

## Patient Safety in Dentistry

Ko Ko

Pro-rector, University of Dental Medicine, Mandalay

Patient safety has become one of the focal points of health care in recent years. Though the concern for not harming patients (the Hippocratic "primum non nocere") has been a fundamental factor in health care since it first began, as of the publication in 1999 of the study title "To err is human" by the Committee on Quality of Health care in America of the Institute of Medicine. At present, there are many institutions which have developed programs and initiative to improve patient safety. One representative example would be the "World Alliance for the Safety of Patients" promoted by the World Health Organization WHO or the Luxembourg Declaration of the European Union. With the field of dentistry, the proposals have not been as numerous or as structured. Although patient safety has also been one of the inherent concerns in dental practice, and alerts and recommendations have been given out on pharmaceutical products, dental materials and clinical procedures, the programs organized specifically for promoting patient safety have been few. At the same time, there is little structured or well-studied data regarding adverse events in dentistry.

There are reasons which explain this delay in dentistry when compared with most other health care professions: - The harm produced is generally less severe. - The patients are ambulatory (this makes difficult to become aware of and follow up on many adverse events. - There is a great dispersion of dental care which makes it difficult to collect data. - Dental

care is fundamentally private, and the fear may exist that reporting adverse events might have some repercussion on the commercial profit of clinics. - There is not generalized culture which deals with patient safety. The motivation are different for professionals, and the potential for undertaking educational campaigns that reach all dentists is limited due to their widespread dispersion. Nevertheless, there are many reasons why dentistry must become more active in dealing with everything involved in patient safety. Among these reasons it is handled potentially dangerous pharmaceuticals (by themselves or as a result of their interactions), dental procedures are becoming more aggressive (especially the surgical techniques related with implantology), and dealing with technical instruments (ionizing radiation, lasers etc.) which may be harmful, and contact of our instruments with blood and bodily fluids of patients may constitute potential sources for the transmission of diseases. Due to of all above, dental practice must more actively become involved in the international trend towards patient safety. The risk management plan of dental care is based on applying the basic concepts dealt with in patient safety to the field of dentistry.

Patient safety issues in dentistry share some features with ambulatory care in medicine, in that there are opportunities for diagnosis errors, patient factors play a significant role in safety events, and providers often have a longstanding relationship with

their patients. However, there are differences between ambulatory safety issues in dentistry and medicine. For instance, the range of medication errors may be narrower in dentistry, as fewer medications are used and prescribed. The nature of what is done in the clinic is also different: dental care encompasses a wide range of procedures, ranging from cleaning teeth to performing bone grafts. The largest distinguishing feature, though, may well be in the organizational characteristics of typical dental practices. Additionally, dental insurance has evolved separately from medical insurance, and federal state assistance for dental care is limited. Finally, dental records are usually independent of medical records. All of this means that dentists as individuals and dentistry as a profession cannot expect to benefit collaterally from the increasing interest in ambulatory safety. Our own dental setting-focused patient safety efforts must be spearheading.

Being among the small number of dental patient safety researchers, our goal is to create the tools and information dental care teams need to keep their patients safe. Our first objective is to contribute to the first element of the Patient Safety Initiative by identifying threats to patient safety in the dental office. Our contributions to date include summarizing existing information sources (e.g. case reports) establishing a classification to help describe and organize the types of dental patient safety events, (e.g. wrong site or wrong patient) creating a severity scale for dental patient safety events, and developing tools to efficiently detect dental charts that contain patient safety events.

One important point is that patient safety events may be common in dental practice.

In our assessment of dental patient safety case reports in the professional and scientific literature, that the nearly a quarter (23%) of events were associated with delayed treatment and unnecessary treatment associated with misdiagnosis. This highlights the importance of diagnosis in dentistry, which has traditionally been seen as a procedure-focused profession. Although dentistry has standardized procedure codes, e.g. D6104 for bone graft at time of implant placement, the profession is only beginning to adopt standardized diagnostic terms. Clearly, though, the greatest problem is to establish a robust patient safety culture in the dental ecosystem. As challenging as it has been to establish a safety culture in medicine, these efforts have been aided by significant funding and the organizational structure of large health care institutions, which can bring in relevant experts and can be made accountable (by regulators and payers) for performance. In contrast, the typical dental practice ecosystem is fragmented into small practices and lacks clear leadership.

Ultimately, patient safety, like politics, is local. Leaders of individual practices must not only decide to allocate resources to patient safety activities within a dental practice, they must also cultivate an environment in which individuals feel that talking about patient safety concerns is valued. Payers are positioned to be major influencers, as health care as a whole is moving into an era of accountability, in which incentives are aligned with the quality of care. Some larger group dental practices are already shifting toward pay-for-performance models. (Willamette Dental Group, oral communication, 2015) It is our hope that these pioneering practices are indications of a new profession-wide commitment to patient safety in dentistry

in which each dental team member continually asks "Is it safe?" and strives to make dental care ever safer.

The high-speed dental handpiece (drill) is often used with a diamond coated bur (bit) that rotates at up to 400,000 revolutions per minute in close proximity to the patient's lips, tongue and throat. A review of the literature has been conducted identified reports of serious lacerations and other injuries associated with high-speed handpieces. Consider next that sodium hypochlorite (bleach) is the solution most often used to irrigate the root canals of a tooth during endodontic treatment. Sodium hypochlorite is highly cytotoxic. Sodium hypochlorite has being extruded past the apex of the tooth into the surrounding tissues, or inadvertently injected into the mucosa instead of local anesthesia. Because dental work occurs in close proximity to the airway, there were numerous reports of foreign body aspirations. There have ever been deaths associated with dental care, reported both in the scientific literature and in the media. One associated press news article wrote about a dentist who was charged in the death of a patient who became unresponsive while having 20 teeth pulled and several implants installed.

**Definitions:** The following definitions are provided by the ICPS (International Patient Safety Classification) proposed by the World Alliance for Patient Safety of the World Health Organization-WHO.

1. Patient Safety.- Patient safety means a decrease in (or elimination of, to the greatest extent possible) the harm to patients caused by treatments provided, from accidents associated

with those treatments.

2. Risk Management:- This is the attempt to identify, evaluate and deal with problems which may cause harm to patients, to file complaints about malpractice and to avoid unnecessary economic losses for health care providers.

3. Adverse Event:- Unexpected results of health care treatment which leads to prolonging treatment, some type of morbidity, mortality or simple any harm which the patient should not have suffered. It is broad concept which includes errors, accidents, delays in providing care, negligence, etc., but not the complications inherent to the patient's disorder or disease itself.

4. Error:- Mistake due to action or omission in health care practice, whether an error of planning or an error of execution. The error may or may not lead to the existence of an adverse event.

5. Near miss:- Event which nearly causes harm to the patient and which is avoided by luck or due to action at the last moment. One example would be prescribing an antibiotic derived from penicillin to an allergic patient. In the specific case of prescribing pharmaceuticals, it is estimated that approximately seven times more near misses occur than adverse events.

6. Accident:- Random, unforeseen and unexpected event which causes harm to the patient or any other type of

harm (material damage, harm to health care personnel, etc.)

7. Negligence:- Error which is difficult to justify due to a lack of knowledge or basic skills, failure to take minimum precautions, carelessness, etc.

- Professional error in dentistry– The literature on error in medicine is extensive, especially in terms of adverse drug events, error in prescription and medication errors, and errors in Intensive care units, trauma care or anesthesia. However, there are hardly any studies dealing with the frequency and effects of the errors committed in dental practices. The errors in dental care may be of a human origin (in which a professional reaches an erroneous decision or provides a deficient treatment), but in most cases their occurrence is to a great degree dependent upon many contributing factors related with the system, which lead to a chain of errors and end up causing harm to the patient.

- Oral surgery and patient safety – The “World Alliance for Patient Safety”(dependent upon the World Health Organization) established the “Global Patient Safety Challenge: Safe Surgery Saves Lives” as its main objective. This change revolves around four large areas: preventing infection of the

surgical wound, safe anesthesia, safe surgical equipment and the measurement of surgical services. As a part of this initiative, the “World Alliance for Patient Safety” launched the “Surgical Safety Checklist” in June 2008. This Checklist was proposed as a simple and easy-to-use tool which ensure compliance with the key patient safety – key safety elements.

Objectives of the “Plan for Health Care Risk Prevention in Dentistry”- The general objective is to implement the management of health risks in the dental care provided at any level of care. In order to be able to achieve the Plan’s general objective, the following specific goals have been established:

1. To promote a Culture of Patient Safety in dental care – The culture of safety was defined by the ACSNI (Advisory Committee on the Safety of Nuclear Installations): “An organization’s culture of safety is the product of individual and group values, attitudes, perceptions, skills and patterns of behavior which lead to commitment, style and ability in the management of the health and safety of an organization. Those organizations with a positive safety culture are characterized by communication based on mutual trust, by shared perceptions of the importance of safety and by trust in the effectiveness of measures for prevention”.

2. There is a significant deficiency in terms of patient safety within the

empire of health care in general, and dental care in particular. Because of this, it is absolutely fundamental to promote this culture of patient safety among practicing dentists, patients and (public or private) dental care managers. To achieve this, the promotion of increased awareness amongst dentists about the general aspects basic measures involved in patient safety.

3. Creating an organizational structure for the management of dental care risks. (a) State-wide level: Observatory for Dental Patient Safety (b) Autonomous regional level: Functional units for dental patient safety dependent upon each Autonomous Regional Health Department.

4. Developing tools for the identification, analysis and assessment of risks related with dental care. This specific objective can be divided into a further three:

a. Implementing a system for notification and recording of adverse events which take place in professional practice.

b. Classifying the types of adverse events on the basis of a specific taxonomy. At present, any classification should be based on the ICPS (International Patient Safety Organization) or on the taxonomy proposed by the Joint Commission.

c. Using tools for the study of reported adverse events

(root cause analysis-RCA) and prevention of other possible adverse events. In patient safety, basically two tools are used: prospective and retrospective tools. The classical retrospective analysis tool is root cause analysis (RCA), which would be applicable to those adverse events of sufficient significance.

5. Establishing lines of information on adverse events. It is absolutely indispensable to possess truthful information on the occurrence of adverse events in order to be able to determine any measures for prevention. The differences existing between other care and dental care leads to loss of most of this information. At present only that which gives rise to legal conflicts can only be recovered, and even though only partially.

6. Establishing measures to prevent health care risks by elimination or reduction. These measures are to be established, on a specific basis, after identifying risks (general or specific to one center). Their purpose is the prevention of the risks identified in order to eliminate them, or if this is not possible to reduce them. These measures can be established at different levels:

I. Prevention of infections at dental offices.

II. Prevention of surgical error

III. Prevention of error in

prescribing drugs, etc. In turn, the measures may be translated into simple recommendations or recommendations of good clinical practices.

7. Ongoing training of professionals on Patient Safety. This is a specific objective closely related with Objective 1 (promote a culture of Patient Safety), but it is restricted to the arena of health care professions and the care structures in which dentists perform their work. This ongoing training should include a system of immediate alerts in the event of potentially serious cases, and the existence of a monthly bulletin in an electronic format, containing the most important information.

8. Research in the field of Dental Patient Safety. The final specific objective, once the others have been achieved, is to increase knowledge about dental patient safety. This research may be structured around research projects, doctoral theses or any other applicable instrument of education or research.

Patient safety constitutes a whole culture of which dental practices cannot remain on the sidelines. Nevertheless, up to the present time, few steps have been taken to bring dentistry in line with the other health care professions in this respect. Because there are no "dental risk management plans" similar to the one proposed, its proposal is not based on any other dentistry-related documents. The plan consists of seven steps which cover the main objectives sought in Patient Safety. Working on patient safety requires seeking humble

objectives and, above all, remaining perseverant in terms of the difficulties which will inevitably arise. Our cooperation and share knowledge and work methodologies with any other dental organization that would like to improve patient safety.

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