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BEST PRACTICES FOR SHARING KNOWLEDGE IN A RADIOTHERAPY SERVICE

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ABSTRACT

The sharing of knowledge is considered a complex phenomenon and recognized as the most important process in the knowledge conversion spiral. Thus, the purpose of this article is to understand the sharing of knowledge in a radiotherapy organization. For this, a qualitative research was carried out through semi-structured interviews with professionals of the multidisciplinary team of a radiotherapy service in Santa Catarina. Data collection took place between February and April 2018. Six professionals participated in the study. To analyze the data, the technique of content analysis was used. Identifying the best environments and practices, it was possible to understand the existing peculiarities that favor the sharing of knowledge and help in the reproducibility of the treatment of cancer patients. The results show that a culture of cooperation and unity favors the interactions between professionals who, in turn, develop expertise more quickly precisely by sharing knowledge intensely.

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INTRODUCTION

According to the World Health Organization (WHO, 2008, p.14) "Incidents of radiation treatment are mainly related to human error." Thus, all the professionals who are part of the multiprofessional team (physicians, nurses, professionals of the radiological techniques, physicists, among others) involved in the radiotherapeutic process must carry out the procedures with caution to guarantee the reproducibility of the treatment in an accurate way. and safe way. The work of the multidisciplinary team is then considered very important by health services and is currently widely established in all spheres of medical practice. Today, treating a patient with radiation successfully requires, in addition to specialized technology, a complex integration between the members that make up the multidisciplinary team.In oncology services, this

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work among the team is vital to the smooth functioning of cancer practice. Quality in radiotherapy is a dynamic concept that needs to be measured and re-evaluated using scientific methods and user feedback. The successful implementation of a quality assurance program in radiotherapy requires experience, training and coordination in a teamwork environment (Papakostidi *et al*., 2014). In addition, the use of knowledge has grown since it is a resource that allows health organizations to plan and optimize their actions to obtain more effective results (Cruz and Ferreira, 2016). Thus, the management of experience, competence and knowledge in relation to work processes and best practices are important (Gider; Ocak, Top, 2015).In many areas of health, knowledge sharing enhances gains, quality of patient care (VON KROGH; KIM; ERDEN, 2008), safety, cost, effectiveness, competition and is key to surviving and thriving in a competitive environment (HINDS, PATTERSON, PFEFFER, 2001), to consider how to share the experience and knowledge of the knowledge holders to the novices. The rapid access of professionals to knowledge within the organization allows them to act quickly and assertively in relation to day-to-day decisions (Pappachan, 2014). However, the literature does not explore how knowledge sharing happens, what practices people use, and how they help align the team's understanding of the factors that involve the treatment of cancer patients. Karamitri *et al*. (2015) conducted an extensive systematic review of the literature on knowledge sharing practices in health settings and concluded that future studies should focus on health contexts in identifying best practices and actions that promote behavioral change of individuals to share knowledge. Vellosso *et al*. (2015) corroborates that the sharing of knowledge influences the behavior of employees working in the health sector and how they provide care to patients. In addition, the medical environments in which doctors and other professionals work together as teams can provide better outcomes for the patient. There are several barriers to team building, mainly related to the challenges of human relationships and personalities. Studies that help evolve into team development can improve the work environment in radiotherapy practices. Therefore, the aim of this research is to understand the sharing of knowledge in a radiotherapy organization.

MATERIALS AND METHODS

This study deals with a qualitative, descriptive research through the collection of empirical data through field research. The research was carried out in a private radiotherapy institution in Florianópolis. The six professionals involved in teletherapy treatment were interviewed: 1 oncologist, 1 physicist, 1 radiology technologist, 1 radiology technician, 1 nurse and 1 dosimetrist. This research was carried out in accordance with Resolution 466/2012, a bioethical instrument that regulates research with human beings (Brasil, 1996) and was approved by the Research Ethics Committee of the State University of Santa Catarina under opinion no. 2,515,806 and protocol number CAAE: 80323517.7.0000.0118.The first stage consisted of bibliographical research, organizing it from searches in theoretical references that deal with the subject, synthesizing and organizing the material found to define the problem to be researched and to demonstrate the importance of the research. In the second stage, the data collection instrument was defined, which consisted of the construction of the questionnaire used in the semi-structured interviews that guided the researcher, composed of 31 questions, 6 for the radiotherapist, 7 for the physicist, 6 for the technologist, 6 for the radiotherapist. the dosimetrist and 6 for the nurse. In the third stage the semi-structured interviews were applied with the participants who agreed to participate in the study. The interviews took place from February to April 2018. The interview process included the previous contact with the research site and the health professionals for a brief presentation of the researcher and the objectives of the research, as well as the scheduling for data collection. Six semi-structured interviews were carried out with 1 oncologist, 1 physicist-physician, 1 radiology technologist, 1 radiology technician, 1 nurse and 1 dosimetrist. In the fourth stage, interviews were analyzed, which lasted from twenty to thirty minutes at the participants' workplace. The research participants are responsible for conducting the teletherapy treatment. The interviews were recorded through audio recording and transcribed in full. With the consent of the participants the speeches were recorded and transcribed speech facilitates the analysis of the statements. To guarantee the confidentiality of the speech, codenames were created to identify each participant as follows: a) Radiotherapist (E1); b) Dosimetrista (E2); c) Nurse in Radiotherapy (E3); d) Technologist in Radiology (E4); e) Technique in Radiotherapy (E5); f) Medical Physician (E6).

For the analysis of the interviews, the content analysis technique of Segundo Bardin (2016) was used, which recommends three steps: a) First stage: pre-analysis: in this stage the material will be prepared for the analysis itself. The data collected will be arranged in a document to achieve a meaningful understanding, aiming to obtain sufficient and representative data to reach the proposed objectives. The information that defines the corpus of analysis and the formulation of the units of analysis will be chosen to establish the final interpretation. b) Second stage: exploration of the material: in this stage the raw data, from the interviews, after being transformed into units of analysis, allowed an exact definition of the characteristics pertinent to the expressed content. c) Third stage: interpretation and discussion of the results: in this stage, we seek to highlight the information of the analysis and to show the final result of the study, the significant and reliable data found, according to the analyzed literature, making possible interpretations by frequency of occurrence. The categories of the research emerged after reading and re-reading the theme, where the guiding themes (categories) emerged from the repetition of the same information by different participants. Finally, the results of the research were validated with the participants using the Delphi technique.

RESULTS AND DISCUSSION

The clinic performs approximately 35 treatments with different types of radiotherapy every day and has a linear 600CD accelerator with energy of 6 MeV of the brand Varian Medical Sistems® equipped with a Microcolimador Multilâmina m3 of the Brainlab® enabling the modeling of beam of high resolution. In addition, the ExacTrac® image-guided radiotherapy system from the manufacturer Brainlab® ensures millimeter accuracy in radiotherapy treatments, cranial radiosurgery, body radiosurgery and hypofractionated treatments with stereotactic location (Silva, 2017). Through the analysis of the participants' discourse in relation to the forms used to share knowledge among the professionals who make up the multidisciplinary team, the following units of

analysis were identified: a) Face to face interactions; b) Biweekly face-to-face meeting; c) Virtual meetings; d) Group in WhatsApp; e) Round tables; and f) Capacities. Figure 1 shows the dynamics between the strategies used by the site studied for knowledge management.

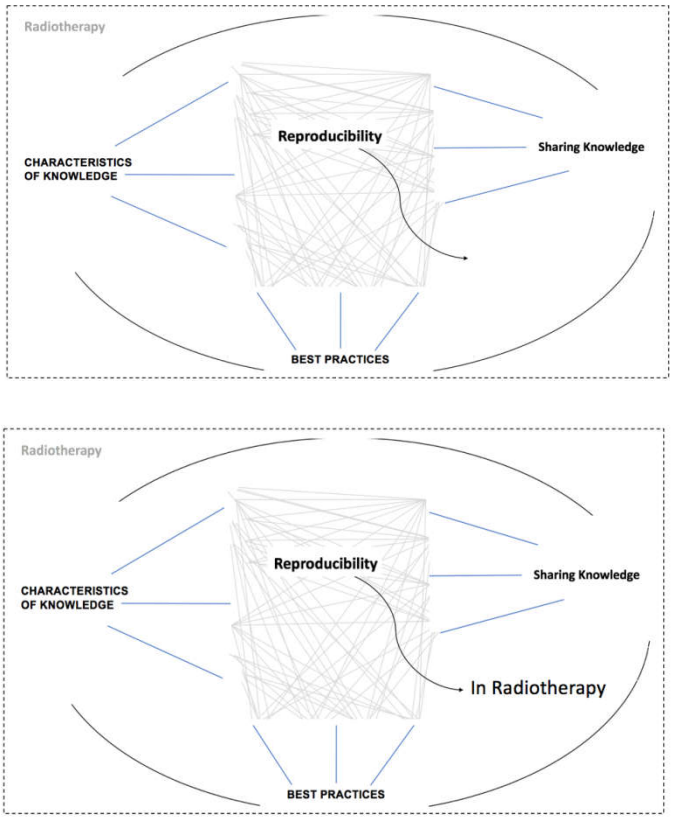

Figure 1. Knowledge Sharing Dynamics

Interactions face to face: interactions carried out during the work routine. According to some interviewees:

"We are always communicating so that everyone speaks the same language. Here in the clinic the legal thing is that there is a pattern, not every one works his way, everyone follows a routine, a pattern. " E4

"I try to use my logical reasoning what is right and what is wrong that has a lot of experimental, the quality controls that we make are measures, are experiments, then there are things that I have to show, I do specific quality control of IMRT of the patients, there I use a film that does not change color when it has light, it only changes when it has radiation, it is a different gelatin. Then this control is used to do the specific quality control of the blades, which I calculated in the planning system, so I'll see if it is feasible what the system has created. If this distribution of isodose is possible. It took me two years to learn how to play the film, it's not an exact science, it's not easy. " E6

Another respondent added:"We are in constant conversation here, we have a good relationship, and any change or anything that is different, that leaves our routine we are always annotating, in several ways, in the file, in the cover page, and always passing one to another or, sometimes, to some note on the agenda, when to call that patient to reinforce, then we always communicate well, like this. "E4

This confirms the research by Wang and Noe (2010) that trust is the result of good relationships and how knowledge sharing is voluntary behavior when there is an adequate organizational environment, interactions are more effective. There was a great commitment on the part of the whole team to help each other, there is a learning-friendly culture at the study site. The interviewees also added to the routine of patients, due to the large number of treatments. It has been quoted the pressure that the oncologist doctor suffers due to the care and attention that this work demands. Cancer is a very complex social target, some people face others that are already more complicated, and the multidisciplinary team must provide patient support to family members. Biweekly face-to-face meeting: it takes place on Wednesdays. According to the participants are very rich, involve case discussions as well as scientific knowledge about biology, oncology.

According to the interviewees

"Most of the meetings are topics for our scientific deepening. Some are given by doctors, others by physicists and by nurses too, on a day-to-day basis, if something comes up that people can already talk about, we anticipate it, but they are always reinforced in biweekly meetings. " E3

"Cases are discussed or when there is some new technology or even a different routine, we usually go to a meeting that everyone knows about these changes, about this new routine." E4

Another interviewee complements:"The person who cleans the clinic attends the meeting as well. She has to know what is happening, she has to have a basic notion and very well consolidated because she is the interlocutor often of some person. And what is passed on as information is accepted as truth, whether or not it pleases. " E1

According to the interviewee, fortnightly meetings are a very efficient way to share knowledge, because it is a time that everyone is together and dedicated to learning from each other. On a daily basis we are very concerned about the routine, with the patient. According to Nambisan (2002) meetings are a great way to share knowledge and strengthen relationships of empathy and trust among the group. Then one realizes that everyone working in the researched location, regardless of the function interact frequently and this occurs much in practice and is later complemented by these meetings, the workflow is made for that to happen.

Virtual Meetings: Meetings are held by teleconference and there are several poles that participate in these meetings.

According to the interviewee:

"This is a constant, we have meetings here for more than 30 years, as far as the technical knowledge and operation of the clinic are concerned, we have meetings that are weekly and possibly fortnightly and that everyone participates." E1

The interviewee explained that each professional who make up the multidisciplinary team involved in the treatment have specific knowledge needs, often the subjects are varied. For Rissi (2013) virtual interactions have better results when the group already has affective ties and previous relations of trust.

From administrative to technical matters. This is a practice that has existed since the clinic was founded in 1978. The site surveyed has a branch office in Lages and Thursdays hold meetings, as well as round tables which are usually Wednesdays or Thursdays at night.

Group in WhatsApp: used for discussions, mainly involving the planning of some specific cases. As one of the participants explains:"As we have the Lages clinic and the doctors take a little time here, a little there, so he has plans that the physicist does, and he needs to pass on something, and the doctor is in Lages. Then things like: look, Dr. I did the planning, gave dose of so much in the crystalline, sent a photo of the planning, sent a video or I sent a photo of a resonance, Dr. looks at this patient, then we end up discussing cases by of this tool. "E2
In this sense Lehtonen (2009) explains that when people develop trust in each other, they create a bond that leads to accidental communication (because trust between people increases knowledge sharing).

Round tables: may be neurology, urology, breast, among others. They are groups of studies, there are a series of groups that meet periodically, are multiprofessionals of image, pathology, clinical, surgery, and in these groups are discussed the knowledge that was brought or what each will bring as contribution.

Capacities: whenever a professional goes to an event (conferences, courses) when he returns everything that was learned is passed on to colleagues, as the interviewee says:
"Not only do we go there, give the course, pass the knowledge, but we learn a lot from it. So I go over here for the staff, my colleagues as it was my experience. It was a unique experience, it was a new experience, a different experience, a challenge, and it's very good, I like it a lot, everyday we also exchange knowledge, learn. "E2

Already another interviewee has a different view of the congresses for him

"The congresses are to consolidate partnerships and or give a lesson. For me to go to a congress outside Brazil is more interesting "E6

Classes: knowledge sharing mediated through lectures: held by professionals who have some knowledge of interest from other colleagues.

"I follow discussion mailing lists, I have large group of 309 physicists, I participate in nuclear medicine group which has a lot of books, discussion in the world, I have a conditioning company in Latin America, I have one software company, so I do a lot in that direction, I'm always reading, learning, doing, and talking. " E6

In relation to the updating of knowledge one of the interviewees explained:

I wake up at 5 in the morning to study every day until 6:30, no matter where I've been, since I graduated as a doctor and look I'm going to do 50 years of medicine, that's daily, that's a mantra that will not go let it ever happen "E1.

The interviewee buys books oncology, cancerology and radiotherapy every two years. He explained that it is necessary to have an axis that forms thoughts and fragments.

Today there are sites all available for consultation and some that are actually reference. The place searched has access to the main publications of the world, the best accredited and to the hospitals as well. They are in constant contact with hospitals that have technically advanced services.

In Lages, they have a joint work with Albert Einstein, where they also hold a bi-weekly round table with the direct participation of this reference center. Although the participants considered the meetings to be fundamental to learning, they reported that reading is the basis for rich discussions. The radiotherapist complements:

"Everyone has to study and read, but the doctor mainly, I was a professor for 37 years in the federal and I participate in a series of courses, I am coordinator of the oncology league of Unisul and I am always involved with medical education." E1
Today it is perceived that this is a requirement, a functional requirement. In radiotherapy most of the publications are in English, because this is the language of scientific communication in the world. So the technologist has the same obligation to seek information all the time, the nurse has the same obligation to search all the time.

It became clear in the participants' speech the importance of studying continuously, from the moment the professional does not study, he will lose autonomy, someone will say what he should do. We are experiencing the knowledge society, knowledge, is available to shape the thought and thought is action. According to Drucker (1999) knowledge is information in action to achieve results. Along the same lines, Polanyi (1966) emphasizes action, body and tacit knowledge, defining knowledge as the capacity to act. It is important to point out that the renovation of the employees who work in the place searched is very low, the place has employees with 30 years of home. The exchanges are rare, because those who work in the place have an aggregated knowledge that is important, knowledge and experience that have been acquired over the years participating in meetings, reading and learning with colleagues.

All employees encouraged to seek knowledge. There are several successful cases of radiology technologists with masters and others who are being encouraged to do. All seek specializations and cynic encourages and facilitates participation in congresses and related events. The research group shares knowledge in a meaningful and collaborative way, most of the interactions to share are face to face what influences an environment conducive to knowledge sharing, corroborating Dorow (2017) research. All participants considered the fortnightly meeting the best way to share knowledge, mainly due to the deepening of the issues that are treated in this type of discussion, when the interactions carried out in the day to day are more superficial due to the time. It was identified the massive use of some knowledge management practices such as peer review, mentoring and storytelling.

The peer review was enriched in the culture of the employees and it is the review of the work by another professional, whether in relation to a doubt or only when the objective is a second opinion. It mainly serves to provide feedback, this practice occurred mainly in the interactions that permeate the work routine of professionals. Mentoring was identified among several professionals, especially among the dosimetrist,

physicians and physicians. For, the development of the dosimetrist's competence occurred within the organization itself, with the improvement of the professional knowledge base through the mentoring of the more experienced.

This practice implies that a specialist (mentor) models the competencies of another individual, or even of every group, observing, analyzing performance and providing feedback on the activities of the individual or group (BATISTA, 2006). This practice also helped to strengthen the relationships among professionals and accelerate the learning of those less experienced. Lessons learned, through discussion meetings, allowed not only the sharing of knowledge, but also the creation of meaning and identity for the group, for promoting a moment in which radiologists felt confident and confident to make explicit their knowledge. The practice of storytelling served as a vehicle of knowledge, are stories (cases), experiences, culture and values that are shared among professionals to facilitate learning. Storytelling is applied at the researched site as a highly valuable practice for knowledge management, skills development and organizational learning. This practice occurred mainly in group meetings and helped create learning conditions and interactive dynamics so that participants could share knowledge and experiences and apply the concepts discussed at the meeting. For Tsoukas (2002) people must outsource their implicit knowledge by making use of language and dialogue, which allows them to create meaning and interpretation to define the context and stories that make this process much easier.

Conclusions

The sharing of knowledge in radiotherapy, specifically in teletherapy, the focus of this study is characterized by a deep interaction between fully automated functions provided by advanced hardware and software equipment and technologies combined with the collaborative work of a team of different professionals who perform activities that decisions. In order for the treatment of the patient to be possible, many health professionals must be involved and this work showed that communication among these professionals is vital to the success of the planned. In view of the above, the objective of this research was to understand the sharing of knowledge in a radiotherapy organization. It was perceived in relation to the service studied an efficient knowledge management, as a result of the commitment of the health professionals who are part of the multiprofessional team, which assists in the generation of value of the organization. In other words, the culture of taking care of process improvement and good team communication reduces the chances of treatment-related error.In the research site, the importance of an adequate knowledge sharing is part of the organization's culture. It was possible to realize that it is not enough to organize only modern equipment and software, it is necessary to have a culture that motivates people to communicate and share their knowledge aiming at the quality of life of cancer patients, and this can be evidenced the speech of all participants of the research, a real and true concern with the improvement of all the processes involved and with the precision of the treatment. In teletherapy, a multidisciplinary philosophy for diagnosis and treatment is the tool to ensure the best definition of the treatment plan, prevent and alleviate the adverse effects of treatment with the ultimate goal of improving patient survival. Knowledge is a resource highly valued by the team in the planning and execution of intelligent actions related to the treatment. The main identified practices of knowledge sharing that allow the treatment strategy of the patient to be understood by all the participants of the multidisciplinary team were: a) peer review; b) mentoring; and c) tell stories. Tireless meetings are also held to discuss clinical solutions, questions and care for cancer patients. But in addition to all this, feedback on the work process among the multidisciplinary team members is dynamic, making the team learning process continuous. There is no punishment culture and mistakes are used as learning opportunities for the whole group, this ensures a healthy atmosphere in the organization and a sense of group among those involved, where everyone perceives themselves as part of the "whole" and is aware that the role of each is of utmost importance for the correct progress of treatment. The importance of the multidisciplinary team and the knowledge of these professionals to ensure the patient's safe treatment were well known.

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