human mistakes (Helmreich, 2000; O'Hara et al., 2004). Effective teamwork does not arise spontaneously; most of the skills should be acquired as a team to decrease the risk of human error. Therefore, teamwork training plays a crucial role in the improvement of aviation systems (Guzzo & Dickson, 1996; Helmreich, 2000). The aviation industry and the National Aeronautics and Space Administration (NASA) identified as a root of air crash human factors (Helmreich, 2000). Human factors
were related to a failure in decision-making processes, interpersonal communication, and leadership (Helmreich, 2000). A training program called Cockpit Resource Management was developed to improve communications on the flight deck (Helmreich, 2000). Hence, a similar kind of structure for medical staff may help mitigate the changing medical environment circumstances. Crew resource management in healthcare was first applied in the theatre in University Hospital Basel, Switzerland, 1994. This training program has been used in theatres, intensive care units, anaesthesia, emergency (EDs), and labour and delivery departments (France et al., 2005; Oriol, 2006; Salas, Fowlkes, Stout, Milanovich, & Prince, 1999; Thomas et al., 2007).

The mechanisms that explain team processes are paradigms such as situational awareness and mental models (Edmonson, 1999). However, the relation of group processes with productivity and outcomes have been limited to measurement difficulties due to the same paradigms (Edmonson, 1999). According to Reader (2011), key concepts are included and intensely studied in functional leadership. Specific behaviours are needed in intensive care units to create environmental conditions to ensure high group performance levels (Reader, Flin, & Cuthbertson, 2011). A framework was developed according to behaviours classification as a tool for development of functional leadership expertise for intensive care unit leaders. Coaching was defined as part of an operational leadership category and part of planning and collective decision-making for 70% of the interviewees (Reader et al., 2011). Morey et al. (2002) claimed that medical team leaders need to become role models by coaching and mentoring specific behaviours. Baker and Salas (1992) and Shapiro et al. (2004) suggested that specific teamwork competencies, skills and attitudes have been defined as an approach to measurement and assessment of team performance in healthcare. Nielsen et al. (2007) and France (2005) showed that teamwork training in obstetrical and neonatal procedures did not impact clinical outcomes during the time outcomes were evaluated.
However, France et al. (2005) suggested that further evaluation is required to test the efficacy of the teamwork model. A critical examination of learned behaviours of high-performing teams will be needed to test patient safety improvement in health institutions.

Several factors appear to contribute to developing successful groups such as effective communication, overall decision-making, safety awareness and problem-solving skills (Kortteisto et al., 2010). According to Wakefield et al. (2012) and Kortteisto (2010) a behavioural model theory could explain the factors which had influenced the patient safety-related behaviours of medical staff. There are two important behavioural factors: preventive action beliefs (individual beliefs) and professional peer behaviour. Both factors are valuable as behavioural predictors of the patient safety behaviours. The understanding of behavioural determinants and targeting workers’ attitudes and beliefs may facilitate to set in place strategies for improvement of clinical outcomes. Additionally, it could be a suitable theoretical base to implement clinical guidelines for clinicians. However, several strategies needed to be put in place to develop clinical guidelines for different professional groups (Kortteisto, 2010). According to Kortteisto (2010) clinicians are committed to enhancing their knowledge of clinical guidelines usage for patient care and safety.

2.7 Conclusions

Decision-making under controlled conditions has been described for medical conditions and procedures. However, decision-making for healthcare professionals under pressure is not well defined nor well reported. While the literature points to the importance of shared decision-making approach in clinical settings under controlled conditions, there is less understanding of these decision-making processes under pressure situations. This study explored the lived experiences of performance in different high-pressure scenarios in order to contribute to knowledge in this area. Focusing on the performance of healthcare professionals in the four
geographical regions in Ecuador, this study investigates the factors that affect clinical
decision-making in a wide range of medical facilities in complex, dynamic and high-pressure
scenarios.
Chapter 3  Methodology

3.1  Introduction

A qualitative methodological approach through a process of exploration and questioning of healthcare professionals will be used in this research to elicit a deeper understanding of the concepts of performing under pressure. The selection of the qualitative approach, in this case Grounded Theory, as the preferred research method was based on the need to examine a complex social phenomenon (Creswell, 2013). The aim of the study is to explore how healthcare professionals understand the concept of performing under pressure and the implications of their experiences in different environments in real time. The information on which this study is based has been sourced from Ecuadorian healthcare professionals and involved a wide range of medical facilities and health professional experiences. The research necessitated in-depth interviews to enable the understanding of the meaning of performing under pressure and the factors which influence decision-making to resolve complex problems of health delivery processes under specific conditions.

This chapter presents: the purpose of the study; the research design; the research questions; and the sampling methods; the geographic location on which the study is based; and the general population studied. This chapter also provides details related to: the data collection methods; the research instrumentation; informed consent; confidentiality procedures; and the research tools. The informed consent and the confidentiality documents are shown in the Appendices. Chapter 3 concludes with a summary of the chapter’s coding processes, the data analysis, reporting processes, and the study’s qualitative data criteria (e.g., credibility, dependability, confirmability, and transferability).
3.2 Grounded Theory: concepts and application

Qualitative methods have been used for the exploration of experiences, behaviour, and perspectives on how individuals work. Qualitative methods have contributed to providing explanations and rich insights into human social behaviour (Guba & Lincoln, 1994). This approach has incorporated philosophical assumptions, data collection, and the extraction of relevant data to develop an emerging theory.

The grounded theory research design takes into consideration the development of an emerging theory from the grounded experiences and perspectives of the participants (Corbin & Strauss, 2008; Glaser & Strauss, 1967). The emerging theories that analyse experiences, trends and patterns were derived from the collected data and through the process of continuous comparative analysis. Specifically, the thoughts and feelings concerning health professionals' experiences of performing under pressure have qualitative and grounded theory implications.

This study used Grounded Theory to underpin the research on performing under pressure for healthcare professionals in Ecuador. Grounded Theory was considered the most appropriate methodological approach as being appropriate for the generation of theoretical arguments about structural and social interactions. It is an entirely appropriate approach when the subjects are involved in social processes. Though the processes for healthcare providers are complex, they have to rely on personal experience, as well as expertise. By way of comparison with Ethnography, where the researcher in the field is involved in the understanding of the culture, the settings and the people undertaking their activities (Agar, 1986) in contrast, in Grounded Theory, the researcher is not part of the culture but describes and theorises about the culture and the experiences of the participants inside of it.
Multiple factors were considered in this qualitative research study; specifically, the research design to assess, interpret and describe the data collection. Points of differentiation of the qualitative research concerned with the attempts of understanding various integral encounters, associations, linkages, trends, and observations of diverse experiences were also considered. Denzin and Lincoln (2011) state that qualitative research consists of the world of lived experiences meeting individual beliefs, encounters, and connecting cultures. Explorations into qualitative research have provided an understanding of the details of performing under pressure by healthcare professionals within several Ecuadorian scenarios where the health services are provided. Diverse factors needed to be identified and considered within the multicultural communities and geographical location to develop a theory from real life data using a qualitative approach. When researchers talk about a qualitative approach, they embrace the idea of multiple realities, and different perspectives of the same concept. Different lenses are used to see reality by researchers or individuals. The Grounded Theory approach is the research design (Glaser & Strauss, 1967) that was used to complete the qualitative frame of reference in exploring, reviewing, querying, and answering the research questions for this study. The purpose of this research was to seek answers from healthcare professionals’ regarding how they deal with their daily encounters in environments that are often uncertain, complex and dynamic. The researcher achieved a deeper understanding of performing under pressure by dissecting the experiences of each of the participants, with their unique perspectives and narratives, when the environment is not controlled. This research relied on the experiences of people who have been working in that field and on gathering data on their personal experience to explain and overcome complex situations. The research also investigated the practitioners’ variety of responses, when diagnosing and treating patients often under life-threatening situations. This research
approach helps to understand the process, as well as to organise and structure ideas to find
similarities and differences to build the research categories.

### 3.3 Epistemology

Epistemology helps to describe how people see surrounding circumstances and experiences. The researcher seeks to understand the world where they live and develop a subjective interpretation of the participants’ experiences. These interpretations are multiple as they allow the scientists to understand complex and different perspectives of the same phenomena. The purpose of the research is to rely, as much as possible, on participants’ viewpoints. It means that individuals are part of the social construction, with their special and unique set of circumstances. This construction does not start from a theory; the information is collected with researchers observing and carefully analysing different work and life settings.

In this qualitative study, an epistemological assumption meant that the researcher sought to get closer to an understanding of the phenomenon of pressure and response to it and thus, subjective evidence of individual experiences was gathered. This kind of knowledge was built upon personal views. Data information was collected to accurately understand how people work in a particular place or environment. Consideration was given to the philosophical assumptions as fundamental premises, which were merged into interpretative frameworks.

### 3.4 Research design

Research designs have unique processes or steps associated with the data collection, analysis, and interpretation of findings. Classic Grounded Theory building by Glaser and Strauss’ (1967) has a three-step process (e.g., open, axial, and selective coding). Strauss and Corbin’s (1998) contemporary five-phase grounded theory processes includes the study of causal
conditions, the study of the phenomenon, the context, the action or interaction and the consequences of action or interaction strategies. This five-phase process was incorporated in the theoretical sampling of this study, with the flexible use of data collection, the data analysis steps, the comparative analysis, the insight theory development and reality, and the generation of a grand theory of reality. Strauss and Corbin’s five-phase process contains associated internal procedures that evaluate for credibility, dependability, confirmability, and transferability as theoretical foundations of qualitative criteria. The use of comparative studies involves the orderly selection and study of multiple comparison groups (Corbin & Strauss, 2008; Glaser & Strauss, 1967).

This is an exploratory study that examined workplaces that are typically thought of as ‘stressful’ to understand how working in these settings influences decisions, teamwork, systems, events and outcomes. However, this study intentionally avoids using the term ‘stress’ and instead has adopted the term ‘pressure’ for the following strategic reasons:

1. Stress is primarily defined regarding the psychology and physiology of the individual worker, whereas the focus of this study was on the sociological, cultural, organisational and collective features of the workplace.

2. Rather than being restricted to a rigidly-defined, relatively narrow definition, it was considered necessary to adopt a less precise, but widely understood term and for the participants themselves to identify sources of ‘pressure’ in the workplace that affect them, in order for the research to gain a ‘whole-of-system’ view.

3. Rather than commencing with precise definitions, participants were asked to describe workplace scenarios where they felt ‘pressured’ in order (a) to arrive at a working definition of workplace pressure; (b) to develop an explanatory model that explains pressure in the
workplace; and (c) to better understand how this might influence collective decision-making processes.

The study departs from the classic experimental model and leverages qualitative methods in several ways:

1. Rather than using a hypothesis as a starting point and testing it, the aim was to use an exploratory design and thus to develop explanatory theory/model for workplace pressure as an outcome.

2. Rather than focusing on individual psychology, the study directs its attention to collective, organisational and system issues and how they contribute to creating a sense of pressure and relieving it.

3. While the stories and experiences of individual participants are important for this study, the participants play a significant role as 'lay field observers' reporting back on workplace structures, cultures, systems, events and teamwork. This latter sociological data is of central interest to the project and is a reminder that the sample of the study consists of more than the individuals being interviewed, but extends to their accounts of complex social systems and events.

3.5 Research questions

The following questions helped to provide a platform to investigate important aspects of the study.

How do different factors affect clinicians’ performance and clinical decision-making when performing under pressure in everyday activities?
What is the concept of pressure in a working environment of healthcare professionals?

3.6 Research aims

The aim of this research was firstly to develop a theoretical model that provides a 'whole of system' explanation of the factors that affect clinical decision-making when performing under pressure in life-threatening situations. Secondly, it aims to identify the factors and/or situations, which would modify performance in life-threatening situations for healthcare professionals.

3.7 Objectives

To interview a diverse sample of healthcare professionals for a better understanding of:

- Their experiences of 'performing under pressure' while working in life-threatening situations;
- What factors might contribute to 'performing under pressure' in their daily life situations?

and

- How those factors might affect their performance and clinical decision-making when performing at work.

Working definition for 'pressure'

Pressure is anything related to the environment, systems, personnel, events and clinical scenarios that might contribute to making a role more challenging.

Working definition for 'emergency in life-threatening situations'
An emergency situation is any situation that has short-term potential to lead to severe deterioration or health or death for the patient or health professionals.

3.8 Methodological background
Data was collected using detailed interviews of key stakeholders (Kvale & Brinkmann, 2015) and analysed using a ‘grounded theory’ framework according to the methods described by Glaser and Strauss (1967) with modifications outlined by (Layder, 1993). These changes allowed the project to take macro, micro and contextual perspectives into account and to incorporate interviews. This methodology underpinned the development of new and more meaningful conceptual models for understanding the phenomena and provided a solid basis for developing effective, culturally appropriate interventions that could be further tested.

3.9 Confidentiality
Informed consent was obtained prior to interviews being conducted. The consent form was written in both English and Spanish. The consent form was available in both languages as a majority of participants were Spanish speaking (see Appendix 9 and 10). Arrangements were made to ensure that additional support was available following the interview should the research raise any issues of concern for the participants. The final details of these arrangements were agreed at the time of securing ethical approval.

All interviews were recorded and transcribed in Spanish into MS Word documents, subsequently; the researcher translated the interview data into English. Identifying details were removed, and audio files and transcripts were stored on password-protected servers for the duration of the project. Transcripts were analysed using Grounded Theory and dramaturgical analysis.
3.10 Theoretical sampling

Theoretical sampling is a fundamental aspect of Grounded Theory, which relies on the characteristics of representativeness and requires consistency. In Grounded Theory, a fair representation of concepts is essential, rather than the number of persons observed or interviewed. The objective is to build a theoretical explanation of a particular phenomenon in conditions that give rise to certain outcomes. It involves the interaction between different actions, interactions, and the variation of situations, as well as consequences of an action which have the potential to vary an outcome. Purposive sampling was selected for this study as it is used to investigate unique experiences by individuals in a specific circumstance.

Purposive sampling is used to recruit a diverse group of participants who are willing and able to participate (Glaser & Strauss, 1967). Sampling is not just about people, but involves situations, events or process that could be relevant to the emerging concepts (Strauss & Corbin, 1990). The strategies used to select diversity in sampling are described with the concept of theoretical saturation. Sampling is related to a particular group of people at a given time, but also regards concepts, their properties, dimensions, and variations. In the context of this research study, the researcher was not just sampling events, but sampling for healthcare professional, in different locations and conditions. Factors that needed to be considered, therefore, included other professional support, circumstances which could either interfere or improve their performance, their actions, their motivations and interactions with others, and the sum outcome of all these decisions.

Purposive sampling is useful in a circumstance when the researcher has specific knowledge about the population; therefore, it is possible to select suitable participants to be included in the sample. Initial participants were identified by different databases. As the data collection proceeded and an explanatory/conceptual model started to emerge, a sampling strategy was
adapted to test the emerging model and to add further dimensions to it. For this purpose, maximum variation sampling was leveraged to ensure that the design was robust and could account for all cases. In reality, sampling was more closely aligned at the beginning, while becoming increasingly ‘purposive’ as the study unfolded. A potential disadvantage of this sampling approach is obtaining data with a high risk of conscious sample bias, and consequently, the results were reviewed very carefully so as to diminish any such bias. This research was open to all possibilities and ideas so that participants could bring a broad perspective of thoughts, feelings and experiences related to the research topic.

Purposive sampling in this study meant that each participant could provide personal information regarding the topic, which supplied rich data related to all relevant areas of the study. In order to accomplish the maximum variation sampling, participants from diverse Ecuadorian regions accepted to participate in the study and be interviewed. Participants worked in a wide range of medical activities. Participants described different scenarios embracing the complexity of facilities ranging from extensive medical services, emergency departments or natural disaster locations. The interactions between the descriptions of factors affecting healthcare professionals’ performance enabled the development of the concept of pressure.

3.11 Sample size
Sample size was determined both by scientific principles and pragmatic capacity. For a small project that promises to yield rich data, 45 participants were interviewed. However, the methodological requirements of Grounded Theory specify that the sample size ultimately is determined by the principle of ‘saturation’ (Glaser and Strauss, 1967). According to this principle, sampling continues until no new variant cases have been identified when no new perspectives are forthcoming. The researcher initially set a maximum number of participants
at 30. However in order to reach saturation with a rage of perspectives, this was extended to 45, for coding and distribution of participants according regions see (Appendix, 3, 4 and 5).

**Study population**

The context of this research was to study the decision-making of healthcare professionals performing in different scenarios, different climates as well as different challenges as the epidemiological profile changed with the different regions in Ecuador. Ecuador was chosen as the research site as it was the home country of the researcher, and the researcher was fluent in both English and Spanish. Decision-making under pressure is a daily occurrence for healthcare professionals in today’s dynamic healthcare environments. As a medical health professional from Ecuador, the researcher had particular interest in decision-making in uncertain and dynamic environments. This context provides a richness, relevance and opportunity to examine the meaning of pressure for healthcare professionals in the course of performing their normal daily activities. The researcher carried out an analysis of the most relevant factors related to the data collection of interviews of healthcare workers in Ecuador and the provision of medical service associated with those specific factors.

**3.12 Data collection**

In order to maintain consistency in data collection, the researcher needed to search for all important concepts in every interview, those brought over from previous analyses, as well as those that might appear during the interviews. All the interviews were qualified by documenting the conditions under which the phenomenon occurred, the actions, interactions, consequences and the result. The researcher needed to observe or read about the events at a critical time, as it helped to identify other concepts that may be substantial in the evolving theory (Corbin & Strauss, 1990).
The primary vehicle for data collection in this study was a detailed interview. An interview guide (see Appendix 6) information sheet in English and Spanish (Appendix 7 and 8) consisting of broad thematic areas provided a framework for data collection. The interview guide was developed based on themes identified in the literature and during meetings with supervisors a non-prescriptive approach to interviewing coupled with purposive sampling (outlined above) was used to maximise the chance of collecting unique accounts, new material and unexpected perspectives. Interview prompts were open ended so as to facilitate in-depth discussion and not to ‘lead the witness’. The main aim was to capture participants’ diverse views, experiences and observations. Participants were encouraged to dictate the nature of the interview, which pertained to personal responses that were relevant and meaningful to them. At the end of the meeting, a checklist of specific areas of interest was reviewed to ensure that all involved areas had been covered. Using standard qualitative research practice (Kvale & Brinkmann 2015), the interview guide was updated after each meeting if new material emerged. This approach aimed to ensure that the study reflected the responses in an accurate and comprehensive framework.
Sample statistics

Table 3.1 - 3.7 summarises the distribution of participants in the research study by age, gender, profession and region. This distribution reflects the nationwide distribution of health professionals in Ecuador.

Table 3.1 Distribution of participants according to regions and professions

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<th>Region</th>
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<th>Paramedic</th>
<th>Pathologist at ED</th>
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Table 3.2 Distribution of participants according to gender and profession

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Table 3.3 Distribution of participants according age and profession

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<th>Pathologist</th>
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Table 3.4 Distribution of participants according regions

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Table 3.5 Distribution of participants according range of age

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Table 3-6 Number of years of work experience and gender distribution

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### Table 3-7 Number of years of work experience and distribution amount professions

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</table>
3.13 **Data analysis**

Data was analysed using standard Grounded Theory methods. Typically this occurs in three phases: Firstly, the preliminary analysis, which is un-blinded and occurs after each interview. This period allows for data reduction begins the formulation of explanatory models, allows for theoretical sampling decisions to be made for subsequent data collection, and allows the interview guide to be adjusted to incorporate new perspectives and questions designed to test emerging explanations. Secondly, ‘open coding’ usually occurs after transcription and involves reading the transcripts and identifying relevant accounts and quotations. Third, ‘axial coding’ takes place. Cross-cutting themes were identified across transcripts, which were either shared or diverged, but which contained valuable information for the emerging explanatory framework. This latter ‘thematic analysis’ provided the foundations for developing an explanatory theory, model, or framework, which is the primary purpose of the methodology.

Selective coding is the process where all categories are integrated around a central "core"; the core category represents the fundamental fact or event of the study. It may be identified by asking questions such as: What is the main idea which is presented in this study? It is a succinct and efficient summary of the study undertaken by the researcher. The pathway to finding this core category can be achieved by answering the following questions: How does all the action/interaction informs the investigator? What explanation can provide an answer to the dynamic variations seen between the different categories?

Grounded Theory identifies the conditions under which the data of a particular phenomenon has been obtained. It could also describe a variety of situations in which it is applicable. A Grounded Theory is reproducible in the limited sense that it is verifiable. Thus, this type of coding is likely to occur in the later phases of a study. “Diagramming” can be a very useful
tool for assisting in this integration of categories. The generalizability of a Grounded Theory is partially achieved through the process of abstraction taking place over the entire course of the research (Glaser & Strauss, 1967). However, to some extent no theory that deals with a sociological phenomenon is replicable as far as finding new or other situations, as conditions would need to exactly match those of the original study; though many extreme conditions may be similar. As a consequence, healthcare professionals may confront differently or not quite the same situation (Glaser & Strauss, 1967).

3.14 Credibility and rigour

According to Strauss (1990), data collection and analysis maintain a healthy relationship, in Grounded Theory because the analysis begins as soon as the first data is obtained. Each researcher should find the balance between the flexibility of the data collection and the rigour of the analysis criteria. In this study the challenge for the researcher was to maintain an objective approach, disengage from personal experiences and become an observer. This was difficult to achieve because of the researcher’s own background as a healthcare professional. It is imperative to keep in mind that the analysis begins as soon as the first sentence is collected, because it would generate valuable information for the following interviews and observations. However, although flexibility is sought in responses, normalization of data collection is essential to maintain the rigour (Strauss, 1990).

The researcher began the study with specific questions or areas for observation. All data collected, even if initially it seemed to be irrelevant, was considered during analysis as it was considered that it might help to underpin the understanding of this particular topic. In order not to omit anything that could be relevant to the area under study, the researcher must analyse all data for relevant ideas, and incorporate every apparently, related issue or aspect as soon as they are considered, into the next set of interviews or observations. The researcher
guides the study by examining all of the possible perspectives with developing a thorough understanding of the topic. This process allows the Grounded Theory to be instrumental in investigating real-life situations. It is important to consider that every new idea or thought that appears in the research process which is analysed needs to be considered as provisional. If these ideas or thoughts or concepts are present in every observation or interview, or absent, then the question that arises is why is an idea, factor or present or not in the situation? (Corbin & Strauss, 1990)

This approach develops an increased depth of understanding with the various categories or themes; it is focussed on pertinent or relevant information. Following on could involve elaborate descriptions of each identified categories or groups or domains to achieve a thorough understanding of the concept. Its purpose is to develop richer data of knowledge for each category. Important, not only the categories but also the relationships between the variables are a major consideration. The researcher in the process begins to look for related activities or events related to the main topic or issues in the study. The aim is not to take a broad view of the findings of all the population (Strauss & Corbin, 1990).

As an example, one might want to know how representative the total amount of work that doctors do is under pressure ‘Do healthcare professionals feel under pressure all of the time, part of the time?’, and ‘What are the conditions related to their work environments’? Furthermore, other considerations need to be given in the study for determining the type of work and relationship between healthcare professional’s performing in emergency departments, regular consultations areas, working in ambulances, or even in natural disaster zones. As an example, if under pressure situations are predominant, it will emerge in the description. Finally, if performing under pressure is not seen or felt, it will also be detected and the reasons why not described.
As a concept emerged from the interviews, other variables such as relationships of the phenomenon under research needed to be established. It was also necessary to attain consistency, as the researcher was looking for the presence of this concept or idea in the following interviews and observations, as well as all the circumstances and features around it. Thus, the data analysis looked for differences and similarities in other incidents. The resulting ideas were labelled in time, and also compared and grouped as previously described. Making these comparisons assists the researcher to guard against bias (Glaser & Strauss, 1967). Figure 3.1 shows the flow of information during data analysis in Grounded Theory.

![Figure 3-1 Data analysis Grounded Theory (Creswell, 2013)](image)
3.15 Conceptualisation

Conceptualisation is developed from data based on real-life situations. It is a method based on theory-observation congruence or compatibility (Strauss & Corbin, 1990). These concepts are the building blocks of the analysis. Incidents, facts or activities that are observed and reported are called raw data. These events were analysed and coded as possible indicators of the phenomenon of performing under life-threatening conditions, and they thus provided conceptual labels. Participants’ ideas and responses were collected, and the data of each participant analysed to determine the emerging data during the interviews. Firstly the workflow began with the identification of concepts or ideas related to the main topic of clinical decision-making and healthcare professionals performing under pressure. Secondly, these concepts were grouped into categories. As the analysis continued and the researcher assessed other events that appeared to be similar to the same phenomenon; this was labelled as "pacing". Only through naming the incidents and events with the same conceptual word can the relation be found, and thus the theorist can accumulate the essential components for a theory. The numbers of labelled incidents increases during the analysis through this Grounded Theory approach (Strauss & Corbin, 1990).

Grounded Theory undertakes an in depth, meticulous, and systematic method of analysis. Grounded theory has the advantage for the researcher, who does not need conceive preliminary hypotheses. It, therefore provides the researcher autonomy to study the topic and permit issues to arise (Glaser, 1978, 1992, 1998, 2001). As a result, Grounded Theory is effective in supplying rigorous understanding into areas that are relatively unknown by the researcher. Examples of this approach are included in the appendix.
3.16 Building categories

When the researcher moved to the Ecuadorean coast region, the professionals expressed they found themselves in ethical dilemmas related to their religion and personal beliefs. The researcher incorporated questions about their religion and personal beliefs and how it could affect their medical decision-making or if they could follow the protocols and evidence-based medicine in particular topics related to each case. The research found that the participants described their decision-making process through their personal experience of under life-threatening conditions as they began to describe the factors that influence their decisions under pressure.

Then the concept of decision-making under pressure was tailored through participants’ experience in particular moments, and the question also included the team relations as for how clinicians can maintain their accuracy under pressure? Alternatively, what is the effect of group dynamics on decision making under pressure? Also, how to work within a team when dynamics are not developed?

On the other hand, to find a different perspective on the same topic, the researcher moved to different medical facilities in various geographic areas, looking for different ideas. The participants described situations occurred in locations different from their actual working places. These situations were also related to lack of resources and knowledge especially medical facilities located in remote areas. However, inside of medical services, the level of complexity of the pathologies was one of the most important factors that affect the professionals’ decision-making process under pressure. The researcher invited the participants to think about experiences during their working life that they could think were related to experienced pressure.
After 20 interviews, the researcher began to ask for participants’ experiences explicitly related to a life-threatening condition. That was the point when after the first interview of a paramedic; the researcher began to look at pre-hospital medical attention and paramedics. The researcher looked for paramedics that have been working in emergency services all across the country and accepted to be interviewed. The paramedics described situations in car accidents, and natural disasters with critical situations for patients and them, as well. Then the researcher looked for healthcare professionals’ who had direct intervention in natural catastrophes (floods, volcanic eruptions, earthquakes). Also, professionals described the evolution of medical services and how their interactions also affect their performance under control and life-threatening conditions.

Pressure was felt not only in physical form, with tachycardia, sweating, and losing control during their performance, but also shouting and disorganisation was the pattern of the intervention. From those descriptions, also participants were asked to contrast and talk about how specific factors could improve their performance. Further analysis of their descriptions allowed the researcher to find an extensive list of situations and events that affect the healthcare professional’s decision-making under pressure.

Categories shape the resources that underpin the developing theory which is going to be formulated. The categories or themes that are related to each other can be developed to provide an understanding of the different relationships between them. These categories were organised into like groups based on the repetition of ideas, or concepts that helped to identify uniform patterns. It is vital to compare between these concepts and categories because it is one of the methods to decrease bias. However, this process also helps to identify other ideas as it is essential to remember that not all concepts or ideas fit neatly into categories. Additionally, through the concept of "pacing", the analysis might also generate the idea of
"pressure". It must be coded and analysed even though these concepts may differ in form and seem to represent activities directed toward a similar process: performing under pressure. Consequently, concepts were grouped under a more abstract heading with the category being: "scenarios", "people", "motivations", "teamwork" “performing under pressure the process”.

However, it is also true that purely grouping concepts under a more abstract heading does not establish a category. In order to maintain the integrity of a theory, more abstract concepts were developed in regards to dimensions; action, interactions, consequences and conditions and then upgraded to concepts and into categories. For instance, when a category was identified, the next questions were related to the characteristics of self-strategies to maintain accuracy and the knowledge related to specific strategies in terms of under what circumstances the strategies could be implemented and what were the consequences or outcomes of the usage of these procedures. When the specification process was concluded, the categories were defined so that they could achieve explicatory power. In this process, the categories were related one to another to help to formulate the theory. After the initial interviews, the analysis of the term "performance" began to acquire more accurate and complex meanings than the general concepts. During the study, the researcher defined different kind of actions or activities that differed in intensity and surrounding conditions; this contributed to identifying and contrasting differences in the performance, as much as possible, to determine that one would impact upon that phenomenon of performing under pressure.

3.17 Dramaturgy

This section explains why and how individuals make sense of their actions at particular moments in time and find the meaning of their actions. The narrative is an appropriate lens to understand process and organisations and illustrate regarding the different levels of
complexity involved in this study. The narrative is particularly useful to highlight a socially constructed phenomenon and therefore was chosen as an analytical tool for the factors that affected the healthcare professionals’ performance.

Dramaturgy is a sociological perspective turning from symbolic interactionism and typically used in micro-sociological analysis to gain an understanding of social interaction in everyday life. The term was first introduced into sociology from theatre by Erving Goffman. Goffman developed most of the related terminology and concepts in his book, The Presentation of Self in Everyday Life (1959). However, Kenneth Burke in 1945 presented his notions of dramatism that in turn derives from Shakespeare. Goffman would later acknowledge Burke as an influence; however, the profound difference between Burke's and Goffman's perspective is that Burke believed that life was, in fact, a theatre; meanwhile, for Goffman theatre was a metaphor to examine complex social interactions. If we envisage ourselves as directors observing what goes on in the scene of the daily lives, we will be doing what Goffman called dramaturgical analysis, the study of social interaction regarding theatrical performance (Goffman, 1959).

In a dramaturgical model, social interaction is analysed regarding how people live their lives in a similar form of how actors performed on a stage (Knowles & Cole, 2008). This analysis offers a look at the concepts of status and role. A status is a part in a drama, and a role is a script, providing dialogues and actions for the characters (Clark & Mangham, 2004). In any given scenario, individuals in their everyday lives administrate their positions, places, clothing, verbal and nonverbal communication to give a specific impression to others (Cohen, 2004). Goffman described each “performance” as the presentation of self, a person’s efforts to create distinct impressions in the minds of others (Goffman, 1959). This process is known as "impression management". Goffman established a significant differentiation between
"front stage" and "backstage" behaviour. As the term implies, "front stage" actions are visible to the audience and are part of the performance. People engage in "backstage" behaviours when no audience is present. For example, a waiter in a restaurant is likely to perform one way in front of customers but may be more casual in the kitchen, and of course different from the way the waiter is at home. It is probably because he or she behaves differently with different audiences (Goffman, 1986). Before an interaction with another, an individual prepares a role, or impression, that he or she wants to make on the other. These parts are subject to what is in theatre termed "breaking character." Inopportune intrusions may occur, in that a backstage performance is interrupted by someone who is not meant to see it.

In dramaturgical sociology, the elements of human interactions are associated with time, places, and audience. Goffman developed a theatrical metaphor in defining the method in that one person presents itself to another based on norms, beliefs and cultural values. In other words, to Goffman (1959), the self is a sense of who is the one, a dramatic effect emerging from the next scene being presented. Performances set in time can have interruptions where the actors are aware of it; however, most of them are victorious. The objective of this presentation of self is the acceptance from the audience through a carefully conducted performance. If the actor comes through the public will identify the player as he or she wants to be seen (Goffman, 1959).

A dramaturgical action is a social action that is planned to be seen by others and to modify one's public self-image. This concept has been used by Erving Goffman (1959), Jürgen Habermas (1991) and Harold Garfinkel (2008), among others.
Dramaturgical perspective is one of the several sociological paradigms separated from other sociological theories because it does not examine the cause of human behaviour but it analyses the context. In Frame Analysis, Goffman writes,

*What is important is the sense that the individual (actor) provides to others (audience) through his treating with them of what kind of person he represents in the role. The dramaturgical position can be seen as an anchor to this view, where the person's identity is performed through role(s), and consensus betwixt the actor and the audience. Dramaturgy emphasises expressiveness as the main component of communications. It is named for the "fully two-sided view of human interaction."* (Goffman, 1986, p. 298)

Dramaturgical theory suggests that a person’s identity is not a stable and independent psychological agency, but rather, it is changing quickly, as the person interacts with others (Edgley, 2013).

### 3.18 Theories about performing

Scholars such as Schechner (2006), Turner (1985), Goffman (1959), Bourdieu (1977), John Austin (1962), Searle (1969), and Butler (1993) formulated the concept of ‘performance’. In the 1970s, Pierre Bourdieu (1977) established the concept of improvisation, as a reaction against the structuralist concept of culture, thought of as a system of rules (Bourdieu, 1977). Performance studies emerged through the work of, the theatre director and scholar Richard Schechner, who applied the notion of performance to human behaviour outside of the performing arts. In 1985 Schechner and the anthropologist Victor Turner began performance studies as a separate discipline (Schechner et al., 1985). Schechner et al. (1985) defined performance as a non-artistic, yet expression of social behaviour that emphasise the symbolic and coded aspects of culture. Culture, in his perspective, undergoes a shift from a social
reproduction in that simulations and models represent the world so that the differentiation between reality and a representation was deleted (Schechner, 2006). Although, Bourdieu (1977) himself does not often utilise the term 'performance', the notion of the concept of habitus as a formative site has been the guiding philosophy for performance theorists. The cultural historian, Peter Burke (2010), recommended that by using the term ‘occasionalism’ to underline the significance of the idea of performance applied to different situations or conditions, the same person comports in a variety of form’.

The social sciences and humanities have an interdisciplinary strand that has contributed to the performative concept that is the non-representational theory. The non-representational theory is a theory of practices that emphasises repetition of forms of communication, such as speech and gestures. In the opposite sense, the representational theory, argues that human conduct is a consequence of linguistic interactions rather than only codes and symbols that are consciously predetermined. Non-representational theory interprets events, activities and processes, such as dance or theatre, as actualisations or realisations of knowledge. It also intends to move away from the technical aspects of representation into the practice itself.

Despite the efforts to find a definition of performance, it was constantly overrun by inconsistencies. Most pressing seems to be the paradox between performances, as the consequence of following a script that is according to a restored behaviour (Schechner et al., 1985). Also, performance has opened the possibility for improvisation. However, another problem involves the divergence between performance as a human endeavour that constructs culture (cf. Butler and Derrida) as a representation of culture (Bourdieu, 1977; Schechner et al., 1985). Another important topic to pioneers such as Austin (1962); however, now considered inapplicable by postmodernism, as it involves the sincerity of the actors. Can the performance be genuine, or is it a product of the interpretation of roles?
Performance offers an excellent interdisciplinary archive of social practices. It provides methods to study such phenomena as body art, ecological theatre, multimedia performance and other kinds of performance arts (Clark & Mangham, 2004; Cohen, 2004; Edgley, 2013; Goffman, 1986; Hurley, 2015; Knowles & Cole, 2008; Mitchell, 1978; Ritzer, 2009; Rossiter et al., 2008). The performance also provides a new registry of kinaesthetic effects, enabling a more precise attention to body movements. The study of these dynamics has become an important theme of research (Austin et al., 1962; Brewster & Bell, 2009). Notwithstanding, performative utterances have helped researchers to develop consciousness of the relationships between the performance on the stage and everyday life. For example, at public places like theatres, restaurants, hospitals, individuals had used techniques derived from the theatre and dance world (Butler, 1993; Rossiter et al., 2008). A performance utterance gives the opportunity to study the nature of elements of human environment, such as architecture as active agents, rather than only physical structures. As a consequence, in recent decades environmental scholars have recognised the interactions between man and nature (Schechner et al., 1985).

Goffman (1959) ‘The Presentation of Self in Everyday Life’ is enlightening the concept that real life is a performance, where we all play a role. Then in the first section of the book, it outlines the structure of performances and dramaturgical staging of theatre presentations. However, through the chapters, the idea of the structure of the performances vanishes and instead, commences talking about the roles and motivations of the participants. Sociologists have emphasised the importance of the structure of the dramaturgical elements in the first part of the book; however, other authors are interested in what lies behind the scenes and what motivates the actors within their roles, and how they manage embarrassment and related emotions. The role taking process constitutes the building materials of behaviours.
Austin (1962) described the foundations of linguistic philosophy and its influence in performativity. Early areas of importance to these theories include the development of emerged theories of complex interactive systems (Bateson, 1974), the framing, staging and recreation of social life (Goffman, 1986).

3.19 Goffman: The presentation of self in everyday life
Goffman’s early publications provided a dramaturgical framework to analyse the performative dimensions of public governance, considering different spaces where people interact and shape the frames for undertaking situations. The Presentation of Self (1959) highlighted that performativity is made possible thru the metaphor of framing. Goffman’s (1959) portrayed dramaturgy of social phenomena describing the interactions of participants (actors) in a society that is amalgamated in an indirect metaphor through framing. Frames are fundamentally a classification of systems that is utilised to make sense of different social phenomena.

Goffman explained that moral standards judge people. However, we are motivated to only associate with established criteria. When Goffman (1959) introduced his book, he said: “The perspective employed in this report is that of the theatrical performance: the principals derived are the dramaturgical ones.” Goffman (1959) stated that the stage varies from real life. The differences between the demands of life and what happens on the stage; however, there must be similarities between them. Otherwise, the analogy described by him could not be possible.

Goffman (1959) uses the imagery of theatre to portray the importance of human interactions. Goffman considered his ‘dramaturgical perspective’ as the fifth perspective to describe a social system together with technical, political, structural, and cultural. The dramaturgical
perspective could be involved to order and analyse ordering facts. Goffman’s ideas of there being no possible sincere communication, as it has limited forms of reliable communication even in backstage.

3.20 The process of staging

The performance involves the audience, individuals and teams; it is true that they are playing a part. Goffman’s work has made comments of the artificial nature of the stage, also considering the public life and the multiple inserted frames and experience (Collins, 1986). Indeed, the roles of individuals are structured, expanded and always changing. Also, due to social demands and rules, functions need to switch concerning different circumstances. This concept is applied in public administration at different levels. Then the image management idea should be considered for the individual, as well as group perspective. Aiming to set apart the core frameworks of understanding presented in the society to make sense of situations and particular circumstances when such events occur. From an individual perspective whether it would be a dream, a fact, an accident, an error or misunderstanding it is a reality for that person. Then some terminology is necessary to provide detail during the interpretation. Then script refers to the sequence of ongoing situations (Goffman, 1986).

Goffman elaborated the sociological foundations of the “Role Theory” (Riggins & ebrary, 2010). His principle of framing to portrait activities, as a conceptual mechanism recognised as the ‘play’ function. According to this interpretation when trying to frame how working under pressure for a healthcare professional is? A possibility to provide a common-sense version is attempted considering all the events and how these events guided or changed the experience. Would different scenarios modify the experience of performing under pressure? The responses regarding frame are related to pain, fear, paradox, dilemma, isolation, loneliness, and sacrifice. If the event had been staged in an unusual space, with none of the
standard keys to indicate the nature of the event, how would they have responded? It is important to establish a starting point and discuss how the different types of frames or the lack of them, determine the way you see the objectives? Would you see the situation in a different form if you were in a different stage, does the scenario count? Does it also change the perception? According to Bateson’s use of the concept of frame, the definitions of situations are related to the understanding of elements of organisation which commands the events. Social frameworks provide an understanding that incorporate motivations, aims, controlling intelligence, and such an agency. Such agency is coaxed, flattered, affronted or threatened. It could be described as “guided doings”, it is building the standards for social evaluations associated with culture, safety, socio-economic status (Ruitenberg & Towle, 2015). All of them should consider this particular framework that constitutes an essential principal of their culture as interactive part of the society. Regarding this study, the use of the term frame is going to refer to the organisation of experiences. It also could be argued that is related to the nature of personal experiences.

According to Goffman (1986), the process of staging begins with the perception of reality, Does it start with the question of under what circumstances do we think it is real? The important thing is to understand under what conditions such a sense of reality could be generated? In this form the question of what are such conditions that could create a feeling of pressure, then the definition of pressure was needed from the participants.

*One of the most exciting times to observe in impression management is the moment when a performer leaves the back region and enters the place where the audience is to be found, or when he returns there from, for at these moments one can detect a beautiful putting on and taking off of character* (Goffman, 1959, p.121)
The primary framework differs in levels of organisation, however, related to the singularity of the individuals. How it is represented and allows each one of the users to understand the infinite number of events defined in the frame. Participants were interviewed individually; however, they have responded with narratives that are associated with a teamwork performance. This teamwork is a reality that has been learned. A good example of these is the operating theatre where highly coordinated work is performed. Their everyday surgery program has been previously programmed as well as the possible complications designed to solve previously possible complications that could arise during the realisation of it.

Rehearsals have particular evolving characteristics such as for individual, the acquisition of specific competence or knowledge. It requires a higher level of concentration, as well as trying to identify as many barriers that could emerge during the process and overcome those emerging situations. Then the last practice is like the cutting point before the real life. During the first phase of learning the individual somehow is protected, because the conditions during rehearsals are controlled, as well as the last rehearsal is getting closer to what will probably be near the real conditions of the performance.

3.21 Critiques of Goffman’s work

There are three prominent critics of Goffman’s work judged as superficial and amoral (Gouldner, 1970), unrealistic (Rawls, 2008) and distrustful to others (Johnson, 1991). It could not be denied that according to the critiques of Goffman’s legate; he described a phenomenon that is evident for all of us. It is felt like what you are revealing is not the truth; through this assumption Goffman makes a significant statement that real attitudes, beliefs and emotions of the individuals can be determined or established only in an indirect form through their acknowledgements, statements, declaration or through them, it gives the impression to be an unintentional expressive behaviour. Gouldner (1970) claims that people are moral beings,
however for Goffman “what is important is not that you are moral; however, you seem to be honourable to others”. Goffman argued that social actors in the way he described them, are not necessarily motivated by ethical concerns. Furthermore, Habermas (1984) indicated that Gouldner’s studies about Agnes’s story (1976) would produce actors who are unconcerned about morality. Habermas suggested that Goffman was correct when he claimed that we pursue information from others; however, he was not right to treat others as adversaries rather than as a public (Johnson, 1991). Raffel (2013) proposed that impression management helped not to mislead others with wrong information of what they are aiming to communicate.

3.22 Impression management

The impression management suggests that the social world is trying to achieve efforts to handle reactions. On the other hand, the person already possesses information about them and he also is willing to collect more information about them, for the same reason: to define his particular situation in that environment. Gouldner (1970) critiques this point of view as he made reference to this is part of the concept of impression management that would suggest that appearances are not underlying principles to be applauded. Why is it relevant to analysis image-driven communication? For Goffman (1959) performance is “all the activity of a given occasion that serves to influence in any way any of the other participants” (1959: p15). The dramaturgical perspective as an example is manifested when a person enters a particular scenario, in front of others; a mutual seeking of information occurs, the people in that area or situation will be looking for information about that person, in order to define what his particular situation is or to know what they would expect from that person. The framing of the stage, on the backstage, the mutual acceptance of roles of audience and players were
essential to modulate the performativity in front of and onstage. As a consequence, the potential of actors’ performative expression relay on the frames that are available.

Impression management comprises forms that people use communication purposefully and strategically to generate impressions of themselves (Johansson, 2007; Leary & Kowalski, 1990). At this point, it is crucial to figure out an image to portrait healthcare professionals performing under pressure and its effect in their personal branding. There is an essential dialectic.

In their capacity as performers, individuals will be concerned with maintaining the impression that they are living up to the many standards by which they and their products are judged. Because these rules are so numerous and pervasive, the individuals who are performers dwell more than we might think in a moral world. But, as artists, ‘individuals are concerned not with the moral issue of realising these standards but with the moral issue of engineering a convincing impression that these measures are being realised.’ (Goffman, 1959, p. 111)

The usage of the dramaturgical analysis was fundamental to understand the narratives and to elaborate the performative matrix.

3.23 Summary
This chapter presented the overarching research methodology used in this research. Grounded theory was used as a methodological approach for the collection and analysis of participant data.

Some of the stories are repeated because the researcher tried not to bias the point of view in which some factors converge in the final result of the described situation. The factors that
confluence were geographic, lack material or human resources or a complete team of medical and support professionals. Additionally, different themes were derived from the same stories.

Additionally, dramaturgy was used as a sociological tool to analyse team interactions in diverse and dynamic scenarios. In the following chapter, scenarios from the data are presented.
Chapter 4 Scenarios

The following chapter provides examples in that the participants, as field observers or as active actors, share their stories in a variety of scenarios.

In order to understand the effects of pressure felt by healthcare professionals, it has been necessary to investigate the experiences of a diverse group of medical professionals in different scenarios. This section provides a number of scenarios that have been compiled from the interviews undertaken for this research. These scenarios have been chosen as being representative of the common daily activities of healthcare professionals and their clinical experiences.

The scenarios were carefully chosen from different locations across Ecuador, including: the coast, highlands and border regions, Amazon region as well as Galapagos Islands. Large medical facilities in the capital and other cities on the coast, as well as small medical facilities in rural and remote areas were considered. A wide range of healthcare professionals were interviewed including paramedics, nurses and doctors. All of them provide evidence of their experience of pressure in every day work.

4.1 The eruption of Tungurahua volcano

Participant (M43H-PAR) is a paramedic with lengthy clinical experience (seventeen years). At the time of the incident, he was working in the Tungurahua province, in the central part of the Highlands. He was placed as a paramedic working for a non-government institution to provide technical and theoretical knowledge about emergency situations to the population living near the volcano slopes.

The current scenario placed him in a position close to the scene of the Tungurahua volcanic eruption in 2006. He found that the characteristics of the situation and the threats posed to
numerous men pushed him to use his previous training and professional judgment. He pressured a police officer, as well as a truck driver into travelling to the slopes of the volcano with the hope of evacuation of the threatened men. They were successful, but with hindsight, he realised that as a professional, he should not have placed the lives of himself and others at risk.

On rationalising his actions, M43HPAR stated: “the police officer should not have commandeered the truck, and I should not have placed myself at such risk. I did not have the authority to make such a decision. The police officer was the person with the authority. However, as the director of the disaster area, I forced my decision on to the police officer. That is one of the biggest decisions I have made in my professional work life.” (M43H-PAR)

4.2 From Nepal to Ecuador and disaster preparation

The participant (M39H-PAR), a paramedic from the United States, was running training activities with Ecuadorian paramedics in preparation for a possible volcanic eruption in Ecuador. He is describing his experience during the earthquake in Nepal in April and May 2015. He said: “In Nepal, they had the two earthquakes between April 24 and 27, that were about 7.8 on the Richter scale and every day there were other earthquakes. Also, over there it was monsoon season so it was raining and raining and you got mud slides and the roads were covered in mud, almost impossible to get in. There is always tension in the air, you know, your team is looking after you and you are looking after the team, you always have to be careful and be aware of your surroundings, and thinking what is going on. It was a great experience, it was heartbreaking and heart-warming at the same time obviously a lot of dead, devastation, but the people there are amazing, and so appreciate any little help you can do, so appreciate it. We were doing rescue work, but also as a paramedic I have been cleaning wounds, bandaging, and things like that, any emergency medicine that we could do in very
remote places in the Himalayas. It was just because they have no access, there were a lot of teams in Kathmandu, but the surrounding villages did not get much attention so….for that reason we hired some buses and we went to those areas, in very remote places in the Himalayas that after the main earthquake did not get much attention and working as a team over there, it was a very powerful experience.” (M39H-PAR)

4.3 Hospital evacuation after an earthquake

Participant (M39H-PAR) described the situation of a rescue team in Nepal Kathmandu during the earthquake in 2015. They were in Kathmandu in temporary camps; “the rescue activities had by that time finished and because the water runoff we took a day to recuperate and buy new materials so we spent a day in Kathmandu getting some food and new clothes for the mountains and staff. There was another earthquake so we instantly met at the camp where we were and divided into teams looking through the buildings and looking for people to help and then we got to the hospital and the hospital staff were doing evacuation procedures, and they were trying to get everybody out of the hospital, that was a chaos … and as we were shopping, we did not have our uniforms on, but we were there and asked, how can we help?

The head of the hospital said help us to evacuate the most critical patients first and then the more stable patients. The situation at the hospital was terrible; equipment spread on the floor; we tried to concentrate on the task, the question was… how do we do this? We organised the area, we found the way to bring the patients downstairs.” He remembered they were transporting a patient with the smallest paramedic on the top of the hospital stretcher doing RCP on one patient, and another one with the oxygen bag, as they did not have oxygen to transport the patient, “you are not thinking ‘I am going to die if there is another earthquake here….’: you are thinking, how can I help somebody…how can I help this person.” (M39H-PAR)
4.4 A day in the life of a paramedic

The participant (F33H-PAR) is a paramedic with twelve years of practice who works in Quito, the capital and one of the biggest cities in Ecuador. While she was working in an emergency role for the ambulance service, she said: "Pressure and risk, honestly, they are hidden during your entire life. It is in everything, we are in danger when we work, eat, have fun, even when we fall in love, and I think it has added value to life.”

As she developed the topic, she also said: “You do not know when it will appear or the strength or magnitude of it. I am not sure! However, the risk is there, everywhere, in places one cannot even imagine.” The paramedic explained the different circumstances she faced every day and told me a story: “It was 10 am in the morning when a car invaded a sidewalk, and ran over seven people, one of them was a woman, and she was with her two daughters. The woman wanted to protect the little girls so she stood in front of them, and she ended up between the lamp post and the vehicle that hit her. She practically had her leg, the femur, dislocated towards her back. When we met the paramedic that had arrived first, he said ‘I cannot, attend her, please, you do it I cannot.’ We did it, since she was in a critical condition and terrible pain, due to her wounds”; she told the ambulance driver that he had 5 minutes to get to the hospital. “How did he do it? We do not know!” She said. In achieving the rapid transportation to a hospital, (F33H-PAR) realised that they made a risk-benefit decision and they set their lives at risk. However, they were thankful; that the driver drove the ambulance very well. It was the only thing they told him, ”You have five minutes to get to the hospital because the lady was dying.” (F33H-PAR)

4.5 Rescue in the Amazon region

The participant (F28A-NUR) has been working three and a half years as a nurse. The following story happened at the centre of the Amazon jungle, in Ecuador South America.
This region includes the Rainforest and the Amazon River and its tributaries. A nurse in charge of community services described a situation that had occurred two years ago. This town only had a rope bridge as its primary access and was in a bad condition; as a result, car access was impossible. The doctor who was working in the community had an accident, as he walked on the road, slipping on some rocks and fell over. At the time of the accident he did not tell anybody; however, when he went to a meeting with the community, he fainted. The nurse got a phone call from the community centre, and she arrived ten minutes after and found people were trying to help him; however, he remained unconscious. She said, “I figured he did not have breakfast”. While she conducted the medical examination, she noticed that all his left side was purple, and he was pale “we decided to move him to the hospital”. When he opened his eyes and told them what had happened, she said: “We never thought it was a life-threatening situation”. However, when they took him on the stretcher, he said it was hurting, and it felt like something inside of him was leaking. The nurse set up an intravenous drip in one arm.

They did not have a car access; therefore, they decided to carry him through the jungle. There were trees all over the track. The strongest people of the area helped to take him on a small stretcher through a very challenging and narrow road in the jungle. She said: “we were in a desperate situation”. At the beginning of the transportation, they were calm. However, in some parts the road, they had to adjust the stretcher to keep going; they decided to go fast; and he was not breathing correctly, so they used oxygen. Suddenly, one of the eight stretcher bearers slipped, and the intravenous fluids came out. She said: “Desperation came when the intravenous line fell (out), and everybody was in panic mode, screaming that we needed to go faster; however, they could not run because it was a very narrow road”. They switched positions and just kept going. The patient was as white as paper, and she said: “the patient did
not talk, I saw the patient dying”. She thought “I brought everything with me even the oximeter and oxygen, but I forgot the intravenous fluid line and needles”. She said: "I did not know what to do in this desperate situation, and all of us were screaming”. The patient was pale and barely talked. They walked three hours for just six km. However, it was like an eternity for them, when they got to the highway a car was able to take them to the hospital, “it was a relief when we arrived at the hospital”, she said. I thought “he is safe now; he will have attention there.” She saw him again a month later, and he looked healthy. He was very thankful because we saved his life. She said at the end:" If things had gotten worse, it would be my responsibility because I did not bring all the necessary things with me during the transportation.” (F28A-NUR)

### 4.6 Double identity: fire-fighter and paramedic

The following participant (F28H-PAR) is a paramedic and fire-fighter with eight years of experience working for an emergency service in Quito. It is a fact that in the Ecuadorian highlands during the summer season, the wind, the high temperatures and children on vacation are risk factors for bush fires. She said: “In this season we were facing one of the largest bushfire events in our history”.

She described her situation, feelings and concerns about her work, as two teams had passed away the week before the interview. “We cannot be alone to attend patients during emergencies”, the paramedic said: “We work in teams of two, so the two paramedics that passed away yesterday were together, the other team of two that were also injured, and one of them, died yesterday. She said crying: "They were very close to me. The second team entered the bushfire scenario as they were trying to help the first team; however, they were injured too. When the paramedics saw the great extent of their injuries, and they were extremely shocked because one of the fire-fighters who died had 90% of his body burned.
He was in Intensive Care, but he was in an extremely critical condition. The family wanted to take him to the United States. He had received surgery to reconstruct his airway, but he did not make it. The only survivor of the four had 60% burns to his body with third-grade body burns; “he also has airway problems, and he is in the Intensive Care Unit now”, she said.

She was thinking for a moment and continued, “Most of the time people in charge demand a lot from us, asking us to be strong and continue with the job, even in the most challenging conditions”. She continued: “when they set you under pressure, I think it is a strategy to obtain good results. Even though most of the time there is a shortage of staff, and as a consequence, we need to double the shift and even the fact you are tired; they send you to another mission if it is required.” She explains her eyes filled with tears and rolling down her face that she is most affected by car accidents when children pass away. It happened to her recently when, in a car crash involving two children and their mother, the two little patients died before the paramedics arrived. “The mother was alive, and she asked for her children, we just remained in silence trying to be strong in front of her, as she was in a critical condition and we did not want to complicate her situation. When we arrived at the hospital emergency, I asked for time alone, as I could not cope with the little patients dying because a drunk driver crashed into their car.” (F28H-PAR)

4.7 Under water rescue

The participant (M45H-PAR) a paramedic with extensive experience in rescue activities was working in a lake in the Imbabura Province, in the Highlands, 2.5 hours by car, to the north of the capital.
A family that was camping near the lake called for help as one of the family members had disappeared in the water approximately five minutes earlier. The rescue group was immediately activated to perform the search as the team included diving team members in training.

The team was working there for half an hour (M45H-PAR) said: "We worked at the lake; it was very dark, and the body of the victim with the diver appeared on the surface. The paramedic was in shock in a panic mode as he inflated the jacket, rising very fast to the surface. It was a dramatic moment."

“I made a mistake”, (M45H-PAR) said as he had asked a new member of the diving group to go to the rescue. The leader said, “It left a deep impression on me when the time to make a decision comes”. He realised that a team member selected for a particular mission must have extensive training. He also replied: "It is necessary to do a broad evaluation of this topic. Thank God, nothing happened to the diver; however, it was so hard for me after all.”

He also said: "It forced me to make a decision that from now on, I will do a deep evaluation of the volunteer’s training condition if their intervention is required. In this kind of rescue, previous knowledge, time of training, personal experience, as well as the last induction and previous voluntary work need to be considered. Many people want to belong to our brigade and often do it to follow a calling. It is not just to get on a beret or a patch. The only way to determine if a person is suitable is to evaluate his or her work, behaviour, attitudes and experience thoroughly. The volunteer must have the conviction of service, and commitment to the group. They always must be ready and understand that no personal issue can affect their service.” (M45H-PAR)
4.8 An oil refinery: inferno

The participant (M51A-MED) is a doctor with twenty-three years of experience. He was working in an oil refinery located in the Amazon region. He said: “I am going to relate an example. Once, I had to face a terrible situation, when we had an oil spill and fire in an oil perforation drill. The spill was more than sixty thousand barrels. I had around twenty people injured in different forms. I did not have a specialised support group or well-trained brigadiers at the time. I was the only medical doctor that was available. What could I do? My hands were shaking and my heart wanted to explode; I wanted to shout and cry; however, I tried to control myself…… took a deep breath and just did what I have to do”, he said. "I forgot about everything that made me feel worried, I got that inner strength from my soul and got serenity". He focused his mind on what he had to do and asked for help and collaboration. “You cannot do all by yourself, in these critical situations, you have to be a leader, it is not easy, but you have to apply all you have learned. I had to ask for help from workers who would be able to help me and follow instructions. I had to be creative in lots of things; I did the triage and medical attention to the patients. I asked for more help and transportation for the injured patients. We could handle this situation. No one died or had complications. It was a massive experience for me. It taught me a great deal. What is the important point here, I took advantage of my acquired knowledge, and I practised all the things I have learned before!” (M51A-MED)

4.9 Refinery worker dies from an electric shock

The participant (M33A-MED), a doctor with eight years of experience, provided the narrative of the most severe situation he has had to face while he was working in an oil camp in the Amazon region. A worker was fixing a power line, and received a severe electric shock. The other workers brought him to the consultation area ten minutes after the electrical shock.
The doctor described the situation: "I evaluated the patient, as the patient was suffering a cardio respiratory arrest. I applied the CPR at the consultation area of the camp". Meanwhile, the doctor asked for help from the paramedic, and he sought another person to drive the ambulance. They put the patient into the ambulance and sped to the nearest hospital. The doctor stated that he desperately continued with the cardiac massage and asked the paramedic to maintain the CPR procedures. The only thing on his mind was for them both to continue applying the CPR to the patient during the trip. After approximately fifteen minutes he said, "I realised that the patient was not responding ". He explained how they found the point where the electrical current had entered and electrocuted him; however, they did not locate the point of exit. The ambulance was not very well equipped, and when they arrived at the hospital they set a monitor to evaluate the patient, but there was no response. It was like approximately 480 kWk that the patient had received while he was working. The doctor asked for an autopsy; the final report indicated that the heart had been carbonised. The cardio respiratory arrest was due to the heart being burned, as well as part of the lungs. It was only forty minutes from the time they received the patient, and moved him to the hospital. “However, for me it was an eternity" he said. The doctor was pale as he said: "It was a striking event for me, as it was the first time that a patient had died in my hands." He explained it was indeed a tense evening, full of painful emotions. The patient was a fellow worker, and he saw him every day. The next days a wave of sadness came, as he had lost a friend. The truth was he said, “At that time I did not have fear, as we needed to work fast." “It was, up till now, the most remarkable experience I have had”, (M33A-MED) said.

4.10 Civil arrest

The participant (M35A-PAR) is a paramedic, who was working in the Amazon region cities of Tena and Baeza. He described his experience when, near the Tena airport in the Amazon
region, there was a shooting between the military forces and a group of people who were stealing cattle in the area. He said: "I do not know why just in the middle of the shooting there was a family; they were crawling asking for help from the military forces who were on the other side" he said. "A young boy, about 15, the mother, father and a little girl were throwing fruit and hid themselves behind a bush. They were thinking that if they threw the fruits to the groups, they would know that they were not armed. I think they believed their message was understood and the boy stood up with a white shirt in his hands. However, the robbers were out of their mind and shot this young boy in the forehead". The paramedic said: “As, I arrived as part of the ambulance team I saw the boy that was laying there on the ground, the mother was crying. I looked around and saw one of my colleagues who worked for a peace organisation and I asked for his uniform and left to rescue the boy”. The Director of the Health Department who arrived was pale, as well as everybody was afraid. The team begged the paramedic not to try to help the boy as they felt certain that he was dead. "I got near the boy; I saw he was breathing; I took the young boy in my arms no body shot at me, everything stopped in silence for a while. I was strong enough to bring him to the ambulance; we gave him CPR, telling him not to fall asleep. I asked him to tell me something, how is your mom? He was dying, I thought because he had a bullet in the forehead.”

He was at the ambulance with two more paramedics who were helping him with the CPR manoeuvres. "The patient was holding my hand telling me not to let him die”. They sped to the hospital, because you have to climb from the Amazon region in Tena, on the road to the Andes mountain range to get to the hospital at Baeza. They were tired and it was cold. At the hospital, the doctors saved the boy’s life. I was happy, as I found the boy, now a healthy man, working in his home town.” (M35A-PAR)
4.11 Disaster preparation

The participant (M40H-MED) is a doctor with fifteen years of experience. The group was working at San Pablo Del Lago, Imbabura Province, and in the highlands of Ecuador. In this group, there are fire-fighters, paramedics, engineers, nurses and medical doctors from different institutions and parts of the coast and highlands of Ecuador have been training and acquiring skills in case of a Cotopaxi volcano eruption. This possible event is threatening Quito, the capital, as the volcano is sixty km from the city. In the case of an eruption, pyroclastic materials will arrive at the city in minutes after the eruption. One of the paramedics said: “The objective of this group is to perform work to rescue victims who could be trapped under collapsed structures and extracts them alive”. The doctor said: “The human nature has emotional factors one of them is fear, which is one of the main factors that you have to face. He also added: “In my profession, as a medical doctor, I am afraid of not having enough knowledge and skills, and because of that I prepared myself every day. I want to know more and not be afraid of what I am going to do, to save patient’s life and not have complications of adverse effects.”

As part of the preparation they were doing simulation training under a collapsed structure. The following is an explanation of how they were removing the rubble. A team of four professionals were kneeling in a tiny space digging a hole in a wall, working under a collapsed structure searching for possible victims. The hole should be opened making a triangle big enough that a person can enter inside of that collapsed structure and later bring out the victim from that place. They were making a small hole to introduce an endoscopic sensor enabling them to look for victims. “Right now we can see team members working rock crushing and opening rubbles. Rubble is going out in little baskets that are moving in and out; in this form, the rescue team can have enough space to move” he said. He also
highlighted that the team performing under those conditions needs encouragement, support and strength of the leader. If one of them is tired, the leader will make the decision who will be the next on the line to help. The professionals who have more experience need to be at the forefront. “Teamwork is a coordination of ideas, the power to work for a common purpose”. Another member of the group a medical doctor said: “It is similar when you collaborate with a team as a physician in the emergency area. It is all about the pressure. Here there is much pressure. We work to save lives, and we have to do it in a short time using our skills. We work very hard in the emergency service and the same here, coming to help in disasters. Under these conditions, marvellous things can be done; however, things can get worse as well! We force ourselves day after day; we understand each other, we know how we are going to answer under the different stimulus. The pressure generates a process of adjustment. Yes, let’s say like that.”

(M40H-MED) said: “We work in confined places, where it would be possible to find victims alive. We work in silence to listen to everything around us, we can hear sometimes our hearts beating and how we breathe. It will help that, at any moment we would listen to other team members or someone asking for help!” This is the reason why the workplace in a disaster must be noiseless. We listen to our leader who is giving us guidance. The silence helps us to concentrate on the task. Silence means respect”. (M40H-MED)

4.12 Delivering twins in the jungle

The participant (M44A-MED) was working in an oil perforation camp in the Amazonas jungle; however, at the time this incident occurred it was when he was doing his internship in the Amazonas jungle region, in a primary, not well-equipped medical centre.
The doctor remembered one of the most dramatic situations he had to face during his professional life. It was around three or four early in the morning when an old woman with her daughter in her arms knocked at the door asking for help. “I rushed to open the door, and I saw a pregnant woman”. The mother told him her babies were coming. He said: “TWINSSSS… I have attended deliveries in my medical practice in other hospitals. I had some experience in that area, but definitely, I was not ready for a twin’s expulsive delivery and alone early in the morning.” He said he faced this situation; however, it was very hard, as the woman was in pain with intense contractions and bleeding. “It was an extremely complicated moment as the possibility of complications was just there”, he said. The biggest complication was the fact that one of the babies was in complete breech and for that reason, even though he made a dedicated effort to deliver the first child, the baby needed intensive care unfortunately, he did not survive. The second came in cephalic presentation, and he had a standard delivery. The second baby survived, as well as the mother. The doctor described his feelings twenty-five years after that event: "It taught me a lot, from the human and spiritual point of view.” He highlighted how the value of selfless service is essential for the understanding that every human being counts and their work saving lives are entirely valuable and significant. He finished his intervention underlying that the recognition of this fact is more important than achieving material things, as it fills health professionals with happiness and gives moral and spiritual satisfaction. “It enriches life”, (M44A-MED) said.

4.13 A patient from the Amazon region in a critical condition

The participant (F35C-NUR) described a traumatic and painful case of a patient from the Amazonas region. By the time this situation happened she was working in a large complex medical facility in Ambato city in the central Highlands area. They had received a patient who had a burn on her face and eye with a terrible infection. She was an eighty-five year old
lady who lived alone, far away from the closest town who had fallen into the wood fire and burned her face, neck and right arm. As she lived alone, unable to ask for help, she had stayed there like that for several days, probably unconscious. She was surrounded by such a wild environment that mosquitoes had laid their eggs in her injuries. The wounds had worms around the eyes and nose.

The old lady used to go the town every two weeks to sell products; she used to cultivate. The neighbours noticed her absence, in town, and went to her house. They found her in the kitchen, in such horrendous condition that at first they thought that she was dead; however, as she was alive, they brought her to a medical centre in the community. The doctor decided to transfer her immediately to Ambato. At the hospital, the decision made was the inclusive enucleation of the eyelid. During the surgery, the nurse said: “the doctors had to clean as the cavity was of considerable proportion”. They extracted worms, and the surgery was performed to prevent sepsis. The nurse said: “I followed the patient during the time that she was at the hospital and helped to find her family and support from the community, as she would not be able to live alone again’. (F35C-NUR)

4.14 A busy cardiac department

The participant (M39H-MED) is a medical doctor with fifteen years of experience at the time of the incident; he had been working for five years at an external consultation centre for a cardiac department. The doctor explained that his job was to attend to patients who came from critical areas to the walk-in consultation after hospitalisation for follow up of the treatment “it is a calm place”. “However, let me tell you something that happen to me a long time ago” he said. “A patient who was sitting down with his wife had a cardiac arrest while he was waiting for a consultation. I had arrived at the area to begin my day; it was 7:30 and saw all the medical students and residents paralysed. I came across to organize the situation
and ask for help. I started the resuscitation procedure, a few minutes after a doctor came from the intensive care area. The students were waiting to see if I would continue with the procedure I had begun. The intensive care specialist said ‘please go ahead’; “It is not about who knows more or less; it is about the expertise as he is working with critical patients, doing complex procedures every day and I do not.” Then he explained that he knew what to do, as he had done it several times before; “however, it would be illogical if I tried to do it.” He added: “You need to be thoughtful in those situations, of course, if I were alone; I will have to do it. However, when you are in front of a patient, you need to learn that you will have other team members that would have more knowledge, skills or expertise than you. You need to be humble! You need to let them work and be brave enough to recognize that other people can do more at that time. It was very hard for him to understand.”

“I tell the students when I teach them about the types of severe arrhythmias, you need to be calm in these extreme moments, you must not be desperate, and you need to do things to be methodical and calm. At this point, it is very hard, because all your emotions come out, but you have to make the decision in those circumstances and of course, that shapes, definitely the way you understand and helps others to comprehend. “It has affected me a lot. First, many adverse situations have influenced my life a lot, for example, with a patient I teach the students about electrocardiographs, when I saw a patient in cardiac failure or arrhythmias, one decision can make the difference, that the patient could live or die, and it is so hard!

He went on to describe the first time he lost a patient, “you cannot sleep, feel terrible; but somehow, you get to the point to know the enemy, which is death, then you begin to have serenity when you know what you have to do. If you do not know what to do, then you enter into panic mode, and you just cannot solve anything”. He sombrely said “You know what I mean...years pass by, and you do not recover and that influences a lot when you lose a battle;
however, saving a patient’s life makes you feel great. You can do something marvellous. As a doctor, I have been in life and death situations that I will never forget.”

The professional explained he could attend twenty-five to thirty patients daily without a break. He said: “It comes a time when you are not thinking, you do not make right decisions, you just want to finish, as fast as you can, and go home. Some patients have more complex medical concerns or medical problems; as a consequence, you need more time for examination and just have fifteen minutes for everything. Also, if you are tired, you can overlap or dismissed important details from the electrocardiogram, or from the medical record. It could have an enormous impact on the final clinical outcome.” He said: “It is vital to consider fatigue and physicians have asked to discuss strategies with the authorities several times.” The doctor also said “personal things should also be taken into account as you could have a fight with your wife or partner or problems with your family or someone died…you can get certainly get distracted as you are thinking about it. You know in medicine you need seven senses to attend a patient, you cannot make mistakes.” Then he set an example and said: “If you arrive at a place when you are in charge of the case, you get anxious if you do not have enough support. An example of desperation is when you want to place an endotracheal tube and the tube could not enter, and you try hard and it does not get it in. Then, you started to scream and get desperate; moreover, if you are desperate, the team will get nervous, as well. They will not be able to set even an IV, so internally you want to shout, but you need to be humble enough to ask for help.” The doctor explained this is the reason why teamwork is vital in any circumstance whether it could be in surgery, in a cardiac arrest, or with a patient at the emergency department. “Sometimes, doctors lack humility and don’t know that everybody has a role. In a cardiac arrest without a nurse, you do not do anything,
you cannot do it by yourself, the same thing if the nurse is alone; she would not be able to do anything, as well.” (M39H-MED)

4.15 The 1991 cholera epidemic

The participant (M52C-MED) a medical doctor with twenty-seven years of experience described a cholera epidemic in Ecuador. The outbreak was in February 1991 during the carnival holidays, as the first cases were Ecuadorian patients that came from Peru.

The physician related a very challenging part of his professional life when he had the opportunity to work as a medical doctor during cholera epidemic in 1991. He was doing a rural placement at the Pacific coast of Ecuador near the Peruvian border when he was asked to move to the hospital when the health emergency was declared. There was much fear of the cholera epidemic in the authorities and healthcare professionals, as older doctors did not want to go to the emergency area. The staff was frightened and afraid of attending the patients. “We were the new doctors, and we were obliged to participate It was mandatory… at the beginning of the outbreak, there were three doctors attending the three wards, and there was not enough capacity to attend all the patients as outside the emergency department the patients were in military tents. It was a maddening chaos of patients entering in private vans.” He stated how he used to attend an average of one hundred patients per day at the emergency consultation. “We did not even sit down during the twenty-four hours of the ward as we had one patient after another.”

People arrived dead or in cardio-respiratory arrest due to dehydration; however, many other patients who came could be treated and survived. Dehydration was so severe that some patients could not speak because of their vocal cords being dry. Gradually we learned, and their knowledge and skills improved to confront that situation. He remembered the stretchers
with a hole in the middle, where the patients evacuated liquid waste in a container under them which was whitish like rice. “We had limited knowledge about the illness at the beginning nobody gave us a clear idea of what to do; however, we worked with oral rehydration salts and helped the diarrhoea episodes to be shorter.” After that experience, he said: “I realised some important issues that helped me later in my professional career. The first fear was to get contaminated to his family or him; the second fear was due the massive number of patients they were not enough to provide proper attention as some of the family members became aggressive, as they required a faster attention. The third fear was to make a mistake, as there is no turning point; we were in a chaotic situation without greater knowledge of cholera, however they managed not to spread the infection, as the indication was always to wash their hands”. He said: “we overcame fear through methodology as Thai experts arrived to train us. There were some issues such as biosafety, and the usage of oral hydrations salts which was reinforced and help us through those difficult moments, our team was strong!” (M52C-MED)

4.16 Multiple simultaneous cardiac arrests in the ED

The participant (M30C-MED) is a doctor who has worked for five years at the emergency department of a large medical facility on the Pacific coast. The doctor said: “Today we had several patients in cardiac arrest. There was no communication between the team: physicians and nurses. There was the only disorganisation. A blue code is activated when a patient is in cardiac arrest; it is understood that the staff are qualified for the situation, for the first aid and advanced procedures, however there are so many people in the area just running from one place to another and shouting.” He said: “In a cardiac arrest no more than four people are needed per patient, the nurse who administers the medication, the individual who is taking care of the airway and a doctor who is giving the cardiac massage.” He described the
emergency department as he said: “everybody shouts and also clinicians when the reanimation procedures fail”. When the doctor arrives at the emergency department, his aim is to concentrate on the cardiopulmonary resuscitation procedure and help patients. “First of all, I will meet the available nursing staff, students and people working in the laboratory and Radiology Department. Then, I try to organise the medication and medical supplies at the trauma area. Everything must be ready as patients could arrive at the most unexpected moment. Also, when you have everything ready it is another way to decrease the pressure, the uncertainty of not knowing what is going to happen.”

He said: “When there are no other doctors in the department, I assume the leadership role when it is required.” He exclaimed: “I try to forget about relatives, executives and managers and try to follow Advance Trauma Life Support (ATLS) protocols. I do not have another kind of influence except the patient’s response to the treatment, if suddenly, two patients are in critical conditions, it puts pressure on me and I have already experienced these things he said. It is tough”. He explained that he tries to calm down himself in that moment, take a deep breath, and concentrate on the patient’s condition. “I ask the nurse to call other doctors to work there with the other patients in a critical condition.”

Some health professionals have less experience and misunderstand orders and this affects the outcomes of reanimation proceedings in a negative way. He said: "Some weeks ago we had a patient in cardiac arrest; as we began the resuscitation procedure, everything was well organised. However, a new nurse was nervous and misunderstood the instructions and gave an overdose of benzodiazepines to the patient. As a consequence, we almost lost the patient. Another nurse told me what happened, and we could administer the antidote. If we had not been informed about it, the situation would have been very different.” He was overwhelmed with this situation and said: “I do not know if it is a lack of training in resuscitation, however
when you work in an emergency department, you need to have a global approach of what you are going to do, and how you are going to do the procedures so it is necessary to have communication among the team." He explained: “A mechanism to decrease pressure is to ask for help most of the time, so I requested the nurse to call for help.” (M30C-MED)

4.17 Emergencies at the Galapagos Islands Hospital

The participant (F38G-NUR) is a nurse with seven years’ experience working in an Emergency Department at a hospital on the Galapagos Islands. This participant was born in the Galapagos Islands; she decided to go to study nursing in Guayaquil and come back home as she said; “my family was there, I missed them a lot”. She explained her regular ward at the Emergency Department as she has been working there for six years. She stated that the distribution of the work schedules is something that is difficult for her because she has a little daughter; however, she can handle it as her mother is helping to look after the baby when she is working. She said "I work one week in the mornings, the next week from 14:00h to 22:00h, and the next week one night every two days.” There are ten nurses working at the Emergency Department, working two per shift. Her job seems to be more difficult on Friday night and during weekends as the emergency department is crowded. She learned English, so she can communicate with the patients most of them, tourists. They come for respiratory problems or stomach pain. These are tourists who come to the islands and stay there a couple of days. Most of them cannot speak Spanish, so that is a problem when they present a more complex medical issue. However, most of the time it is not a problem; she said she likes to learn, as she thinks her work is very useful as she is representing her country there. "I am happy to help them.”

“I come to work thinking that my daughter could not be in better hands, as my mother is taking care of her - "my heart is with my daughter" she said. However, she remembered once
when the baby was three months old and had a respiratory problem during the rainy season. Her mother called her and said that the baby could not breathe properly; she asked the emergency department to go to her house with the ambulance. "It was the best decision I made" she said, "as doctors could help the baby, she was almost purple when we brought the baby to the Emergency Department, the doctor told me she had pneumonia." The baby had to stay in the hospital on antibiotics for fourteen days. During that time, she could not work of course, as a single mother; she said: "Sometimes you are overwhelmed with family situations; it is true that you are working, however, with your heart is with your beloved one.” (F38G-NUR)

4.18 An operating theatre

The participant (F40H-NUR) is a nurse with seventeen years’ experience working in the theatre room of a large medical facility in Quito, the capital of Ecuador. This hospital has twenty theatre rooms for conventional programme surgeries working from 8:00h to 17:00 hours from Monday to Friday, one theatre room for deliveries and two theatre room for emergencies working 24/7. One situation to be considered is the monthly routine programmed surgeries, and staff member absences, as well as other problems described in various situations.

The nurse said: “I am in two places, commanding the operating theatres and sometimes in operations due to lack of staff.” “I would rather be at the surgeries I like theatre rooms” she said. She also said: “When the theatre room is running without the appropriate number of people required performing an activity that is working under pressure.” She described her specific situation and said: “For example, in the absence of staff, I got tense, as I know that we need to work in the same way as if we were all one. Physically, I get tired, worried and diaphoretic because I started to think how things could be solved.” “Lack of collaboration
bothers me ... what I saw is that these kinds of situations made me feel exhausted. It is a big concern when there is not enough staff.” As the head of the nurse department she must make the decision to become part of the surgical team and cover the function of the missing staff; often staff has to change roles within the team because of absences.

In order to plan the monthly operating theatre list, first the leader must know staff skills, competencies, capabilities, and the experience of each one of the team members to distribute the tasks according to the level of complexity of the work she explained. The team members at the theatre room need to maintain training activities to be supported by the more experienced staff; otherwise, they will never learn. As a consequence, the group grows and becomes more confident to perform different kinds of procedures. However, some people do not like to learn, preferring to do something easier and do not meet the challenge. They say “In the theatre room the doctor told me. If you have no experience, please leave the room.” She said “but, the team must support you. When I am there, I tried to change this behaviour and teach. This is the only one way to help the group. Because, if they do not learn I do not know who is going to do that role if at night only one team is working. It happened that long and complicated surgeries often stayed until the evening, then at night that will support? As a consequence, the staff must be prepared to deal with emergencies.”

She explained that in a management position it is required to be aware that staff need to be trained and continue learning programs, for example, encourage them to assist not just in easy surgeries, but they need to learn and must rotate. Because at the moment only one person knows how to perform a particular procedure; it is a limitation and if that person is absent, no one can replace them. It is the same situation in emergencies, or when there is a lack of staff, and then there must be trained professionals so that position can be covered.
She said: “People often think that leadership is easy, just because you are not in the theatre rooms, doing all the work they do. However, the truth is that the person who is the leader is responsible for everything. Because the leader needs to be aware that everything runs and bears the responsibility for errors in the group; that is a strong responsibility indeed. You feel it, and it makes you feel that you are not confident about that decision” she said. Moreover, small details must be considered as they became so important during the process. She said: "I finished the day, and it seems like I have worked more than 8 hours or maybe more. I come home tired, and I cannot eat, and I just want to sleep. Decision-making in emergencies exhausts me, and when that happens every day outside of schedules, staying longer shifts, covering staff who do not arrive or are sick. An additional problem arises when you are not able to get home by the time your work finishes. Then, on top of everything I have problems with my family. Family issues for sure because you are required to spend more time at work.” (F40H-NUR)

4.19 High-complexity cardiac surgery

The participant (F32H-NUR) is a nurse with eight years of experience, specialising in Intensive Care working at the largest and most complex medical facility in Quito, Ecuador. The professional had participated in a complex cardiac surgery.

The nurse explained the situation in the theatre room, as she described the facts in this cardiac surgery where an aortic valve needed to be replaced in a sixteen year-old patient. The patient was stable by the time he was admitted into the operating room. She said:" I was helping the anaesthesiologist checking the patient’s vital signs. The anaesthesiologist was always aware if the frequency varies, the airway, arterial and peripheral lines everything was under control and following the established protocols, however as the patient was bleeding, the anaesthesiologist began a blood transfusion and administrated medication. She continued:
“The surgery was almost at the end, and the wound was closed. The anaesthesiologist raised their voice and said the patient is in a cardiac-respiratory arrest; the surgeon asked for the automated external defibrillator, and it did not work”. She explained: “Suddenly, he began to open the chest again, and the other doctors followed him, it was complete silence. She said: “when the surgeon opened the chest; he introduced his hands into the patient’s chest and quickly proceeded to massage the heart muscle to maintain its pumping; when in front of our astonished eyes the small heart started to beat again”. “We all had tears in our eyes, we could feel the teamwork, the surgery was very exciting, the situation was tense at once, as the entire medical team joined to save the patient who was just 16 years old,” she said.

She described their work as follows: “There is an agreement to work together and training before we entered the surgery. Otherwise, we could not do anything or help people if you do not know what to do.” “The group is organised, things always in place. We know what the other team members have already done, what they have to do, and how react in those crucial moments or during crisis in a severe situation, things must be done quickly to save the patient’s life. At that time, I think, we lose fear and we all work to help the patient, and follow protocols, she said.”

The nurse said: “I saw the doctor resisted throughout surgery as he remained standing in front of the patient for so long, during the entire surgery. We were all feeling motivated, happy, and we cried because, it was the first time the doctor introduced his hands for direct massage in such an extreme situation. Moreover, at the end of the surgery, he was feeling proud of himself, I thought, as he went to inform the patient’s family that the patient was doing well, and he went to the intensive care unit to continue the process.” (F32H-NUR)
4.20 Problems in the operating theatre

The participant (F54C-MED) is a doctor and anaesthesiologist with twenty years of experience working at a theatre room of a second level of complexity hospital.

The doctor began to describe the situations which occur in the theatre room where the team was going start with a cholecystectomy. The patient was intubated and asleep; the instrumentalist opened the laparoscopic abdominal packages, turned on the laparoscopic tower and suddenly the CO2 or screens did not work. The team decided to change the theatre room because the surgery could not be cancelled or postponed. She said: “at that moment I made the decision to continue the surgery in another theatre room with other equipment”.

The doctor in this case, organised and moved people to help, as well as to save aseptic sterile fields to the new operating room. The new theatre room needed to be changed taking into account that the area was not contaminated, and the equipment would be working properly. Once everything was ready, they moved the patient with the surgical bed as the patient was under general anaesthesia already. The nurse who was in charge of this surgery moved to coordinate all the actions and procedures with nurses and the other staff who were helping.

The doctor highlighted that this process is vital for the patient; as a consequence, organisation and roles must be carefully performed.

“The team should work together to help the patient to get through the surgical process without complications. The patient must be monitored all the time,” she said. “I supported the team during the process”. The nurse needed to verify that all equipment and medical supplies were ready, to begin the procedure in the theatre room. There is much teamwork, and anaesthesiologists support their peers in another theatre room to keep the patients stable in the theatre room.
She said: “Unfortunately, there is not a good control of maintenance services. Sometimes, problems are detected before the surgery; if it happens after the operation began; as a consequence, the decision to change the theatre room is made.”

“The truth is that it has always been taken the decision to move. The surgery cannot be cancelled. The patient is already under anaesthesia. That is why teams now always check before starting; however, always something unexpected happens. Also, the doctor needs to be aware of any possible contamination during the postoperative period. The possibility of an infection is around and we may need to do something about it. Moreover, the surgeon needs to consider any sign of infection. The nursing staff is also aware; if any contamination of the equipment may occur, then she will open a new set immediately”. (F54C-MED)

4.21 A post-surgical ward

The participant (M39H-MED) is a doctor with 14 years’ experience who by the time of this scenario was working in Quito, the capital of Ecuador in a complex medical facility. The doctor described a situation that occurred while he was working in a post-cardiac surgery area, defined as extremely critical. He described it as an exceptional situation, as it even became spiritual for him.

There was a patient who had had cardiac surgery; professionals had to check his vital signs and draining tubes every five minutes. The draining of the thoracic tube needed to have negative records, from one hundred ml to zero ml. However, its production of blood increased first to fifty millilitres and then one hundred millilitres. The patient began to bleed; he had signs of cardiac tamponade, his heart was filled with blood. The doctor said: "The first decision you have to make is to recognise something is wrong and make a fast diagnosis, if not, the patient will die; and you have to make decisions quickly." He remembered he was
with a physiotherapist who specialised in cardiac surgery. The decision was whether they called the surgeon immediately or not. The doctor exclaimed: "One moment, the patient was talking to us, and suddenly his life was at risk." The patient was between life and death; he had two heart attacks and ventricular fibrillation. They worked hard on the cardiac arrest, and he came back to life. They administered blood and plasma. “Those were the longest fifteen minutes of our lives due the fact that the surgeon and anaesthesiologist took twenty minutes to arrive,” he said. He described how it seemed like an eternity to keep that person alive. When the surgeon and the anaesthesiologist came, the final diagnosis was that one of the coronary bridges had broken and was bleeding. They repaired it, and the patient recovered. “When the patient came out of the theatre room, he said thank you to both the physiotherapist, and me. However, he wanted to see the third helping person who was helping, to say thanks. We looked at each other, as we knew we were alone!” They thought that the patient felt that besides their decisions an angel took care of all of them and protected the patient. It was hard, beautiful, intense, but also a refreshing experience” the doctor said. The doctor continued “I think, when you are in a situation like this, it is a race against death. Doctors undress their souls; patients trust in you and you become an important person in their life. You can help patients when you first listen, understand, and think about the different diagnostic options. Then you can offer an assortment of treatment options, to enhance their health and lifestyle. It is a great treasure for me to be part of such improvement in someone’s life. A man in his fifties has more things to do, and I have to fight for him and of course adrenaline flows in you and it crosses your mind, all the things that you have to do and not do. Teamwork was also essential, and nursing specialists in cardiac surgery were able to work fast with me. We needed to have everything ready tubes and medicines, and when you need to do a cardio version, they had set everything for it.” (M39H-MED)
4.22 Emergency surgery following a car accident

The participant (M53H-MED) is a doctor with twenty-eight years of experience working at a private medical facility emergency department in Quito, Highlands, Ecuador.

The physician described a particular situation that had happened to him the previous year when he was on call one week. He was at home when he received a phone call from the emergency department, and they told him: “Doctor, we have a 17-year-old patient, in hypovolemic shock. He had a car accident, and the patient is unconscious. We need you to come here fast”. He drove the car quickly while he requested them to do blood tests, Echocardiography and thorax radiography, prepare blood for transfusion and the theatre room.

When he arrived he gave the order to take the patient to the theatre room, at that moment the patient’s parents arrived desperate, asking the doctor what had happened; he told them the situation was critical as the patient had an abdominal trauma; he was bleeding and needed surgery. He said: "You can imagine his family telling me, save him, doctor, please! His life is in your hands!”

It was a very unpleasant and tense circumstance; he said as he felt he was part of the problem. He entered the theatre room, asked for blood, and the surgery started; the spleen and liver were bleeding, and he took the spleen out and packed the liver while the blood arrived. The patient was almost stable; however, when the compresses were out, the liver started to bleed again, he said: “we added more compression again but after the six hours the patient got a worse medical condition there was no turning back, and he passed away.” He also said: “When I had to tell the relatives the bad news, it was so difficult; I thought I could get hurt when I saw the family. I came out with a sad face, and I approached the family. I told them: we tried to do as much as we could but, unfortunately, he could not survive." The family
started to scream and one of them attempted to hit him. "Unbelievable! I was exhausted; I did not know what to tell them” he said. It was the first time that something like this had happened to him. "That case was a severe liver trauma; it was difficult for him to survive,” he said; because of this he felt awful for more than a week, did not want to eat, not even could sleep. He said: "My family was concerned for me."

The doctor said: “Inside all that chaos, I am an ethical person, and I do things, the best that I can. Medicine for me means sacrifice, especially as a surgeon dealing with emergencies. I have sacrificed my family, my children because of this job, and I did not have vacations for that reason. When I talked to my kids about their future, they did not want to become medical doctors. It is because they could see and feel their father’s sacrifice.” (M53H-MED)

4.23 A neonatal intensive care unit

The participant (M48C-MED) is a paediatrician with twenty years’ experience talking about his professional experience at the intensive care unit. He said: “My patients are at the critical care unit with life-threatening conditions. Decisions must be prompt and judicious; they require a quick-thinking process.”

The neonatal intensive care unit is in a large medical facility on the Pacific Ecuadorian coast. “I have been part of an incredible team that has managed to bring up with care for extreme premature patients,” he said. He was proud of being part of a team that could overcome adverse situations at the hospital. In the beginning, he said: "I was afraid when I was treating a very ill patient, fear of not being able to help, afraid of the complications that could appear beyond my control.” The doctor added that he thought it is important to develop teamwork as a skill in neonatology. He said: "you cannot work alone." He explained: “we must share information with the group: all patients’ data, evolution, the purpose of the therapy and
prognosis.” When they are working he shares a positive attitude with the team and encourages them “Let’s walk together, let's do it, we can do it, this is not going to last long, not forever, I looked for their concentration! This is going to be fast, and we will get positive results.” He highlighted that the first intervention is the first step; the next part will be easier. “My success is not only mine; it is the team’s success.” Success means responsibility, and it is the result of teamwork coordination. He said: “they faced situations where they suffered the loss of a little human being, and it is even more painful, as we know a newborn is a gift for the family. Slight mistakes affect the infant’s life, therefore, it is mandatory to be prepared and updated when in areas where critical care is provided to children under life-threatening conditions. You need to predict or anticipate the symptoms and behaviour of the illness since newborns have little ability to participate in the treatment process. They seek for slightest changes, and they are evaluated over the time because the vital signs and minimal change can lead to considerable differences because there is a previous affectation and sometimes it may be too late.” (M48C-MED)

4.24 Summary

These scenarios will provide a context for the next chapters to elaborate on the concept of pressure from an emic point of view. As will be seen different scenarios shaped various realities for healthcare professionals, through a range of geographical locations, and climates mixed with different circumstances and events which all contribute to the complexity that health professionals face daily. The complex nature of the scenarios was also related to the structure of the medical services available in the community and the capacity for resolution by the health professionals according to their skills; knowledge; expertise; and available human and material resources. The next chapter will analyse the participants’ perspectives and perceptions of pressure in their daily performance.
Chapter 5  Pressure

This chapter presents the information collected from the participants in interviews. These findings are organised into themes arising from the data. Pressure was defined by participants in many different ways. Participants of the study played a role of being field observers of complex social interactions. They described their activities, rather than themselves or judgments of colleagues. They described their individual performance and other people’s actions to build interactions and play their parts within the team. Moreover, the management of the crises shows a collective team-based response, which is functioning within the wider healthcare system.

Firstly, in understanding how the participants conceptualise working under pressure, it should be noted that the decision-making process is never purely technical; it is not as simple as choosing the correct procedure.

“I based my decisions on judgments and protocols that arose from a situation. I based my decisions on protocols, written procedures in security manuals. However, not everything is written, and sometimes the conduct you follow is a middle point between you as a professional and the procedures. You could face unpredictable circumstances which you are not prepared for, in that case. How could I say it? Personally, I used my intuition and experience to meet and manage many patients in severe situations. However, as I told you, not everything is written. Therefore, I would always prefer and recommend using the established protocols for each type of medical problem and adding solutions coming from your personal experience, if needed. The intuition you have as a professional helps you to gain an in-depth understanding of the patient’s condition and the surrounding circumstances. It is hard, but, I consider that is what you have to do.” (M51A-MED)

Pressure seems to be composed of individual or personal factors, system, and context. These factors that impact healthcare professional’s clinical decision-making, while working in different scenarios will be explained in the following chapter sections.
5.1 Classes of pressure

This classification will consider different forms of pressure as factors that modulate the effect on the final result of healthcare workers’ performance. As a consequence, pressure could intensify or mitigate risk factors that could affect their performance. However, the same factor could be seen as a catalyst (a factor that modulates a process); in this case the effect of pressure is a catalyst for of the professionals’ performance in everyday life.

The participants define different pressure factors that affect their decision-making and performance in special situations under specific conditions which would change quickly during a day of work as follows:

- Pressure in relation to individuals and teams (actors and roles)
- Pressure in relation to institutions and systems (stage)
- Pressure in relation to patient and case complexity (plots and storylines)

5.2 Pressure in relation to individuals actors

Healthcare professionals draw strength from their work, as they know that they are working with human beings and because human life is precious.

“Pressure is giving me the strength to do what I am doing; I am talking about human life. I am giving everything that I have for nothing in exchange.” (M45H-PAR)

5.2.1 My patients first

These professionals have had to prioritise patient wellbeing before family commitments.

“Many times, I left my family aside, because of work I cannot stay with them as I would like; however, at least this is giving them as an example is given to my children. I know that I have to work, God allows me to work to improve patients’ lives.” (M42C-MED)
Healthcare professionals think that they have abandoned their families on occasion to attend patients.

“Medicine means sacrifice, particularly, since I am a surgeon dealing with emergencies; I have sacrificed my family, my children because of my job.” (M53H-MED)

However, their professional life has also affected their life when they were not available to attend to family issues.

“An additional problem arises when you are not able to get home by the time your work finishes. Then, on the top of everything I have problems with my family. Family issues for sure are generated due to you requiring more time to work”. (F40H-NUR)

5.2.2 Family issues and domestic problems

In order to juggle family commitments with work pressures, some professionals have had to make changes to their work practices. This was often done to be closer to family members.

“I have a son; and when I was working at the hospital, I used to work 12 hours shifts and my son did not spend time with me. Here, I work 8 hours; I can spend time with my son in the morning and afternoon. At the hospital, I was not able to do that; I liked the hospital’s life; however, I got pressure because of my family. I could not spend time with them. I work from Monday to Friday from 8:30 to 16:30 and I spend the weekends with my family.” (F28A-NUR)

Health professionals’ personal life is affected when they have to work far from their family.

The following professional made the decision to relocate the whole family to be nearer to work.

“I missed my family so much, that sometimes and I could not work properly. Then in 2011, I made the decision to bring my family to live in the Amazon region with me, and we could be all together; I wanted to have an 8 hour day, I did not work as a doctor after working hours. I avoided it. I never got so excited to have my medical consultation office or have something similar in medical buildings.” (M53A-MED)
Family relationships could have a strong influence on professionals’ practice and responses to patient care. This often led to the perception of patients as being like family members.

“People asked me is that patient your relative? I answered no; please see them like they would be. I mean people see how much I care for patients. I treat them like family. Because I like to treat people as I would like people to treat me in that form, it helps me to do my best, in order not to lose one of my relatives.” (F50C-NUR)

A patient could also make them think about a family member when the professional believed that there were similarities. However, this was sometimes a source of strength.

“It is hard to be in front of a baby when you also have your family, you also have your babies, and you think that one of them could be mine. It is hard. However, I think in that way, so it makes me feel strong.” (F45H-MED)

These types of relationships could mean that it was difficult for professionals with family to disassociate themselves from painful situations at hand when attending some patients, especially younger ones.

“I learn the skills to coordinate teams at the intensive care unit. In the beginning, I had many difficulties, and when I made a mistake, I have had to correct my errors. It was hard. It is difficult to be in front of a baby when you also have your family, you also have your babies, and you think that patient could be your son; however, it makes me feel stronger.” (F45H-MED)

Healthcare professionals could become shocked and transfixed when treating a patient who was similar to family members. As illustrated in the following extract, this added to the pressure of the situation.

“In my ten years of experience, I remember once, I stopped without knowing how to treat the patient. I got nervous thinking that the patient was my brother. The patient was 24 years old; he came from Guayaquil from a car accident with the same name as my brother. That entire situation made me think he was my brother. I began to imagine bad things. I went out and began to cry; I’ve never had such a bad experience. That situation blocked my mind at that time. When I
saw the patient’s face I realised he was not my brother; I had to call my brother and hear him to calm down.” (F33CNUR)

Sometimes the healthcare professional’s life is in the hospital; even their family is familiar with their daily work. In this extract, a respondent illustrated how family members shared in their work experiences.

“Often I go home to share with my family. My daughters asked me: ‘How was your day, mum? And, how are your children?’ And, they also follow my work - ‘Mum... is the little patient going to be fine?’ One day, I told my daughter about special babies that stay at the hospital ‘what happened to them? Are they twins?’ my daughter asked. ‘No they are not twins; they are triplets ’I said. My daughter told me, ‘then you and I and all the other doctors will take care of them.’ My daughters watch my life and feel the pressure and they felt it with me; however, they liked it.” (F45H-MED)

Work pressure could also be exacerbated by problems at home.

“Another important thing that should be taken into consideration is if you had a fight with your wife or partner or you got mad with your family or someone died you can get distracted, you are thinking about it. You know in medicine, seven senses are needed to attend a patient, you cannot make mistakes. For me, this is an important aspect”. (M39H-MED)

5.2.3 Personal financial issues

Healthcare professionals are concerned about their financial situation, so they work hard.

“Work under pressure is also to consider the economic aspect - physicians need an income. And, then you try to find patients or do as many surgeries as you can per day to obtain those resources; this is to work under pressure in the economic aspect. I have seen many doctors who spend twenty-four hours a day, every day stuck in the hospital. Medicine as a profession gives you a status and a lifestyle and some always want more, more, and more.” (M39A-MED)
5.2.4 Personal beliefs as a source of pressure

Personal beliefs also call intrinsic motivations are described as a source of pressure. The participants expressed how personal beliefs underpin the participants’ practice and help healthcare professional to understand their mission related to their professional code, ethics, religion, beliefs to provide humanitarian assistance.

5.2.4.1 Philosophy

The participants refer to their personal philosophy of practice as being intrinsic a calling to humanitarian service, a duty towards humanity, part of their religious beliefs, an opportunity to maximise the welfare of human beings and as a way of providing dignity and respect for patients.

“At home, I had an excellent education and was taught the meaning of respect. I also added my principles of humanity, neutrality and selflessness. These principles combined a philosophy oriented to human beings. My work will provide technical guidance which is aligned with humans needs. I deposit droplets of humanity in my job. People are what matter the most and you must think careful. This particular consideration leaves deep imprints on my professional performance.” (M43H-PAR)

There is a strong desire to be a valuable individual in society. Participants expressed how they want to commit their life to helping other people, as they realised time is running out for all.

“I just needed to help, and I realised at that moment, I could be a valuable person to society. I realised life is so short; you could die at any time, then, as a consequence, you need to take advantage of the time, be useful and encourage people to help others.” (M71H-PAR)
In the same way, health professionals expressed their desire to bring their legacy to the new generation of health providers. They feel the need to teach to the new generation how to improve patient outcomes as a way to fulfil their mission in life.

“Our mission is not only to know the procedures and skills, but also to teach them to the new generation; keep calmness, maintain the zeal to learn, remember that, it is life.” (F45H-MED)

As for all health professionals, this commitment is underpinned by a fundamental principal: Primum non nocere (First, do no harm).

“At work, I am in a position which allows me to help patients. I work for them, and in a certain way, I stand up for patients. The best care given to a patient is the one related to the ethical and fundamental principles of life. The first one: do no harm.” (M61C-MED)

Health professionals presented a personal philosophy that allows them to show their personality while being part of the group. This participant expressed a clear example of the understanding of the art of impression management (Goffman, 1969).

“The philosophy which underpins my performance is to be you and be part of the group. You have individual characteristics, your style, skills and sense of humour. Everybody has their personality, but also being in this uniform group, where everybody is supposed to be the same, so there is a balance in being yourself and being part of the team, and how you do that? You know your skills, your strengths, your abilities; you talk to your team members, you talk to other people, you interact, you know what you expect from them, they know what to expect from you. If you develop that ahead of time long enough and you have the opportunity to work together, then all of you just match, it just flows, there is no problem, and everything is smooth.” (M39H-PAR)

Decisions were made toward the accomplishment of a purpose in their lives. These decisions were supported by strong religious, ethical and philosophical foundations. Based on these underpinning ideas, health professionals’ decision to live their life providing care to people
who suffer, helping patients to recover from their illness or contributing to relieve their pain could be achieved.

Healthcare professionals made a personal decision to improve their skills to detect even initial problems and avoid complications. This participant showed her character and courage to confront emotional pain, facing the death of patients at the intensive care unit.

“In the Intensive Care Unit, babies are fighting for their life; we gave support to the mother and kindness to the baby. For sure, the little patients do not need only medical treatment, but also tenderness. The children would spend up to 4 or 5 months here if they were extremely premature. When I know that a child with any severe condition could die, I prepare myself to give psychological support to the mother and walk through it. You find yourself speaking to a very tiny, low weight extreme premature baby, asking the baby to be brave enough to overcome many things. The little patient cannot talk in a formal way; however, when something is happening you need the read to signs of sepsis for example! After some weeks, you feel him/her as part of your family.” (F45H-MED)

When the respondents talked about their profession, they first thought about the meaning of it in their life, and then second, they defined their work as sacred as another human life is involved, as well as their life.

“It is very exciting; it is a holy work, very hard. However, it is wonderful to know that my job will help other people, without risking my life.” (F33H-PAR)

Some respondents expressed that their philosophy was something innate that rose inside as a need to help other people.

“It is something innate, something which is born of you. It is something that a person has by nature. I think it is something special that a person is born. You have a generous heart, and by your decision you like it, and you do it as your career.” (M39A-MED)

Some respondents, at a very early stage of their lives, had set a goal and consequently feel drawn to help people from other professions within the medical field.
“I started at five years old, and I remember my uncle asked me what I wanted to be when I grew up; I said to him I wanted to be a doctor, and he said Don't you want to be a priest? Everything started there.” (M53A-MED)

The participants thought that it is a privilege to be part of a patient’s life. These health professionals understand their calling for humanitarian purposes and feel the happiness of being part of patient wellbeing.

“Doctors undress their souls; patients trust in you and you become an important person in their life. You can help patients when you first listen, understand, and think about the different diagnostic options. Then you can offer an assortment of treatment options, to enhance their health and lifestyle. It is a great treasure for me to be part of such improvement in someone’s life.” (M39H-MED)

The team ‘Los Topos’ which is based in Mexico with members from all around the world including Ecuador, accepted to be interviewed while they were training healthcare professionals in Ecuador. The group was founded by Hector Mendez, in 1985, after responding to the Mexico City earthquake. Over 30 years, the team has helped in natural disasters all over the world. They have assisted in rescue and recovery efforts in several countries including El Salvador, Haiti, Indonesia, Taiwan, United States 2001, Nepal 2015, Ecuador 2016 and lately in Italy 2016. The team is composed of volunteers from different nationalities and professions. Los Topos consists of volunteers who leave their day jobs when they receive the notification to travel to assist in rescue efforts in disaster areas with their expertise in disaster relief and recovery. They travel using their own financial resources and from private donations. Los Topos has contributed to rescue efforts in 22 countries since 1985, and has never lost a team member. They are remarkable citizens of the world, risking everything they have to help others in need. This team was preparing rescue teams in Ecuador in advance for disaster events, six months before the earthquake of 7.8 on the Richter scale on April 16, 2016, on the Ecuadorian coast. For each one of the members who
would be required to work in a rescue team in any part of the world, their philosophy became part of the decision-making process. As stated by (M39H-PAR) and (M71H-PAR) “we are travelling around the world wherever or whenever our assistance would be required”. The teams’ philosophy is intrinsic to their decision-making:

“I accept my death, for I would give my life, with no mother or father to hold my hand. No hotel, no timetable, no compensation, no heat or cold, nor fear, no hunger or thirst; none of these things can stop me from assisting my fellow man because I am a Topo.” (M71H-PAR; M39H-PAR; M40H-MED; M45HPAR)

5.2.4.2 A calling for humanitarian service

A calling gave these healthcare professionals a sense of purpose in life. They have chosen their careers in order to fulfil an internal need to be helpful to people. These professionals develop extreme sensitivity to human pain. Possibly this is the trigger for them to develop even more complex dynamics around how decision-making in their work is performed. In this case, it has been identified as a calling, to help other human beings.

“When I was a little child I had a calling for medicine I just wanted to help other individuals in any form of pain.” (M61C-MED)

However, this calling for some professionals could also emerge later in their life during an event. This helped them to develop the idea that it was worthy to work for humanitarian purposes.

“On September 19th, 1985, I was 35 years old and for the first time in my life I took part in the rescue activities in an earthquake in Mexico. We saved a family, after twelve hours working removing rubble; when I saw the mother with the baby in her arms and the other children in her lap protecting them, all covered in dust, I realised that it was not necessary that people tell me ‘I am a hero’, or that I am a good man. I do not need those compliments. I just needed to assist other people, and I realised at that moment I could be a valuable member of society.” (M71H-PAR)
In this case, the firefighter had a commitment to help people; however, the decision to become a healthcare professional was made to improve the family’s economic situation.

“When I made the decision to belong to the fire brigade, it was more than a vocation. I did it to support my mother because my mum always pursued the wellbeing of her children. At that time, my family was passing through a difficult situation. The truth is that the decision was not because of vocation; it was based on necessity, for the wellbeing of my family. That was the reason I entered this institution. So, if you ask me, do I like it? “I like it very much! Why? This is because; you can help people from different economic or social conditions, indigent or wealthy, with various lifestyles, or beliefs.” (F28H-PAR)

Health professionals highlighted that the reason to make medical science part of their life, as something which is more than a job, something that became part of them which gave them a strong foundation to make a decision to dedicate every day of their life to help other people, as expressed in the next narrative extract.

“I studied medicine because I felt it was calling me. I felt this vocation since childhood, and I wanted to follow that call. I wanted to get into that big responsibility and take the risk to study this major. It brought into my life economic and academic issues, a big sacrifice. However, the important thing is that I liked it!” (M51A-MED)

5.2.4.3 A duty toward humanity

A sense of a duty with humanity is a social force that binds health professionals to their work.

“I had been working in dangerous places such as volcanic eruptions; however, if I have to go there again, I will not hesitate, not even for a second to commit my life to others.” (M43H-PAR)

This is part of the Los Topos’ philosophy of work, and the reason why they are in the places that require their help, around the world.

“When I was accepted into the Los Topos group in my speech I said, ‘we are not heroes, we are servants of God and the people, we are simple people, and we are here to serve people’. That is the spirit of Los Topos team that is all about you know. There is misery, poverty,
also bad things that happen, the point is that we can do something about it, the little things we can do we will do, if we can do more, we will do that; so if I believe that a person is only valuable it is not about how much money is in your bank account, people should not put a value on someone’s head, but what can you contribute for the rest of the human race. What is my contribution to society? Nothing, therefore, the real value of someone is what you can do for others, so to me, being a Topo, doing rescue, it fulfils the things that I need to be the valuable person for the rest of humanity.” (M39H-PAR)

This duty toward humanity is also related to the patients’ outcomes, as one of their main goals in life.

“"There are two important things in teamwork; the first one is how fast you do the intervention and the way the team is motivated to save the patient's life and maintain his quality of life. That is the only one goal and why we are here!” (M48C-MED)

5.2.4.4 Religion and beliefs

These healthcare professionals have different ways of understanding their role in the healthcare process, as this process could be highly influenced by personal beliefs which are related to religious beliefs, the supernatural or magical healing power bestowed on them by God.

“I think as a human being I have the need to do more and I believe there is God who is always supporting, and guiding us. He will guide you, I have the knowledge, studied and, as a believer I think that if you have faith in God, then you will be able to remember the procedures you should follow when you are under pressure. I know it is your decision to do things in times of pressure, while everyone was running, all I said to myself ‘let’s work’ and began to lead at that moment. I believe in God then he will give me the strength to continue.” (F37H-MED)

People ask God to provide divine intervention through doctors’ hands, which are seen as instruments for spreading wisdom.
“Medicine is the greatest thing that could ever exist; I think we are.”
As a professor of mine in the faculty told us ‘we are God’s hand, we are an instrument.” (M39A-MED)

The healthcare professionals seem to be influenced in different ways with the spiritual support provided by patients.

“The doctor explained everything about the procedure he will do in my daughter’s surgery then he stated that he had worked all his life with earnestness and dedication, however here he needed my help and prayers to God to do his job well. I trusted that God would assist the doctor in the surgery.” (M43H-PAR)

Health professionals of this study reported their performance can also be influenced by problems of family members.

“When I go out late at night to the hospital to see a baby; my daughters said to me: “God will help you, in the morning you will tell us what happened”. Then it might be that I go out with their blessing that is what had helped me.” (F45H-MED)

The power to cure is considered to have been given by God to some healthcare professionals; meanwhile, they fulfil the cultural requirements of honouring their purpose of life by helping other people. Some healthcare professionals of this study reported that wisdom is provided by God.

“I pray to God when I am alone and ask for his wisdom. He never fails, I have the fortress, and He allows me to see and listen. He allows me to make wise and fair decisions.”(M71H-PAR)

Some participants believe in a predetermined future given by God.

“Of course, from my Christian side, I consider God, Christ. That is why I always say ‘God willing ... as God allows’. God allows me to work to improve patients' lives.” (M42C-MED)

For other healthcare professionals, their philosophy is underpinned with love and service. It is a form of devotion to God.
“My philosophy is first my love for God. It is a matter of love, disinterested service, why not? Not everything you do is for money. I think, and I can confirm it, not everything you do could be charged, not everything is metallic. There are a lot of services, sacrifice, many offerings in what we do. Much sacrifice and that sacrifice counts, definitely. My philosophy is very simple, a philosophy through service, and love. It is not related to religion; however, if you believe in God, for sure clinicians have some divine protection, I believe it. I felt it, and I think in that way, as it is important to perform your work.” (M51A-MED)

Participants reported that their beliefs are also seen as guidance and protection given by God.

“I could say that being a paramedic and firefighter, is a wonderful profession; wonderful because anywhere, anyone could need help. I would say that God guides and protects us; because He knows we put our life at risk for others to be safe, not only people but the environment and the animals too.” (F28H-PAR)

The community sees doctors as angels sent by God when they could save a close relative from death. God is also giving them the clarity and serenity which are necessary for the decision-making process and execution of tasks.

“One moment, the patient was talking to us, and suddenly his life was at risk. He was between life and death; he had 2 or 3 heart attacks, ventricular fibrillation. We worked hard on that cardiac arrest, and he came back to life. We administered blood and plasma. Those were the longest fifteen minutes of my life, because the surgeon took a long time to arrive and the anaesthesiologist 20 minutes more, as well. It was like an eternity to keep this person alive. When the surgeon and the anaesthesiologist arrived, they had to find what was happening; the final diagnostic was that one of the coronary bridges was broken and was bleeding. They repaired it, and the patient recovered. When the patient came out of the theatre room, he said thank you to both the physiotherapist and me; he wanted to see the third helping person, to say thanks. We looked at each other; we knew we were alone! We thought that we had, besides our decisions, an angel that took care of him and protected him as well. It was a hard, beautiful, intense, but also a comforting experience.” (M39H-MED)

Participants also mention that spirituality becomes necessary when making decisions under pressure.
“When I am facing difficult moments at the emergency department as it is as usual crowded, I said ‘Christ’s blood has power and strength’ then I calm down, and I can act. All my co-workers used to call me to help even with the most difficult things; they ask me; can you give me a hand here? I say ‘God guides me in everything I do’ because if I felt some fear, I will not be able to do it.” (F50C-NUR)

The study participants felt it was necessary for their daily activities to have clarity of mind, serenity and wisdom. They reported that their beliefs and philosophy are given to them from a superior source so that their mind and hands to help patients. This power confers the ability to see, what is not written and to use that power to cure.

5.2.4.5 Moral Code

Participants reported they worked with responsibility according to a moral code which they applied in their performance in different scenarios such as in volcanic eruptions or hospital settings.

“If people died, after this volcanic eruption, it would, therefore, be our fault and responsibility then we (healthcare professionals) will be judged by the community.” (M43H-PAR)

“Often people think that leadership is easy, just because you are not in the operating rooms, doing all the work they do. However, the truth is that it is not; the person who is the leader is responsible for everything; you have more responsibility because you have to be aware that everything runs and bear the responsibility for errors in the group. Also, that responsibility is so strong that you cannot work properly because of the pressure. You feel the pressure, and sometimes it makes you feel that you are not confident about that decision. Above all, you should be aware of small details that became huge things to make everything work.” (F40H-NUR)
5.2.4.6 Ethics

Participants reported that in hospitals, ethical dilemmas were part of their everyday work.

“For example, HIV patients are vulnerable if their doctor goes on vacation. Then you have to find another doctor to cover his absence, and that is a real challenge.” (M61C-MED)

Ethical dilemmas also occur when healthcare professionals are challenged with patients with severe problems.

“Sometimes the family of a patient who has long been intubated, they ask us to remove the patient from the ICU and die at home. That is an ethical dilemma that I cannot solve. That is part of the medical decision for the doctor who is in charge; it would be under a moral pressure. Others said I do not want blood because of a religious belief even though he would die because of a massive haemorrhage, and we have to make decisions changing medication and procedures because those patients are dying and we need to adapt knowledge and procedures according to the circumstances. Our mission is to preserve life and not sit down to see how the patient passed away. We see different situations and face them daily. We also feel powerless in some cases, as well.” (M61C-MED)

It is also fair to consider that it is not just philosophy that impacts on these health professionals’ actions, but also the recognition of themselves as human beings with needs like everyone else. This leads to the understanding of how personal factors interact between different levels of their performance; as a consequence, the provision of health services can also be affected.

“There is not teamwork in my area. I think we all work for obligation because we are all paid. We need cooperation, we all know there is a lack of staff and team members should say I will help you; however, there is no cooperation, I think almost all of my colleagues do not work as a team; they work only for a paycheck at the end of the month. They are working at the hospital because they have a job; they just do not want to get hurt then; do not feel an emotion.” (F32H-NUR)
There were healthcare workers for whom their whole life is about work; even family situations are closely linked to experiences at work. However, they continue with the same vehemence of the first day and the experience of years of practice. Many health workers have seen their team members working with patients in painful situations, and they do not see them react as they would have expected.

5.2.5 Emotional factors

It is well known that when people make wrong decisions shame, sorrow and anxiety will arise and memories of this event will be present, as a kind of hallmark in their life. As a consequence, feelings and emotions will be an important part of decision-making as well. This was also highlighted by the participants in their narratives.

“Human nature has emotional factors. Fear is one of the principal factors. We do not receive training to control our emotions. We force ourselves day after day; to understand each other, we know how we are going to respond in a different form to the same stimuli. The pressure generates a process of adjustment. Yes, let’s say it like that.” (M40H-MED)

Emotions can affect the process as health professionals are connected to the ultimate purpose of their professions. This is to keep patients alive and thus the feelings of the professionals could have an impact on their performance and outcomes. This specific factor explains how healthcare professionals can modify their personal condition and permit them to find inner strength to overcome pain and sorrow which is necessary to have clarity of mind.

“I have learned to control my emotions, fear and fatigue in front of a patient in a cardio respiratory arrest even after long hours of work at the hospital. However, it was difficult because you feel weak, tired and without energy. Moreover, at the moment that you are in front of someone who needs all of your strength knowledge and expertise, you just forget about you and focus on things that matter the most. For sure I think that the emergency situation is not going to be forever, and soon I will be able to attend to my needs.” (F45H-MED)
Here the following description illustrates how emotions emerge to build a complex situation in a teaching environment in front of a patient.

“I tell the students when I teach them about severe arrhythmias, you need to be staying calm in utmost moments, you must not be desperate, and you need to do things to be methodical and calm. At this point, it is very hard, because of all of your emotions come out. However, you have to make the decision in those circumstances and of course, which shapes the way you understand and help others to understand the situation.” (M39H-MED)

The following extract explains how a respondent felt in her first cardiac arrest. It also illustrates her frustration at being unfamiliar with where the equipment in a new location.

“I had only one opportunity to be with a patient in a cardio-respiratory arrest. I was confused, and I wanted to help however, I did not know where the medication and equipment were, as only the manager had access, and her schedule was up to three thirty in the afternoon.” (F32H-NUR)

The healthcare professionals in this study said that they had to cope with different emotions from patients and the patient’s family members. In the following extract, the doctor explained how the emotions of family members could affect his performance, and as he realised the importance of the situation and to maintain calm and understand the emotional pain of the family members.

“Many times, doctors have had to face difficult situations with the patient’s family members, their anger, and disagreement because they are coming from another hospital. They are concerned about the situation, and there is also anxiety. The situation becomes very tense. However, as a doctor, you also have to fight against parents’ emotional pain. It is important to remember that doctors handle information from patient’s clinical condition, as well as the family and his emotions.” (M42C-MED)

Health professionals in this study also need to deal with their feelings in their daily activities.

“We did not know how the doctor had the idea to give a direct cardiac massage with his hands. However, his hands began pumping, and the
heart started to beat again; and likewise, the leading surgeon, the other doctors, and staff, helped even beyond their functions. The doctor after the procedure was very excited, happy. He cried because it was the first time he had such an extreme reaction, in such a unique situation; the young boy body needed a change of his heart valve, and after the surgery had ended, it lasted 9 hours. The doctor went to see the patient’s family in such an emotional state to inform that the patient was doing well, and then he was going to the intensive care unit.” (F32H-NUR)

Participants who had confronted life and death situations have a sense of being in a battle, where the enemy is death. They learned to control their emotions to organise their decision-making process and obtain better outcomes.

“I believe you do not calm down at all. We would be machines instead of humans. However, you realised that you become less sensitive and that is true. When it is the first time you lose a patient, you cannot sleep; you feel terrible, but somehow, you get to the point to know the enemy, which is death. You know what to do when serenity arrives. If you do not know what to do, then you enter into panic mode, and nothing can be solved.” (F46H-MED)

Feelings can affect the performance of healthcare professionals. The health professionals in this study also describe processes that help them to maintain focus on their activity and obtain clarity of mind.

5.2.5.1 Satisfaction of accomplishment

Different medical situations require a variety of specific approaches depending on severity. It is important that they highlighted how those actions provide them with positive feedback.

“When I am in the ambulance going to the place of an accident on the road, I am not thinking about how difficult it would be, just thinking about what I will do and have positive thoughts ‘I am going to do it well because I studied it!’ This is what mostly positive people would say. They do not get depressed in front of a painful situation. However, in certain times when you fall, you cannot help people properly. Sometimes it could be similar to your reality; sometimes that situation happened to me or my relatives. Then you start to think; I would not like him to suffer so I will help him/her to ease the pain. There are
situations when you just sit next to a patient and talk. It is common for people who have anxiety. You start to talk, and they calm down. The best thing for me is to see them after that episode in a better condition.” (F33H-PAR)

5.2.5.2 Attitude towards their work

The more positive feedback participants received from their job performance, the more the healthcare professionals feel motivated to continue with their activities.

“I think that every action we do, we do it under pressure in one way or another, but the satisfaction is what you get from your work. You do your job with a good attitude, and the effort you are showing in this activity means that you like it the most.” (F33H-NUR)

5.2.5.3 Fear and anxiety

Participants of this study reported that the uncertainty of the unknown. Fear of the unknown is an understandable apprehension; however, this concern can be expressed in counterproductive forms. An example in the medical field would be when a healthcare professional makes the decision to put his/her life at risk to save another person’s life. Patients’ life-threatening conditions were a common factor that triggered health professionals to put their lives at risk. These decisions were underpinned by strong philosophical, ethical and religious foundations.

“My area of expertise was related to high-risk activities being a medical doctor in oil perforation, mining, timber exploitation. Before my specialisation, I used to work in emergency departments as well. However, I could overcome my fears and do my job, even though I knew there could be tough situations during my working life.” (M51A-MED)

Emotions and their influence on a performance together with the application of knowledge and the different forms of fear and anxiety health professionals experience during their practice are shown in the next extract.
“When I was working in Nepal, it was a great experience; it was heartbreaking and heart-warming at the same time. Obviously, there was a lot of death and devastation, but the people there were amazing, as they appreciated any little help you can do. It was precious to them. For me it has been a motivation to help them to overcome the pain of losing everything.” (M39H-PAR)

Some participants described the fear of attending to a patient because of the unknown situations, complications and adverse effects that could occur.

“It is hard, but we have to do it, in all the professions there is some fear, and medicine it is not the exception, as adverse effects and complications could occur in any patient, any moment” (M39H-MED)

Healthcare professionals of this study also expressed a fear of lack of knowledge and skills, due the potential for negative consequences not just for the patients.

“In my profession, as a doctor, I am afraid of not having the knowledge and skills; because of that, I prepare myself every day. I want to know more to save the patient’s life and not have any negative outcome.” (M40H-MED)

Lack of expertise could also be a source of pressure including fear and anxiety.

“At the beginning of my career, I was afraid when I was treating a very ill patient because of the fear of not being able to help, and being afraid of the complications that could appear beyond my control, which I needed to overcome.” (M42C-MED)

Fear of contamination of the healthcare professional or their family with the same infection the patient had at the hospital was also expressed by participants. The combinations of the three kinds of fears are found in the following interview, where the participant explained his feelings working at the emergency area during the cholera epidemic in Ecuador 1991.

“The first fear was to get contaminated. The fear came to me because of my family, my children. The second fear was that people could react to the lack of attention because of the increasing number of patients, many people became aggressive. The third fear was to make a mistake because there is no turning point; we were in a chaos situation without
greater knowledge of cholera. I overcame my fear of not getting the disease obviously through the methodology. There are issues such as the management of biosafety, and oral hydration helped in those negative moments. It helped them improve the bio-safety management issues. Luckily, I did not infect my family or myself. Fear was overcome by following directions of the Thai experts who arrived at that time for training.” (M52C-MED)

Participants reported that fear was present when they faced a life-threatening condition, and the possible complications for the patient.

“I think it is normal when you have fear about something you did, or you did not do and its outcomes. For example, in a cardiac arrest, you cannot set the endotracheal tube, which is a situation that scares you. You get desperate, suddenly you see that no one can help you - when you are a student you have your professor, but when you are alone saving a patient's life, and you cannot do it, this is a situation under pressure. In my actual practice, which is calmer, I have felt fear when I have given a prescription, and it did not turn out well, or something wrong happened to the patient, such as an adverse effect or reaction to the medication causes fear in you.” (M39H-MED)

However, even though fear is present, it does not always produce a negative outcome. Such pressure can prompt the health professionals to ask for help to avoid mistakes.

“If I have a doubt or fear, I can communicate, as it reflects the skills you have. In my previous work, I could never say that I was afraid as it was considered you were weak and you were not brave enough to be the leader.” (M43H-PAR)

Participants reported that inside the process of decision-making, fear represents a form of acknowledging limitations, to protect yourself and the patient from mistakes.

“It means that you accept your limitations, if the actions were not successful. I must be careful if I do something wrong or I lose my job.” (F35C-NUR)
5.2.6 Fatigue

Healthcare professionals in this study experienced physical and/or mental fatigue; the following are some descriptions of how this can influence their performance:

“My work produces physical and mental fatigue; you do not want to keep going with your job the next day because you had a rough day, tough situations, many patients waiting at emergency, doing surgeries all day and all the complications that could happen in those surgeries. I tried, when I am not on my night shift, to go our country house to relax. Sometimes we go on Saturday when I do not have calls. We stay there, and we sleep there, and that helps me to relax on Saturdays. I like to play tennis with my son also.” (F46H-MED)

Participants reported that fatigue is a normal physiological reaction. In the next extract the participant showed how her performance is affected by the lack of collaboration of her group as it could make her feel exhausted.

“The lack of collaboration is what bothers me. When I see this kind of situation, I feel exhausted. When that happens every day outside of schedules, staying longer shifts, covering staff that do not arrive or are sick then decision-making in these situations exhaust me. When I finish my day, it seems like I've worked more than 8 hours. I come home tired; I cannot eat, and I just want to sleep.” (F40H-NUR)

Participants reported that fatigue can impact everyday life at work.

“There are occasions that fatigue affects me. Some days are very hard. I feel fatigued and sometimes around 12 noon you just cannot continue, but, I just wash my face and keep going. I work from 6:30 am every day to 2:30 pm - only the morning shifts.” (F33H-NUR)

The healthcare professionals of this study also reported fatigue after extended periods of time doing the same activity.

“No matter how good a professional you are, or your real criteria, dedication, effort or even if you like your job, you can get tired. If you add personal problems and emotional circumstances you could even sometimes get depressed. I have felt it, and I got over it by changing activities. Several times I have asked my boss to change me to other
areas, where the critical activity is lower. However, I think there is a progressive burn out of medical professionals that need to be taken into consideration. I can confess it as I felt fatigued. Sometimes I thought about changing my major a little bit and starting other things; it has crossed my mind several times because it is getting overwhelming!” (M58A-MED)

Participants were aware of the effect of fatigue on their practice and ask for help, when there are severe and complex illnesses, time constraints and difficult decision-making.

“Fatigue is critical and is something we have discussed in strategies with the government. I can attend twenty-five to thirty-five patients daily without a break. I have colleagues who attend 30-35 patients, and there comes a time that you are not thinking clearly and you cannot make good decisions. You want the patients to get in and out, as fast as possible. Some patients have more complex medical concerns or medical problems, and you need more time for examination. If you are tired, you can miss some important details from the electrocardiogram, or from the medical record and it could have an enormous impact on the final clinical outcome.” (M48C-MED)

5.2.7 The impact of “failure”

Participants described that strong emotions and feelings of regret, sorrow, sadness, and guilt after a patient passed away. These reactions affected the health professionals’ performance in several ways. The initial reaction to failure can deeply affect the healthcare professionals’ daily lives.

“The cardio respiratory arrest was due to a burn in the heart and part of the lungs. It was something that affected me because it was the first time that a patient died in my hands. I was also to do the autopsy of the patient with the legal doctor who was employed at this zone, and it was where we realised that the heart had been carbonised. It was like approximately 480 kWh that the patient had received. It was a tense enough evening, full of painful emotions because he was a worker who I saw every day. This was up to date the most memorable experience. I have had cases but not so lethal. There have been accidents of a certain complexity, but not as this one. After this experience, which is very painful for many reasons, not only because I lost a friend, but also because it was the first time I lost a patient in my hands.” (M33A-MED)
A participant reported that the consequences of failure can carried over the whole career and has been described as like losing a battle, leaving a deep impression on their professional life.

“The thought of failure has affected me in the past. For example, I teach some students about electrocardiographs. When I see a patient in cardiac failure or arrhythmias, one decision can make the difference, meaning that the patient could live or die, it is so hard! You know, years pass by, and you do not recover, and that has a significant influence, when you lose a battle; however, saving a patient’s life makes you feel great. You can do something marvellous. As a doctor, I have been in life and death situations that you will never forget and it helps you to grow: It is hard; I believe you do not calm down at all.” (M39H-MED)

When a patient dies, health worker reactions can sometimes alarm their families

“I came out with a sad face, and I approached the family. I told them: we tried to do as much as we could but, unfortunately, he could not be saved. The family started screaming, and one of them tried to hit me. Unbelievable!!! I was exhausted; I did not know what to tell them. It was the first time that something like this happened to me. This case was a severe liver trauma; it was unlikely that he could survive, but because of this I felt awful for more than a week. I did not want to eat, and I even couldn’t sleep. My family was concerned about me.” (M53H-MED)

Although painful, such experiences nonetheless can produce a positive impact on the performance of the healthcare professionals’ daily activities. Some participants described that after years of working in the same field, they could experience “burn out”. The participants especially wanted to highlight this specific topic in relation to work distribution and human resources.

5.2.8 Expertise

The value of experience in team performance was outstanding as it helped to shape the health professionals’ performances. Expertise can modify the patient clinical outcomes, while lack of expertise has been linked by the participants to conditions that compromise performance.
A factor that improves performance is when the more experienced team members mentor and teach the skills to new members. Experience is seen as part of a leader’s characteristics, and forms part of the decision to choose a particular leader. Participants talk about expertise concerning the type of procedure and level of complexity that will help the group to accomplish a task.

“I knew what I had to do when the situations arose. I think experience helps you to bring out what you have inside, and then all ideas and experiences come to your mind and then knowledge, experience and successful interventions together underpin my decision-making. Then, I consider all the circumstances which went well and think about the possibility of repeating them again. When I had no previous experience, I looked, for the most logical and straightforward answer.” (M43H-PAR)

For healthcare professionals, experience was part of the learning process in their career.

“You cannot say that you can work with treatment protocols as fast as it is required at the beginning of your medical practice because you do not know about all the protocols and procedures. However, as long as you gain experience, you learn that those experiences help you to adapt yourself to the pressure of getting fast and good results with the patients. You improve your skills and performance; as a consequence, you improve the quality of the clinical outcomes. That has been the secret! This has been the way to improve, participate, to be active and provide safe care to patients.” (M42C-MED)

Healthcare professionals said that scheduled surgeries are less likely to have complications if they follow procedures; and when complications do arise they also need to follow the procedures. The importance of acquiring more skills through experience is a crucial factor when trying to achieve difficult tasks. Experience makes a difference.

“I assessed myself a lot when I started, and now there is a radical change in my profession. I had many doubts when I first came, I was training myself, I did not dare to do complicated surgeries, but now I do it with a lot of confidence and decision, and I do it well. Then, the experience is valuable and fundamental.” (M53H-MED)
Experience is crucial when healthcare professionals lead a group. Expertise is invaluable within a team environment.

“When I need to lead a team, the first thing I do is to guide and find the best way to do it seeking the way to stop bleeding in case we have a haemorrhage and give directions to whoever we need to take a blood test and take it to the laboratory. The experience gave me the serenity to calm myself and the team members down. Because there are people who are new, some people have just entered, and they may not feel so confident. If there are some with a bit more experience I will let them be the head in the group and command, with the experience, you know the doses of a particular medication to give every eight, twelve hours. Some small things like that only the team experience can give you.” (F50C-NUR)

The experience of the leader in the medical team helps to develop skills further, not only for the leader but the team members, too.

“We started with motivation to learn in a positive learning environment, which lets you enhance your experience through the learning process. The experience helps to develop skills, and expertise to meet the patient needs.” (M42C-MED)

5.2.8.1 Lack of training

Healthcare professionals in this study said that errors were more likely to occur when new staff entered the hospital, which were also related to the area of practice, with more occurring in critical areas.

“There are always errors because they are new employees and they do not have enough training.” (F40H-NUR)

The participants talked about errors when they are working with patients with life-threatening conditions.

“Just an example: we had a patient in cardiac arrest, and we began the resuscitation procedure; everything was well organised. However, a new nurse was there. She misunderstood the dose of benzodiazepine and gave an overdose to the patient. As a consequence, we almost lost
Another nurse told me what happened and we administered the antidote. If we were not informed about it, the situation would be very different. I do not know if it is a lack of training in resuscitation, but to be working in the emergency area, you need to have a global approach to what you are going to do, and how you are going to do the resuscitation procedure?" (M30C-MED)

When healthcare professionals change areas, lack of training was a risk factor for errors. The participant (M45H-PAR), a paramedic with extensive experience in rescue activities, was working at a lake in the Imbabura Province, in the Highlands, 2.5 hours by car, to the north of the capital. A family that was camping near the lake called for help as one of the family members had disappeared in the water approximately five minutes earlier. The rescue group was immediately activated to perform the search and the team included diving team members in training.

The team was working there for half an hour (M45H-PAR) said: "We worked at the lake; it was very dark, and the body of the victim with the diver appeared on the surface. The diver was in shock in a panic mode as he inflated the jacket, rising very fast to the surface. It was a dramatic moment. 'I made a mistake', he said as he had asked a new member of the diving group to go to the rescue. It set a deep fingerprint on me when the time to make a decision comes. He realised that the team member who would be selected for a particular mission must have extensive training. He also replayed: 'It is necessary to do an extensive evaluation of this topic. Thank God, nothing happened to the diver; however, it was so hard for me after all. It forced me to make a decision that from now on, I will do a deep evaluation of the volunteer’s training condition if their intervention is required. In this kind of rescue, previous knowledge, time of training, personal experience, as well as the last induction and previous voluntary work need to be considered. Many people want to belong to our brigade and often to do it following a calling. It is not just to get on a beret or a patch. The only way to determine if a person is suitable is to evaluate his/her work, behaviour, attitudes and experience thoroughly. The volunteer must have the conviction of service, and commitment to the group. They always must be ready and understand that no personal issue can affect their service.” (M45H-PAR)
5.3 Pressure in relation to teams

The way team members felt pressure was different from individual pressure as working in teams potentially adds to the complexity of the situation.

“Teamwork is a predominant factor in your decision-making process under pressure. A good nurse can always make the difference in critical situations because if you arrive and have to be in charge of the situation, you get anxious if you do not have enough support. An example of desperation is that you want to place an endotracheal tube and the tube could not enter, and you try hard and it does not get in. Then, you started to scream and get desperate, and if you are desperate, the team will get nervous, as well. You need to be humble enough to ask for help. This is why teamwork is vital in any circumstance in surgery, in a cardiac arrest, or with a patient at the emergency department.” (M61C-MED)

When the team is working properly, the following characteristics can be found in team interactions: coordination, cohesion, same objective, and respect for roles. Participants highlighted coordination of activities through communication between the team members as paramount.

“That team should have cohesion, should be committed, aware and consistent with the things that need be done in each case according to the procedures. This means more quality than quantity and using proper transmission of information. This is so important because the management information and this goal are always the highest! I ask people to work hard, to receive and follow orders and maintain their focus and accuracy all time!” (M42C-MED)

Participants highlighted that there are roles within the team which are important for performance as a whole.
“It all that depends on in the area you are. You assume and think about teamwork as an activity in which everyone will bring something so you can help the patient. However when you are in your first steps all shouting at once saying if it is right or wrong, especially nurses, for them everything you do is wrong; but doctors are more discreet and have given particular and continuous orders. However, the people who face a cardiac arrest are more stressed and stress the other people, when their function is to save lives, then you should be strong in your knowledge. As a consequence you know what you have to do and proceed and listen to the person with the most experience because he is the person who will guide, it is going to support you. I think you have to meet the team before entering an activity.” (F37H-MED)

Healthcare professionals in this study said that medical teams can also work with other teams when they have the same objective.

“Teamwork is all working together for a common purpose, a macro objective. Each one provides a small part, which contributes to the main objective, a common goal; a team that can work together in multiple groups.” (M43H-PAR)

The participants also described dysfunctional teams, when they were they are working with patients with life-threatening conditions.

“In the emergency area if we are working under pressure especially by the staff, the new head of the team and all team. There are also staff who do not like working as a team. Regarding our patients; I should say that when the ambulance brings a patient in critical condition, all doctors and nurses have to agree and know our work because while you are doing your job, you may hear screams! Adrenalin! And another person is saying Bicarbonate! Only screams in every movement you do. You could lose control of the situation. When I am working with a critical patient, it gives me much pressure and even more when doctors are shouting the orders.” (F38C-NUR)

The study respondents mentioned that when members of a group are working together, one concern is how knowledge, experience and skills are going to be integrated. Performing an activity initially seems to be harder in group than when they do it alone. Each team member brings a wealth of knowledge and expertise which must be integrated to optimise the benefits of the team working together. Although the commencement of work and getting to know the
strengths and weaknesses of each of the team members is part of a complex adaptation process, by the end of the adaptation process team members have learned to work together. Participants describe teamwork as an important factor in decision-making when performing under pressure. Teamwork had the power to help the group to reduce the possibilities of making errors. When team members talked about trust and confidence, they were talking about the confidence in one another where team members could give feedback or instructions to avoid mistakes. Another important function of the group is to protect each other, not just in the physical sense, but also in terms of their professional integrity. Their definition of teamwork is related to the complexity of tasks, and the level of the complexity of the situation. Common expressions used, when the participants were trying to describe teamwork were: “Tasks seem to be easier to do” and “the time appears to fly by”.

5.3.1 Inter-professional factors

The inter-professional groups which work in disaster areas have demand on their skills due to the high complexity of tasks and activities. These complex tasks require more experienced team members to perform activities under unsafe conditions, which put their own life at risk and potentially their team’s, such as when rescuing individuals under collapsed structures (M40H-MED). Experience is acquired through years of performing similar activities every day (M71H-PAR). Health professionals call it “the moment of truth” when you are in a life-threatening situation for themselves or patients, when there is a fear of unknown situations, which could impact on the patient or them. This is a complex emotional situation that in some cases blocks their performance such as in the case of the students near a patient in cardiac arrest or could activate the healthcare professionals to manage the situation and organise according to the level of complexity of the tasks and the capacity of team members of case of the oil exploration camp.
Health professional take the knowledge that has been learned from firefighting, car accidents, earthquakes, and adapt all of these skills and this knowledge to other situations, such as a volcanic eruption.

The analysis of the interactions and relationships of the participants, the way they perform, the procedures and their personal experience when performing under pressure show the following: Understanding the fundamental characteristics of healthcare professionals that may affect or motivate the accomplishment of specific activities, especially when those activities are performed under pressure.

A healthcare professional performing a procedure on a patient in a critical situation will not have time to refer to an instruction manual. This is when these philosophical assumptions are of particular significance. These principles help professionals to be prepared in advance for the unexpected. There is no time for philosophy in an emergency situation; however, a good grounding in philosophy and teamwork would allow the health professionals to retrieve past experiences, beliefs, capabilities and personal qualities that would contribute to making a sound decision. M43H-PAR related how he deposited ‘droplets of humanity’ in each one of his decisions and performance. Moreover, behind the scenes, circumstances around healthcare professionals’ life and personal situations become relevant, as their motivations may affect decisions. Conditions affecting health professionals’ performance are including sickness, personal problems with the family, or financial problems. There is also their ability to adapt to the scenarios unfolding around them, depending on how fast events unfold.

5.3.2 Inter-professional training

The interactions between members of a group of healthcare professionals who have met before were different from the interactions of the healthcare professionals who recently met.
The ability to perform in a group is a significant achievement that requires trust and efficient communication. In a group, understanding of a workflow made the difference in time and accuracy of the task.

“I request more help at the moment when the capacity of response is reduced, when we see that we cannot fulfil the purpose, when we exceed the time. We as a group analyse the situation and realise immediately and conclude that we more support is needed. It could be human or logistic support- anything that we consider in that specific moment of time.” (M45H-PAR)

Performing as a group is a skill. Understanding the dynamics of how a group is going to divide tasks up is an important element. Some participants identified the levels of complexity of the job as a crucial factor which defines who is doing what.

“When you are in front of a patient, you have to learn that you will have other team members who would have more knowledge and skills than you. You need to be humble! You need to let them work and be brave enough to recognise that other people can do more at that time. It was very hard for me to understand.” (M39H-MED)

The following extract from an interview with M42C-MED shows how the healthcare worker has established an algorithm of work in the intensive care unit and has established the interprofessional teams working in the area. He highlights, the responsibility of each one of the roles, and then how knowledge, experience and expertise is acquired as a consequence of teamwork involving these difficult procedures.

“First you need to be motivated and committed to your work. You need to believe in what you are doing and that you like this specific field of medicine. Second, you have to study and take full responsibility for your actions. There are different roles for example: if you are the head or you are in the early stages as an observer within the reanimation team with various levels of responsibility for the decisions and the actions, as well. Each one has different responsibilities according to the role that you are executing. That is the reason you must first study and demonstrate that you have become a reliable person able to perform the medical attention process under changing conditions in
time. You need to understand the meaning of experience in medicine and take this with the utmost responsibility.” (M42C-MED)

The composition of the group is important; it also requires identifying the characteristics and roles of the team members.

“I consider myself very flexible. Always, it is easier to work with your team; you know how each one of them behaves. This one is the grumpy, the angry one, and you ask them to do certain tasks according to their expertise. However, if it is not possible, you can always work in a professional way, no matter how new the team would be, you know that certain roles exist, for example, an intern or a resident who is working with me. They will not do complex tasks because they will not know what to do in complex situations.” (M39H-MED)

5.3.3 Size of the team

The size of the group depends on the task. Different levels of complexity require a different number of participants. However, it for complex and precise tasks often the fewer the members in the group, the better the outcome.

“The group must have few members and the fewer, the better. In this way, we do not crash and do not generate conflicts with decisions nor actions. Then, we can have an internal order; the team should know that must work fast, with coordination. The communication must flow because new information and new inputs are generated every minute. I like to be part of a team that listens. I like the information to flow inside the team. The team must be strong and continue with a very critical patient even if we feel that we are losing the battle. We must proceed with the intervention and do everything that we can do.” (M42C-MED)

Paramedics working in ambulances describe their interactions and how this help them to organise their work and produce better clinical outcomes.

“It is the base that holds everything; nothing will work without it. You need to have your team. Sometimes you work for a long enough time with your partner that you do not need to say anything, he or she already knows, working smoothly together, your partner knows this is the condition that we have, and this is what my partner needs or gives you the right part of equipment right when you need it, already knows
what the next thing is, and you do not have to say anything.” (M39H-PAR)

5.3.4 Roles and lines of authority

Healthcare professionals learn and understand their role as professionals in different settings and contexts. They also need to recognize when another professional with more experience is ready to help in unexpected situations.

“A long time ago, a patient had a cardiac arrest. I was there and saw that all the medical students and residents were paralysed; I came across and set everything in order. I started the resuscitation, seconds later a doctor arrived from the intensive care area. The students were waiting to see whether I will do the procedure. I told the doctor to go ahead. It is not about if I know more or less; because, he is working with critical patients doing complex procedures every day and, I do not. I knew what to do because I had done it before. However, it would be illogical if I tried to do it. I could kill the patient, so you must be sensitive in those situations, of course, if I was alone, I would have to do it by myself.” (M39H-MED)

There are different levels of task management according to the levels of complexity. Expertise and knowledge about the topic was highlighted by participants.

“They have roles that can work at, for example, to do an electrocardiogram, they know, and can do it. The professionals know what their role is, they know the situation, no matter if they are new or not. If you are the leader of the team, you have to demonstrate you know what to do and as a consequence people can trust you. It is not the same being a leader as it is being a boss. The leader helps from behind if the situation requires, but the boss is telling you what to do, but always far apart from the situation. Sometimes, doctors lack humility and don’t know that everybody has a role. In a cardiac arrest without a nurse, you do not do anything, you cannot do it by yourself, the same thing if the nurse is alone, and she would not be able to do anything, as well. Roles are important each one of us has a specific function that needs to be done in a specific moment of time.” (F37H-MED)
5.3.5 **Cohesion, compatibility and camaraderie**

Healthcare professionals shared situations where teamwork was the key element of their performance. A team was where each member could contribute with ideas and skills to improve the outcome.

“Here we have the option to express, ideas to improve our performance, people who can understand what we are doing and be able to discuss the strategies to enhance the work.” (M40H-MED)

A team that has trained together long enough knows how to proceed, often without speaking a word. Mutual respect and expertise of the team members are required.

“This cardiothoracic team does not have to say a word, just check vital signals; the anaesthesiologist is always aware if the frequency varies, airway, arterial line, peripheral, everything. He informs the surgeon that the patient needs a transfusion, follows established protocols with surgery. However, we all know what to do; we have been in these particular cases, we do not move anything until the patient is stable and in the intensive care unit. If the patient is unstable or the patient is bleeding, the patient will return to the operating room. A new surgery will be performed to review what has occurred, and again the patient will come back to the intensive care unit. Everyone knows what he or she has to do, they are highly trained staff, and have been together for quite some time in cardiac surgery, as the circulating instrumentalist, anaesthesiologist; they are well trained for these kind of cases.” (F32H-NUR)

Impression management has been described by Goffman in 1959 as part of the social phenomena that boosts self-esteem to improve and maintain social relations and facilitate the consolidation of the individual identity. Impression management involves self-description and usage of nonverbal communication (Leary & Kowalski, 1990). The understanding of relationships and motivations between health professionals’, as well as their identity and roles in different scenarios is essential. Impression management is effective when self-presentation is associated and aligned with the audience interpretation (Dutton, Dukerich, & Harquail, 1994; Hightower, Brooks, & Gregarus, 2009). Image management contributes to
strengthening the strategic roles of healthcare professionals in the system and society. Impression management generates self-identification and confidence to perform and creates a strong image for the healthcare professionals.

“The best scenario could be to know what kind of people you are working with, what are the expertise and the skills; of course you know what you can do, in this sort of situation, it is excellent to know what other people can do as well. So if you do not have a partner that you can rely on you have to do your best, make you're sure you do your job and try to live by example or be a good example for another person to follow.” (M39H-PAR)

5.3.6 Situational awareness

The literature identifies different solutions for improving clinical performance under standard conditions, such as teamwork and leadership (Jones et al., 2011; Kilner & Sheppard, 2010). Teamwork and leadership have been seen as strategies for improving communication with the patient, and have been considered to be the key way to ensure that instructions are followed to produce satisfactory outcomes under normal conditions. Clinical decision-making research highlights the adverse impact if poor decisions on the patient and family suffer through adverse events, complications, morbidity and mortality and there is a significant cost to the organisation and the healthcare system. Systems related to human lives have been investigated regarding the complexity of structures and tasks to be deployed (Havyer et al., 2014; Helmreich & Davies, 1996; Kilner & Sheppard, 2010; Künzle et al., 2010; Weaver et al., 2010). Safety is always first because if a team member is injured, then they are unable to help others. Safety is a primary concern for teams.

“There is always tension in the air, you know, your team is looking after you, and you are looking after the team, you always have to be careful and be aware of your surroundings, and thinking what is going on. The first thing is that you are no good to anybody if you become a patient yourself. As a result, if you go in without properly assessing the risk, or observing what is going on and being aware of the
environment. You rush in, and you got knocked out by something, then there are two patients, and your team members have more work to do, and one more person to help, one less person to help. Therefore, the safety is yourself, for your team or your patient. That is the most important thing because if you became a patient, you cannot help.” (M39H-PAR)

The participants highlighted how healthcare professionals try to avoid risks; however sometimes because of the level of the complexity of the task, they can find themselves in danger. Situational awareness is therefore important.

“You never have to put yourself in danger, even though you must do things quickly! This is to avoid risks for both parts.” (F33H-PAR)

When healthcare professionals are performing, experience is a key factor in their work, as it helps them to develop a special sensitivity to dangerous situations that could adversely affect the entire operation.

“Before anything, experience is necessary, because maybe I have more experience managing people, but maybe the person that goes in, has more experience in adverse conditions; then for me the most important characteristics of the leader are the individual’s experience, level of maturity, psychological stability, to face the surrounding environment, such as weather, the wind or to be aware of the presence of dangerous material.” (F28H-PAR)

5.3.7 Characteristics of team members

Teamwork also has the power to help the group to decrease the possibilities of making mistakes. When team members spoke of trust and confidence, they were talking about the opportunity to provide feedback or instructions to avoid mistakes. This is one of the essential functions of the group, to protect the team members not just in a physical sense, but also in terms of professional integrity. Health professional in this study learned to control their emotions, but this does not mean that fear is absent. Rather than being a weakness, high-performance teams have used the control of emotions to their advantage.
Being under pressure has also been described by team members as leading to a greater focus on the task. Because professionals interviewed in this study have divided activities into different tasks, part of their performance includes learning of all of the tasks. The leader role is direct the emphasis to the most difficult tasks. This is another factor that adds pressure.

5.3.7.1 Trust and confidence

The team works together to obtain better outcomes. However, it is necessary that each one of them knows their particular role during a procedure. The team members need to develop self-confidence in their skills and trust in the other team members as well to build the team. Working as a team can build both self-confidence and team cohesion.

“I could feel the teamwork, the surgery was very exciting, and the situation was tense at once, the entire medical team joined to save the patient who was just 16 years-old. The medical team had worked together previously, they all had the experience the event and the doctor needs; it was fantastic to see how they worked and were raised into action to lead the heart resuscitation, managing to preserve the patient's life. In my case, I was learning how they work at that time in that theatre room; it was a rough day. I enjoyed the experience; however, I was transferred to the ophthalmologist theatre room.” (F32H-NUR)

Trust and confidence among the team members allows team members to provide, receive and accept positive or negative feedback from other team members which can improve the overall team performance.

“Trust is when you can tell the team members that he or she is doing something wrong, or not be afraid to say that 'you are wrong, or I do not like this in you', and my communication skills help me to express my concern about the patient and my team performance.” (F33H-NUR)

Team members needed to not only have trust in the facilities but also in the support staff in the facilities.
“As an example, there are eight surgeons because the hospital has a trauma centre. Here, we have the technology and people trust the hospital, where all the treatment options are available.” (M53H-MED)

Team members need to be able to trust in the leader. The responsibility and accountability of the leader contributes to trust within the team. The qualities of the leader need to be transparent to team members, especially accountability and responsibility for the team’s activities as this also shows respect for each of the members.

“They know, and they can do it, they know what their role is, to know the situation, no matter if they are new or not. If you are the leader of the team, you have to demonstrate you know what to do and as a consequence people can trust you. It is not the same thing to be a leader as it is to be boss. The leader helps from behind if the situation requires, but the boss is telling you what to do, but always far apart from the situation.” (M39H-MED)

There is an unspoken understanding between the team members to interact with their skills and place trust in each other.

“The success factor in this team is the agreement to work together, the union between each other, and the training we all have before we enter the surgery. Otherwise, could not do anything or help people if you do not know what to do. We are organised, we are aware where things are, we are a tight-knit group. We know what the other team members already have done, what they have to do after that and how to react in those panic moments or during a crisis in a very severe situation, we must act quickly to save the patient’s life.” (F32H-NUR)

The knowledge of team members’ particular skills and abilities can build personal trust to improve team relationships and interactions to improve team performance. Participants highlighted the importance of meeting the team before they start to work

“You know that in the team who is the perfect person to do that kind of manoeuvre then I will not hesitate because you know the abilities of the person, but if you do not know them then you analyse or think if they will do it well? You must think what will happen if? So it is important to know your team you’re working with.”(F37H-MED)
5.3.7.2 Leadership

Leadership while performing under pressure was related to the level of commitment to the patient’s life and encouragement for the team members to overcome a difficult moment, while also maintaining the focus and concentration during a procedure as in the following example.

“At that moment, I had a very positive attitude, I said: ‘let’s walk forward, let's do it, we can do it this is not going to last long, not forever’, I looked for their concentration! I said: ‘this is going to be fast, we will get the results’. I highlighted that the first intervention is the first step; the next part will be easier!” (M42C-MED)

The participant highlighted leadership activities and workflow as being a crucial part of performance. The description of how the workflow is managed when working under pressure is related to task complexity and the experience of the team members to develop activities in a specific role. Then roles, levels of complexity of the situation they are facing, as well as from the specific tasks for a given situation are best analysed before the activities are done. The leader of a group that is working under pressure is chosen by the team members considering attitudes, abilities, and knowledge.

“We choose the leader in a democratic form; we look for the attitudes, abilities, skills, knowledge required for that given situation. The leader is not always the same person. The group can change and choose another person who has a stronger capacity than the one before, in agreement with the circumstances of that specific moment in time. Then, the leader choses the team members who are going to work with him according to their skills and the knowledge required for the situation. Then he is guiding us, and when he is guiding us, we scarcely speak.” (M40H-MED)

In problem-solving under pressure, knowledge, abilities and skills appear to come to together to produce a broad range of possible solutions. Furthermore, it would appear that because of the diverse points of view of the team members regarding the situation, the subsequent team’s
decision-making process requires sufficient flexibility to evaluate the feasibility of each possible solution. Evaluation of feasibility is related to the understanding of the surrounding conditions and how they would affect the outcomes, not just for the patient, but entails understanding the situation in context for individual safety and that of the group. The process needs to include the ability to negotiate; quick implementation of actions, as well as understanding the necessity of changing the strategy.

5.3.7.3 Leader functions

There were a variety of levels of responsibility in terms of a leader’s functions when performing in different contexts and specific scenarios. The most experienced healthcare professionals needed to teach complex and challenging tasks to other team members. The reason for this is related to the number of times that specific tasks need to be performed at the same time.

There were several examples of this specific situation where the leader was required to teach specific tasks related to the transmission of knowledge and how the team trains its members to be able to perform the same task in real time.

“The constant practice of the most common emergency procedures related to their rescue activities makes the difference.” (M39H-PAR)

(F40H-NUR) said that training nurses for complex tasks in theatre rooms helped her in their actions when they have a shortage of staff.

“First, I must know staff skills, competencies, capabilities, and the experience of each one to be distributed according to the level of complexity of the work. Always train to support the activities with more experienced staff. I need to do that in order that staffs learn the skills. Otherwise, they will never learn. As a consequence, the group grows and becomes more confident to perform different kinds of procedures.” (F40H-NUR)
In this example the participant is a surgeon and the leader of a team that performs surgery for patient with cancer. He is talking about how his group trains and performs complex and unique surgery for complex cancer cases (M53H-MED).

“Generally, in this hospital, you cannot choose the anaesthesiologist; the hospital chooses them for you. I know the clinicians who work here are well prepared; we see each other every day. I schedule a surgery; however, I collaborate with the anaesthesiologist that is available. I have three medical doctors that do the procedures and cooperate with me. They know what they are doing, I taught them myself, they were residents on their postgraduate course; very well trained, and helped me during difficult procedures. We have planned things in scheduled surgeries, for example, a tumour on a breast, we have a protocol for it, and we try to accomplish it. If you do not want to have complications you have to follow the procedures. I assessed myself when I started and now. There is a radical change in my profession. I had many doubts when I started, I was training myself, I did not dare to do complicated surgeries, but now I do it with a lot of confidence and decision, and I do it well. So it is fundamental, the experience is precious.” (M53H-MED)

Health professionals of this study reported that nurses in Emergency Departments or operating theatres require more experience to perform different activities.

“Some people do not like to learn, but prefer to do something easier and not meet the challenge. Some healthcare professionals said ‘At the theatre room the doctor told me. If you have no experience, please leave the room,’ I say, however, the team must support. When I am there, I try to change this behaviour and teach. Teaching is the only one way to help the group. Because, if they do not learn I do not know who is going to perform that work; if during the night shifts only one team is working as there may be long, complex or complicated surgeries often until the evening, then at night who will support? As a consequence, the staff must always be prepared to deal with emergencies.” (F40H-NUR)

When the team needed to work under specific conditions, the leader should be able to select the team members for a specific task.

“The leader chose the team members who are going to work with him according to their skills and the knowledge required for the situation.” (M45H-MED)
Also, the leader has to be aware of possible changes in abilities and competencies of the team members, as, during the execution of the task, fatigue could appear and became an impediment to the procedure.

“Just now we can see team members, they are working (rock crushing and opening rubble), one of them is tired, and we need to ask for the help of another team member, the leader will make the decision, and will go to help. The professionals who have more experience are next to us; they are our leaders, they are guiding, teaching us skills. The aim is the team can perform at its optimum.” (M40H-MED)

The leader needs to be aware of team members who are tired and if other team members are required to continue with the task, in order to avoid mistakes.

*Los Topos* leader is a paramedic, who has been working for 35 years in rescue activities in multiple natural disasters. The leader shared his philosophy of work with the team members to encourage his team to work together and save lives.

“I apply the ancient wisdom to help others; you do not need to feel anything that could distract. As a consequence, no pain, no hunger, no family, no father, and no mother. I try to apply it. This knowledge allows me to guide my practice and everything around the organisation. It makes it work. I talked to them, sat down with them and tried to share, and transmit my knowledge to them so that they would learn and encourage them to work hard. I’ve had some difficult situations and survived; it gives you experience, knowledge, and wisdom.” (M71H-PAR)

Healthcare professionals said they needed to acknowledge their limitations to look for solutions and overcome a difficult moment. Such situations made them think and put their life at risk to save another life.

“A car invaded a sidewalk, and ran over seven people, one of them was a woman, and she was with her two daughters. The woman, to protect them, stood between the lamp post and, the vehicle that hit them, she practically had her leg, the femur, dislocated towards her back. When we met the paramedics that first arrived, they said ‘I cannot attend her, please, you do it I cannot, and you attend her’. We did it, and since she
was in a critical condition and very sick, because of the wound extension she had, I had to tell the ambulance driver that he had 5 minutes to arrive at the hospital. How did he make it? We do not know! We only know that we arrived in 5 minutes, but that was a risk-benefit decision because we put ourselves at risk, I was thankful, he drove very well, it was the only thing we asked him, you have five minutes to get to the hospital because the lady was dying.” (F28H-PAR)

According to one participant procedures are like a shelter, an umbrella to protect them against adverse outcomes of decisions they make. The leader, even though they may be experiencing feelings of desperation when faced with the unknown can begin to create different solutions to the various complex situations according to previous experiences or by using their intuition.

5.4 Pressure in relation to patients and case complexity

Participants described the patient as a source of pressure safety as one of the most important aspects. Health professionals considered patient’s safety as a factor that influence their performance when analysing procedures which are going to be used in a particular case and as a consequence looking for the strategy to improve clinical outcomes.

5.4.1 Patient as pressure

Patients are the reason for the participants’ work; however, they also identified patients as a source of pressure in their daily performance.

“Pressure in the medical field means that we as health professionals want the patient to recover from their illness. I am concerned; I could not even sleep, and you find yourself alone thinking about the patient’s wellbeing. It is the same when being with other colleagues can give you different ideas how to help the patient. The patient is pressure; if the patient is not doing well, that is a pressure for me.” (F37H-MED)
The severity of the clinical problem is related to the complexity of the case. This can make a difference for example, whether to send the patient in a particular kind of ambulance, and also takes into account the economic factors about how much the service will cost.

“It depends on how critical the patient conditions are. Some patients did not have a surgical resolution in the city. At that time the computed tomography machine operated during business hours; it is the moment to make a decision to mobilise the patient, and after that, you need a neurosurgeon, so it is best to move on. Then the decision is taken about cost-benefits and future patient clinic and the patient evaluation. I would not take longer than an hour until the relatives accept the amount to pay for and it also depends on the time that the incident occurred and obviously if the weather conditions allow the ambulance to get on the road.” (M53A-MED)

The number of patients must be considered as part of the complexity of the healthcare professionals’ performance as more patients require more attention, and thus more time.

“Pressure is also in the number of patients, consultations, and review of medical records. It is also in the proper diagnoses and the fulfilment of hospital technical requirements. The problem is that nothing moves without pressure. Pressure is required to work; the pressure is what leads things to move. It is not something that bothers you; it is something you have to get used to, otherwise, the work is not done.” (M42C-MED)

The healthcare professionals also identified patients’ socio-economic conditions as a source of pressure, such as when several or complex procedures must be performed, but the patient is poor or the facilities are stretched.

“Pressure is when people who are in control or who have to decide about the payment have some doubts; that is when I get upset because it is an emergency. This is because the health plan is already written and, it may say to evacuate and that health plan must be approved by them so why do they need to seek a second opinion?” (M53A-MED)
Patient safety is part of patient wellbeing, and this was identified as a form of pressure because of the healthcare professionals’ concerns about the quality of patients’ lives after the procedure.

“First is the patient welfare, and obviously, there are cases in which it is complex to make a decision. When a surgery needs to be placed, the big decision is to operate or not. In a complex case, it is a difficult decision, because sometimes you think you made the decision to do the surgical procedure. However, there are certain diagnostic questions that have percentages which can change the diagnosis, such as appendicitis, you have eighty percent of appendicitis clinically, but you will manage a range of twenty percent that maybe is not. You have doubt; there is the decision. Should I operate? Should I wait? Maybe it is appendicitis and gets even worst. There are some complex situations that you have to be mentally prepared for also from the personal side, to make a decision without harming the patient.” (F54C-MED)

Patients or their family members sometimes showed aggression towards healthcare professionals when asking for services and pressuring staff to act on their demands.

“On the other hand, relatives are important in the decision-making because here relatives always want us to implement treatments for patients or they are asking for patient admission to the hospital. We, as doctors explain to the families that we need time to control the evolution of the patient’s illness at emergency. They behave aggressively, and we have to ask for help. It is a significant problem. We requested to have a meeting with all the doctors and ask for help. There are cameras in the hospital, but nobody does anything for us. Patients’ relatives threaten us, and in the end, they influence us in patient’s treatments. There is no respect for us.” (M30C-MED)

Patients’ family members sometimes forced decisions concerning treatment or admission to hospital.

“For example, there are patients with renal infections that do not need hospitalisation, however, the relatives behave aggressively and force us for the admission. They leave the patient until the following day. Also, these things are expensive for the government, if only the patient needed an ambulatory treatment why a day of hospitalisation?” (M42C-MED)
Respondents reported feeling threatened by family members or specific groups because of their aggressive behaviour. Some even carried weapons into the hospital.

“I worked for nine years in the emergency department. Something that has impacted me, and I am very concerned about is when these 'groups’ come, sometimes you do not know what to do because sometimes they come with arms, it is the fear sometimes of patients and sometimes it is also the reaction of their relatives who are quite negative, especially in emergency situations. They are aggressive, even to the police officer; there are people who will not cooperate.” (F50C-NUR)

5.4.2 Patient culture and the internet

Healthcare professionals described how patients’ have different concerns and present different issues according to where they live and the social determinants of the region. In the same way, they described how in the cities, information gathered from the internet concerning patients’ pathologies could produce possibilities for the treatment options that need to be considered.

“What is this patient of the major cities like? This patient demands your service and more attention of your time. They demand immediate care and often because of cultural issues demand things they do not have to because they have access to the information they think they can handle. Why? Because suddenly someone has hurt their knee and went to search using Google "knee pain" and it lists a hundred causes, and you come to think that it is a tumour in the knee. Your clinical assessment sometimes doesn’t matter; the analytic evaluation says something; however, your assessment means nothing. Your diagnostic is something different, and you have to guide them, but the patient begins to push you telling you that the information he has is different. Then it is an issue, as, on the one hand, they can push you with the other information, as the patient knew someone who already had a similar problem and ended up with complications. The managers want the diagnostic process to be completed in few minutes, they do not realise that this process requires responsibility, time and to manage the information properly.” (M38H-MED)
5.4.3 Patient clinical outcomes

Patient safety and the possibility of complications were considered when making a decision while performing under pressure in life-threatening situations for patients.

“Decision-making can be modified by several factors like the relatives, doctors in superior position organised into a hierarchy, or by hospital policies. These factors modify your decisions and as a consequence, the treatment.” (M30C-MED)

In particular, the outcome of child birth combines both the safety of the child and the mother and also the future neurological development of the child.

“The factors that I think are important when I make medical decisions when I am under pressure are related to the future development of the baby. The possibilities of being able to deliver to his/her mother a child with all his/her conditions for a high quality of life.” (F45H-MED)

5.4.4 Case complexity and procedures

Healthcare professionals reported that procedures and tasks are part of the complexity in their daily work. Procedures and expertise are elements that need to be considered for the work distribution before they perform, especially under life-threatening conditions.

“When we have a patient in cardiac arrest a blue code is activated. It is understood that the staff are qualified for the care, for the first aid and advanced procedures. Unfortunately, it is not like that. My aim is to concentrate on a cardiopulmonary reanimation procedures and help the patient. There is such disorganisation. There are so many people in an area just running from one place to another and shouting. No more than four people, who know what they are doing are required the nurse who administers the medication, the individual who is taking care of the airway and a doctor who is giving the cardiac massage. Here it is not like that; everybody shouts including clinicians when the reanimation procedures fail.” (M30C-MED)

The patients’ condition and the severity of the illness are considered in health professionals’ decisions and performance.
“In front of a complex patient case, there are variables; will you operate or not? Because we know that the surgery will not do more damage to the patient; for example in a trauma if you made the decision to operate it would save a patient’s life if that decision is accurate and successfully made at the correct time. Usually, the decision is made entering the surgery room or in the recovery room. Sometimes the most important decision is whether I go to the theatre or not. The complications could be severe, with a patient in a critical condition. Then, the criteria guide us. For example, the hydrodynamic stability of the patient and the complexity of the patient’s pathology itself make the decision. Then, the decision is guided by these concepts.” (F55H-MED)

The health professionals’ decisions, in this case, are based on standard procedures, and they call for assistance when the situation requires more specialised professionals.

“I had a patient with multiple trauma, who was stable and there were clear signs for surgery needs, then you can wait. You can perform additional tests before you make a decision. If a patient is bleeding, I will react! With the knowledge that I have, of course, we are not going to do magic. However, a surgeon can make a decision. What the literature tells us to do. The A B or C; then we act to cover the emergency and then the specialist will come to continue the treatment, but we act in the first instance that is already known worldwide.” (M39A-MED)

There were specific factors which influence decision-making in this field. These are related both to the case complexity and the scenario.

“Working under pressure; I think there are several aspects as there are many variables. For example, it can be when we need to make a decision, of time, the roster, or we may have personal and family problems. When we are working under pressure, you also have very complex cases; in my case, surgery.” (M39A-MED)

5.5 Pressure of institutions and systems

Health professionals described their work in remote or rural areas, where they are isolated not just from other medical facilities but are also far from their families, shops and pharmacies.

Their performance was influenced by lack of equipment and compounded by time constrains and case severity.
5.5.1 Layout & facilities

Hospitals with extensive facilities were crowded because of high demand.

“The most significant problem that we have here is the shortage of space; nevertheless, as I said, space is small, but the heart is big trying to solve most of the cases, which come here.” (F45H-MED)

Large medical facilities with surgical centres were open 24 hours, but they did not have sufficient resources to perform procedures during nights, weekends or long holidays.

“We did not have all we needed for the surgical procedure, and the pharmacy was not handling at the date of the emergency, and we suffered a lot because we wanted to help, but we did not have medications. I felt unable to help because most of what we needed was not obtainable.” (F32H-NUR)

The Emergency Department has its own complexity, handling different patients’ pathologies as well as fluctuating workload. Treatments and procedures varied according to the pathologies and hence clinical outcomes varied. Complexity was related to the severity of the illness.

“Today we had several patients in cardiac arrest. There is no communication between the team: doctors and nurses. There is the only disorganisation.” (M30C-MED)

Decisions are made according to the patient’s clinical condition and also arise during the process of diagnosis, and treatment which is related to the clinical outcomes.

“People who are working at the ED start with a high tension, the emergency doctor, the residents, the nurses; we have begun making decisions, such as: Are the vital signs stable? Intubation? Checking the airway if a tracheotomy is required because he had huge facial trauma, he could not breathe. All those factors get you into a challenging and tense situation; you do not know if the patient has thorax trauma, brain, or abdominal bleeding. We quickly do an eco-sonography of the thorax and abdomen, looking for the main bleeding organ and you try to stabilise the patient with crystalloids. However, if after all, the patient keeps bleeding, he could have hypotension and tachycardia,
then immediately you have to take him to the theatre room.” (M58H-MED)

The atmosphere changes because of the different events, which are unpredictable; however, during Friday and Saturday many hospitals had more patients at their emergency departments, but less capacity for complex procedures

“The other day, there was an accident, two cars that crashed into each other. There were seven people injured, and all of them were brought here. I had to call people to help me because I could not do all by myself and that was much pressure for me!” (F41C-NUR)

The complexity of the scenario is compounded by the time of response, the severity of the illness, and the number of patients when this goes beyond the capacity of health professionals working in these emergency departments.

“The time of reaction in the case of emergency is the most critical issue that I have to face. Something can happen because of some problem with the equipment or material, for example, which does not allow me to meet the estimated response time. That is why sometimes the emergency department collapses because of some patients’ exams and then is when it gets complicated, and we cannot meet those times.” (F31C-LAB)

5.5.1.1 Institutional rules & procedures

Following correct protocols does not always preclude family members from going down legal avenues in the event of adverse outcomes. This was another source of pressure for healthcare professionals.

“In a cardiac arrest, first, we have to follow all the steps, all the procedures dictated by the paediatric academies. However, the most important thing is to make any possible effort to save the patient. They are different feelings: the first one where you know you have to do something, but also, I am facing the patient’s death and probably a claim of the relatives. We, have to be prepared for everything. I have to guide the team, and I think that I have achieved this.” (F45H-MED)
When health professionals were prescribing medication, this came with a risk if their patients did not follow instructions, or not adhere to treatment, which could result in adverse effects. Even continuously updating knowledge and skills, did not prelude legal action against healthcare professionals.

“You started to think, what was wrong? And what happened; was the patient taking a tablet per day. His relatives say that they will introduce a demand to the hospital, so, really, you are afraid. You are scared that your practice is not supported enough by the medical records for example because you were tired you do not make a correct decision with your patients. This is the reason why I tried to be in a different area, which is here, at the external consultation area, but it also has a risk, and the fear is always there.” (M39H-MED)

Respondents reported needing time to understand patient concerns and follow the process of diagnosis, to prescribe treatment for the patient’s medical problems, and to monitor the steps of a medical consultation.

“Time is required for clinical practice, and this is something that neither the health authorities nor patient, not even the doctors understand properly. Time has a significant impact on all the aspects of the medical consultations and outcomes.” (M44A-MED)

Healthcare professionals required additional time to solve complex severe medical problems.

“Some patients have more complex medical concerns or medical conditions, and you need more time for examination.” (M39H-MED)

Time became precious when health professionals tried to fulfil the steps of the standard medical consultations and there was a risk that short cuts would be taken.

“Pressure exists because you get twenty minutes for a medical consultation. In twenty minutes, you will have another patient; then you have to fill out the forms; you have to do your paperwork on the computer. You have to interview the patient, and do your best in twenty minutes, with the interview, physical examination, diagnosis and treatment. You need to solve the problem.” (M38H-MED)
After an accident, healthcare professionals considered time as precious and referred to this the ‘golden hour’ in terms of patient outcomes.

“For example, when a poly-trauma patient comes, and doctors at the emergency department do not know what is happening with the patient and, I am on call. They just ask, please come to the emergency department; there is a patient who is still unconscious! I have five to ten minutes to arrive at the hospital. The pressure begins because I do not know what I am going to find, and when I reach the hospital, the vital signs are checked, an IV has been set, crystalloids are given, and the patient is stabilised.” (M53H-MED)

Health professionals considered the complexity of a patient’s condition to make a decision and seek advice on more complex medical assistance.

“If you have an emergency situation, there is nothing in the ambulance, which is going to solve the patient’s problem; that entire staff is at the hospital, so my job is to keep them alive, long enough to get to the hospital, to get into the higher level of care. So maybe sometimes there are 4 things to do, but if I do them, taking 20 minutes to get to the hospital, I am losing precious time, or I can transport to the hospital in 7 minutes, where they can do with one procedure all the ones I was trying to do, this is thinking about the patient’s life.” (M39H-PAR)

The workload can also impact coordination, understanding, and the ability to follow the orders of team members performing with patients who have life-threatening conditions.

“For example: when there are no other medical doctors in the department, I assume the leadership role when we are in a reanimation procedure. Some nurses understand the medical language. However, there are others that have less experience and misunderstand orders. It affects the outcomes of reanimation proceedings negatively.” (M30C-MED)

The participants described the gradual process of adaptation, even referring to basic needs, to cope with their requirements in emergency situations.

“I used to have on the emergency consultation an average of fifty patients per day. We did not rest during the twenty-four hours of the
shift. I had one patient after another. Gradually we learned, and our knowledge and skills were strengthened.” (M48C-MED)

The lack of the staff was a source of pressure for health professionals when the medical settings are in high demand.

“We will react as we need to; I worked nine years with neonates and was at an obstetrical centre next door, and the medical staff was not enough, in the maternity room, there are always more patients. I remember there was one time five years ago I attended a newborn birth, it was such a coincidence; he was a family member, and I did not even know it.” (F50C-NUR)

Participants described how experience, knowledge and skills are paramount when facing life-threatening patient situations to react and perform adequate, efficient and complex actions to save a patient’s life.

“Another time, all physicians were busy, a child was born with a broken cord; the baby was bleeding, dying. At that point I had just a few years of experience, I took a suture made a deep suture, made a knot - who told me to do it; I do not know! However, it was by the intuition I had, and I saved the child's life, and then I said to myself - it was okay what I have done. However, I had nothing! Then I took a deep suture and knotted. Who told me? I do not know! Because I did not have many years of experience, as I have now. Maybe at that time it was about fourteen years ago.” (F58C-NUR)

The participants described how when they faced a lack of staff in critical areas, they could rotate to different areas as they had been trained to perform several procedures.

“Right now, I am going for two years, here in the area Obstetric Centre, as we are prepared to be here. The hospital needs, sometimes the lack of staff we need to change and move to different areas, and as I say again we are trained to go to any field, we always glad to work here.” (F54C-NUR)

Study respondents reported how a lack of staff, in a particular area, regardless of the extent of the health facilities, could contribute to pressure if the team was incomplete.
“When you function without the appropriate number of people needed to perform an activity that is working under pressure.” (F40H-NUR)

When health professionals changed hospital wards, mistakes were more likely to occur as staff rotated in shifts, and roles and areas changed. This was because team members may not have had enough practice and/or experience in processes, procedures or skills in the new location. In addition, not only was the lack of staff a concern for the health workers, but also when other professionals who are unfamiliar with the area are sent to provide support.

“There had been some recent changes in staff working in the theatre room. They do not have much experience; however, we have always been a supportive team to help others to learn. Some procedures actually have not been practised enough. This is a disadvantage that staff rotates and change shifts a lot.” (F40H-NUR)

Healthcare professionals reported that when new staff come to work, they worry that more problems might emerge.

“I mean many issues put me under pressure when a new employee comes to work.” (F50C-NUR)

When new personnel were introduced into an area, this also created pressure not only because of skills or knowledge but also because it affected the fundamental principles of the relationship between team members. In these cases, the health professionals found ways to create bonds between team members.

“When I have to replace the team member at the ambulance, there is always a way to enhance that relationship, there are times between the work when you can talk and in shifts of 24 hours that person can tell you, I do not want to talk I need to read or sleep or anything, so that is fine, you sleep, I read my book, if there is an emergency I will let you know. That is entirely fine. I can find something to do. So, in the case of the person that I worked with in Nepal, I never worked with him before; he was driving, I did not know the way he worked, and as we did not have proper coordination, the ambulance jumped, and I folded down and broke my leg.” (M39H-PAR)
5.6 Summary

This chapter analyses a range of sources of pressure. Individuals, teams, case complexity, institutions and systems all contribute to pressure that affect healthcare professionals’ decision-making and performance in response to a crisis situations. Participants credited their teamwork, as well as the interactions and perceptions of internal and external or environmental conditions, with determining the outcomes of their work. This transition in focus from an individual to a systemic approach was seen as a means of error reduction. In the following chapter the elements of performance under pressure will be described.

The following diagram has been included to strengthen the summary.
Figure 5-1 Sources of Pressure for healthcare profession
Chapter 6  Performance

6.1  The elements of performance

In this chapter, the elements of performance are presented. First, the stage and the plot are represented by the scenario, where the event unfolds. The cast represents the actors in this analogy, the healthcare professionals, other actors and the audience. In order to demonstrate their participation, selections of extracts are introduced to exemplify particular performances. The actors perform the plots, the procedures, and put protocols into practice. The production is related to the rehearsals and the relationship with the director and the producer of the play, which in these cases include the administrative personnel.

6.1.1  The scenario: the stage and the plot

The participant (M52C-MED) a medical doctor with twenty-seven years of experience described a cholera epidemic in Ecuador. The outbreak was in February 1991 during the carnival holidays, so the first cases were Ecuadorian patients who had come from Peru. This physician related a very challenging part of his professional life:

"I had the opportunity to work as a medical doctor during the cholera epidemic in 1991." He was doing the rural placement on the Pacific coast of Ecuador near the Peruvian border when he was asked to move to the hospital when the health emergency was declared. There was much fear of the cholera epidemic by the authorities and healthcare professionals, as senior doctors did not want to go to the emergency area. The staff was frightened and were afraid to attend the patients. “We were the new doctors, and we were obliged to participate It was mandatory. At the beginning of the outbreak, three doctors were attending the three wards, and there was not enough capacity to attend all the patients that outside the emergency department the patients were in military tents. It was a maddening chaos of patients entering in private vans”. He used to attend an average of one hundred patients per day at the emergency consultation. “We did not even sit down during the twenty-four hours of the ward as he had one patient after another”. (M52C-MED)
It is important to highlight that inside this scenario, healthcare professionals have particular roles and scripts, such as the procedures for treatment for the complications which came from the infection. The professionals learnt after a few days how to perform and obtain better clinical results, as they had a significant number of patients with the same pathology.

*People came dead or in cardio-respiratory arrest due to dehydration; however, many other patients who came could be treated and survived. Dehydration was so severe that some patients could not speak, due to their vocal cords being dry. Gradually they learned, and their knowledge and skills improved to confront that situation. He remembered the stretchers with a hole in the middle where the patients evacuated the liquid waste into a container underneath, “it was whitish like rice”. He said: “we had limited knowledge about the illness at the beginning, nobody gave us a clear idea of what to do; however, we worked with oral rehydration salts and helped the diarrhoea episodes to be shorter.” After that experience, he said: “I realised some important issues that helped me later in my professional career.” (M52C-MED)*

The healthcare professionals also described how in this particular situation, their personal feelings affected their performance, as they referred to how they deal with different sources of fear, that could be a danger to their own safety and that of their family.

*The first fear was of contaminating himself or his family; the second fear was that due the massive number of patients, there was not enough staff to provide proper attention, so some of the family members became aggressive, as they required faster attention. The third fear was to make a mistake, as there was no turning point from this; “we were in a chaotic situation without greater knowledge of cholera”, however, they managed not to spread the infection, as the indication was always to wash their hands.” (M52C-MED)*

The following is a story of a car accident situation that ended at the Emergency Department in one hospital, and due to the severity of the trauma, the patient was sent almost immediately to the operating theatre. The role of the family and the pressure that it generated in the physician, as well as the difficulty of the procedures are part of the following narrative.
The participant (M53H-MED) is a medical doctor with twenty-eight years of experience working at a private medical facility, in an emergency department, Quito, Highlands, Ecuador. The physician described this situation that had happened to him the previous year.

He was on call week and was at home when he received a phone call from the emergency department, and they told him: "Doctor, we have a 17-year-old patient, in hypovolemic shock. He had a car accident, and the patient is unconscious. We need you to come here fast". He drove the car quickly while he requested them to do blood tests, echocardiography and thorax radiography, prepare blood for transfusion and the theatre room. (M53H-MED)

Study respondents highlighted the fact that during their professional careers their personal philosophies and ethics helped them to overcome difficult circumstances during their working life.

The doctor said: "Inside all that chaos, I am an ethical person, and I do things, the best that I can. Medicine for me means sacrifice, especially as a surgeon dealing with emergencies. I have sacrificed my family, my children because of this job, and I did not have vacations for that reason". He also said: "When I talked to my kids about their future, they did not want to become medical doctors. It is because they could see and feel their father’s sacrifice." (M53H-MED)

6.1.2 Healthcare professionals and patients: cast, actors and roles

The ‘human factor’ is a vital element of performance. The following extracts illustrate how different characters were protagonists in the performance. The timeline of the protagonist was considered to be the point of view which frames the characteristics of the performance.

The healthcare professionals’ narratives in this study were analysed and classified according to the main character, which is highlighted in each story.

Health professionals have clearly defined roles when they are working in a team that have been training in order to develop certain activities.
“The communication is smooth. It comes from knowing what your individual job is and also knowing what the other person’s job is, so you know what they are doing, and they know what you are doing, and you are not expecting something from them that they are not supposed to do. And they are not expecting something from you…. That you are not expected to do within your scope.” (M40H-MED)

The professionals in the following scenario developed different activities in a complex surgical procedure when medical doctors and nurses of several specializations are working together during cardiac surgery. The following narrative shows how their synchronisation of actions, and coordination of activities, produced a positive clinical outcome. However, there was an unexpected problem with the equipment (the props); the resolution of the case was provided by the expertise and experience of the medical team.

The participant (F32H-NUR) a nurse with eight years’ experience specialised in intensive care working at the largest and most complex medical facility in Quito, Ecuador. The professional participated in a complex cardiac surgery. The nurse explained the situation in the theatre room, as she described the facts in the cardiac surgery. An aortic valve needed to be replaced in a sixteen-year-old patient. The patient was stable by the time he was admitted into the operating room. She said:

“I was helping the anaesthesiologist checking vital signs. He was always aware if the frequency varied, the airway, arterial and peripheral lines everything was under control and following the established protocols; the patient was bleeding, and the anaesthesiologist began a blood transfusion and administrated medication. The surgery was almost at the end, the wound was closed. The anaesthesiologist raised his voice and said “the patient is in a cardiac-respiratory arrest”; the surgeon asked for the automated external defibrillator, and it did not work! Suddenly, he began to open the chest again, and the other doctors followed him. There was a complicit silence. When the doctor opened the chest, he introduced his hands into the patient’s chest and quickly proceeded to massage the heart muscle to maintain its pumping; when in front of our astonished eyes the small heart started to beat again. We all had tears in our eyes, we could feel the teamwork, the surgery was very exciting, and
the situation was tense at once, as the entire medical team joined to save the patient who was just 16 years old”.

She described their work as follows:

“There is an agreement to work together and training before we enter the surgery. Otherwise, we could not do anything or help people if you do not know what to do; the group is organised, things always in place. We know what the other team members have already done, what they have to do, and how to react in those crucial moments or during crisis in a severe situation, things must be done quickly to save the patient’s life. At that time, I think, we lose fear and we all work to help the patient, and follow protocols”.

The nurse said:

“I saw the doctor’s resistance, as he remained standing in front of the patient for so long, during the entire surgery. We were all feeling motivated, happy, and we cried because, it was the first time the doctor had introduced his hands for direct massage in such an extreme situation. More than that, at the end of the surgery, he was feeling proud of himself, I thought, as he went to inform the patient’s family that the patient was doing well, and he went to the intensive care unit to continue the process.” (F32H-NUR)

In the next story a healthcare professional, a nurse, interacts with the community in order to save a patient’s life. This story showed the different circumstances workers had to face in order to get through the jungle. In the isolated medical services in the Amazon region, the scenario is a medical facility with the equipment, but no healthcare professional to carry out the procedures.

The participant (F28A-NUR) had been working three and a half years as a nurse. The following story happened at the centre of the Amazon region, in Ecuador South America. This region includes the Rainforest and the Amazon River and its tributaries. A nurse in charge of community services described a situation that occurred two years ago.
This town only had a rope bridge as its primary access which was in a bad condition; as a result, car access was impossible. The doctor who was working in the community had an accident, as he walked on the road, slipping on some rocks and falling over. At the time of the accident he did not tell anybody; however, when he went to a meeting with the community, and fainted. The nurse got a phone call from the community centre, and she arrived ten minutes after and found people were trying to help him; however, he remained unconscious. She said:

“I figured he did not have breakfast”. While she conducted the medical examination, she noticed that all his left side was purple, and he was pale “we decided to move him to the hospital”. When he opened his eyes, and told them what had happened, she said: “We never thought it was a life-threatening situation”. However, when they took him on the stretcher, he said it was hurting, and it felt like something inside of him was leaking. (F28A-NUR)

The nurse set up an intravenous drip in one arm. They did not have car access; therefore, they decided to carry him through the jungle. There were trees all over the track. The strongest people of the area helped to take him on a small stretcher through a very challenging and narrow road in the jungle.

She said: “we were in a desperate situation.” (F28A-NUR)

At the beginning of the transportation, they were calm. However, in some parts the road, they had to adjust the stretcher to keep going; they decided to go fast as he was not breathing correctly, so “we used oxygen”. Suddenly, one of the eight slipped, and the intravenous fluids came out.

The nurse said: “Desperation came when the intravenous line fell (out), and everybody was in a panic mode, screaming that we need to go faster; however, they could not run because it was a very narrow road". They switched positions and just kept going. The patient was as white as paper, and she said: “the patient did not talk, I saw the patient dying”. She thought “I brought everything with me even the
oximeter and oxygen, but I forgot the intravenous fluids line and needles”. She said: "I did not know what to do in this desperate situation, and all of us were screaming.” (F28A-NUR)

The patient was pale and barely talked. They walked three hours for just six km. However, it was like an eternity for them; when they got to the highway a car brought them to the hospital, it was a relief when we arrived at the hospital, she said.

She thought, “He is safe now; he will have attention here.” (F28A-NUR)

She saw him again a month later, and he looked healthy.

“He was very thankful because we saved his life”. She said at the end” if things had gotten worse, it would be my responsibility because I did not bring all the necessary things with me during the transportation.” (F28A-NUR)

Healthcare professionals consider the patient’s family to be an important factor that could influence their performance, as they transferred to the physicians the responsibility for someone’s life.

“When he arrived, he gave the order to be taken to the theatre room, at that moment the patient’s parents arrived desperate, asking me what happened; I told them the situation was critical as the patient had an abdominal trauma; he was bleeding and needed surgery”. He said: "You can imagine his family telling me, save him, doctor, please! His life is in your hands!” (M53H-MED)

Study respondents defined the time after a procedure when they have to face the patient’s family, as very confronting. The patient’s family becomes the protagonist in the story demanding service in the Emergency Department in an aggressive way.

“On the other hand, the decision-making by the relatives is significant because in this area relatives wanted to implement treatments or asked for patient admission to the hospital. We, as doctors explain to the relatives that we need time to control the evolution of the patient’s illness at the emergency. They behave aggressively and we have to ask
for help. It is a great problem. We asked to have a meeting with all the doctors and claim for help. There are cameras in the hospital but nobody does anything for us. Patients’ relatives threaten us and in the end, they influence us in the treatments. There is no respect for us.” (M38H-MED)

This situation shows how the family reaction after the communication that a relative has passed away during surgery has an adverse impact on reaction in the professional’s behaviour.

“When I had to tell the relatives the bad news, it was so difficult; I thought I could get hurt when I saw the family. I came out with a sad face, and I approached the family. I told them: we tried to do as much as we could but, unfortunately, he could not survive”. The family started to scream and one of them attempted to hit him. “Unbelievable! I was exhausted; I did not know what to tell them”. It was the first time that something like this had happened. “That case was a severe liver trauma; it was unlikely that he could survive.” (M53H-MED)

Because of this he felt awful for more than a week, did not want to eat, and even could not sleep. He said:

"My family was concerned for me.” (M53H-MED)

The participants reported that the healthcare system affects their performance because of how the hospital works, how the shifts are distributed, and the level of complexity of the system.

The participant (F40H-NUR) is a nurse with seventeen years’ experience working at the theatre room of a large medical facility in Quito, the capital. This hospital has twenty theatre rooms for conventional programmed surgery working from 08:00h to 17:00 hours Monday to Friday, one theatre room for deliveries and two operating theatres for emergencies working operate around the clock. One situation to be considered is the monthly routine programmed surgery, and staff member absences. The nurse said:

“I am in two places, commanding the operating theatres and sometimes in operations due to lack of staff”. “I would rather be at the
surgeries I like theatre rooms”. “When the theatre room is running without the appropriate number of people required, performing an activity means working under pressure.” (F40H-NUR)

The nurse described her specific situation and said:

“For example, in the absence of staff, I get tense, as I know that we need to work in the same form as if they were all there. Physically, I get tired, worried and diaphoretic because I started to think how things could be solved. Lack of collaboration bothers me ... what I saw is that this kind of situation makes me feel exhausted. It is a big concern when there is not enough staff”. As the head of the nurse department, she must make the decision to become part of the surgical team and cover the function of the missing staff. Often staffs have to change roles within the team because of absences.” (F40H-NUR)

In order to plan the monthly operating theatre list, the leader must take account of staff skills, competencies, capabilities, and the experience of each one of the team members to distribute the tasks according to the level of complexity of the work. The team members in the theatre need to maintain training activities to be supported by the more experienced staff. As a consequence, the group grows and becomes more confident to perform different kinds of procedures.

“At the theatre room the doctor told me. If you have no experience, please leave the room,” “but, the team must support you. When I am there, I tried to change this behaviour and teach. This is the only one way to help the group. Because, if they do not learn I do not know who is going to do that role if at night only one team is working. It is the case that long and complicated surgeries often stayed until the evening, then at night who will support? As a consequence, the staff must be prepared to deal with emergencies.” (F40H-NUR)

She explained that in a management position, it is necessary to be aware of staff needs to be trained and continue learning programs.

“People often think that leadership is easy, just because you are not in the theatre rooms, doing all the work they do. However, the truth is
that the person who is the leader is responsible for everything. Because the leader needs to be aware that everything runs and bears the responsibility for errors in the group that is a strong responsibility indeed. You feel it, and it makes you feel that you are not confident about that decision”. Moreover, small details must be considered as they became so important during the process. “I finish the day, and it seems like I have worked more than 8 hours or maybe more. I come home tired, and I cannot eat, and I just want to sleep. Decision-making in emergencies exhausts me, and when that happens every day outside of schedules, staying longer shifts, covering staff who do not arrive or are sick. An additional problem arises when you are not able to get home by the time your work finishes. Then, on the top of everything I have problems with my family. Family issues for sure are generated when you are required to work longer.” (F40H-NUR)

6.1.3 The patients’ illness: storyline, plots and scripts

The plots are the narratives, the storylines and the scripts of the actors; in this case the narratives of the healthcare professionals. Respondents in this study referred largely to procedures or protocols as part of the scripts required for performing and obtaining good clinical outcomes.

“First, we have to follow all the steps, all the procedures dictated by the paediatric academies. However, the most important thing is to make any possible effort to save the patient. They are opposite feelings; the first one in which you know you have to do something, but also, I am facing the patient’s death and probably a claim of the relatives. We have to be prepared for everything. I have to guide the team, and I think that I have achieved it.” (F45H-MED)

The feeling of being part of the problem can generate a source of pressure and affect healthcare professionals’ performance as they need clarity of mind and serenity to find the correct procedure and react properly according to the clinical outcomes of the patient. In the following extract (M53H-MED) presented how he was feeling during a surgical procedure and his feelings about the patient’s outcomes.

“It was a very unpleasant and tense circumstance.” (M53H-MED)
He said as he felt he was part of the problem. He entered the theatre room, asked for blood, and the surgery started, the spleen and liver were bleeding, and he took the spleen out and packed the liver while the blood arrived. The patient was almost stable; however, when the compresses were out, the liver started to bleed again, he said:

“We added more compression again and after the six hours the patient got a worse medical condition (sic), there was no turning back, and he passed away.” (M53H-MED)

This following story line of a paramedic shows how impacted a patient’s life was, as the worker realised that her actions kept the patient alive and how grateful the family was with her performance.

“One of the stories that impacted me the most was about a man that had a motorcycle accident; it took us 3 minutes to arrive at the emergency area because we were close. We set a collar on, using all the rules or protocols that we were taught in order not to hurt him. He had a score of 4 in the Glasgow score so we put him on the board; we tried to tie him up and we took him to the hospital. When we arrived there, the patient entered directly into the intensive care unit, where he was stabilized, and remained. I knew he was fine because they called us for a session since they were investigating who caused the accident, if the car that crashed into him, or if the man was going too fast. His mother was very thankful to us; she said: “if it wasn’t for your help he could have passed away”. The important thing about my profession isn’t money, but the emotional side and the satisfaction you feel; when you know, you do the right things and use the correct tools and knowledge to help people.” (F28H-PAR)

6.1.4 Production and rehearsals

Production is a very important part of performance. Production means administration.

Training is essential for medical teams; as team needs to practice together. In some cases, it could take years for high performance teams to acquire the necessary skills to perform with synchronisation for complex procedures.
"When I schedule surgery, I work with the anaesthesiologist that is available that day in the theatre room. I have 3 medical doctors (surgeons) that do the procedures and work with me. They know what they are doing, I taught them myself, they were residents on their postgraduate course, they are well-trained and they help me very well on complex and large surgeries.” (M53H-MED)

Rehearsals are part of the production and they are necessary when the team needs to acquire the synchronisation to perform first in controlled and then under less predictable conditions. The participants defined the whole experience as performing under pressure, when they perform in response to crisis situations. An example of this is given when the participant (M40H-MED) a medical doctor performed rehearsals with the group Los Topos which was working at San Pablo Del Lago, Imbabura Province, and Highlands Ecuador. This group included firefighters, paramedics, engineers, nurses and medical doctors from different institutions and parts of the coast and highlands of Ecuador. They were rehearsing for worst case scenarios in order to acquire skills in case of a Cotopaxi volcanic eruption. This possible event poses threat to Quito, the capital, as the volcano is 60 km along the valley from the city. In case of eruption, the pyroclastic materials will arrive at the city in minutes. All though they were training for a volcanic eruption, the real event was an earthquake of 7.8 in the coast of Ecuador.

As part of the preparation, they were doing simulation training under a collapsed structure. The following is a participant’s explanation of how they were removing rubble in the simulation.

"A team of four professionals were kneeling in a tiny space digging a hole in a wall, working under a collapsed structure searching for possible victims. The hole should be opened making a triangle big enough that a person can enter inside of that collapsed structure and later bring out the victim from that place. Now, they were making a small hole to introduce an endoscopic sensor enabling them to look for victims Right now we can see team members crushing rocks and opening rubble. Rubble is going out in little baskets which are moving
in and out; in this form, the rescue team can have enough space to move” he said. He also highlighted that the team performing under those conditions needs encouragement, support and the strength of the leader. If one of them is tired, the leader will make the decision who will be the next on the line to help. “The professionals who have more experience need to be at the forefront.” (M40H-MED)

The participants of this study indicated that managers and/or administrative personnel of the medical facilities have a significant influence on decisions over admissions and treatments for patients. In this case a medical doctor expressed his concern when he had to make a decision over patients who did not require hospitalization; however, the managers requested it. This is important as it may prevent access by patients with greater need.

“On the other hand, we had the influence of managers and executives at the hospital. We also are influenced by other doctors’ relatives and administrative staff occupying the hospital’s beds for patients with non-complex conditions, instead of patients that really required hospitalization. Now the influence is big.” (M30C-MED)

6.2 Conditions that improve performance

The participants determined through their narratives that there are six specific factors that could improve their performance. Knowledge, teamwork, communication, coordination, and expertise and the feedback obtained from the satisfaction of accomplishment.

Participants of this study recognised that in order to overcome fear and improve performance, knowledge was necessary. In this quote, the participant (M52C-MED) explains that some days after the hospital started working with patients with cholera, Thai experts arrived to share their knowledge and experience making it easier for the local health professionals to manage a difficult situation (M52C-MED) said:

"We overcame fear through methodology as Thai experts arrived to train us. There were some issues such as bio-safety, and the usage of oral hydrations salts which was reinforced and help us through those difficult moments, our team was strong!” (M52C-MED)
The following participant reported that knowledge helped to overcome the fear of not knowing how to help a patient. One of the paramedics said:

“The objective of this group is to be able to perform an active work with the victims who could be trapped under collapsed structures and extracts them alive”. Human nature has emotional factors, one of them is fear. “This one of the main factors that you have to face - in my profession, as a medical doctor, I am afraid of not having enough knowledge and skills, because of that I prepared myself every day. I want to know more and not be afraid of what I am going to do, to save patient’s life and not have complications of adverse effects.” (M40H-MED)

The power of teamwork to improve performance in controlled and uncontrolled conditions, especially to response in crisis in Emergency departments and disaster areas is shown in the next extract.

“Teamwork is a coordination of ideas, the power to work for a common purpose. Another member of the group, a medical doctor said: “It is similar when you collaborate with a team as a physician in the emergency area. It is all about the pressure. Here there is much pressure. We work to save lives, and we have to do it in a short time using our skills. We work very hard in the emergency service and the same here, coming to help in disasters. Under these conditions, marvellous things can be done; however, things can get worse as well! We force ourselves day after day; we understand each other, we know how we are going to answer under the different stimulus. The pressure generates a process of adjustment. Yes, let’s say like that.” (M40H-MED)

The team needs encouragement during the performance to continue with their work, especially when the patient has a life-threatening condition or when responding to a crisis situation. Thus the role of the leader is crucial to overcoming the difficulty moment and maintaining the attention and the ability to focus on procedures. The following is a case of a leader working with a team during a cardiac arrest in an intensive care unit.

“The team must be strong and continue with a very critical patient even if we feel that we are losing the battle. We must continue with the intervention and do everything that we can do. The pressure here is
related to being able to resist, do not lose your concentration and fulfil the orders. You need to be motivated and committed to your work. You need to believe in what you are doing and that you like this specific field of medicine. Second, you have to study and take full responsibility for your actions.” (M48C-MED)

In medical teams, the team members are not the only in charge of the patient’s safety, but also it is their responsibility and they have a duty of care to the other team members’ lives. In the following case a paramedic and firefighter describe how, when they are performing rescue activities, team members acknowledge the risk and pressure and consider safety as part of their procedures. Team members acknowledge the limitations of the performance, and recognise pressure as a risk factor that could affect patient and their safety. The risk for health professionals was associated with almost all situations in life. However, this was apparent more when they were talking about risk in a life-threatening situation, not just for the patient and team, but also for themselves.

“It’s a lot of responsibility because you have to take care of everyone and everything. The person in charge of the team has to look out for everyone’s life, so the decisions that person takes will affect the teamwork, so if a bad decision was made the life of the whole group is at risk. Therefore, that person must assign someone as Security Chief for example, and that person is going to be in charge so that everybody at the area enters well-uniformed, with protection gear. If it’s a fire then they should have auto containments, with all the gear. This means “going in” with ear protectors, goggles, masks, helmet, because they will be in a hard work area, they will be in contact with dust, water leaks, loose electric wires, so it is complicated.” (F28H-PAR)

The respondents in this extract asked for help and collaboration between peers and team members, as a method to decrease pressure in response to crisis.

“Yes, the mechanism I use to decrease pressure is to ask for help. When, I am not able to do the resuscitation procedures by myself, then I request the nurse to call for help.” (M44A-MED)
In the next example, the participant talks about the importance of the expertise of the team and how this affects the communication and coordination of activities.

“The communication is going very soft and smooth form. It comes from knowing what your individual job is and also knowing what the other person job is, so you know what they are doing, and they know what you are doing, and you are not expecting something from them that they are not supposed to do. And they are not expecting something from you…. That you are not supposed to do within your scope.” (M40H-MED)

These health professionals felt very proud to do their work as a service to the community.

Satisfaction of accomplishment was a common factor mentioned and used to summarise their careers as health professionals.

“After my 24 hours shift, I try to calm down and to go out of my work in the same way as I came. I feel the satisfaction of my job was done. Then I go home and rest approximately six hours and enjoy the family.” (F31C-LAB)

Success was defined by respondents as a change in their life status, which is related to improvements in the quality of the processes they manage. Interpersonal relationships also allow them to form groups with other professionals who also seek to provide quality health services to patients. Health professionals attempt to enhance their performance under different circumstances.

“I believe that when you start your career, you just go to work anywhere you are called; because you do not have a lot of patients and you search for more income. You search all the available places and it is there where you could have a mistake. It could be a hospital or clinic where you do not have the infrastructure, or a competent anaesthesiologist that could generate confidence; I had those problems. I used to go anywhere before, now I limit 90% of my patients to this hospital. Because this hospital has good infrastructure, people know how to do procedures properly and that is essential. Establishing this team to work, obviously took me a lot of teaching time and to understand the patterns of communication in order to flow. Generally, I tried to have a good relationship, sometimes even friendship relations because if you do not have a good relationship, it is very difficult to
coordinate. It is good to work not just as professional colleagues, it is better if you work as friends in order to have trust in each other.” (M58H-MED)

Participants referred to the satisfaction derived from their performance saying that the true meaning of life is not in material things; it is what individuals can offer and contribute through their actions to society.

“In the world, there is suffering for people, bad things happen; the point is that we can do something about it, the little things we can do, we will do, if we can do more, we will do that, I believe that a person is only valuable, it is not about how much money you have in your bank account, people should not put a value on someone’s head, but what can you contribute for the rest of the human race. What is his contribution to society, nothing...Therefore the real value of someone is what you can do for others.” (M39H-PAR)

Participants who have worked in high-performance teams emphasised that the most significant aspect of their careers is that they have saved many lives. They felt proud to have been able to overcome the difficulties that have arisen due to problems with shortages of personnel and materials.

“I have been part of a wonderful team that have managed to deliver extremely premature babies. I am proud of being able to overcome all the adverse situations due to the absence of medical supplies through the year I have been working at the hospital.” (M48C-MED)

### 6.3 Conditions that compromise performance

Study participants highlighted the fact that their performance was affected when they lost a sense of control over the situations and conditions. When performing in a team, as well as in individual situations, even common situations were susceptible to these feelings. Performance was compromised even in common procedures due to a combination of factors, especially fear, not enough capacity for resolution because of the amount of work, or lack of knowledge or skills, expertise or time to perform a specific activity.
There were feelings of fear when technical support was felt to be lacking; such feelings could modify the whole performance, as it could change patients’ clinical outcomes and also the perception of the efficacy of the actions the healthcare professionals.

“I think when you are at the emergency department, there is fear about something you did or you didn’t do and its outcomes. For example, in a cardiac arrest, you cannot set the endotracheal tube, which is a situation that scares you. You get desperate because suddenly you see that no one can help you; sure, when you are a student you have your professor, but when you are alone saving a patient’s life and you cannot do it. This is a situation under pressure. I have felt fear when I have given a prescription and it did not turn out well; an adverse effect or reaction to the medication causes me fear. I think is normal, there is fear about something you did or you didn’t do and its outcomes.”  
(M39H-MED)

Many factors affect how a group of professionals solve a patient situation. In this next case, the severity of the illness and the patient’s surrounding conditions made the professionals look for help and transfer the patient to a specialised medical facility. The patient received attention and practitioners performed complex medical procedures.

The participant (F35C-NUR) described a traumatic and painful case of a patient from the Amazon region. By the time this situation happened she was working in a large complex medical facility in Ambato city in the central Highlands area. They had received a patient who had a burn on her face and eye with a terrible infection. She was an eighty-five year old lady who lived alone, far away from the closest town who had fallen into the wood fire and burned her face, neck and right arm. As she lived alone, unable to ask for help, she had stayed there like that for several days, probably unconscious. She was surrounded by such a wild environment that mosquitoes had laid their eggs in her injuries. The wounds had worms around the eyes and nose. The old lady used to go the town every two weeks to sell products she grew. The neighbours in town noticed her absence, and went to her house. They found her in the kitchen, in such horrendous condition that at first they thought that she was dead;
however, as she was alive, they brought her to a medical centre in the community. The doctor decided to transfer her immediately to Ambato. At the hospital, the decision made was the inclusive enucleation of the eyelid. During the surgery, the nurse said:

“The doctors had to clean as the cavity was of considerable proportion.” (F35C-NUR)

They extracted the worms, and the surgery was performed to prevent sepsis. The nurse said:

"I followed the patient during the time that she was at the hospital and helped to find her family and support from the community, as she would not be able to live alone again.” (F35C-NUR)

Study participants expressed how they experienced a reduced capacity to react as a result of the number of patients. This can be seen in the following example at an emergency department when patients arrive at the same time in critical conditions. The amount of work is again related to some procedures as well as the complexity of the tasks to be performed. The impact can be both positive and negative. It was positive when the participant realised that it was not going to be possible to do the procedure because the quality of the outcome is going to be affected. At this point, a decision was made to look for help. This strategy was intended to avoid error, and to seek collaboration and teamwork. Performance is also related to expertise while performing tasks. The team needs to know the skills and capacity of each member in order to ask for help.

“Suddenly, two patients were coming in critical conditions. It sets pressure on me and already it has happened and we have taken control of patients in critical conditions. It is very difficult. Then the pressure in these cases influences decisions.” (F33C-NUR)

Healthcare professionals also expressed how when they are working in crowded medical facilities such as Emergency Departments and they try to strengthen their problem solving ability to face the challenges of everyday practice.
“The hospital had collapsed. Patients came from very far places. We didn’t receive the notification that patients had been sent here for treatment and that is a reason why every time I am at the emergency department I expect the unexpected.” (M44A-MED)

Respondents referred to their capacity to react when faced with severe illness. This factor arose due the safety concerns in the absence of suitable conditions for the patients and health professionals have to deal with crowded Emergency Departments. Patients arrive to the Emergency Department and have to wait on the ambulances.

“A patient arrived in an ambulance; she had morbid obesity and asthma. She had an endotracheal tube and by the time I saw her at the ambulance, she was awake and fighting with the tube, without sedation. I tried to help her and gave the indication to bring her in 10 minutes inside the emergency department. As I didn’t see her for more than 20 minutes, I went to look for her at the ambulance parking area. I asked the doctors where she was. At that moment, they came with the stretcher and the lady in a cardio-respiratory arrest. The capacity of response at the emergency at that moment was poor as it was crowded, however we managed to help her.” (M53A-MED)

Participants also reported that their capacity to react and intervene under pressure in life-threatening events is directly affected by teamwork. Health professionals refer to not only the lack of personnel in emergency areas but also a lack of coordination between them.

“There are cases when I push myself when I am working alone, I mean as the only one doctor at night, for example, when I do not have much staff to support and help me to stabilize the patient. Because, during the day there are doctors, nurses, and other staff, then the problem is related to the lack of coordination and knowledge about the procedures.” (M34A-MED)

Emergency Departments are busy areas of the hospital. Moreover, during a natural disaster or catastrophic event, the number of patients will increase without precedent. This is an important factor to consider for managers.

“I used to have on the emergency consultation an average of 100 patients per day during the first week of the epidemic. We did not rest
Participants explained that the medical facilities were sometimes not large enough to support high patient demand.

“The most important problem that we have here is the shortage of space; nevertheless, as I said, “space is small but the heart is big” trying to solve most of the cases, which come here.” (F45H-MED)

Healthcare professionals spoke about how they were not aware of the risk until problems arose.

“To be honest, while I am working, we sometimes forget that it’s dangerous, but when such incidents occur, I remember that my job is risky. It has a great value to be ready to help. You could say that we are good-hearted people because the world couldn’t turn without policemen, firemen, paramedics, doctors, and teachers. Policemen leave their families to protect us from harm, the doctors to cure us, firemen put out fires, the teachers see that the children grow up to become good people, and paramedics help people in critical conditions. They are good hearted people; society should protect and take care of them because the world turns because of them.” (F28H-PAR)

6.4 Complexity in healthcare

It is important to underline that healthcare professionals must acknowledge their limitations in knowledge and skills. Because of this, an important factor in teamwork is that team members must know about other members’ skills in order to provide the service. This is also related to role fulfilment. However, health professionals also recognise that their function ends when others’ begin and that they need to let another person do what they do best.
“When you have an idea of what you are doing, you do not know the technique you are using, but you understand.... For example: when I bring a patient to the hospital, I know that the nurse has many more skills than I do. You know that we are going through training and more training, so I know that they can administrate medication that I cannot and I do not understand everything about the medication, but I know in any condition the nurse can help with the medication.” (F33H-PAR)

“When you are in front of a patient, you have to learn that you will have other team members who would have more knowledge and skills than you. You need to be humble! You need to let them work and be brave enough to recognize that other people can do more at that time. It was very hard for me to understand.” (M39H-MED)

The response to a crisis comprises several elements such as life-threatening situations, decision-making processes, time constraints, teamwork, patient safety and outcomes. The participants described their performance according to their perception of how the whole event unfolded. Their perception was thus related to how the whole situation evolved and not just related to personal factors, systems or particular circumstances. They referred to the characteristics of pressure to define the entire event. As such, time was a key factor spotlight as synchronisation, and coordination was considered important factors of their performance. The participants highlighted teamwork as a crucial factor during their performance as a component that helped them to decrease their perception of being alone, and to defeat fear. It was also defined as a way to minimise error when there were limitations due to lack of knowledge, expertise, time constraints, or increasing levels of severity of the patients’ illness. When the situations add new elements that make the original situation more complicated, this is what complexity is. As a consequence, health professionals could face the challenge to improve patient clinical outcomes, despite the increasing complexity.

“I think, when you are in a life-threatening situation, it is a race against death. I started to think this man in his fifties has more things to do, and I have to fight for him. All the things that you have to do and don’t cross your mind. It is also essential teamwork and nursing specialists in cardiac surgery were able to work fast with me; we
needed to have everything ready - tubes, medicines, and when you need to do a cardioversion, they had set everything for it. Also, you think that this person needs to live with the best conditions. It requires that you do a successful reanimation, it shouldn’t take too long and shouldn’t produce neurological complications...and that influence a lot, you need the best team and the correct decisions.” (M39H-MED)

“In order to work in an emergency department, it is always necessary to follow the protocols. We know that when you have an intubated patient it is necessary to have everything ready in case of cardiorespiratory arrest. I was new at the emergency department. It was very difficult to do triage, as people with different clinical conditions were asking for attention - patients in cardiac arrest in ambulances, children with severe cases of dehydration, pregnant women just near delivery... People would never know that were dealing with a saturated hospital. It really made an imprint on my heart and showed me the value of a deep evaluation of every patient in that area. It also showed me that I need to be prepared, for the uncertainty of the emergency department.” (F46H-MED)

The risks and safety of the procedure should be evaluated before performing an action. If the situation is too risky, the patient will be transferred to another facility. When the capacity of the health professional was reduced, due to factors such as time, number of patients, or availability of resources, then patient transfer to another medical facility is also required.

“If you have an emergency situation, there is nothing in the ambulance, which is going to solve the patient’s problem; that entire staff is at the hospital, so my job is to keep them alive, long enough to get to the hospital, to get into the higher level of care. So maybe sometimes there are 4 things to do, but if I do them, taking 20 minutes to get to the hospital, I am losing precious time, or I can transport to the hospital in 7 minutes, where they can do with one procedure all the ones I was trying to do; this is thinking about the patient’s life.” (F28H-PAR)

The team recognises the value of team members; experience and expertise raise group performance. Team members need the support of experienced members to acquire and enhance knowledge and skills when they are performing new tasks. In the following extracts health professionals highlighted the fact that in the operating theatre, team members need to support new members, as the area needs to operate around the clock.
There had been some recent changes in staff working in the theatre room. They do not have much experience; however, we have always been a supportive team to help others to learn. There are procedures that really have not been practiced enough. This is a disadvantage that staff rotates and change a lot of shifts. There are always errors because they are new staff and they do not have enough training. For example, nurses know about the procedures, however, they need more support to learn and do not do the same mistake in future surgeries.” (F40H-NUR)

“During all the time, I been working here, there were many different situations. I mean many issues when new staff come. But my reaction is to immediately ensure that the patient has the appropriate attention, it means on time. We work as a team, one person is doing one task, the other one something else, and we solve problems and give the required attention to the patient.” (F50C-NUR)

Healthcare professionals used silence as a vehicle for coordination when performing under pressure to improve teamwork.

“We work in confined places, where it would be possible to find victims alive. We work in silence to listen everything around us, we can hear sometimes our hearts beating and how we breathe. It will help that, at any moment we would listen to other team members or someone asking for help! This is the reason why the workplace in a disaster must be noiseless. We listen to our leader who is giving us guidance. The silence helps us to concentrate on the task. Silence means respect.” (M40H-MED)

6.5 Adaptation during crisis: when pressure is the status quo

“Working under pressure is actually a normal way to work in the hospital setting.” (F38G-NUR)

Participants described a gradual adaptation process in response to crisis, as growth through this process improves quality of performance. The participants described knowledge and experience as fundamental factors during their performance and the gradual process of getting used to working under pressure in response to a crisis.

“Initially, I considered all the technical and theoretical knowledge that I have learned before making a decision. In addition to this knowledge, I then also consider my past experiences where lessons
learned from past mistakes and successful interventions together underpin my decision-making.” (M43H-PAR)

Training and expertise could foreground certainly in the healthcare professionals’ own practice.

“Serenity comes with your certainty of your skills and training, and if you are studying and think I do not want to study and just want to pass the test, and then when it comes to the crunch time, you will be frustrated, you won’t be calm. But if you are studying hard, practice, and really pay attention and understand why you do certain procedures, what goes with those procedures and you practice them, then when you graduate and work with more experienced people you are growing up and getting better. If you do that, your certainty of your skills and your ability is so unshakable you know what you have to do. Then you say I know what to do, I am going to do that. I supposed to do this, oh I forgot to do that, how did that happen when you did not follow step by step the learning process, and you did not absorb each piece of information, and practice and make it your own. Practice makes the way you understand what you have learned your own.” (M48C-MED)

Response to pressurised situations and familiarisation with procedures improved as the health professionals’ gain in experience.

“You cannot say that at the beginning of your medical practice you are able to work with treatment protocols, as fast as it is required because you do not know about all the protocols and procedures. However, as long as you gain experience, you learn that those experiences help you to adapt yourself to the pressure of getting fast and good results with the patients. You improve your skills and performance; as a consequence, you improve the quality of the clinical outcomes. That has been the secret! This has been the way to improve, participate, to be active and provide good care to patients.” (M48C-MED)

Learning to work in a team in the Emergency Department was also a hallmark of the learning process.

“I analyse the strengths and weaknesses of the staff who are working with me as I do my checklist at the beginning of my day. For example I have students, who studied a lot and collaborate in successful reanimation procedures. I think, and believe, they will have a good
future performance. I prefer that a nurse assists with the intravenous lines and medication, the second person in cardiac massage, and the third most of the time me, assisting in leadership and airway management.” (F54C-MED)

Healthcare professionals acknowledged the need to correct errors and improve performance.

“At the beginning, I had many difficulties, and when I made a mistake I have had to correct my errors. It was hard. It is difficult to be in front of a baby, when you also have your family, you also have your babies and you think that he/she can be mine.” (F45H-MED)

6.6 Satisfaction of accomplishment and performance

The practice of medicine is subject to many moments that leave a deep imprint at both personal and professional levels. These unique moments provided teachings to these healthcare practitioners that remained vivid. Every time these memories are invoked they entail emotion and make sense to their professional practice. The following is the story of a young doctor who attended a premature birth. The mother had eclampsia. The doctor went with the newborn to the neonatal intensive care unit. The child did not have an adequate response to the treatment and was unstable; however, for some reason that the doctor could not specify, she returned to see the mother. The patient was in a very critical condition, but when she saw the doctor, she asked the doctor to take care of her child; a few hours later the mother passed away. The doctor with great sorrow returned to the intensive care unit to look after the little patient. She saw the tremendous enthusiasm that the father of the child had and how he had turned all his love to his son. During the four months the child was in hospital, he took care of his son with immense devotion. After the baby left the hospital, the happy father brought him each month during the first year to the clinic and then every four to six months. The child grew until one day a 15-year-old boy came to the hospital with flowers to visit the doctor. The doctor took a while to tell this story; however, the truth is that it shows part of her life as a health professional, her sacrifice, perseverance and dedication.
“I was at the beginning of my post-graduate studies when I was called to attend a delivery of a premature child; the child was not breathing properly, then he had a cardio-respiratory arrest; we worked fast and the baby was taken to the IC. I began the standard procedure. By the time, I was trying to arrange a tube, the child began to improve his vital signs. However, at the same time, something was wrong, it seemed strange to me, very strange. I thought maybe the mother was afraid and sad because of the baby’s condition and she needed help. I went to see what was happening. I found the mother in a bad condition, and it seems that this affective bondage between mother and son was preventing him from getting well. He was getting well and suddenly again he had respiratory problems; it was like he knew his mother was dying. After I went to see the mother, she was in a bad condition, she was bleedin a lot and the last thing she said to me was: ‘Take care of him’. Some hours later the mother passed away, and this child was hospitalized for 4 months. He had many infections, transfusions; however it caught my attention to see the father’s dedication and commitment to his son. He came every day to tell the baby a story, read a book, and every time the father had to go, his vital signs changed immediately. I told him, ’he does not want you to leave him’, the baby was sad every time the father had to go. One day I told the father, today the baby is going home with you, when the father visited his son and he said, ‘it is time to go’, again the vital signs changed. I asked the little baby: ‘what is happening to you? Today you are going with your father home’. The father smiled to me and I said to them, ‘do you see? He is fine’. He was a beautiful baby.”

(F45H-MED)

6.7 Summary

This chapter presented the elements of performance and the factors that contribute to improving and compromising performance especially when staff is under pressure. These elements contribute to our understanding of complexity the healthcare provided in response to crises. Participants described a progressive adaptation facilitated by knowledge and experience which allowed them to respond with flexibility and enabled synchronised
teamwork under pressure. The following graphic has been incorporated to strengthen the summary.

Figure 6-1The elements of performance
Chapter 7  Discussion: The art of performing under pressure

This chapter explains the how and why healthcare professionals make sense of their actions, particularly when performing under difficult circumstances. This study considers performance from a systemic rather than an individualistic point of view. The analysis outlines the factors, situations, scenarios and events that encompass the understanding of the healthcare professionals’ performance under controlled, as well as, dynamic unpredictable and high pressure situations.

Health professionals have been observers, part of the audience and also actors in numerous medical situations throughout their careers, and these situations have left deep imprints on their behaviour and influenced their performance. Performance and social interactions of health practitioners and patients were examined using a Grounded Theory approach in a diverse range of situations and events. The use of Grounded Theory and extensive text analysis gave strength to the study as it was a way to identify healthcare professionals’ perspectives concerning the factors that affect their performance and development. This study also examined how beliefs and philosophical assumptions motivate, influence, and drive the behaviours of healthcare workers in particular moments in their professional life, when there is no time to refer to the instruction manual or protocols particularly when performing under pressure. This narrative approach was an invaluable lens for understanding performance under pressure and illustrates the different levels of complexity including personal, systemic and environmental factors. Furthermore, narrative was particularly useful to highlight these socially constructed phenomena. Dramaturgical analysis builds on this narratological approach to understand how healthcare professionals comprehend the meaning of performing under pressure.
An analysis of participant narratives was performed to examine scenarios, situations and events that could have an impact on health professionals’ performance in time and space. From this analysis, pressure was found to be a predominant factor that affected their professional performance. The analysis of personal (internal) and external (environmental and systemic) factors has helped to elucidate the occurrence understanding of error.

Performances were unpacked individually as well as interactions and dynamics between team members. These were evaluated in different scenarios, where the environmental and systemic interactions occurred and also affected their decision-making and performance, both in controlled and pressured conditions. The analysis showed that healthcare professionals’ journeys went through self-awareness and self-reflection phases as ‘humans with a mission’ as has been described in Pressure (Chapter 5).

Uncertainty was identified by the participants as a trigger of fear which can affect patient outcomes. In addition, participants felt the feared of lack of knowledge or skills when treating a patient, or the adverse effects or complications that could arise from the treatment. Even though fear and anxiety has always been associated with adverse outcomes, fear was also identified as a positive factor to trigger participants to seek help, when their capacity of resolution was reduced, due to the limitations of surrounding conditions, knowledge or expertise.

In this study, healthcare professionals were driven by the satisfaction of fulfilling their role in society. This concept of “pride comes before a fall” is akin to what fear is to embarrassment, as described by Goffman (1959). However, both are conflicting emotions, and as such both operated behind the scenes to support healthcare professionals’ behaviours.
Fear was highlighted, as a common perception, associated with failure and unknown situations.

Health professionals highlighted pressure as a crucial factor which reportedly impacts their performance. First, clinical outcomes will be affected. A clear example of this would be medical facilities such as Emergency Departments and theatre rooms where there is sometimes, insufficient staff. Multitasking has been offered as a solution to this situation; however this does not always function effectively and indeed could be a source of error. Moreover, the multi-causality of errors affecting the outcomes of medical procedures needs also to be considered. Second, when healthcare professionals face specific situations, personal factors come into play. In this situation, health professionals draw on past experiences, knowledge, and expertise, to inform decision-making and performance. Participants highlighted the value and importance of experience in performing their roles properly. Third, the transition from individual to team performance was considered to be a result of pressure, at least in part. During the analysis of the interviews, it was found that although health professionals were individuals, they generally referred to situations and events that involved multiple participants. Pressure changed the way healthcare professionals perceived how they performed their daily activities. Participants presented evidence that demonstrated that their point of view had been modified from individualistic criteria that looked to individual mistakes, to a collective and systemic approach, which embraced the surrounding conditions and factors which affect patients’ clinical outcomes.

This transition was linked to understanding the thinking process required to perform as a team. Therefore, the conceptualisation of teamwork as a method of preventing medical errors emerged. Flexibility and adaptation are key processes within a health professionals’ performance. Teamwork as a strategy was considered to be a source of error reduction,
which embraces and acknowledges the complexity of scenarios and the complex interactions between the environment, systems and human factors in decision-making and performance. As a consequence, pressure was identified by the participants not as a singular event, but as a result of a dynamic compound sequence events and circumstances. Thus, performing under pressure must be understood as a dynamic compound collectively-determined social phenomenon.

As a result of pressure, healthcare professionals also showed their commitment to providing medical attention and they search for the best quality clinical outcome. Health professionals face a changing and uncertain environment; this is part of their continued adaptation process driven by pressure. Health professionals highlighted pressure as one of the coping mechanisms to reinforce their adaptation process to improve clinical outcomes, searching for solutions to maximise the patient’s wellbeing. This mechanism is underpinned by strong philosophical foundations that assist them when there is no time to refer to a procedure manual or when having a choice to put their life at risk to save the patient’s life. This is clearly seen in health professionals (doctors, nurses, paramedics) working under pressure in natural disasters.

7.1 Towards a model for performing under pressure
This study analyses healthcare professional performance in a collective sociological context with the ultimate goals of supporting performance and understanding and therefore preventing errors. In addition, this analysis contributes from a public health point of view to the examination of the healthcare professionals’ performance within complex systems, their adaptation processes and how they identify and define the different sources of pressure in everyday professional practice.
7.2 Bringing the elements together: the underlying metaphors

The narratives allow the researcher to highlight the group interactions and how the elements of performance come together. It was found that participants shifted their perspective from an individual point of view a compound team perspective, which embraced the complexity of the scenarios. In this way, coordination and synchronisation of activities were characteristics of high-performance groups. Moreover, synchronisation encompassed the elements of verbal and non-verbal communication, leadership and teamwork to produce this transition and adaptation processes during their professional activities.

7.2.1 Drama

According to Goffman (1959), the process of staging begins with the perception of reality. It starts with the question: under what circumstances we think an event is real? In this context, the question of what conditions could create a feeling of pressure, and then the definition of pressure itself was expressed by the participants in this current study.

Drama is grouped into the categories of tragedy, comedy, melodrama, and tragicomedy; each is further subdivided by style and content. The essential characteristic of drama is the presentation of the cause to effect explanation, give a clear exposition of the situation, and provide a careful preparation for future events.

The script is what the director producer use as a blueprint to build a production. The writer’s script is the text by which complex theatrical events are realised.

The analysis of human interactions at health facilities (the scenarios) is as follows:

- The Process - Coordination of the representation of events is a process by which work is brought to realisation considering the interactions of the actors (health
professionals’ family members, staff, the professionals and society at large),
(collaborators, administration) that come together in the script or plan.

- The Product - The final product results from all of the labours coming together to
  complete the work in union with all of the collaborators in the process. This is what
  the audience will experience as they sit in the theatre and view the work.

- The Audience - Theatre requires an audience. The physical attendance of an audience
  can change a performance; they can inspire actors and create expectations in players.
  The presence of real actors on the stage in front of the audience sets this type of
  performance apart from modern films and television. For healthcare professionals the
  audience could be peers, managers and society at large healthcare.

However, structural parts of the performance must be identified to understand the analogy
between theatre and performance and working under pressure. A classification of
circumstances must be completed according to places of pressure as follows:

- Front stage - The scenario - this could be a hospital Emergency Department (ED),
  operating theatre, Intensive Care Unit, streets, or natural disaster areas.

- Dramatic realisation - This involves the hidden or underlying elements of individuals
  or organisations under study.

- Idealisation - The appearance of belonging to a particular social class, in this case,
  being part of the class of healthcare professionals.

- Maintenance of expressive control - This is related to self-representation and the
  interaction with the audience, which is subjective. This is why there could be
  misreading of the meaning of the performance, due to the different points of view
  looking at the process. As a consequence, the information transferred to the audience,
as well as the language used in those particular circumstances confers important implications to understanding the performance.

- **Misrepresentation** - Often the audience accepts the signs, which are deployed by the participants, as a reality. However, there are crisis situations when particular information should not be presented to the whole audience, but only needs to be given to some members attempting to restore order.

- **Backstage** - this is where the work takes place, makeup, set design, lighting, rehearsal, costuming, and so forth. It is here “that the capacity of performance to express something beyond itself may be painstakingly fabricated; it is here that illusions and impressions are openly constructed” (Goffman, 1959, p.112). Backstage is described as where ‘the performer can relax, he can drop his front’ (1959; 112). Goffman (1959) considered a part of life that was not on the stage, because of the nature of its behaviours; this region was called backstage. The motivation for the performance often remains hidden from the audience. It can also be a chaotic area where the image of an individual could be raised or destroyed by the public. Even though doctors and violin players demonstrate confidence during their performances cited by Goffman (1959), there could be chaos ‘backstage’. This is how healthcare professionals find themselves performing between two regions: the stage on duty and the backstage off duty. When they are on stage, they collect information as they interact with others in order to make decisions. When backstage, they undertake a debriefing process and search for their philosophic foundations that could offer support to their performance. This can also help them to overcome difficulties and be aware of errors to inform future performances. Health professionals when attending patients follow procedures (scripts); however, under particular circumstances due to time constraints, and pressures in the system, they make challenging decisions, but hopefully always
thinking about patient wellbeing. Healthcare professionals are thinking about the patient’s wellbeing as they apply the universal principles of *Primum non nocer*, or “first, do no harm”, even though sometimes the choice they make involves putting their own life at risk to save another.

Healthcare professionals’ decisions are driven by personal factors. Performing under pressure demands the possibility of getting on the stage when assisting a patient and also going backstage for debriefing, and preparation for the next time they are required to provide.

### 7.2.2 Orchestral models

In order to understand the increasing levels of complexity for medical teams’ performance an analogy to opera and musical drama will be made. This analogy adds different levels of complexity to the dramaturgical analysis as it combines two forms of performing arts; both of which are shown in the theatre, where individuals interact to perform on stage, be it the orchestra playing the music or the actors performing.

An orchestra is a team performing on the stage. It has different components; diverse groups of professionals playing different parts and instruments requiring precision to coordinate their activities. A good example to illustrate synchronisation is the orchestra model, as each member, shows coordination of ideas, thoughts, knowledge, attention and skills at various levels of complexity. Synchronisation also allows the shared understanding of how one piece of music should sound. The rhythm, cadence and tune will come following rehearsals where the leader is able to share his mental representation of the goal. This makes it easier for the orchestra to understand their collective output after rehearsals, as the coordination during the performance improves.
Similar to health professionals achieving this level of synchronisation, musicians in an orchestra undertake a long learning process. The first step in this learning process is when musicians acquire specific competencies during their studies. Part of this individual learning process requires rehearsals and practice. Individual rehearsals are performed systematically and repetitively to help to achieve specific skills. Participants apply specialist knowledge according to what is needed for each of their tasks. Predisposition and perseverance are elements of individual rehearsals. After the phase of being an independent learner, training and rehearsals continue; musicians will go from a purely technical approach to learning how ‘the performance’ should sound and be presented. They will learn to build interactions based on mutual trust between peers and leaders, and at the same time cultivate the individual ability to listen to each other. When the "learning to work together" phase begins, then musicians learn to understand each other in such a way that allows the participants to bring their performance alive on stage. Their rehearsals are the essential breaks that enable the group to grow and consolidate, and get ready to perform as they rehearsed during real-life performances. Rehearsals form a platform from which musicians can work with efficiency and synchronisation. Synchronisation requires coordination. Coordination is required not just between peers, but also by all team members. Following these rehearsals, the orchestra should be ready to play together. The conductor and team leaders have responsibility to lead the coordination between different groups. As a consequence, the rehearsals are vitally important to gain experience and get into the process of learning team work; performance is a collective achievement. It is crucial to comprehend this process, as time for adaptation to produce a coordinated ‘piece of music’ is required. It establishes the importance of interactions with other professionals performing with different instruments. Individual rehearsals culminate in synchronisation of actions among team members. Effective communication among the participants will produce synchronisation between peers in the
The actions of the conductor are a key factor in the performance, as communication, both non-verbal and verbal, is the vehicle for coordination.

Non-verbal communication is a very clear example of how health professionals work in the operating theatre. Participants in this study described non-verbal communication as an efficient form of communication within high-performance groups. The importance of understanding the actions taken in the events described in this study as with music performance lies in the effect on the audience. As in the orchestra model, the words which have not been said have a vital meaning and significance within the group for coordination and accuracy, as well as for the public. Team members recognise this message through the use of non-verbal communication. The interactions and non-verbal communication patterns of the conductor and team members whether orchestra members or healthcare professionals, also improve the performance to a point of balance between individuals and groups; there is an active association to a point: the more rehearsals, the more accurate the performance. However, it is also necessary to understand that rehearsals are not just for the academic and technical skills, but also to help build confidence to listen, understand and learn from peers in the same group and from different groups in an orchestra, as well as on the stage.

In a musical performance, the patterns of non-verbal communication during the production are paramount for both the musicians and the orchestra conductor, who leads that process. The audience’s imagination engages with the coordination sounds communicated. It is about the teamwork interactions and how an orchestra can powerfully coordinate during their performance. The coordination, and motor synchronisation, plus hundreds of hours of rehearsals seem to be the main elements at a precise moment in time. The orchestra performance often elicits a strong emotional response by the group, as well as motivating
each team member. Non-verbal communication is a fundamental part of that process with the final result at the end: a high-quality performance is achieved.

Silence is another form of communication and it signifies respect for members. Silence accounts for a very detailed ability to receive more non-verbal messages which are related to what is being interpreted at a particular time. Silence, also fosters concentration which represents the power to increase attention in the process that is related to the undertaken tasks rather than in external elements, it in turn reduces the risk of human error. Body language guides the performance in the moment of truth. Slight hands, eyes or lip movements indicate that a procedure is in process; there are often crucial moments that will require extra effort to accomplish the task and part of that process requires non-verbal communication skills.

The orchestra’s goal is to deliver a performance in public. The music is the goal. During the performance, the team has only one opportunity to show the product of rehearsals and skills; their performance evidences the coordination between peers and the interactions of a team. Verbal and non-verbal forms of communication are the vehicles for this coordination and thus, recognition of these factors is crucial for the orchestra conductor as it is for the director of a play.

This metaphor theatrical helps to understand various social processes and interactions, differences and similarities between, health professionals and musicians. Medical teams are groups that perform in different scenarios and in different realities, such as emergency departments, ambulances, operating theatres or in rescue manoeuvres in natural disaster events, under pressure in real time. The complexity of scenarios is constantly changing, increasing the difficulty in performance without notification (Groopman, 2007).
Similar to the dynamics of the orchestra, medical teams firstly require knowledge of their individual roles inside of the team, then the knowledge of a particular part of the process and coordination is needed between team members. Both healthcare professionals and musicians in an orchestra need to study for several years at the beginning of their careers. During those years of study, they increase their knowledge of different subjects, learn about theory, and develop different skills. However, the application of the theory into practice is the most difficult part of the process, as they need to learn individually before being a part of a team. Whether the scenario is on a stage or in real life, for health professionals individual skills and knowledge are a prerequisite before undertaking new team challenges. Healthcare professionals study and learn about different procedures which mean that when they complete their studies, they can work effectively in various settings at least to a level of minimal competence. Rehearsals are an important part of the adaptation process performed in a team. Teamwork does not just happen; rather it is the conjunction of many factors, which need to coalesce before a satisfactory performance can be completed. In medicine there are unpredictable situations, just like those that occur in music; these situations could appear at any moment of the performance. As a consequence, participants need to be aware of the changing conditions, and pay particular attention to the cues provided by the team leader. While the number of team members may vary in size in the healthcare team, coordination is essential. The leaders are required to develop deep levels of understanding of the situations they are confronted with. Each leader provides feedback individually to the team members. They share their experience, expertise, knowledge and skills with team members. This sharing builds a sense of situational awareness for the group. People have to learn to be collegial members. Awareness through the process of shared goals with healthcare professionals, as well as for other practitioners in the team, improves performance under life-
threatening conditions, saving lives with synchronised activities. This is the highest goal, and the driver and motivation when undertaking this work.

7.2.3 Health professionals and emergency situations

The participants of this study were interviewed individually and responded with narratives that are related to teamwork performance. This experience of teamwork is fundamental to working environments. A good example of this is the operating theatre where highly coordinated work is performed. A daily surgery program has been previously designed, and possible complications have been formerly examined in order to avoid control the environment or manage possible errors.

Participants showed that they used intuition to respond to unexpected circumstances during their performance. No matter what kind of problem the group faces, teamwork can help to detect errors or avoid mistakes. When healthcare professionals perform under pressure, the script may not be clear. People become anxious, and uncertainty is a common feature before the performance. However, serenity and clarity of mind of each one of the team members needs to be present to produce a performance with the best possible outcome. Improvisation is also seen in medical teams, dealing with unpredictable factors and the complexity of the scenario where knowledge, experience, expertise, abilities, and logical thinking processes significantly shape their response.

In the orchestra performance, a particular part is given to the soloist, who is the leading musician of that moment. When the soloist performs, and delivers a high-quality outcome, the satisfaction of accomplishment is not only for the interpreter, but all the team members as well, as that soloist is representing the group at a specific moment in time. The soloist shows synchronisation of motor skills, knowledge, intuition, and emotional judgment in their
interpretation in musical performance, as well as joining with other musicians as the result of rehearsals and knowledge of how the music should sound. This is the harmonious expression of collective experience, decisions and leadership.

In the Emergency Department or operating theatre, similar roles and team performances are enacted, it is here that the healthcare professionals are working in a synchronised manner, following the procedural manual which describes all the actions that should be done for each of the cases, but always able to add team individuality, flexibility and innovation when called to perform. A certain amount of innovation is beneficial, too much is dangerous. The key is the gap between capability and the scenario.

When analysing the healthcare workers’ performance, the dynamics of the group needs to be examined. The team dynamics are related first to the knowledge of their role within the team, and then to the knowledge of their particular part of the process and the coordination between roles. Healthcare workers interact in changing scenarios, which are unfolding timeline stories under several conditions. These conditions could be modified by variations of the complexity of the scenario which includes personnel, environmental and systemic factors that must all be considered. However, despite efforts to follow scripts, new situations arise as a result of human interactions in different scenarios. The solutions are associated with thinking and decision-making from the previously acquired knowledge and improvisation that may occur in that specific moment. Improvisation is related to how people can find meaning to take actions, based on experience and expertise that performers possess in that particular procedure.

In musical performance, there is one particular situation that could be presented as an analogy of healthcare professionals treating a patient for the first time in a medical facility. This is
called sight-reading. Also, known as prima vista (at first sight), this is reading and performing of a piece of music in musical notation that the musician has not seen before. However, the musician is expected to play or sing the notated rhythms and pitches. Sight-singing is utilised to portray a musician who is sight-reading (Salzer, 1962). According to Smith (2012) the ability to hear the notes on the page is clearly akin to music reading and it should be considered a prerequisite for efficient performance. Egregious errors can occur when a student, analysing a piece of music, is not able to process the notes on the page in a timely manner or with feeling.

Players believe that individual sight-singing is the most thought-provoking between two or more musicians because the musicians (keyboard instruments, guitars, and valved brass instruments, respectively) do not have any keys, frets or valves to help them obtain the correct pitch. However, difficulty is related to the instrument and the piece of music itself. As an example, it is harder to sight-read a polyphonic piece such as for the classical guitar because the guitarist has to read polyrhythm and harmonic passages that can often be played in different positions using different key patterns. The language used for music interpretation is based on a system of symbols (directions, patterns, phrases, chords, rhythmic groupings, themes, inversions or intervals) that are part of the music's theory and also serve to produce music. Music is written in a graphic of five lines and four spaces, where each one represents a different letter, which in turn accounts for a note. There are also clefs which notate the higher or lower registers in the music. When reading music, in order to play it, you need to know the meter, along with a song. The meter is represented by a fraction, which is the song’s time signature. The top number denotes how many beats there are to a measure. The space of the staff in between each vertical line is called a bar. Tempo shows how fast or slow a piece ought to be played. It is often shown at the top of a piece of sheet music along with
terms such as “Largo,” “Allegro” or “Presto” which signify and moderate tempo. The remarkable point here is that using this notation system it is possible to record and pass down highly complex collective performances that retain their integrity even across centuries.

The idea to allocate the event and time lines into a matrix that could examine the story lines of the data, from the current study, derived from this ‘musical’ language by anthology. The conductor’s music score is used as a tool for this analogy, as the music score allows understanding of what different groups in the orchestra are doing at a specific moment of time. The score has its own divisions according to the time set for the music and to identify the order. During the execution, the conductor follows the interactions as dialogues between different groups of the orchestra and the opera players. From this they can see how the musical script is organised and how the musical parts of all the orchestra members interact at a specific moment of time. The conductor of the orchestra reads the musical parts of the musicians and singers in a vertical form. And thus able to understand how the story unfolds.

As an example, Figure 7.1 presents an extract from the music script of Puccini’s opera L’Boheme to show the interactions of the musicians and actors. The orchestra conductor’s music sheet contains both each musical script for each member of the orchestra: violins 1, 2, violas, cellos, wind and percussion, and the musical notes that the opera singer has to follow when they sing.
Figure 7-1 Musical script of L’Boheme (Fisher, 2003)
7.2.4 Performance as a process

There is a pathway that encompasses a learning process from novice to amateur to professional for both healthcare professionals and musicians; however, a fast adaptation process is required when healthcare professionals are performing under pressure.

This learning process requires time and the more time an orchestra rehearse together, the more accurate the central performance undertaken will be. Rehearsals can entrench some errors; however, also things could be over rehearsed. It is important to develop these learning processes when the whole orchestra is in training to introduce a new performance, as each member needs to learn how to work, talk and sound together to produce the right sounds which encompass the music. This sounds easy, and it seems to be the perfect formula; however, several factors could influence the performance. The music players must pay attention to their peers in their particular section, as well as the whole orchestral performance. Play just what the composer wrote, tempo and dynamic. Every group has to listen to others, and they need to get the same feeling of the music they play (Cardew, 1961).

7.3 Teamwork

In the theatre these are called “cues,” are movements that can be translated into strong commands; coded body language. Team members on the stage learn how to develop their patterns of communications, much of which is based on non-verbal forms of communication. The communication itself is a skill that needs to be mastered and polished, not just because of the formal role of communication as we all know and understand it, but learning the power of non-verbal patterns and forms of body language which can bring strength to the performance. Members of the orchestra can reach high levels of non-verbal communication because they
can communicate through glances, delicate hand gestures or moving their body to the beat of the music.

There is also considerable work behind each performance. Behind the scenes, there are typically hours of rehearsals for musicians and actors individually first, and then in groups. Musicians need to improve their memory and gain confidence during the performance. Rehearsals aim to improve understanding of the meaning of working together and playing together. Rehearsals involve extended periods of practice while musicians learn how the music should sound and learn to reproduce the sounds consistently. Another function of the rehearsals is that the players work on communicating, with their peers and between different team members. These interactions need to occur not only between each of the team members of the same area, such as strings, but also later with percussion and wind. Communication between the members is a key factor in the learning process.

The value of long hours of rehearsals, first individually and then with other members of the ensemble cannot be underestimated. It is a key factor in their performance. For example, the conductor marks the rhythm that the orchestra follows. During the sectional rehearsals, the musicians need to get used to the sound of the same group of instruments. Also, as in an orchestra, different groups of instruments play harmoniously with various rhythms, cadence, timing, pulse, sounds and silence because of many hours of rehearsal. The quality of the music presented in a musical performance is thus directly linked to rehearsals and to the intensity, variety, and time, and whether it is performed either individually, conducted with the respective group, or as a dress rehearsal. This mixture of sounds makes the difference between different performances. It is crucial therefore, that the group work together to build coordination between each of the team members as well as within the group.
Healthcare professionals and musicians go through a parallel learning process, at the beginning acquiring individual skills and performed under controlled conditions when health professionals are studying the undergraduate courses related to medicine (medicine, nursing, and paramedics) and musicians at the conservatorium. However, it was also identified that health professionals of this study performed their medical roles under no controlled conditions and due the complexity of scenarios under uncertainty, their ability to adapt becomes a requirement to perform under those conditions. This adaptation process influences how a given situation is understood and how a decision could modify performance in real time. This is the reason why performing under pressure should be considered a skill rather than a problem. This skill allows healthcare professionals to search for efficient pathways to improve the quality of healthcare through the decisions they make, in emergency situations. Also, this problem-solving ability enables the individual or the team to find solutions from different perspectives; such views highlight the duty of health professionals to do what others are not willing to do when they regularly make significant decisions and take responsibility.

One of the challenges in modern medicine is that doctors are trained to be soloists not team players. As a consequence, after developing individual skills and competences, it is mandatory to develop skills to perform in teams when professionals are under pressure. Shared awareness is also paramount to develop a mechanism to preserve their integrity as a group. This approach is to overcome the potential of threats and challenges as well as possible adverse effects and complications with patients.

Healthcare professionals consider doing their work even when nobody wants to do it. This is associated with the singularities and complexity of the situations and scenarios they are
facing. Different circumstances and situations with patients’ cases in various scenarios require different thinking processes and a variety of problem-solving approaches. Nevertheless, a unique situation requires a unique solution; this solution could be coupled with similar experiences, underpinned by standard procedures.

7.4 The complexity of the healthcare system

When answering the question of what performing under pressure for health care professionals is, the researcher found a way of explaining the phenomena of performing under pressure through a metaphor of how health professional and musicians follow almost the same pathway when acquiring knowledge and practicing the skills while they are apprentices or novice practitioners. Then, both groups of individuals need to learn other skills, as they began to work in teams; the musicians as a group in the orchestra are showing healthcare professionals an approach of how the orchestra’s teamwork help to understand what performing under normal conditions is like. The metaphor with the orchestra and medical teams’ work when the researcher is discussing coordination, synchronisation and elaborated body language patterns that allow the orchestra to obtain better outcomes. Nevertheless, the outcome of the team work of both groups is different; the orchestra performs to produce music, and if the group fails in a presentation, the orchestra as a group can repeat and improve the performance.

However, the difference between the orchestra and the healthcare system can be accounted by the complexity of the healthcare system, in which related teams perform under pressure in different scenarios. Hence, it is important to consider the complexity of the scenario whether the scenario are large and complex medical facilities, street accidents, or natural disasters, such as floods, volcanic eruptions or epidemics. Healthcare teams performing in dynamic scenarios demand different levels of interactions between the participants; and entails various
levels of complexity. Health professionals in the study described the complexity of their work when performing under pressure as follows: life-threatening conditions are complex; complex conditions can impact on group performance and team cohesion; there are wider implications of complex and life-threatening conditions in terms of safety, logistics, teamwork, facilities, and transportation and so on. Finally, health professionals realised that pressure was eased, when their problem solving capacity was enhanced by including other professionals through teamwork. However, teamwork is also a source of pressure. For example, when team members do not understand the tasks to be performed, as they are unfamiliar with the environment and facilities, or in the absence of sufficient knowledge or experience to perform key tasks.

Decision-making and performance was affected by several factors that contributed to developing the concept of performing under pressure. Participants identified life-threatening patient conditions as one of the common trigger factors in chaotic situations. According to the dramaturgical analysis, it is healthcare professionals’ choice to put their life at risk under pressure to save other people’s lives. A clear example was when paramedics travel at high speed in an ambulance to the closest hospital to save a patient’s life. They acknowledge that their capacity of resolution of the case has reached the highest level and their decision-making and performance are moving toward a team approach in their search for help. As a consequence, their problem-solving processes explained in the narratives showed the interaction of knowledge, experience and intuition. Even though health professionals have already learned to live in uncertainty and dynamic environments; healthcare systems must be designed to assist health professionals to cope and adapt to the working conditions.
7.5 Performative matrix

After data collection, the researcher needed to document complex, dynamic high pressure scenarios. Music provides the basis for a rich and robust system of notation for recording complex, dynamic, multiple parts events, (including their affective overlay) and as one of the performing arts, it is well suited to being adapted to study performance under pressure. The purpose of this model was to document all the performative elements together and thereby to create a unified record of team events. Moreover, following events the matrix can be used to audit and generate opportunities for more research. For management, the performative matrix can be used to plan services and work plans.

The performative matrix is a model that documents complex and dynamic team interactions in detail. The performative matrix is synchronised organised records of scenario-based events in a timeframe; wherein the actors execute a performance over a defined time period in response to an unfolding scenario.

The model allows the identification of critical points of individual and collective interactions when performing different procedures during daily activities. The changing scenarios shape varying levels of interactions between the participants during their day-to-day operations. In these situations, healthcare professionals are dealing with different levels of complexity related to the patients’ illnesses and the scenarios characteristics. One patient case may resemble another, however, it is dissimilar in regards to the surrounding context, circumstances and scenarios. An example would be an Emergency Department that is a place that functions in several forms according to the different levels of complexity related to the individual who is performing, the systems, patients’ illness severity and scenarios.
7.6 The elements of the matrix

The key elements of the performative matrix are the participants’ narratives illustrated as storylines, and the events which are described in scenarios. These different parts of the dramaturgical analysis were incorporated into the matrix. The story line is integrated to a situation given a particular context, on a timeframe to set the script. The interactions between healthcare professionals with their roles enable the development of a matrix that highlights and analyses critical points of interactions between the actors (health professionals, audience, staff, and patients). It considers what the focus of the study is: an event, for example, is a professional timeline to examine the number and quality of interactions between other health professionals and the outcomes of the procedures performed in that scenario. This matrix could also focus on how a medical facility allocates different services and the number of professionals and staff who are required to perform in a particular moment in time. The construction of the Performative matrix see Appendix 1 and the Scripts for building the example in Appendix 2. A generic version of the matrix is shown in Figure 7.2.
7.7 Characteristics of the matrix

The matrix has the following features:

- The incident has a beginning, and the case unfolds along a time until resolution. Interactions between the actors and scenarios are explicitly chronicled.

- Dynamic and complex events can be reduced into standardised records. Here, simultaneous events can be organised with different timelines into a single storyline and prioritisation produces the chronological organisation of actions.

- The matrix has different performative elements: An event, a patient or practitioner’s storyline, an outbreak, natural disaster, or an institution: medical facilities with different levels of complexity according to the number of services that they would provide, theatre room, emergency department, clinical wards, intensive care units, for example.

- The patient timeline is at the centre of the matrix through the organisation of scenarios and timelines of healthcare professionals. The arrows of the timeline indicate that this matrix shows only a segment of the patient timeline registering the interactions of the actors in different scenarios, within specific conditions, that tailor the clinical outcomes. The matrix is an amplification of events and interactions of the experience of the actors; as such real actions are registered on medical records. However, the interactions and perceptions of actors (healthcare professionals, patients, and the audience) are not always registered.

- The matrix emphasises the importance of timing, as the entire matrix is centred to allocate the events in specific time frames, as well as the actors and specific circumstances and interactions.
• Communication is a vehicle to achieve coordination between the various elements of performance. This communication could be verbal or non-verbal, as silence is also considered an important form of communication.

• The matrix registers and maps the critical points in a retrospective form, the situations and specific circumstances where healthcare professionals have had problems and where the results were not satisfactory.

• The matrix visually documents and helps to analyse the different characteristics of the given complexity in diverse scenarios. It shows how simultaneous interactions occur in real time. This helps to demonstrate the dynamics between healthcare professionals, while performing in standard, as well as, under difficult circumstances. It is also an important way to highlight the coordination of interactions in several places and under specific circumstances and the collective nature of healthcare teams-based and across simultaneous cases.

• The matrix is a record of team performance, based on health professionals’ interactions and patient records.

7.8 Applying performative matrix

The performative matrix is systematic record of complex and. The prioritisation of events allows the identification of critical interactions of individual and collective performance in different procedures during daily activities including pressure points and errors. The performative matrix allows the integration of multiple timelines around a single timeline (patient, event, system, service) through the synchronisation of actions.

A dramaturgical analysis was undertaken in this current study to analyse the medical teams’ performances. The performance unfolded through the interactions of doctors, nurses and paramedics in groups of two or three working in ambulances, emergency departments, theatre
rooms, intensive care units and teams in response to natural disasters. All teams described scenarios where they were required to perform under pressure. Pressure was defined by the participants not as a singular event, but as the result of a sequence of compound events and circumstances that fluctuate in time. As a consequence, performing under pressure must be understood as a dynamic compound collectively-determined social phenomenon. However, because of the capacity to catalyse and modulate performance during procedures, this characteristic could also help individuals to strengthen themselves and to overcome challenges which under life-threatening conditions could make his or her work more difficult.

The medical professionals in this study also searched for safety and looked for the best possible outcome for both the patients and team members. Their motivation to perform is underpinned by their passion and professionalism towards their work that brought them the opportunity to maximise the welfare of human beings when there was no time to refer to a manual or working in a scenario for which no manual has yet been written. This motivation is based on their understanding of their mission as healthcare professionals; their beliefs and professional code. This gave them a framework to overcome difficulty and achieve their objectives. These objectives are underpinned by their personal philosophy and beliefs. Personal philosophy and beliefs operate behind the scenes to drive their performance. For example, satisfaction of accomplishment and pride and fear and embarrassment the most common emotions discussed by Goffman (1959). These factors finely tuned the balance between professional performance and behaviour and were observed when healthcare professionals were performing under pressure in particular situations where patients’ lives where threatened.
Illustrated in Appendix 1 is the following plot line for three patients involved in an accident on the main road near the centre of a city is described by C30MED. Each ‘Act’ is unpacked to reveal the participants and their interactions as they ‘perform’ under pressure.

7.9 Summary

These chapters examined performance under pressure as experienced by healthcare professionals in Ecuador. An emic approach was used which allowed professionals to identify and describe pressure in their own words. Pressure was not experienced as a singular event but was reportedly the result of a sequence of compound events and circumstances. As a consequence, performing under pressure must be understood as a dynamic, compound, collectively-determined, social phenomenon. Health professionals explained that they felt pressure in almost every situation, not only in their professional life, but also in their personal life. In most regards, at least some level of pressure is considered to be the status quo. The pressure may not even be recognised as a problem, but is simply assumed to be part of the job. Pressure for healthcare professionals was typically related to uncertainty in their daily activities. Pressure was associated with the number of patients and the severity of the illnesses that health professionals were called on to attend, time constraints, the environment, and teamwork. Performance can be improved by teamwork. However, individual factors, severity of patient’s illness and the systemic conditions can contribute to risk and compromise patient, team or personal-safety in highly pressured scenarios.
7.10 Strengths and limitations

7.10.1 Study strengths

This study presents a unique approach to the analysis of team performance in medical settings under pressure. The proposed performative matrix has assisted in capturing different realities generating an efficient but powerful model that can be applied to different conditions and situations: documenting scenarios and systems, researching performance, planning services and auditing errors. This model has value for human resource management, clinical management and medical training as it both identifies human factors in performance management and critical points in performance. In a retrospective form, it can help to identify skills that need to be developed and as a theoretical model, offers the potential for risk management in crisis situations.

This research was immersed in the rich data collected from extensive field work. Data collection and the initial transcriptions of the interviews were in Spanish and later translated into English. The strategic purposive sampling was done based on the researcher’s familiarity with the medical facilities and environment in Ecuador. An approach informed by the use of Grounded Theory, allowed the researcher to search for and model improvements for the analysis and improvements of the quality of healthcare systems.

However, there is scope for this model to be developed from a template in Excel™ or other software to monitor the whole performance of a health system in a single document. The model made it possible to establish a relationship between clinical outcomes, procedures and performance of healthcare professionals in a variety of scenarios.
7.10.2 Study limitations

There are some limitations to this study which need to be acknowledged. Even though there was diversity in the sample through the data collection from the four geographic regions of Ecuador, restricting the data collection to one country raises questions about the generalisation of the findings. There were limitations in interviewing in Spanish and then translating into English. The translations of the entire interview took time, as the researcher had to translate and maintain the original expressions without as far as possible changing in their meaning. The researcher’s own medical background could also be perceived as a bias in maintaining positioning as an observer. However, the established protocol for data collection, the diverse scenarios, professional voices and the robust analysis of the data, helped to produce a broadly applicable model.

7.11 Recommendations

The use of the ‘performative matrix’ allows leaders or team managers to consider events in real time and to review and determine the strengths and weaknesses of healthcare systems especially where people are working under pressure. This can be used to analyse reinforce or correct the different actions in procedures taken by health professionals by always considering the possibilities of separate occurrences of a new event and possible consequences. This particular lens has helped to enrich the analysis of events by strengthening the outcome of a coordinated system rather than treating them as simply errors of individual workers. However, the model can also be used to facilitate the evolution of procedures and systems retrospectively. Once the situation and interactions have been impacted and the critical points highlighted, team leaders can revise procedures to strengthen teamwork or correct inconsistencies.
The performance matrix can be used as a tool to identify critical points that may be problematic. The analysis takes into account the entire context in which the events have occurred. The approach helps to determine how well the healthcare professionals and the system have adapted and to coordinate them more effectively in order to implement quality healthcare services.

The identification of critical points before, during and after the performance as a retrospective activity is paramount for success. Systems analysis of pressure points can help to improve the results, as sectional leaders can plan and implement more rehearsals to strive to improve the execution of tasks and procedures. Moreover, this approach will enhance the effectiveness of performance in real time. In the same way, leaders of medical areas can train team members in critical procedures.

7.12 Future directions
The healthcare system in Ecuador, as well as around the world are expected to make sure that health professionals respond with coordinated interventions in timely manner both controlled and crisis situations to meet population needs.

The healthcare system needs to be resilient and flexible to meet the health challenges. It is essential to have the capacity to respond to normal and crisis situations. The challenge for the healthcare system and health professionals is to optimise responses in crisis in natural disasters such as, earthquakes, floods and earthquakes. The healthcare system needs to be ready to meet the threat of climate change, mosquito-borne diseases, and other infectious diseases, as well as, to face chronic conditions and their consequences. There is an urgent need to focus the attention on healthcare professionals and prepare them to cope with
the pressure related to such events. It is also necessary to strengthen the national and regional teams to build capacity, as well as self-sufficiency in responding to crisis events.

The participants referred the following actions when they faced a situation after a patient have died. They made a reflexion of what they have done during the event, first they considered: Were their actions according to the procedures? Did they give all of their knowledge, skills and time to help that patient? Also, some of them referred they needed support after the event, first from their family; second from their peers; and from the hospital, when they performed under pressure. They asked to talk to managers to provide feedback, and when they know about their weaknesses. In consequence, they could establish an action plan and work to improve the outcomes the next time the professional would be on the same situation. Even though, there is support is it not enough, as these situations increased in numbers during the last years. There must be psychological support to the health professionals, as soon as they face these situations and would require professional help to overcome the feelings of sorrow or guilty. In addition, there must be established a calendar for healthcare professionals to visit a counsellor at least every six months, when health professionals are at risk, in order to prevent the syndrome of the second victim, or post-traumatic stress disorder.

The strength of a healthcare system is based on resilient and well-trained health professionals; without them; no country would have the capacity to meet crisis events. It is vital for governments to work with their populations, and engage community and healthcare leaders to be the first to the scene of any emergency or crisis events. Here the necessity is to train medical teams that work effectively with synchronisation and are able to resist and cope with the pressure generated in such unpredictable circumstances. Then the need is to train
healthcare professionals not just to perform in controlled situations, but also with well-trained personnel in self-sufficient teams in response to crisis events.

More research is needed to study the complexity of high-performing teams and establish the patterns of social interactions and improve the vehicles of communication and coordination between team members. The study of group dynamics when performing common and complex tasks under pressure also needs to continue. Indeed, how can a new member perform quickly and accurately in a team with no pre-existing social interactions? This would be the question that needed to answer.

7.13 Summary

To summarise, forty-five detailed interviews with key professionals were undertaken in diverse locations in Ecuador. Participants described high-pressure scenarios including natural disasters, emergency departments, large and small health facilities, intensive care and operating theatres. Grounded theory was used to develop a model to better understand performance under pressure. An ‘emic’ approach was used to understand ‘pressure’: namely, participants described scenarios where they experienced ‘pressure’. Broad interacting classes of factors contributing to ‘pressure’ were identified. Using an adapted dramaturgical analysis, a ‘performative matrix’ was developed to help deepen our understanding of performance under pressure as a dynamic, collectively-determined social phenomenon shaped by (1) facilities and systems (staging, props); (2) teams and personnel (roles and actors), and (3) case complexity (plots and storylines).

Rather than capturing a static view of individuals and outcomes, performance is understood as a complex unfolding collective drama. In addition to deepening our understanding of performance under pressure in healthcare, the performative matrix offers great potential as an
efficient way to document, research, plan and evaluate performance in a wide variety of critical situations.
Appendices

Appendix 1 How to build a matrix

- First, determine if it is a retrospective study or if it is for planning human resources for an event or particular medical facility. However, in both cases, the outcomes must be established. In the following example, the story we are going to follow is a patient’s story, and thus the scenarios are related to the places that the patient went after the accident. The interactions with health professionals are what are going to be examined in a specific moment in time.

![Figure 7.3 Setting the matrix, the elements](image)

**Scenario:** car accident

**The cast:** the actors

Patient timeline that shows the specific time that the event commenced in this case 10:26 am in a Saturday morning
Figure 7.4 Setting the matrix, the elements, the acts, scenes, actors, time line.

- Second, set the scenario which must include the timeframes of the actors. Answer the questions: What story are you telling? What point of view is your focus?
Third, establish the interactions between the health professionals to determine the critical points and outcomes of those interactions.

Here the matrix contains in the form of comments the information at the Modal bar, Performance and Dialogue areas.

Figure 7.5 Setting the matrix modal bar, performance and dialogue areas.
Figure 7.6 Overview (plot) and Critical points
Then each one of the scenarios with scenes and elements will tell the story if the focus of the health professional changes. This could help to understand the dynamics of the team interactions.

Figure 7.7 Represents the matrix from the health professional’s point of view the matrix would be represented as follows. Multiple events can be handled simply by aligning the timelines, which is especially useful when staff manage more than one case at a time or when the analysis is focussed on an entire service.

*Figure 7.7 Representation of performative matrix with several patients*
Performance is related to the script, the settings, stage, and enactment of the organisation.

The scripts are part of how the actors or participants are involved in the decision-making during the execution of the task. On the other hand, the settings are the external environment where the participants develop their actions; this environment affects the concept of the performance of the process. It could also shape the interactions which identify the staging.

The analysis of the interactions must be done using the dramaturgical analysis step by step.
Appendix 2 Scripts for matrix building

<table>
<thead>
<tr>
<th>Act 1 Pre-hospital</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scene 1 The event (The accident)</td>
<td></td>
</tr>
</tbody>
</table>

**Actors and roles**

People involved in the car accident Patient 1, Patient 2 and Patient 3
Paramedic 1
Ambulance driver
Phone operator (paramedic)
Paramedic 2
Audience (family, people near the car accident)

**Plot**

An observer has called the emergency services because of a car accident in front of his house. The call is answered by a paramedic who asked for the address and the accident conditions; the phone operator organises the ambulance that is going to the area according to the number of victims. Meanwhile, the phone operator maintains contact with the observers and asks them to wait and look out for potential problems that could appear such as a spill of gas/oil and the possibility of fire. Also, the phone operator determines if the police and firefighters are required according to their evaluation of the complexity of the situation.

**Patient 1, 2 and 3**

- Patients required evaluation by the paramedics.

**Phone operator (paramedic)**

- The paramedic received the phone call and directed the first ambulance to the address provided by the observer, as well as talking to the observer and asking him to get calm and asking for more information to make a decision.

**Paramedic 2**

- The paramedics received the information and go to place of the accident as fast as they could.
Act 1 Pre-hospital

Scene 2 First response

Actors and roles

Patient 1, Patient 2 and Patient 3
Paramedic 1
Ambulance driver
Phone operator (paramedic)
Paramedic 2
Audience (family, people near the car accident)

Plot

The ambulance team arrives, evaluates the situation for safety, collects information concerning the incident with the patient, and evaluates the patients’ condition and make decisions regarding the clinical status. After the first evaluation, the ambulance team will send a message by radio to help them to allocate the closest medical facility.

Patient 1, 2 and 3

- Patients required evaluation by the paramedics.

Paramedic 1

- The paramedic is doing the first evaluation of the number of victims, the risk for the whole operation, and while he is doing the first and fast evaluation he ask the second paramedic to call and search for help as there are three persons in this car accident and needed, the police and firefighters due the car is a hazard for the neighbours.

Paramedic 2

- The paramedic is calling to the phone operator, asking for more ambulances to transport the patients and collaboration with other services to avoid other problems.
Act 1 Pre-hospital

Scene 3 Ambulance

**Actors and roles**

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>The patient is at the ambulance</td>
</tr>
<tr>
<td>Paramedic 1</td>
<td>The paramedic is at the back of the ambulance controlling vital signs</td>
</tr>
<tr>
<td>Paramedic 2</td>
<td>The paramedic 2 is driving the ambulance</td>
</tr>
</tbody>
</table>

**Plot**

This team investigates whether any further level of attention is required acknowledging the patient's medical condition. The purpose of this first fast evaluation is to provide elements for decision-making and prepare the hospital’s team, as they know that the ambulance will arrive there in a few minutes. The hospital based group organises all the human resources, equipment and materials to assist the patient, according to the description, and the diagnosis provided by radio. When they arrive at the hospital with a patient in a critical condition, they consider time constraints, and they extend themselves to their limits to obtain a positive outcome for the patient. This clinical outcome centres on preserving the patient’s life and maintaining patient safety. They often make a choice which can set their life at risk when they are speeding with the ambulance to the closest medical facility that would be available to help the patient.
Healthcare professionals face many confronting situations, different medical conditions and situations, as they interact with the patient in a critical condition. However, they arrive with the patient in a critical condition, but alive (pride) as it is their primary goal. However, if the patient passed away on the way to, there is sadness, and the sorrow of losing the battle against death (embarrassment) is there.

**Debriefing** is part of an internal examination of the thoughts of the paramedic; ambulance driver and phone operator. The first team leaves the emergency department with a sense of relief and fulfilment of their duty for humanity. As a consequence, this allows them to continue with their work during that shift feeling satisfied (pride). The ambulance based team embrace and assess the complexity of each scenario, the patient's complexity and personal issues at the same time. There is a sense of unpredictability from the time a patient is transported to the nearest medical facility. This uncertainty needs to be considered even more closely when in situations during natural disasters, or accidents on roads or rural and remote areas. Healthcare professionals need to quickly adapt the process to new situations to preserve the patient, team members and their own life.
Act 2 At the hospital

Scene 4 At the emergency department

Actors and roles
Patient 1, Patient 2 and Patient 3
Paramedic 1
Ambulance driver
Phone operator (paramedic)
Medical doctor 1
Nurse 1
Surgeon 1
Surgeon 2
Supportive staff
Audience (family, supportive staff, other healthcare professionals, managers)

Plot
As the patient arrives, the team (doctor, nurses and paramedics) meet to receive the patient. It is a crucial moment as the team which is in charge at the hospital receives and continues assisting the patient, making decisions and undertaking actions to preserve the patient’s life. Next, the hospital-based team will execute decisions based on the information given by the first team who experienced the original scenario, where the medical incident occurred first. The ambulance team will have provided a detailed description to assist the understanding of the patient’s situation, and this enables the hospital team to continue the assessment and patient’s evaluation and to begin their treatment following the established procedures for the diagnostic assumption they have made at that moment. The team members at the hospital collect data from the observation of signs and symptoms, the data from the instruments, and information gathered from the family or witnesses all of which helps the team to develop the first diagnostic which is the guiding light for this part of the journey. It is important that the team work with the arriving paramedics follow the establish procedures for the given situations.

Patient 1
- At the emergency department, patient 1 requires evaluation by a surgeon as he has abdominal trauma. After the clinical assessment, the doctors decide to send the patient to the theatre room and so need to prepare the blood for transfusion to stabilise the patient.

Patient 2
- Patient 2 is examined and multiple trauma tests and observation are required after the first assessment. Patient 2 is then sent for observation due to a head trauma after the accident. After eight hours of evaluation every thirty minutes using the Glasgow scale, the patient is conscious. The patient remains under observation for twelve more hours and can go home if there is no change in the clinical condition. Subsequently, Patient 2 is discharged home.
<table>
<thead>
<tr>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Patient 3 passed away at the emergency department. He arrived at the emergency department in a very unstable condition, he could not survive.</td>
</tr>
</tbody>
</table>
Act 2 At the hospital

Scene 5 At the theatre room

Patient 1

Actors and roles

Patient 1
Surgeon 1
Surgeon 2
Anaesthesiologist
Nurse 1
Nurse 2
Support staff

Plot

As soon as, the surgeon has made the decision to perform surgery, the message is immediately sent to the theatre room to prepare. The scenario needs to be set according to the nature of the procedures, in this case for an abdominal procedure. Nurses and supportive staff are in charge of the setting up the scenario at the operating room ready for the surgery. Patient 1 is sent from the emergency department to the theatre room ready for the surgical procedure. The medical records should contain all the information up to that moment and decisions that have been taken considering the patient condition.

Patient 1

- The patient arrives at the area and is received by the support staff who will prepare the patient according to the procedures and bring the patient to the operating room.

Doctors and nurses

- Meanwhile, the nurses and doctors prepare themselves for the performance. The anaesthesiologist and nurse begin the process, and two surgeons are ready to open the abdomen using laparoscopic instruments.

Supporting staff

- However, something happens to the equipment, and even though everything was ready, the unexpected happens, and the patient has to be moved to a new theatre; the supporting staff help to move the equipment to continue with the procedure.

Anaesthesiologist and Nurse

- The patient requires medication and blood during the procedure, which lasts two hours. The cause of the bleeding is identified, and the hemodynamic instability of the patient is solved.
Nurse and supporting staff

- The patient is transferred to the recovery room and after the surgery a nurse will be there to assist the patient. The doctor who performed the surgery will be there as well, to make sure the patient is in a stable condition before the patient is sent to the clinical ward.
### Scene 6 Going home

#### Actors and roles

<table>
<thead>
<tr>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
</tr>
<tr>
<td>Medical doctor 4</td>
</tr>
<tr>
<td>Nurse 4</td>
</tr>
</tbody>
</table>

#### Plot

Here, there are interactions with nurses of the area, as well as the medical doctor that perform the surgery and discharge the patient home with indications.

#### Patient 1

The patient is discharged home several days after surgery.

#### Medical doctor 4

The doctor examined the patient and determine that the patient can be discharged.

#### Nurse 4

The nurse according protocols inform the patient and help the patient to understand and how to follow the indications of the medical doctor.
The backstage of the teams Act 2

**Actors**
- Medical doctors at emergency department
- Nurses emergency department
- Medical doctors at theatre room
- Nurses at theatre room
- Nurses at wards

**Plot**
Timing and precision of the sequence of events must be considered in the evaluation of patient outcomes. Additionally, an exact coordination of actions is a significant factor that needs to be highlighted and emphasised here. These are all fundamental elements of decision-making and performance. Adverse outcomes and errors are more likely to occur when a person is performing under pressure. Health professionals acknowledge that each patient is unique, and also requires specific treatment. Although the pathology presented by the patient could be similar to another patient, the conditions surrounding the patient, and at the same time for professional, vary. As a consequence, the decisions taken or to be taken can also change with the circumstances. Different circumstances or a variety of scenarios can make a common procedure into a unique situation. Even things that have been done several times can appear to be something new because of the changing scenarios, interactions and circumstances between them and because it is different from all the experiences that an individual has had before. This presents challenges in a decision-making process under pressure. Some healthcare professionals will apply their solving problem ability mainly based on procedures; however, others would draw on their experience, or what is perceived as common sense. This is also called an intuition based-solution, a speculation of how things should be done.
## Appendix 3 Participants code Highland

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Years of experience</th>
<th>Province</th>
<th>Profession</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>M</td>
<td>18</td>
<td>Tungurahua</td>
<td>Paramedic</td>
<td>M43H-PAR</td>
</tr>
<tr>
<td>37</td>
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<td>10</td>
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## Appendix 4 Participants for the Coast and Galapagos Islands

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Appendix 6 Interview guide

Interview Guide: Clinical Decision-Making under Pressured Situations

PhD Student: Alicia Zavala Calahorrano

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<td>Opening Question:</td>
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<td>What are the different factors that affect clinical decision making when working under pressure in Emergency areas?</td>
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<th>A. Complete check list</th>
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<tr>
<td>My name is Alicia Zavala and I am doing research for the Griffith University on Clinical Decision making under pressure at emergency departments.</td>
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<tr>
<td>This interview will explore: What are the different factors that affect clinical decision making when working under pressure in Emergency areas?</td>
</tr>
<tr>
<td>We will protect your privacy, because we know that information will be more accurate when you know your privacy is safe.</td>
</tr>
<tr>
<td>The reports we produce will only use general information, in identifying details are required and you are free to use a false name.</td>
</tr>
<tr>
<td>You can answer in any way you want, you can refuse to answer any question and you can withdraw from the interview at any time.</td>
</tr>
<tr>
<td>We need to record the interview so that we can do our analysis, but you can ask us to stop the recording at any point.</td>
</tr>
<tr>
<td>If you are happy with the arrangements, please sign the consent form and we will get started.</td>
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Why is the research being conducted?

This study aims to better understand how clinicians make decisions while working under pressure.

What you will be asked to do

Staff working in emergency departments will be invited to have a one-on-one interview to share their ideas, knowledge and experience regarding decision-making in the Emergency Department, particularly when working under pressure. Interview is expected to last for around 30-60 minutes. The interview will be recorded for accuracy and the recording will be de-identified, transcribed and translated into English for analysis.

The basis by which participants will be selected or screened

- Staff working in Emergency Departments of Hospitals in Ecuador will be eligible to participate.
- Only staff that volunteer freely and give full informed consent will be interviewed.

The expected benefits of the research
The aim of this study is to establish a clear and detailed understanding of clinical decision-making by staff when working under pressure. Understanding how decisions are made by staff working under pressure will assist healthcare workers, healthcare providers and greatly improve patient outcomes.

**Risks to you**

You will be talking about clinical decision-making while you are under pressure. If you find the interview stressful, the interview can be stopped and/or rescheduled depending on what you wish to do. If the interview raises issues that you need to explore further, we can refer you for counselling and support.

**Your confidentiality**

The interview will be recorded and all interviews will be de-identified and transcribed. You are also free to use a false name. The researchers will have access to the de-identified transcripts of the interviews. As required by Griffith University, all audio recordings will be erased after transcription. However, de-identified interview transcripts and analysis will be retained in a locked cabinet and/or a password protected electronic file at Griffith University for a period of five years before being destroyed.

**Your participation is voluntary**

Participation in this research is voluntary. You are free to withdraw at any point, before, during or after the interview by contacting the researcher. If you wish, any information that has already been collected will be destroyed and will not be used.

**Questions / further information**

For additional information about the project, contact:

**Professor Gary Day** School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: g.day@griffith.edu.au

**Professor Anita Bamford-Wade** Gold Coast University Hospital. School of Nursing and Midwifery, Griffith University Email: Anita.Bamford-Wade@health.qld.gov.au

**Professor David Plummer AM** School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: d.plummer@griffith.edu.au

**Alicia Zavala Calahorrano** MD, MSc School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: alicia.zavalacalahorrano@griffithuni.edu.au
The ethical conduct of this research

This research is being conducted in accordance with the *National Statement on Ethical Conduct in Human Research.* If you have any concerns or complaints about the ethical conduct of the research project they should contact Griffith University Manager, Research Ethics on (+617) 3735 4375 or research-ethics@griffith.edu.au. The research project has been granted ethics approval (MED/05/15/HREC). This approval number should be used in any correspondence with the Manager – Research Ethics.

Feedback to you

At the completion of the study a summary of the findings will be made available to participants through a seminar. Findings will also be published in research journals.

Privacy Statement – disclosure

The conduct of this research involves the collection, access and/or use of your de-identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University’s Privacy Plan at http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan or telephone (+617) 3735 4375.”
Appendix 8 Information sheet in Spanish

Decisiones medicas tomadas en situaciones criticas

INFORMACION

Professor Gary Day. School of Medicine, Griffith University. Menzies Health Research Institute QLD.
Email: g.day@griffith.edu.au

Professor Anita Bamford-Wade. Gold Coast University Hospital. School of Nursing and Midwifery, Griffith
University Email: Anita.Bamford-Wade@health.qld.gov.au

Professor David Plummer AM School of Medicine, Griffith University Menzies Health Research Institute
QLD. Email: d.plummer@griffith.edu.au

Alicia Zavala Calahorrano MD, MSc School of Medicine, Griffith University Menzies Health Research
Institute QLD. Email: alicia.zavalacalahorrano@griffithuni.edu.au

¿Para que esta investigación está siendo realizada?

El objetivo de este estudio es entender como los profesionales de la salud toman decisiones médicas cuando se encuentran en situaciones críticas.

¿Qué es lo que se le pedirá que usted haga?

Personal médico (médicos, enfermeras, paramédicos) que se encuentren laborando en departamentos de emergencia, terapia intensiva, sala de operaciones, áreas de cuidado post-quirúrgico, servicios de emergencia en ambulancias, especialmente en situaciones en la que se trabaja en situaciones críticas. La entrevista está prevista que dure entre 30 a 60 minutos, la misma que será grabada para fidelidad de los datos, decodificada, trascrita y traducida al Inglés para ser analizada.

Los participantes serán seleccionados bajo los siguientes criterios:

- Personal que trabaje en departamentos de emergencia, terapia intensiva, sala de operaciones, áreas de cuidado post-quirúrgico, servicios de emergencia en ambulancias de hospitales en el territorio Ecuatoriano pueden ser seleccionados para participar.

- Solamente los participantes que libre y voluntariamente den su total consentimiento para ser entrevistados podrán participar y ser entrevistados.
Los beneficios que se esperan de la Investigación

El objetivo de este estudio es establecer un claro y detallado conocimiento de las decisiones médicas tomadas en condiciones críticas. El conocimiento de cómo los profesionales de la salud toman decisiones beneficiara al personal médico y ayudara a los proveedores de salud a mejorar los resultados de la atención médica.

Los riesgos para usted

Usted hablara sobre el proceso de toma de decisiones médicas en situaciones críticas. Si usted encuentra la entrevista muy estresante, la entrevista puede terminar, o reasignarse otro horario en el que usted esté disponible. Si la entrevista produce alguna situación incómoda para usted, puede acudir a un servicio de consejería y soporte.

Confidencialidad de los datos

La entrevista va a ser grabada y todas las entrevistas decodificadas y trascritas. Usted será también libre de escoger un nombre ficticio o falso. Los investigadores tendrán acceso a las entrevistas trascritas decodificadas. Griffith University requiere que todas las entrevistas grabadas sean borradas luego de que la transcripción sea realizada. Sin embargo, las transcripciones, traducciones y análisis de las entrevistas decodificadas serán guardadas en un gabinete con seguridad y protegidas con una clave electrónica en un banco de memorias en Griffith University por un periodo de 5 años, luego de los cuales serán destruidos.

Su participación es voluntaria

La participación en esta investigación es voluntaria. Usted es libre de abandonar el estudio en cualquier momento durante la entrevista o después de la entrevista contactando al investigador, si usted desea que parte de la información colectada sea destruida y no sea usada.

Preguntas/ Información adicional

Si desea tener información adicional sobre el Proyecto puede contactar:

Professor Gary Day. School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: g.day@griffith.edu.au

Professor Anita Bamford-Wade. Gold Coast University Hospital. School of Nursing and Midwifery, Griffith University Email: Anita.Bamford-Wade@health.qld.gov.au

Professor David Plummer AM. School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: d.plummer@griffith.edu.au

Alicia Zavala Calahorrano. MD, MSc School of Medicine, Griffith University. Menzies Health Research Institute QLD. Email: alicia.zavalacalahorrano@griffithuni.edu.au

Procesos éticos de este estudio

285
This research is being conducted in accordance with the *National Statement on Ethical Conduct in Human Research*. If you have any concerns or complaints about the ethical conduct of the research project they should contact Griffith University Manager, Research Ethics on (+61) 3735 4375 or research-ethics@griffith.edu.au. The research project has been granted ethics approval (MED/05/15/HREC). This approval number should be used in any correspondence with the Manager – Research Ethics.

**Feedback to you**

At the completion of the study a summary of the findings will be made available to participants through a seminar. Findings will also be published in research journals.

**Privacy Statement – disclosure**

The conduct of this research involves the collection, access and/or use of your de-identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University’s Privacy Plan at [http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan](http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan) or telephone (+617) 3735 4375.”
INFORMED CONSENT

I confirm that I have read and understood the information package and in particular have noted that:

- I consent freely, and I agree to participate in the project “Clinical Decision-making Under Pressure”
- I understand that this study will be carried out as described in the attached participant information sheet; I understand that my involvement in this research will include an interview;
- I have had any questions answered to my satisfaction;
- I realise that my participation in this study is voluntary and I will not be questioned if I decide not to participate in the study or withdraw at any stage;
- I understand that there will be no direct benefit to me from my participation in this research;
- I understand that I can contact the research team at any stage of the study if I need more information or have any questions. I realise that the research team will attempt to answer my questions to my satisfaction.
- I understand that all the interviews will be de-identified and I will use a false name if required;

☐ I agree to participate in the project.

☐ I agree to inclusion of my de-identified information in publications or reporting of the results from this research in the project

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Appendix 10 Informed consent form in Spanish

CONSENTIMIENTO INFORMADO

Yo confirma que he leído y entiendo la información que he recibido y resalto los siguientes puntos:

- Yo he consentido en participar libremente en el Proyecto “Decisiones médicas tomadas en situaciones críticas”;
- Yo entiendo que este estudio se llevará a cabo de la manera que se describe en la hoja de información, entiendo que este estudio incluye una entrevista;
- Si yo tengo una pregunta, esta será respondida hasta que no haya ninguna duda;
- Yo entiendo que mi participación es voluntaria, y si decidido no participar o salir del estudio en cualquier momento no habrá cuestionamiento alguno;
- Yo entiendo que no hay un beneficio directo de la participación en este estudio;
- Yo entiendo que puedo contactar en cualquier momento a equipo de investigación si yo necesito más información o se presenten alguna pregunta;
- Yo entiendo que todas las entrevistas se decodificarán y puedo utilizar un nombre falso si fuera requerido;

☐ Yo consiento participar en este proyecto.

☐ Yo consiento la inclusión de mi información decodificada en publicaciones o reportes de resultados de esta investigación en la tesis.

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Quito, 21 de julio de 2015

Señores
Universidad Griffith
Presente

De mi consideración:

Mediante la presente nos complace informar de la aceptación, a la petición realizada por la Dra. Alicia Zavala Calahorrino, con Cl. 1710785056, en referencia a que requiere realizar entrevistas para la realización de su tesis Doctoral, cuyo tema es: “Toma de decisiones médicas bajo presión”. Que tras haberse realizado el análisis, en la sesión de directorio de nuestra organización respecto a nuestra normativa eólica vigente, los participantes firmaran el consentimiento informado de entrega de información para los fines pertinentes a la presente tesis.

La institución prestará la ayuda logística para la realización de las entrevistas a nuestros socios que se encuentran laborando al interior del Sistema médico nacional.

Por la atención brindada a la presente quedo de ustedes muy agradecido.

Atentamente,

Ing. G.J. Cristian Torres
Presidente de la Asociación de Amigos por la Vida.
References


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