

WORLD RADIOGRAPHY DAY



ISRRT
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& RADIOLOGICAL
TECHNOLOGISTS

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RADIOGRAPHERS

AT THE FOREFRONT OF PATIENT SAFETY

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Portugal Radiographers at the forefront of Patient Safety



THE Radiology department has a steady stream of a wide variety of patients each day. Patients are referred from ambulatory care, from the emergency department and several dozens are inpatients.

All patients that seek healthcare services, such as radiologic examinations, usually look for a diagnosis that could lead to a relief from their suffering. Patients arriving at the Radiology Department will be given the first look or the follow-up of a certain pathology, disease or condition that will define their future. It is unimaginable that the healthcare provided could be the origin of their suffering or even the cause of death, but sadly this is a reality in some cases.

Most of these errors causing suffer, or even death, are preventable. These are due to a set of several contributing elements such as poor processes, poor methods, improper setting, fading equipment's and/or poor management.

To deliver healthcare without any kind of error is what can be understood as safety. Objectively, patient safety is the prevention of errors and adverse effects to patients associated with healthcare.

Many of the errors that occur are honest errors. This means that a good professional, with the best intention will fail because the setting where the healthcare is provided will lead to that error.

This idea leads to the error theory. In a brief version of this theory, errors are due to a set of various contributing elements, such as unsatisfactory processes, inadequate methods, inadequate configuration, aging equipment and/or inadequate management. It should also be in our mind that most errors in healthcare are preventable.

The Swiss cheese model (figure 1) was created by James Reason and explains why accidents occur in a system. If we look closely to this model, we can see that it is completely applicable to Radiology Departments.

In this model, defenses occupy an important position in the organization's tactics. The purpose of the barriers that are created is to protect patients from potential risks. However, there are always weaknesses or flaws. Each barrier is meant to be a shield that protects the patient from error. However, these shields, or barriers, are not perfect and are represented as slices of Swiss cheese, with their traditional holes. These holes should be seen as opening, closing, and continually changing their location, rather than being static in the slice. Only one hole, or gap, in a barrier does not harm the patient, as the absence of holes in the other slices and in the same alignment will prevent the error from reaching the patient. However, when many holes in many barriers line up, even briefly, in such a way that they allow a straight line to pass through them all at the same time, a chance of accident arises, an error occurs, and patient harm happens.

Holes or gaps in defense barriers occur for two reasons: active failures and latent conditions. This model supports the theory that the accident area is predominantly caused by "good people" who carry out their work in "bad systems" or in poorly planned health processes.

Active failures are dangerous acts performed by the healthcare team, which is in close interaction with the patient. Active faults thus take a wide range of forms, such as errors or even inappropriate procedures. Latent conditions facilitate the occurrence of active faults because these are part of the system. These conditions can have several causes, ranging from the design of the facilities, the builders, or the management of the healthcare unit. The causes of

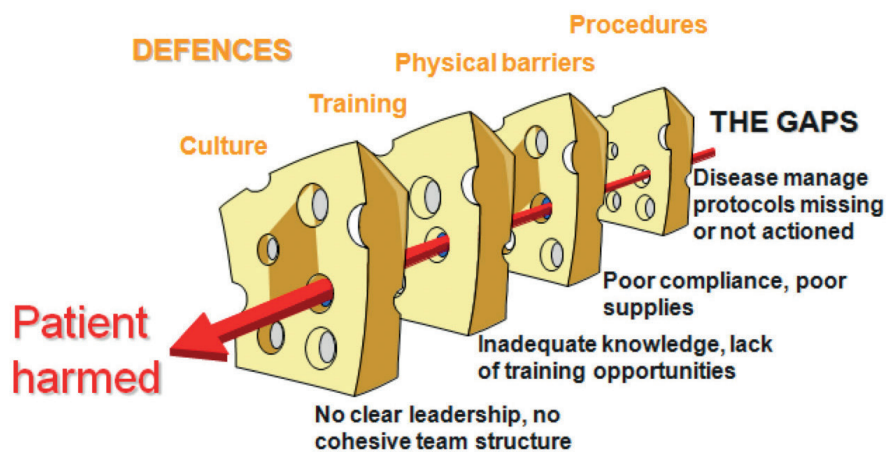


Figure 1: Swiss Cheese Model created by James Reason. (Source: Adapted from Reason, 2000¹)

1. Reason, J. (2000). Human error: models and management. *BMJ (Clinical Research Ed.)*, 320(7237), 768–770.

latent failures emphasize the importance of management and are responsible for creating the conditions for an error to happen, for example, keeping the number of workers below needs, putting pressure on the team to produce more or simply because the physical space was not designed the function.

Despite the importance of latent failures in the occurrence of errors, these are not directly responsible for the error itself and, because of their role in the unfolding of events, they are also called blunt end.

However, unlike active faults, latent conditions can be corrected when identified in time, and this correction can be made before an error occurs.

The immediate causes of accidents are often identified as human error or technical failure, but research and analysis of the circumstances surrounding serious accidents involving planes or trains or even nuclear incidents show that in addition to the immediate causes, there are several issues that are related, with broader aspects. These aspects are related to the entire organization.

Basic flaws in organizational structure, culture and procedures can lead to an accident. This environment is increasingly described in terms of perceptions, beliefs and behaviors that are generally shared by workers within the organization.

Thus, the concept of safety culture emerged as a set of principles, attitudes, perceptions, skills, or standards, individually or in groups, that determine an organization's commitment or style of proficiency in management and safety.

As part of the solution, healthcare organizations may choose to adopt organizational models and strategies from other high-risk industries to minimize errors and reduce patient harm as much as possible, drawing on a consistent standard of improving the safety of care that pay.

Radiographers are, in Imaging Department, the healthcare professionals that will receive the patient and perform the imaging procedure that will define the near future, or even the long-term future, of the patient.

Some examples of errors in direct patient care were identified and are given below as also, some recommendations, are made.

- **Inadequate technique** - Negatively affects the outcome of the procedure, leading to misdiagnosis. The recommendation is to ensure that all professionals keep an active continuous professional development.
- **Wrong patient** - Leads to unnecessary exposure of patients to ionizing radiation and could lead to misdiagnosis of a severe pathology or even lead to an unnecessary intervention to a patient. The recommendation is to improve the accuracy of patient identification by using two patient identifiers such as the full name and the address before each procedure.
- **Wrong procedure or exam** - Event that leads to unnecessary exposure of patients to ionizing radiation and could lead to misdiagnosis of a severe pathology or even lead to an

unnecessary intervention to a patient. The recommendation is to double check the clinical indication and the correlate the clinical information with the patient signs and symptoms.

- **Healthcare associated infections** - Transmission of infection within a healthcare setting is a major concern and can lead to high significant patient illnesses and deaths. The recommendation is to refresh the formation on hand hygiene procedures and in environmental cleanliness to all the professional groups.
- **Poor professional communication** - Critical information must be accurately communicated between the Radiology Department staff and the staff from other departments or within the Radiology Department professionals. The recommendation is to encourage standardized open communication within the Radiology Department and with other departments such as SBAR (Situation, Background, Assessment and Recommendation).
- **Handoffs meeting** - Between shifts changes, important or critical information can be lost, arising gaps in patient care. The recommendation is to take some time to minimize the possibility that information would fail to be conveyed or would be forgotten.
- **Contrast material administration** - Radiology use of contrast agents can cause adverse events or side effects. The recommendation is that an extensive allergy background check must be done to ensure the safety of that administration. Always check the kidney function. Additionally, if possible, ensure that there is the minimum fasting period.
- **Professionals fatigue** - The staff have, sometimes, extended work shifts or insufficient resting time between shifts that may affect patient safety. The recommendation is to try to adapt shifts to the circadian cycle, avoid followed night shifts, use of rest breaks, use bright lights outside the radiology or reporting rooms.
- **Lack of error reporting** - Reporting errors is fundamental to error prevention because it will reveal hidden dangers and will contribute to institutional learning. The recommendation is to adopt error reporting mechanisms, assuring the confidentiality of the professional. Encourage error reporting and make clear that there is a non-punitive action towards the professional error.

Of course, depending on the settings, some of these ideas will not fit exactly. Also, as part of problem solving, brainstorming meetings can be encouraged to find solutions for some of these errors that fit each institution.

In conclusion, patient safety should be a priority for each Radiographer. Indeed, only when all feel the need to follow institutional, local, national and/or international guidelines or recommendations on patient safety, this topic becomes a cultural aspect of the organization. Only when this happens, patients will be safer. ■

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