



## Quality Day 2017

# Vision

To be a College of regional leadership and international excellence in the production and use of dental knowledge

# Mission

To develop competent dental professionals, and active contributors to scientific research and community service; through acquisition, dissemination and use of oral health knowledge, appropriate applications of technology, and building domestic and international partnerships



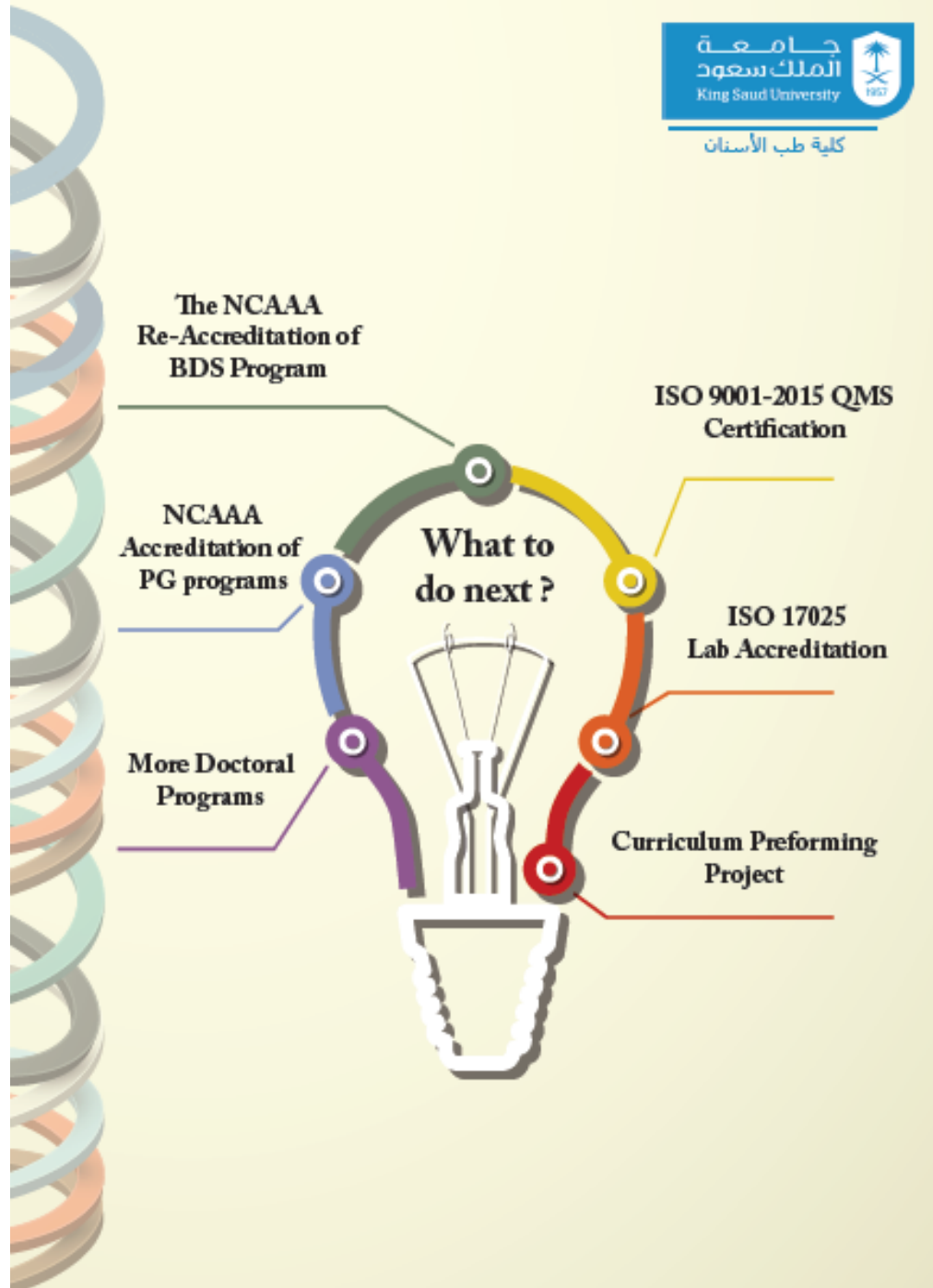
# Strategic objectives

1. Competitive graduates locally and globally
2. Strengthening the research ranking of the College
3. Best faculty and employees
4. Excellence in patients and community services
5. Building bridges; local, regional and global communications
6. Strengthening and diversifying financial resources
7. Optimal infrastructures and using smart technologies in the College

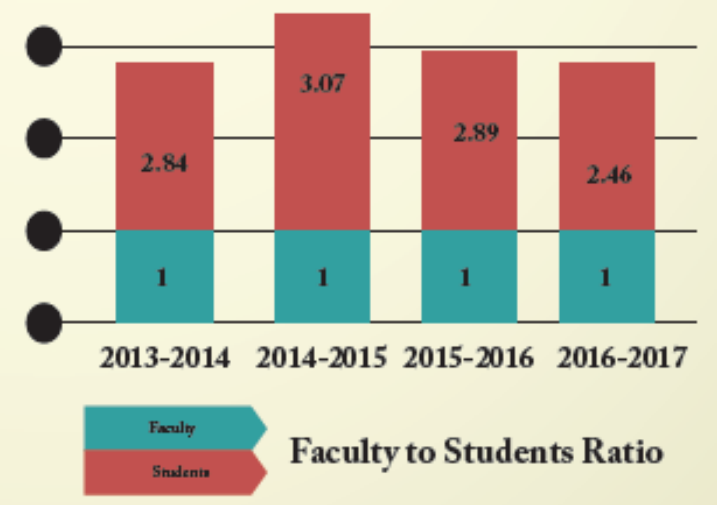
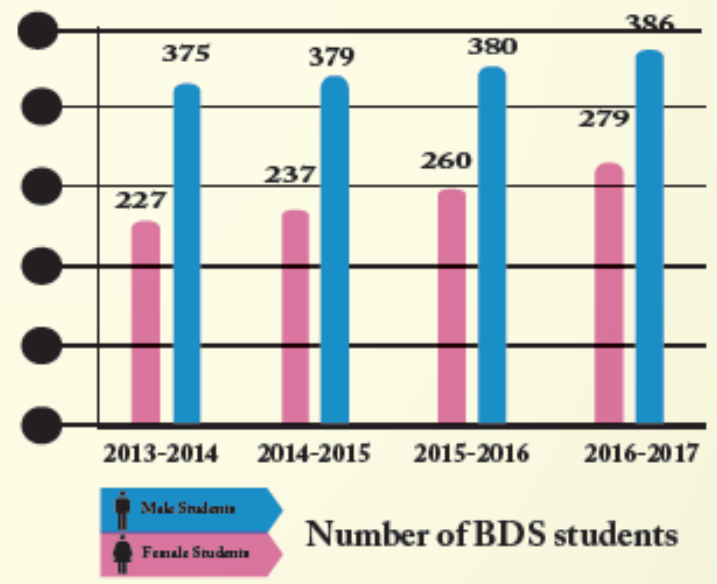


## Overview of the Past Achievements

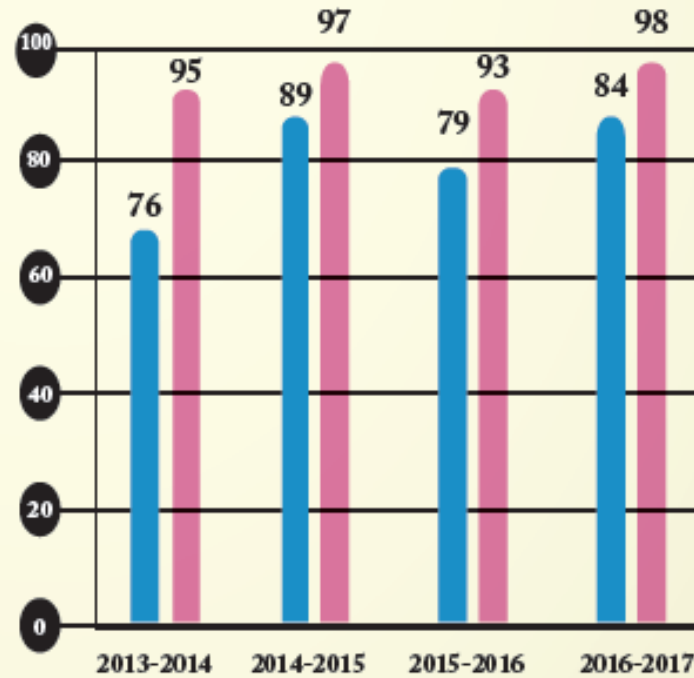




### Student-Related KPIs



## Students' Performance



## Percentage of Male and Female Students Completing the Program in Minimum Time



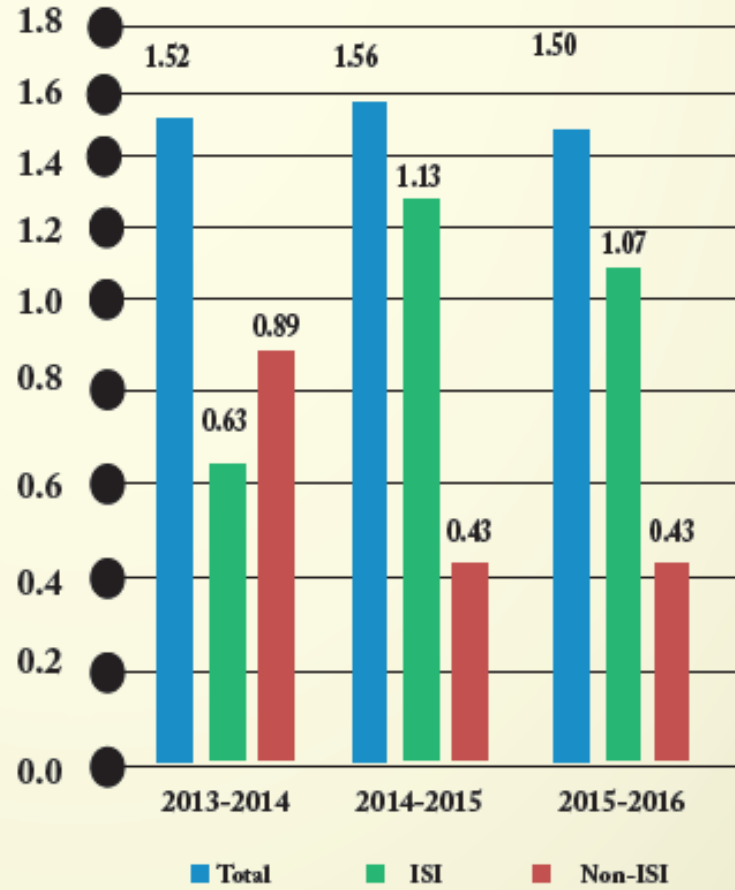
Male Students



Female Students

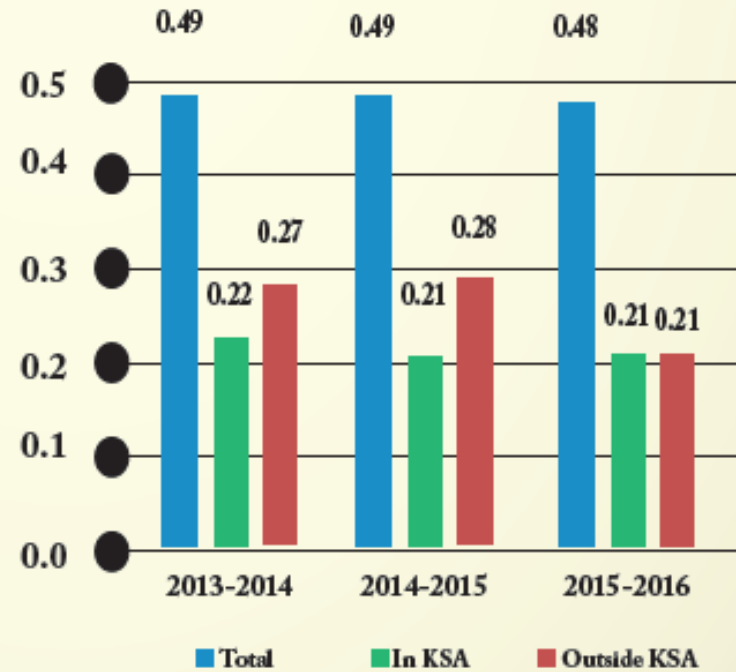


### Faculty Publications in Scientific Journals



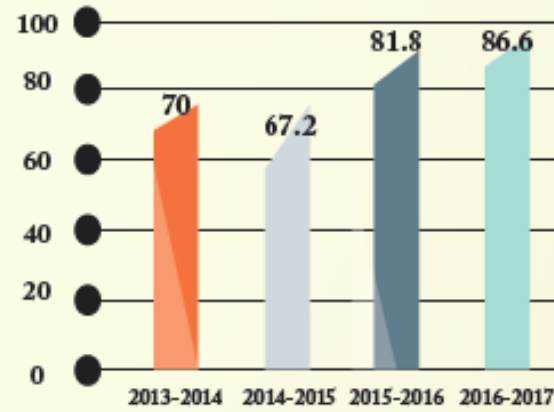
Number of Refereed Publications per full-time teaching staff

### Faculty Participation in Local and International Conferences

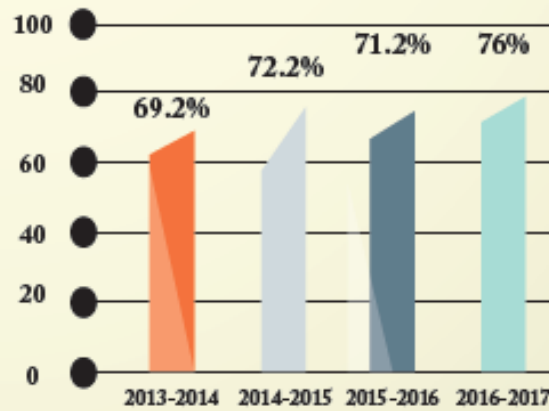


### Proportion of Faculty Participated at academic conferences

### Faculty Satisfaction

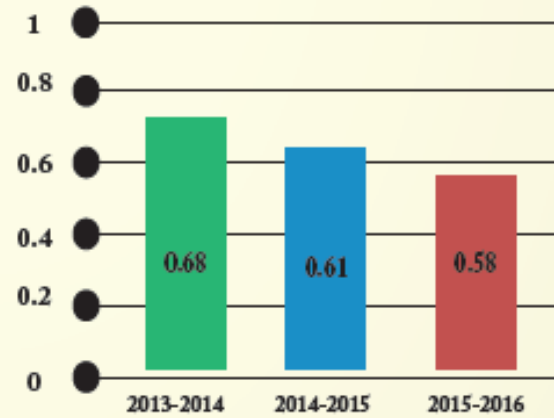


### Faculty Satisfaction about Management and Administrative Services

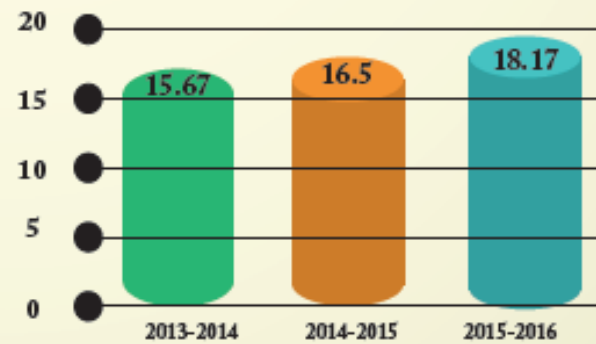


### Faculty Satisfaction about Adequacy of Facilities and Equipment

### Staff Participation in Community Services

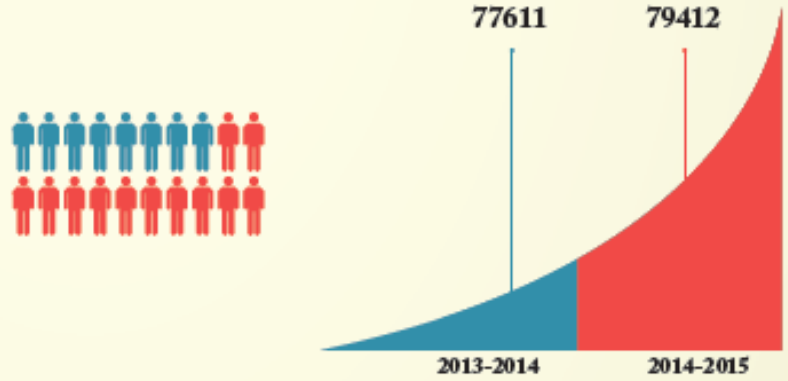


### The Proportion of Full-time Teaching and other Staff Actively Engaged in Community Service Activities

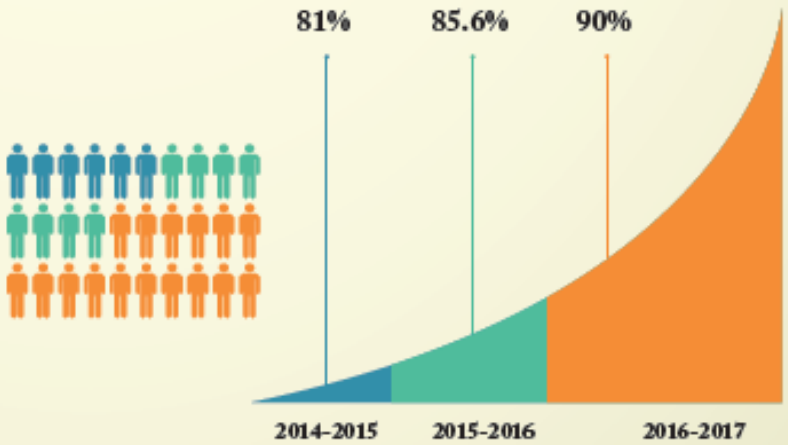


### Number of Community Education Programs Provided as a Proportion of the Number of Departments

### Patient-Related KPIs



### Number of Treated Patients



### Patients' Satisfaction with Treatment Services Provided

# Quality Day Students' Competition

## Students' Posters



## COMPLICATIONS FOLLOWING AN ACCIDENTAL SODIUM HYPOCHLORITE EXTRUSION

María L. Bosch-Aranda,<sup>1</sup> Carlos Canalda-Sahli,<sup>2</sup> Rui Figueiredo,<sup>3</sup> and Cosme Gay-Escoda<sup>4</sup>

Ahmed Essam Nasser, Mohammad Abdullah Alharbi

NaOCl is the most widespread irrigant used on root canal debridement. Used solutions may vary from 0.5% to 5.25% and its biocompatibility is inversely proportional to its concentration

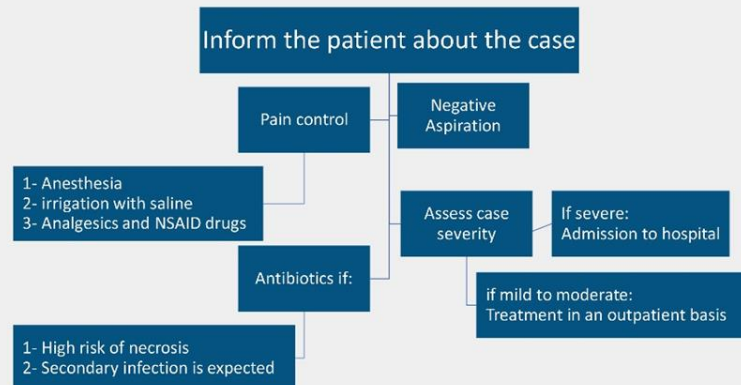
- 1- Measure the working length, and use rubber stopper on the irrigation needle
- 2- Place it with lateral exit, to prevent pressure during irrigation and accidental injection
- 3- Ensure irrigation is performed low and constant pressure to prevent leakage of the solution

### Signs and symptoms

- 1- Painful swelling
- 2- Profuse interstitial bleeding with haemorrhage of the skin and mucosa
- 3- The patient may report a chlorine taste and irritation of the throat
- 4- Necrosis and secondary infection may become evident
- 5- Nerve injury in a form of anaesthesia or paresthesia



### Treatment guidelines after accidental extrusion of NaOCl







# Sodium hypochlorite accident

Presented by : Mohammed alwehaibi (4<sup>th</sup> year undergraduate student )

## How to know it ?



Sudden intense pain and profuse bleeding



Immediate painful swelling spread into adjacent tissues involve periorbital area, upper lip, and cheek



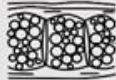
Perfuse interstitial haemorrhage of the skin and oral mucosa



Swelling compromise the airway by reaching facial spaces



Chlorine taste and irritation of the throat when irrigant infiltrate the maxillary sinus



Cellular destruction followed by necrosis



secondary infection associated with severe complications such paresthesia or anaesthesia

## Introduction

Sodium hypochlorite (NaOCl) is the most effective irrigation solution used in root canal therapy, that exhibit a very efficient antimicrobial capacity against microbiota of infected root canals. However, this solution can cause serious complications due to its cytotoxic nature. Special attention should be established to prevent possible hazard associated with the use of (NaOCl) during irrigation throughout root canal therapy for patient safety and prevention .

Reference :



## How to prevent it ?

Periapical radiographs to asses the root and canal anatomy



A good proper straight line access cavity design



Proper working length with careful adjustment of the rubber stopper



Use of specialized needles like luer lock side venting needles



Rubber stops on irrigation needles with minimum of 2 mm reduction from working length



Don't wedge the needle tip in the canal, has to be placed loose inside



Avoid using excessive digital pressure



Constant in and out movements of irrigating needle into the canal with flow back of the solution







# Adverse Drug Reactions in Dental Practice



Daniel E. Becker

Presented by: Sara AlDosary



## SEDATIVES, OPIOIDS, AND GENERAL ANESTHETICS

Respiratory depression most significant side effect of all drug classes used for procedural sedation and general anesthesia, proceeds in a dose-response manner

Benzodiazepines produce the least intensity of respiratory depression, but this when they are combined with other drugs or high doses are administered.

↓ Heart rate

↓ atrial blood pressure

▶ place patient upright, tilt head upward, protrude the mandible

## ANTI-HISTAMINES AND ANTIEMETICS

Used for procedural sedation, minor allergic reactions, nausea or vomiting.

Action 1 - central anticholinergic action = central cholinergic blockade

→ AVOID in elderly (dementia)

high dose → central cholinergic syndrome "delirium and combativeness"

Side effect: mouth dryness

2-dopamine receptor blockade → added antiemetic mechanism, →

extrapyramidal syndromes "never life threatening"

promethazine: antagonist actions on vascular alpha receptors, which increases

risk for postural hypotension → avoid in elderly

+ opioids = may potentiate respiratory depression

## LOCAL ANESTHETICS

Remarkably safe

Toxicity: local, systemic

1-Ischemic necrosis of tissues following injections of LA → attached gingiva (hard palate)

2-Direct neurotoxicity → high conc. 4% articaine and prilocaine → dilution, in situ or in tissue, + risk-benefit analysis + limit 4% articaine / prilocaine for infiltration

direct toxicity to nerve trunks, → persistent paresthesias

persistent paresthesias: 95% mandibular nerve blocks involved, 89% lingual nerve

3-Overdose so, adhere to max. dose

Lidocaine toxicity = serum concentrations >5 lg/ mL,

convulsive seizures = concentrations >10 lg/mL

Bupivacaine = greater potential for direct cardiac toxicity (arrhythmias)

## Methemoglobinemia: → prilocaine

↑ 1% of total hemoglobin is so altered,

↑ 15% => cyanotic, symptomatic, lower pulse

↑ 35% => lower O<sub>2</sub>

↑ 50-60% => life threatening

▶ IV methylene blue, which reduces the hemes to their normal state

Hereditary methemoglobinemia, Avoid the use of prilocaine.

## VASOCONSTRICTORS: EPINEPHRINE AND LEVONORDE-

- Hemostasis + ↓ anesthetic absorption

-Epinephrine: most common,

1-systemic cardiovascular effects

2-cartridge limit → patients with cardiovascular disease

decision → thorough analysis of each patient

2-hemodynamic influences: within 5 minutes of injection, completely subsided in 10-15 minutes

Medical status of a patient:

Questionable → record baseline heart rate and blood pressure preoperatively and again following every 20-40 microg administered (-1-2 cartridges containing a 1:100,000 epinephrine concentration)

Ambulatory patient can tolerate the cardiovascular influences of this amount.

A-vital signs: stable for 5 minutes after injection

B-use ↓ concentration

## ANALGESICS

NSAID: Prostaglandins inhibition

Gastrointestinal (GI) toxicity, mucosal erosion and ulceration

Antithrombotic therapy: risk from more significant bleeding from NSAID-induced mucosal injury. (clopidogrel 2-3 folds, warfarin 4-5 folds) (older patient)

Nonaspirin NSAIDs all prolong bleeding times → withheld in major procedures

Chronic NSAID use: nephrotoxicity (Prostaglandins => renal perfusion)

Avoid in compromised or questionable renal function (acute renal failure can occur within 24)

Acetaminophen: no adverse effects when administered at conventional doses in healthy patients.

Excessive doses → Hepatotoxicity: a single dose of 7.5-10 g

potentially fatal: 20-25 g or more

max. dose= 3 mg daily

Opioids: if w/ sedation + GA = respiratory depression

Side effects: constipation and nausea. → patient w/Hx of Nausea and vomiting with opioids → remain stationary for an hour or so following each dose

Dependence and addiction: when used regularly more than a week

▶ gradual tapering to avoid Withdrawal syndrome

Tolerance: repeated administrations → greater dose is needed

## ANTIBIOTICS

1-Opportunistic Yeast Infection;

Candida albicans → overgrowth:

1-immunocompromised patient 2-AB treatment

▶ 1- use probiotics 2-OTC antifungal 3-fluconazole prescribed by the dentist

2-Antibiotic-Associated Diarrhea

The incidence 2 to 10%, w/(Augmentin) 25%

▶ 1- probiotics, 2- using antiperistaltics 3- changing the antibiotic to a narrower spectrum

C difficile Disease:

1-4%, nosocomial pathogen.,

Normal intestinal flora will typically prevent colonization by C difficile, but antibiotics can diminish this protection.

▶ 1- Avoid antiperistaltics. 2-Stop the current antibiotic and prescribe metronidazole 500 mg TID 3 10-14 days. 3-no improvement after 2-3 days refer to Family physician

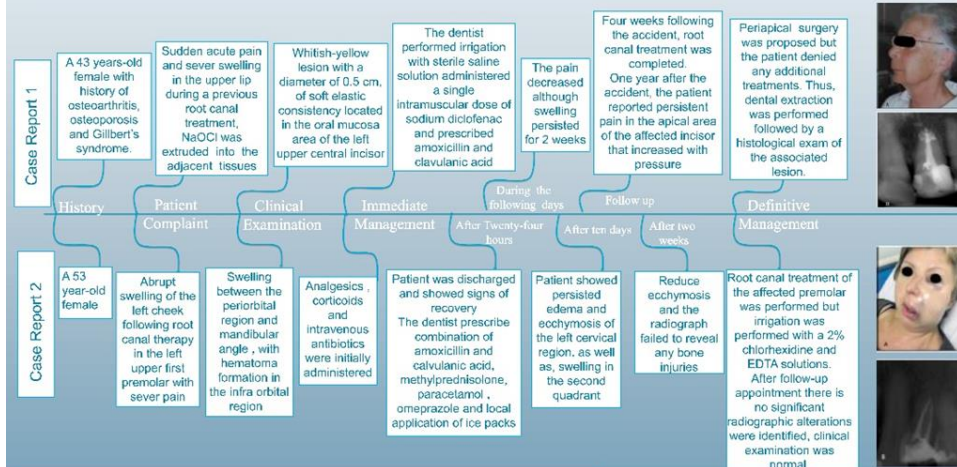
# Complications following an accidental sodium hypochlorite extrusion

Maria Luisa Bosch-Aranda, Carlos Canalda-Sahli, Rui Figueiredo, Cosme Gay-Escoda

J Clin Exp Dent. 2012;4(3):e194-8

## Introduction

The goals of root canal therapy are cleaning and disinfecting the root canal system. This debridement is aided by irrigation solution which played a part in chemical cleaning of canals, particularly sodium hypochlorite (NaOCl), which is considered the most effective irrigant. NaOCl offers many advantages over other irrigants; it is inexpensive, easily and readily available, antimicrobial agent, and dissolves organic and necrotic pulp tissue. However, its cytotoxicity leads to many complications and intense tissue reaction due to its extrusion beyond apical foramen while injecting it in the canal. Such complications are severe pain, swelling, and ecchymosis. Severity of condition is directly proportional to the concentration of NaOCl.



## Discussion

Preventive measures while using NaOCl:

- 1- Use it after working length has been determined
- 2- Use rubber stopper in the irrigation needle to the predetermined length
- 3- Use side vented needle to avoid extrusion to periapical tissue with pressure
- 4- Use low and steady pressure while injection

### Treatment guidelines after accidental extrusion of NaOCl:

- Negative aspirations:** Inform the patient about the cause and seriousness of the complication
- Pain control:** Infiltrative anesthesia, abundant irrigation with saline solution and analgesics and NSAIDs drugs
- Evaluate case severity:** If severe: admission to hospital. If moderate-mild: treatment in an outpatient basis
- Antibiotics administration only if:** High risk of necrosis or secondary infection expected
- During the first day:** use of cold packs in order to prevent swelling.
- From the second day:** use of hot compresses and frequent warm oral rinses in order to stimulate local systemic circulation.
- Strict patient's monitoring**
- Complete root canal treatment using saline solution or chlorhexidine as irrigants

## Conclusion

Based on the presented case reports, special attention must be drawn to the potential risks associated with the use of NaOCl as an irrigant for root canal therapy. Thus, it is important to carry out an effective technique in order to avoid complications. In the event of accidental extrusion of NaOCl, treatment guidelines should be applied according to the magnitude of each individual case.

## Reference





## Preventing wrong-site surgery in oral and maxillofacial surgery

Leon A. Assael

Presented by: Meshari Nasser Alabdulkareem

### INTRODUCTION

Surgery is a complex procedure and requires a lot of effort and attention. Surgeons go through intensive training to qualify. Complex surgeries require a large medical team to reduce the workload on the surgeon. Wrong site surgery has great attentions in hospitals and ambulatory care as part of the patient's safety standards efforts.



### CAUSES

1. The lack of a check list.
2. The lack of a cohesive surgical team.
3. Complexity of the surgical procedure.
4. Large number of surgical procedures.
5. Nonmarked surgical sites.
6. Poor training of the surgical team.
7. The inconsistent use of the checklist.
8. The use of a highly specialized equipment.
9. Difficulty to visualize the surgical site.
10. miscommunication with the patient.

### CHECKLISTS

A global initiative to reduce wrong-site surgery and other complications. It is divided into 3 parts:

#### SING IN

- Before the induction of anesthesia to identify the patient, site, procedure, and consent.

#### TIME OUT

- A critical event performed just prior to initiating the surgical procedure, in which all aspects of the checklist are confirmed.

#### SIGN OUT

- Before the patient leaves the operating room to confirm that all aspects of the surgery are complete.

### PREVENTION

- The use of a checklist.
- The use of a digital radiographs to prevent errors when processing.
- Informing the patient of the location of the surgery and why it is being preformed.
- Marking the site of the procedure.
- Empowering every member of the surgical team.



### CONCLUSION

The complexity of the clinical tasks required to perform ambulatory oral and maxillofacial surgery have accelerated to the point where errors are inevitable. Systems are needed to eliminate wrong-site surgery. Incorporating checklists into oral and maxillofacial surgery practice will create special challenges but with enormous benefits.



Read more about preventing wrong-site surgery.

Reference: Preventing Wrong-Site Surgery in Oral and Maxillofacial Surgery – Oral and Maxillofacial Surgery Clinics of North America. By: Leon A. Assael, DMD

<http://www.oralmaxsurgerytheclinic.com>

Images source:  
<http://www.humanitas.it/news/17427-chirurgia-bariatrica-dubbi-frequenti>  
<http://www.towerplazadental.com/services/>  
<http://www.verywell.com/corrective-surgery-2709932>

# How do we improve quality in primary dental care?

S. Campbell<sup>1</sup> and M. Tickle\*<sup>2</sup>

Presented by: Asma.A.BaQais



## Approaches of Quality improvement :



## Complications following an accidental sodium hypochlorite extrusion

María Luisa Bosch-Aranda, Carlos Canalda-Sahli, Rui Figueiredo, Cosme Gay-Escoda

Presented by: Abdulmajeed AL-Muammar, Abdulrhman AlMansour,  
Abdulkarim AbuHaimed

### Conclusion:

Sodium hypochlorite (NaOCl) is a very effective irrigating solution in root canal treatments although, it is very harmful to the soft tissue. So, special attention must be drawn to the potential risks associated with the use of NaOCl. Thus, it is important to carry out an effective technique in order to avoid complications. In the event of accidental extrusion of NaOCl, treatment guidelines should be applied according to the magnitude of each individual case.

### Introduction:

Sodium hypochlorite (NaOCl) is the most commonly used irrigating solution in root canal treatments, as it is a low-cost method that displays a very effective antimicrobial activity and its action in dissolving necrotic-purulent tissues. However, it can cause serious complications especially due to its cytotoxic features. When this solution is injected into the adjacent tissues, the patient usually experiences intense pain, and an urgent treatment should be implemented in order to prevent a long-term sequelae.

### Causes:

- Root resorption of the apical area (figure B).
- Wide apical foramin.
- Unintentionally injection in to the apical foramin.
- Deposition the irrigation with pressure.
- Placment of the irrigation needle in the apical third.

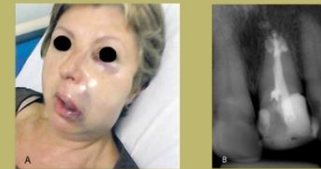
### Signs and Symptoms:

Sudden acute sever pain, The pain may persist for along time.  
Ecchymosis, abrupt swelling, and edema (figure A).  
hematoma formation in the infraorbital region  
might cause paresthesia.

### Prevention and Management:

**Prevention:** Use a needle with a side vent, less pressure. Avoid irrigating in the apical third. Do proper preoperative radiographic interpretation.  
**Management:** Inform the patient about the cause and seriousness of the complication. Pain control with Infiltrative anesthesia, Abundant irrigation with saline solution, Analgesics and NSAIDs drugs.  
**Evaluate case severity:**  
If severe admission to hospital.  
If moderate-mild treatment in an outpatient basis .  
Complete root canal treatment using saline solution. Antibiotics if High risk of necrosis,  
Secondary infection expected.

### Figures:



### Reference:







# Quality & Patient Safety poster presentation competition

## Lessons learned from dental patient safety case reports

Einhomo M. Obadan, DDS, MPH; Rachel B. Ramoni, DMD, ScD; Elsbeth Kalenderian, DDS, MPH, PhD

### PRESENTED BY:

- AMAL MOHAMMED ALHAMID-435200321
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### Introduction

- Errors are commonplace in health care, including dentistry. It is imperative for dental professionals to intercept errors before they lead to an adverse event and to mitigate their effects when an adverse event occurs. This requires a systematic approach at both the profession level, encapsulated in the Agency for Healthcare Research and Quality's patient safety initiative framework, as well as at the practice level, in which crew resource management is a tested paradigm. Supporting patient safety at both the profession and dental practice levels relies on understanding the types and causes of errors, which have not been well studied.

### Method

**Search methods**

electronic bibliographic databases (PubMed, Embase, Web of Science, and CINAHL) key words: patient safety, medical errors, adverse effects, dental care, dental procedures, dental treatment, and facility. 4,729 unique articles were identified for screening.

**Review process**

exclusion of 2,449 articles that were not relevant to our objective, based on the following criteria: non-English language publications (n = 1,241); non-dental focus (n = 647); quality improvement focus; adverse events due to patient underlying condition (n = 29); guidelines, protocols, systematic reviews, clinical trials, observational studies, control groups on dental adverse events and related patient safety issues (n = 66); those 162 publications contained the final selection for inclusion in the final synthesis.

**Data extraction**

Two independent reviewers (E.M.O., E.K.) manually extracted data from these case reports and case series using an adverse event data collection form developed by the authors. Background characteristics were collected on authors, as well as the publication title, country, journal, and if available, the association further characterized as full-text; incident description; case characteristics (age, sex, clinic setting where adverse event occurred); adverse event; patient care during which the adverse event was detected; proximal cause; type of patient harm; degree of harm; and recovery actions.

**Data analysis**

Data were transferred to a spreadsheet using Microsoft Excel and analyzed using descriptive statistics were obtained for each main category. The results are shown in the next section.

### Results

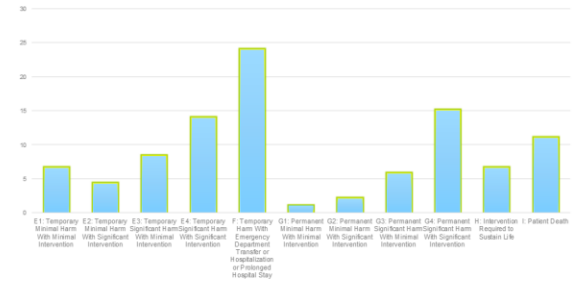
Background characteristics of dental patient safety case reports	
Characteristics	%
DESCRIPTION OF PUBLICATIONS	
<b>PUBLICATION YEAR</b>	
Before 1980	2.2
1981-1990	7.1
1991-2000	37.9
2001-2010	35.7
2010+	17.0
<b>WORLD HEALTH ORGANIZATION REGION</b>	
Africa	0.5
Americas	44
Southeast Asia	6.6
Europe	37.4
Eastern Mediterranean	1.1
Western Pacific	10.4
DESCRIPTION OF CASE	
<b>AGE(Y)</b>	
Younger than 15	13
15-24	15.6
25-44	28.5
45-64	28.1
65+	10
Not specified	4.8
<b>SEX</b>	
Female	47.4
Male	52.5
Not specified	0.4
<b>CLINICAL SETTING WHERE THE ADVERSE EVENTS ORIGINATED</b>	
Dental office	40
Hospital	34.8
Not specified	25.2
<b>PHASE OF CARE WHEN THE ADVERSE EVENTS WAS DETECTED</b>	
During visit	35.6
After visit	64.4

### Discussion

- Our primary objective in this report was to characterize dental adverse events from the biomedical literature using case reports. This article represents a call to action for the dental profession on patient safety. Our findings suggest that:
  - dentistry needs a standardized way of communicating about errors and adverse events;
  - dental professionals need a venue in which they can efficiently report adverse events and near-misses across a range of severities;
  - dental patient safety event case reports should be accompanied by a root cause analysis
- Delayed appropriate treatment, unnecessary treatment, and disease progression associated with misdiagnosis comprised almost one-quarter of all cases reviewed (23%)
- Our results illustrate that most patients whose adverse events were published within case reports experienced temporary harm significant enough to require a transfer to the ED or hospitalization (24.1%), intervention required to sustain life (6.7%), or resulted in permanent harm (24.4%) or death (11.1%).

Overview of dental adverse events by type of harm.			
TYPE OF HARM	EXAMPLE OF PATIENT HARM	FREQUENCY, n (N=270)	%
Delayed Appropriate Treatment, Disease Progression, and Unnecessary Treatment Associated With Misdiagnosis	Melkersson-Rosenthal syndrome misdiagnosed as angioedema and dental abscess resulting in multiple tooth extractions	62	23.0
Other Systemic Complications, Including Adverse Reactions to Dental Device, Material, or Procedure I	Intracerebral hematoma after tooth extraction	57	21.1
Allergy and Hypersensitivity Reactions	Latex allergy (bite-wing radiograph pack, rubber dam, prophylaxis cup)	29	10.7
Systemic Infection	Cerebral abscess after dental procedure	28	10.4
Soft-Tissue Injury or Inflammation	Accidental injection of formalin into soft tissues instead of local anesthetic	23	8.5
Aspiration of Foreign Body	Aspiration of rubber mouth prop	11	4.1
Nerve Damage or Injury	Paresthesia of infraorbital region	11	4.1
Hard-Tissue Damage	Root perforation during endodontic treatment	8	3.0
Psychological Distress or Disorder	Anorexia nervosa induced by painful orthodontic treatment	7	2.6
Toxicity or Drug Overdose	Injection of 1:1,000 adrenaline versus 1:100,000	7	2.6
Orofacial Infection	Necrotizing fasciitis of infraorbital region	6	2.2
Poor Hemostasis or Prolonged Bleeding	After traumatic tooth extraction in hemophilic patient	6	2.2
Ingestion of Foreign Body	Ingestion of endodontic file	5	1.85
Other Orofacial Complications	Tear of suspension ligaments in temporomandibular joint after excessive digital manipulation of chin by dentist	5	1.85
Retention of a Foreign Object With Sequela	Breakage of surgical bur and retention within bone	3	1.1
Poor Esthetic Results Postdental Treatment	Malposition implants	2	0.7

Dental patient safety case reports characterized by degree of harm



### Conclusion

- Dental professionals can contribute to the corpus knowledge on dental patients safety events by writing and submitting manuscripts to peer reviewed journals. By actively engaged and incentivized Private practitioners to participate and Journal editors are also encouraged to accept and publish more. It is our recommendation that these reports should contain a root cause analysis and a follow-up to give a sense of the permanency of the harm. Although it is not reasonable to propose that every lost temporary crown or perforated root should appear as a case report in a journal, a broad-based reporting system is a good forum for tracking the prevalence of these more common events.
- Published case reports provide a window into understanding the nature and extent of dental adverse events; however, the overall dearth of publications on adverse events in the dental literature points to the need for more study.