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Early results of a French care-related adverse events database in radiology

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Early results of a French care-related adverse events database in radiology

Abstract

Purpose. The purpose of this study was to report the initial results of the declaration of care-related adverse events (CRAEs) in radiology in the French National Authority for Health (HAS) database for accreditation of radiological medical teams.

Materials and methods. Between October 2018 and December 2020, 48 radiological teams (32 teams in 2019 and 16 teams in 2020; 471 registered radiologists) signed up to the team accreditation process, a system supported by the HAS. Reports of the CRAEs in radiology started in September 2019 after the team registration phase.

Results. Among the 89 CRAEs reported, 28 (31%) were targeted as interventional radiology, 27 (30%) as linked to contrast media and 11 (12%) as related to MRI care; the 23 other CRAEs reported 5 defaults in the transmission of requests or results, 5 delays in diagnostic or treatment, 4 patient-identify monitoring events, 4 diagnostic radiology complications, 4 radiation protection events and 1 patient information problem. The severity was rated as “minor” for 53% of CRAEs, and as “serious to critical” or “catastrophic” for 8% and 9% of CRAEs, respectively. They were preventable or probably preventable in 84% of all events.

Conclusion. These early results of our nation-wide CRAEs declaration database show the diversity of all CRAEs and their causes in radiological practice in France and provide a global vision of areas for improvement of the quality of care in radiology. This should convince other radiologists to declare CRAEs and allow, in time, the production of recommendations and patient safety solutions as to limit the risks associated with radiological care.

Keywords:

Quality;

Management;

Radiology,

Care-related adverse event;

Team accreditation

Abbreviations

ASN: French National Nuclear Safety Agency; CRAE: Care-related adverse event; CT: Computed tomography. HAS: French National Authority for Health; MRI: Magnetic resonance imaging; ODPC-RIM: Radiology and Medical Imaging Continuous Professional Development; SFR: French Radiological Society

1. Introduction

The certification procedure for healthcare establishments, implemented following the 1996 Ordinance [1], was inspired by the Canadian and American practices. In France, the National Authority for Health (Haute Autorité de Santé, HAS) was created by the Law of August 13th, 2004 relating to insurance disease, in order to help maintain a system solidarity-based health and strengthen the quality of care for the benefit of the patients [2]. More recently, the HAS published in October 2020 a new certification manual for all healthcare establishments [3].

According to the HAS, quality is the right act for the right patient, in the right indication, at the right time, by the right device with the right technique, carried out by the right physician

and leading to the appropriate care. In radiology, quality is a broad concept that applies to both care structures, radiological patient care and radiologists' continued training [4–7]. Quality has long been assessed at the establishment level, using certifications [8] which focused on the concepts of patient's reception, respect of patients' rights, hygiene, and accommodation. In recent certifications the concept of care is analyzed using patient-related indicators[9–11]. The V2020 certification brings further developments, evaluating the care offer to the patients, the medical and nursing teams, and the structures and the means allocated to patient care [3].

Quality of patient care is the responsibility of physicians; their initial and continuing education are crucial to continuously improve their care and best practices [12]. The mandatory continuing medical education (has been supplemented by the Evaluation of Professional Practices then leading to the Continuous Professional Development, mandatory since 2016 [13,14]. The physicians' accreditation, supervised by the HAS, is a risk analysis program that validate obligation for personal continuous development. While accreditation was initially based on individual medical engagement [15], the French radiology society (SFR) embarked in this program in 2018 on a team-based accreditation process involving all physicians working in a given center [16]. The accreditation program is based on the declaration and analysis of adverse events associated with care (CRAEs; *Evènements Indésirables Associés aux Soins*, EIAS). Their causes and consequences are analyzed, and elements to be corrected are identified to prevent their recurrence. For volunteer teams that wish to demonstrate their involvement in quality and practice improvement, CRAEs declaration is performed anonymously by an “expert” acting as the guarantor of the declaration. The expert checks good practices and advises the teams on the possible improvements. Also, the community of experts eventually proposes to the medical community

recommendations or patient safety solutions to improve clinical practices and patient care [17].

The objective of this study was to describe the first CRAEs database in radiology, initiated since the creation of the national HAS CRAEs database in connection with the accreditation program for radiologic teams. The secondary objective was to analyze the first CRAEs declared and to detail the related procedures as to convince radiologists to subscribe to this quality program.

2. Materials and Methods

2.1 Team accreditation

The team accreditation process is based on voluntary service. It consists of identifying a group of physicians working together who wish to improve the safety and quality of the care provided. In 2012, this process was initially designed only for individual validations and only in interventional radiology within the “radiology and medical imaging” specialty but was never initiated. The reporting by the radiological teams only started in October 2018 and was extended to all radiological care, both diagnostic and interventional.

Teams first register with a description of their team and commit to follow the recommendations of the discipline (commitment of actions, program of improvement of practices to follow, declaration of CRAEs). The system is delegated to radiologists, in a spirit of peer management of the process, under supervision of the HAS. The ODPC-RIM (Radiology and Medical Imaging Continuous Professional Development) organism is an independent CPD organization specialized in radiology and diagnostic and interventional medical imaging. It has been approved by the HAS as part of the process of physician accreditation. Experts from the ODPC-RIM are volunteer radiologists trained to quality

process and expertise. They were delegated to analyze the CRAEs and help radiological teams to improve their practices based on issue opinions and recommendations. The whole process is under the supervision of the HAS, which alone issues individual and team accreditation.

All teams must then declare at least one CRAE per physician engaged in the team and per year, on the HAS SIAM database (Information system on the Physicians Accreditation), with a minimum of six CRAEs for teams composed of six or more members. The process is mainly aimed at physicians as the HAS only issues accreditation to certificate physicians, but technicians may also participate in the teams. The recognition of the teams' accreditation is given individually; if a physician wishes to change teams, he/she may keep his/her certificate at his/her future exercise site.

2.2 Care-related adverse events (CRAEs) declaration

Declaration of targeted CRAEs was proposed to draw the profession's attention to specific events such as those related to the use of contrast media, magnetic resonance imaging (MRI) care (excluding contrast material) and interventional radiology with the management of anticoagulants and antiaggregants. However, it was also possible to declare untargeted CRAEs. In September 2020, a new targeted CRAE subclass, CRAEs linked to radiation protection, was introduced with a link to the National Nuclear Safety Agency (ASN) in the context of the declaration of a significant radiation protection event.

All information regarding the CRAEs declaration and accreditation process is available on the ODPC-RIM [16] and HAS websites [15].

Declarations started in the third quarter of 2019 after the teams' registration phase. They follow an electronic survey based on the ALARM (Association of Litigation and Risk Management) grid [18]. It is recommended to appoint a referent, responsible person

representing the team, as he/she will be familiar with the process and the survey, and will establish a link between the team and the HAS database.

2.3 Statistical analysis

The SIAM database analysis was based on an extraction provided by the HAS to the ODPC-RIM as to establish the year-end report and write this article. The data analysis is descriptive and qualitative. Results are expressed with numbers and percentages; means and standard deviations or medians and ranges.

3. Results

3.1 Team registration

Between October 2018 and December 2020, 48 radiological teams (32 teams in 2019 and 16 teams in 2020 – none in 2018) registered to the HAS accreditation system, accounting for 471 registered radiologists, accounting for nearly 6% of all radiologists in France (Tables 1 and 2). The teams gathered a median of eight radiologists (Q1, 6; Q3, 11.5) ranging from two to 20 radiologists. Some individual accreditations were also reported. Thirty-two teams (32/48; 67%) mainly worked in one or more public institutions, while the remaining third practiced in private institutes.

3.2 Global CRAEs analysis

The accreditation program started in October 2018 and declaration of CRAEs began early 2019. Between early 2019 and December 2020, 89 CRAEs were reported, among which 35 were declared at the beginning of 2020. The COVID pandemics then slowed the reporting down, which did not resume until the 3rd quarter of 2020.

Of the 89 CRAEs reported, 66 (74%) were targeted CRAEs (28 in interventional radiology, 27 on contrast material, and 11 on MRI). The 23 other CRAEs reported five defaults in the transmission of requests or results, five delayed treatment, four patient-identity monitoring files, four diagnostic radiology complications, four radiation protection files, and one patient information problem (Figure 1). CRAEs on radiation protection were categorized as targeted CRAEs only in September 2020.

The reported CRAEs involved 89 patients (44 men and 45 women) with a mean age of 61 ± 16 (SD) years (range: 5-97 years); three babies <1 year old were not included in the calculation of the mean); the mean adult weight was 73 ± 12 (SD) kg (range: 48-130 kg) and the mean height 167 ± 16 (SD) cm (range: 150-183 cm). They were cared for in 62 public institutions (69.7%) and 27 private practice structures (30.3%). A total of 38 CRAEs (42.7%) were declared by radiologists of public institutions, 38 (42.7%) by radiologists of private structures, and 13 (14.6%) by radiologists exercising a mixed activity.

The patients' clinical state reported; 37 patients (41.6%) had major comorbidities and 50 patients (51.2%) minor comorbidities (two unknown cases). Sixty-nine CRAEs (77.5%) were related to diagnosis, two CRAEs (2.2%) were related to screening, and 18 (20.2%) to treatment. Thirty-five CRAEs (39.3%) were related to a medical device (n = 18) and/or a drug (n = 19 related to a contrast material; n =7 related to other drugs such as anticoagulants or chemotherapy). Only four CRAEs were declared as radiation protection targeted CRAEs, while 23 CRAEs reported an impact on worker radiation protection (entanglement of several causes).

The reported CRAEs occurred in different care units; 63 events (70.8%) took place in a diagnostic radiology department while 26 (29.2%) occurred in hospitalization, emergency rooms, operating theaters, in a surveillance room or at home.

Periods of vulnerability (week-ends and nights) were declared for 19 events (21%). The onset context was non-urgent (n = 41; 46.1%), urgency differed to a few days (n = 17; 19.1%), to a few hours (n = 17; 19.1%) or immediate urgency (n = 14; 15.7%). No nosocomial infections were reported. The distribution of severity of CRAEs is displayed in Figure 2. The root cause analysis found one or more causes to the CRAEs for 86 events (96.6%) (Table 3).

Dysfunctions in established procedures or organizations were reported for 59 CRAEs (66.3%). These procedures were effective, resolving 52 CRAEs (58.4%). Results of whether or not the CRAEs were preventable are reported in Figure 3.

3.3 Analysis by CRAE

Among the targeted interventional radiology CRAEs (n = 28), bleeding complications with the management of antiaggregants and anticoagulants were reported for five CRAEs, with four leading to serious complications including two deaths. No surgical conversions were reported after complications related to the interventional radiology procedure. Causes were underestimation of the risk (procedure performed in the evenings or week-ends) or equipment-linked (device not available, lack of training on device use). A lateral error was reported in one patient with a kidney to be embolized in bilateral polycystosis. A technical error was declared only once with a malfunctioning medical device. A fall from the bed after an interventional radiology procedure with late diagnosis of fracture was reported.

Organizational flaws and lack of communication among staff were reported as causes of 42% of the CRAEs declared.

Concerning the contrast agents in radiology targeted CRAEs (n=27), the majority concerned iodinated contrast material (n = 25) but also gadolinium-based contrast agent (two events of reactions including a recurrence of injection when an allergy was known) and CO₂ (one event of post injection epilepsy for upper limb venography). Reactions to iodine contrast products

(n = 5), extravasations (n = 4), inappropriate protocols (n = 2), and power injector dysfunction were reported. Six CRAEs concerned the lack of serum creatinine before injection and performance of the examination without prior approval by the radiologist (declared by a single team). Two other CRAEs were injection of the contrast product in a patient with acute renal failure not seen immediately in the emergency setting, with no effect on renal function or general health, and injection at the wrong site during an arthrogram. Several CRAEs may also be classified as disorganization or radiation protection; indeed, they led to new acquisitions required, with loss of opportunity for the patient due to delays in care.

Concerning the MRI-targeted CRAEs, the majority of events reported were related to management of medical devices such as pacemakers or foreign equipment (not specified by the patient despite interrogation). Note the death of a patient with a deactivated pacemaker during MRI, due to a serious underlying pathology (cancer and cardiac failure). Dysesthesia up to burns with pressure ulcers were reported in three events (electric arcs). Two statements were made of a stretcher and a scrubber in the MRI with projectile effect on staff. Analysis of the files showed that lack of communication and organization were at the root of these events.

Among the non-targeted CRAEs (n = 23), information transmission faults were reported between radiology and either emergency or anatomopathology units, or town medicine. The delay in radiological care (n = 5) were for three events due to late diagnoses on X-rays (lack of clinical information) or misorientation to computed tomography (CT) examination rather than MRI.

Radiation protection concerned four reported CRAEs as declared, but three other CRAEs also concerned should be added. Among these seven CRAEs, four occurred in pregnant women: for example, pregnancy was diagnosed after CT examination, despite recent period declaration; linguistic concerns induced poor understanding with another patient; or a

pregnant woman was located next to another patient undergoing follow-up X-ray examination in the operating recovery room.

Four patient-identity monitoring files were reported to which a fifth leading to the performance of additional examinations can be added. Finally, the untimely mobilization of an unknown dislocation, the injection of beta-blocker in a person with contraindication, an incomplete examination, an examination without injection when it would have been necessary are declarations of complications related to defects of communication and organization.

4. Discussion

The creation of this database of adverse events associated with radiological care is the first nation-wide database in radiology and medical imaging in France.

Every year, a global report from the HAS reflects the activities of all specialties [19]. Various types of complications, serious adverse events, potentially risky events, significant radiation protection events, and CRAEs are the subjects of numerous discussions among professionals. Who should declare which? When should they be declared? Redundancy and loss of meaning of the declarations have led professionals to be wary of the devices offered. Also, it is not always easy to differentiate a complication (unpreventable) from a CRAE (preventable).

The CRAE terminology covers the vast majority of events associated with care, whether serious or not. The main goal of the process of CRAEs reporting is to share experience with other teams and thus find solutions to avoid their occurrence. Initially, serious adverse events had to be compiled in the National Institute for Health Watch database. Because of the risk of team stigmatization, the system did not work optimally. This is why, for the accreditation

process, the choice is left to each team to declare an event of any kind, as long as an improvement solution can be proposed. Indeed, events due to “therapeutic hazard” should not be declared in the context of accreditation.

How should a physician join this accreditation process? The first step would be to gather all his/her radiologist colleagues to join the process, but it is not mandatory; one may start with a few colleagues, assuming the others will follow later. Declarative formalities of the team will take a few weeks (gather documents and signatures). A key step is then to appoint a referent or a group (physician, manager, quality specialist, etc.) who will be responsible for the declaration on the HAS website, allowing a better understanding of the elements to be declared. These follow an analysis process of the ALARM type, available on the ODPC-RIM website. They include questions on the description of the event, the possible and identified causes, the consequences, the remedies and solutions to be provided. The term "barriers" is often used, indicating the elements that should be set-up to prevent the occurrence of the CRAEs (prevention barriers) or to recover it (recovery barriers). Our advice may be to use this method to analyze CRAEs during a service meeting or a mortality and morbidity review. Indeed, it will facilitate the subsequent or concomitant entry of the meeting. Discussion of improvement actions is the important key, and ensuring these actions are implemented is necessary. Once a CRAE has been declared, the expert assigned may discuss it (by email) if some points need to be clarified or if different solutions should be considered, then validates the declaration. We recommend that the teams simultaneously declare their CRAEs within their institutions according to the local format.

The specialty initially chose 3 types of targeted CRAEs, related to injection of contrast media, MRI or interventional radiology procedures under anticoagulants and antiaggregants. This indicates that there is a strong expectation of unusual CRAEs. This concept of targeted CRAEs is often misunderstood because it is perceived as limiting. On the contrary, any type

of CRAEs can be declared as organizational dysfunction which was done in 66% of all CRAEs. In September 2020, the targeted radiation protection CRAEs subclass was added in conjunction with the National Nuclear Safety Agency to follow-up on the ASN decree on the subject of quality [20].

The main originality of team accreditation processes is the peer review [21]. In quality management, a controller (the inspector from the ASN, auditor from the HAS, etc.) is often appointed to monitor clinical practices. These systems have demonstrated their advantages but also their limitations. Currently, peer auditing is the method proposed in many fields including health, both in France and in other countries [22], allowing better ownership by professionals of their quality at a lower cost. No doubt an intermediate solution should be preferred, such as the ASN inspections and establishment certifications. It is up to us radiologists to be perfectly aware of the responsibilities entrusted to us and to demonstrate that our radiological care practices are the right ones. Regarding quality, improvement is always ongoing (Deming's law) and evolution is more important than a picture taken at a given time.

In radiology, quality is a very large concept that is applied to departments, users, equipment, outcomes, acquisition process, image quality and practices [23–28]. For example, a retrospective peer review of reports of radiological examinations is often recommended but requires considerable human resources. To improve quality, it seems feasible to peer review at least a portion of the total yearly reporting volume. There is considerable diversity in the quality programs used throughout the world, despite some influence by national and international organizations, from whom further guidance could increase uniformity and optimize patient care in radiology. The traditional Scoring-Based Peer Review system has been the predominant radiology performance quality assurance model, but it may become a condemning, ineffective process. In 2015, the Institute of Medicine called for "policies and

practices promoting a non-punitive culture that values open discussion and feedback on diagnostic performance". The development of peer learning, which encompasses peer feedback, learning, and improvement, has positively impacted radiology through the recognition of success, identification of mistakes as learning opportunities, and development of a professional culture of trust. Furthermore, collective intelligence advances in peer learning within the learning community enhance the abilities of a group that outperform those of a single individual, especially in the setting of complex medical and diagnostic imaging decision-making.

Our study shows some limitations, among which its descriptive character. It consists of an early feedback of the accreditation process in our country. A relatively small number of CRAEs were yet declared, but the process was much impacted by the COVID pandemics while some teams were very involved at the launch of the process. Difficulties in putting together all the parts, especially the regulations for public centers, were a drag. Last, the lack of a referent in some teams was also a source of loss of information between the partners despite the help of the National Radiology Society staff.

In conclusion, the early results of our nation-wide CRAEs declaration database show the diversity of all CRAEs and their causes in radiological practice in France and provide a global vision of areas for improvement of the quality of care in radiology. We hope they will convince other radiologists to declare CRAEs and allow, in time, the production of recommendations and patient safety solutions as to limit the risks associated with radiological care. On the quality path, teams go at their own pace, starting from very different points of appropriation of the quality criteria to be observed. It is essential however that the description of the CRAEs, their causes and consequences, and the solutions to set up should be as precise as possible, allowing discussions and, in time, elaboration of recommendations and patient safety solutions to limit the risks associated with radiological care in France.

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Human rights

The authors declare that the work described has been carried out in accordance with the Declaration of Helsinki of the World Medical Association revised in 2013 for experiments involving humans.

Informed consent and patient details

The authors declare that this report does not contain any personal information that could lead to the identification.

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Declaration of Competing Interest

The authors have no relevant conflicts of interest to declare.

Author contributions

All authors attest that they meet the current International Committee of Medical Journal Editors (ICMJE) criteria for Authorship.

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Figure Legends

Figure 1: Diagram shows distribution of type of care-related adverse events (CRAEs) in the overall population (n=89)

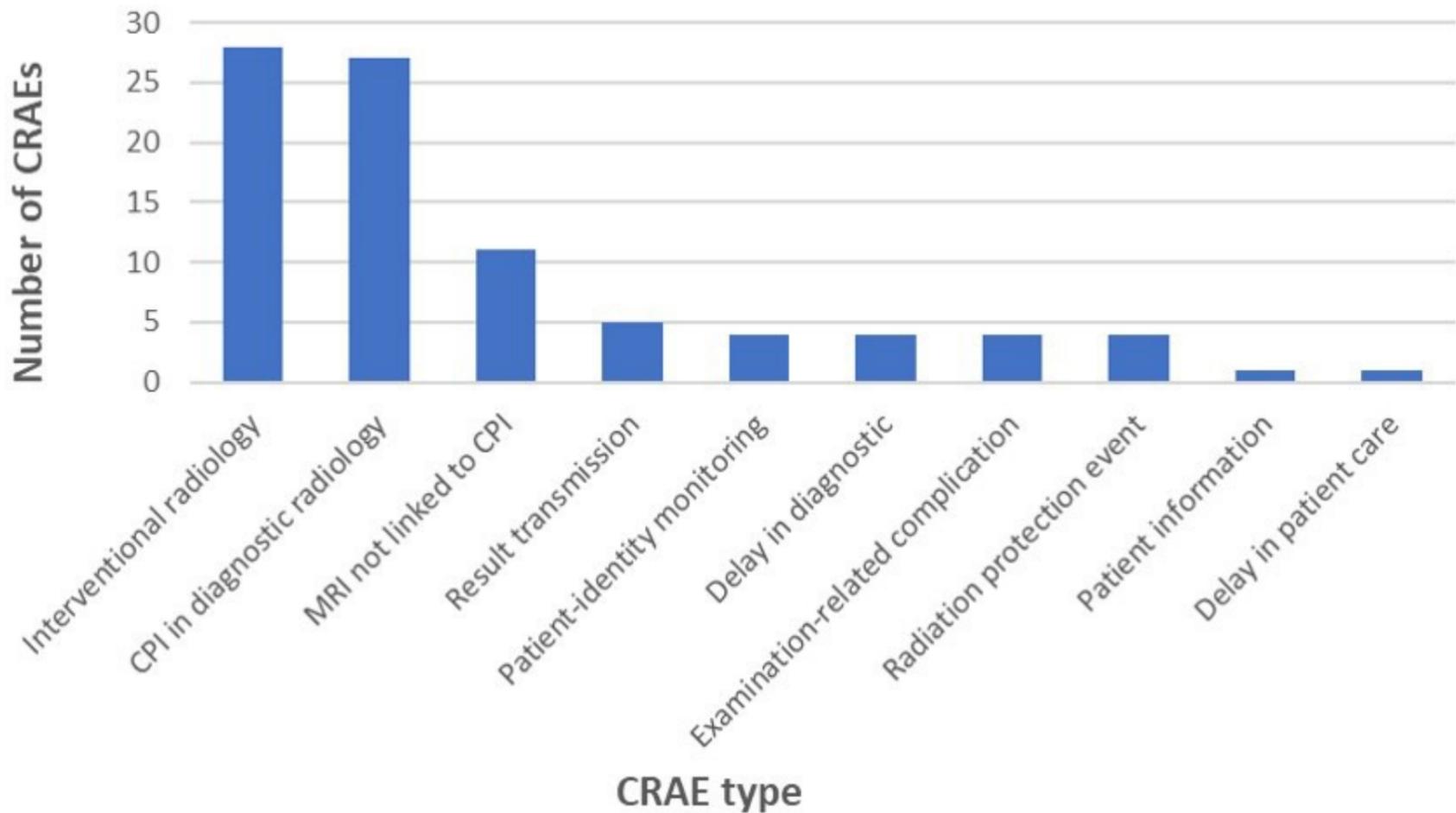
CRAEs: Care-related adverse event; CPI: Contrast product injection; MRI: Magnetic resonance imaging.

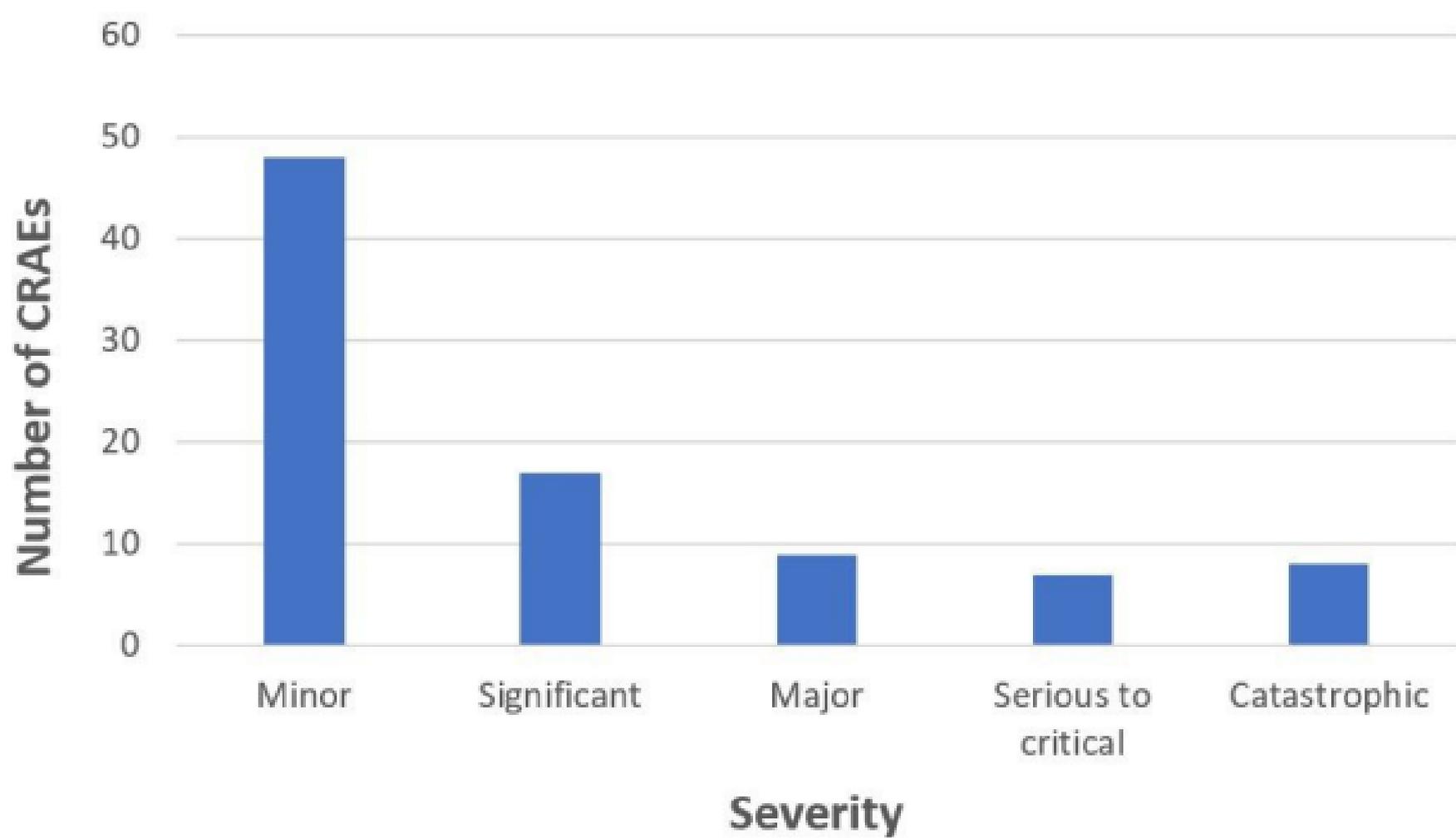
Figure 2: Diagram shows distribution of severity of reported care-related adverse events (CRAEs)

* Minor: n=48, 54%; Significant: n=17, 19%; Major: n=9, 10%; Serious to critical: n=7, 8%; catastrophic: n=8, 9%. **Figure 3:**

Figure 3: Diagram shows distribution of preventability of care-related adverse events (CRAEs).

Preventable (n = 47; 53%); Probably preventable (n =27; 30%); Probably unpreventable (n = 9; 10%); Unpreventable (n = 2; 2%); Unknown (n = 4; 5%).





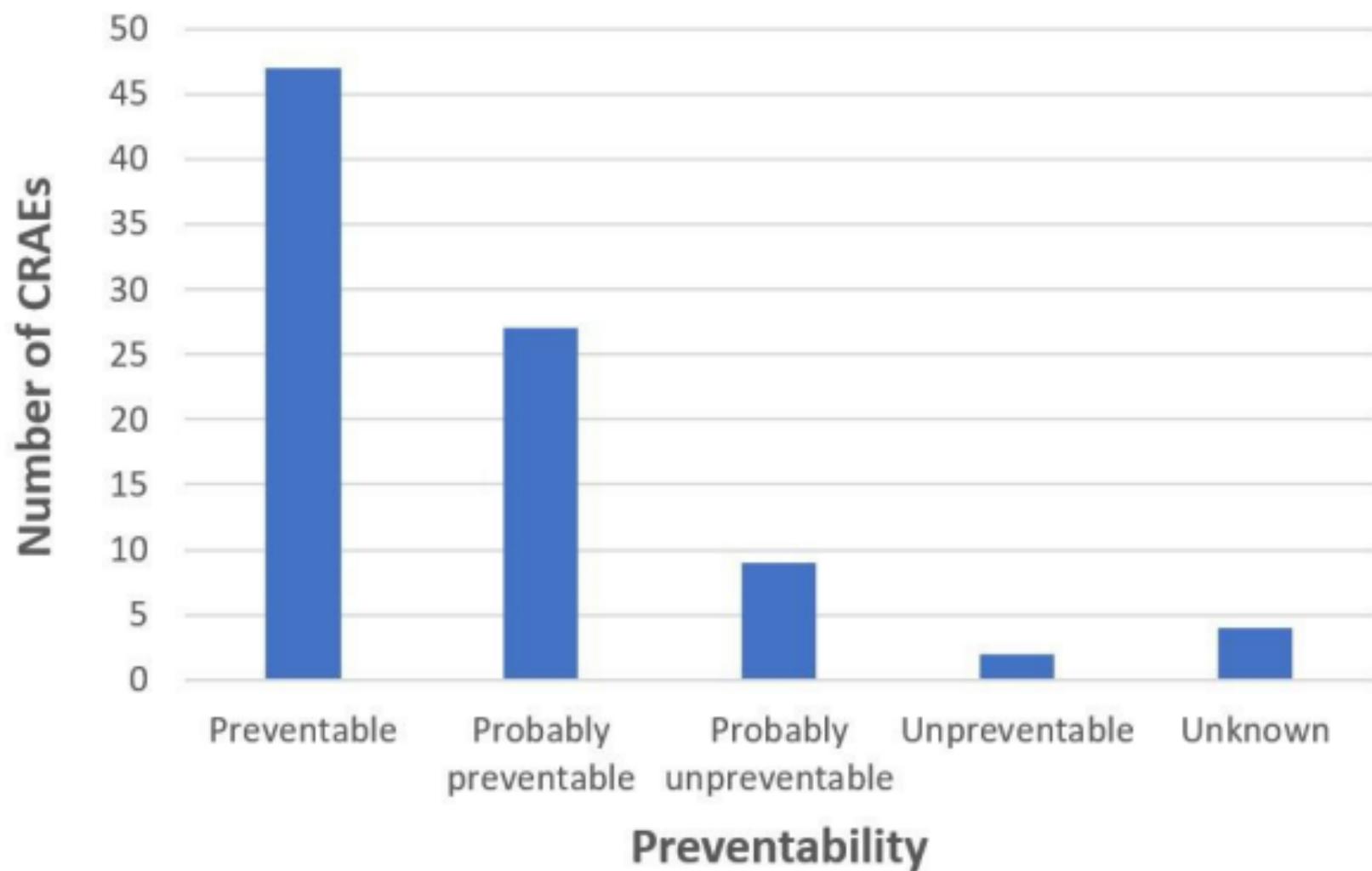


Table 1. Radiological teams involved in the medical accreditation process in 2019

Referent	Institution	Region	City	Number of radiologists in the team
Philippe Adam	Clinique Medipole Garonne	Occitanie	Toulouse	1
Yves Alberge	Polyclinique du Sidobre	Occitanie	Castres	3
Olivier Andreani	Institut Arnault Tzanck	PACA	Saint-Laurent du Var	4
Mustapha Azahaf	Hôpital Huriez	Hauts-de-France	Lille	7
Céline Barcelo	Clinique des Cèdres	Occitanie	Cornebarrieu	8
Marine Bricout	Clinique Oudinot Paris	Ile-de-France	Paris	2
Luc Ceugnart	Centre Oscar Lambret	Hauts-de-France	Mons-en-Baroeul	4
Kathia Chaumoitre	Hôpital Nord	PACA	Marseille	10
Frédéric Cohen	Hôpital Européen de Marseille	PACA	Marseille	18
Alain Dana	Institut de Radiologie Hoch	Ile-de-France	Paris	18
Jean-François Deux	CHU Henri Mondor	Ile-de-France	Créteil	3
Juliette Ding	GH de l'Institut Catholique de Lille-Saint Vincent de Paul	Hauts-de-France	Lille	15
Anne Fontaine-Carrere	Clinique Clémentville	Occitanie	Montpellier	10
Eric Frampas	CHU de Nantes – Hôtel-Dieu	Pays de la Loire	Nantes	5
Cornelia Freitag	CHU de Nîmes	Occitanie	Nîmes	16
Jean-Brice Gayet	Maison de Chirurgie Clinique Turin	Ile-de-France	Paris	4
Eurydice Hourna	Hôpital Privé du Confluent	Pays de la Loire	Nantes	40
Rémy Kadouch	Clinique Claude Bernard	Ile-de-France	Ermont	10
Thomas Le Coroller	Hôpital Sud	PACA	Marseille	10
Benjamin Longere	Institut Cœur et Poumon	Hauts-de-France	Lille	7
Samuel Merigeaud	Clinique du Parc	Occitanie	Castelnau Le Lez	21
Marco Midulla	CHU de Dijon	Bourgogne	Dijon	5
Michel Nonent	Hôpital de la Cavale Blanche	Bretagne	Brest	8
Mickaël Ohana	Nouvel Hôpital Civil	Grand Est	Strasbourg	7
Francine Paisant-Thouveny	CHU d'Angers	Pays de la Loire	Angers	22
Xavier Pauwels	Centre Hospitalier de Valenciennes	Hauts-de-France	Valenciennes	15
Anthony Reyre	Hôpital de La Timone	PACA	Marseille	7
Céline Savoye-Collet	CHU de Rouen	Normandie	Rouen	9
Jean-Christophe Thibaud	Centre Hospitalier de Béziers	Occitanie	Béziers	11
Yann Thouvenin	CHU de Montpellier-Hôpital Lapeyronie	Occitanie	Montpellier	5
Vincent Vidal	Hôpital de La Timone	PACA	Marseille	13
Bernard Woerly	Clinique de l'Orangerie	Grand Est	Strasbourg	3

Table 2. New radiological teams registered in 2020

Referent	Institution	Region	City	Number of radiologists in the team
Philippe Adam	Clinique Médipôle Garonne	Occitanie	Toulouse	15
Samia Belkacem	GH La Pitié-Salpêtrière	Ile-de-France	Paris	6
Yves Berthezene	Hôpital Pierre Wertheim	Auvergne Rhône-Alpes	Lyon	5
Loïc Boussel	Hôpital de la Croix Rousse	Auvergne Rhône-Alpes	Lyon	10
Claire Boutet	CHU de Saint-Etienne	Auvergne Rhône-Alpes	Saint-Etienne	9
Cédric Brochart	Artois Radiologie	Hauts-de-France	Arras	10
Isabelle Canterino	Hôpital Louis Pradel	Auvergne Rhône-Alpes	Lyon	10
Christophe Chagnaud	Hôpital de La Conception	PACA	Marseille	6
Omer Eker	Hôpital Pierre Wertheim	Auvergne Rhône-Alpes	Lyon	6
Vianney Gaillard	Hôpital Jeanne de Flandre	Hauts-de-France	Lille	6
Philippe Douek	Hôpital Louis Pradel	Auvergne Rhône-Alpes	Lyon	7
Suonita Khung	Hôpital Calmette	Hauts-de-France	Lille	6
Anne Mebazaa	Hôpital Saint Joseph	Ile-de-France	Paris	11
Jean-Baptiste Pialat	Hôpital Lyon Sud	Auvergne Rhône-Alpes	Lyon	27
Harmony Pico	Hôpital de La Timone	PACA	Marseille	7
Franck Texier	Imagerie 92 Sud	Bretagne	Quimper	9

Table 3. Causes declared by affiliated Institutions and confirmed by the experts for the 89 care-related adverse events (CRAEs) registered

Causes selected in a drop-down menu	
Patients	39 (39/89, 43.8%)
Tasks to be performed	44 (44/89, 49.4%)
Caregivers	31 (31/89, 34.8%)
Teams	44 (44/89, 49.4%)
Working environment	30 (30/89, 33.7%)
Management / Organization	13 (13/89, 14.6%)
Institutional context	4 (4/89, 4.5%)
Communication	0 (0/89; 0%)