Abstract
This article was migrated. The article was marked as recommended.

To draft any education workshop, several guidelines should be followed: 1.) describing the context; 2.) conducting a need assessment; 3.) developing the design and the delivery strategy; and 4.) evaluating learners and workshop. This paper presents the first general guidelines for drafting such an educational workshop that would target emergency medicine residents and physicians who are expected to acquire the knowledge and skills needed to properly manage various emergency situations of which dental emergencies is one of them.

Keywords
education, workshop, guideline, develop, design, dental, emergency
Introduction
Emergency residents cover various basic topics in medicine and surgery. In most health professional fields, including medicine, students undertake a long process to acquire the relevant knowledge and skills needed for their profession (Ericsson, 2004). It is necessary for emergency physicians to gain the knowledge and skills to assess, stabilize, investigate, and manage critical and acute cases.

Emergency departments accessibility to dental and oral surgery services differs depending on the medical institution. Emergency physicians may have full-time consultation privileges and little need to carry any dental procedures within their department. However, very often they will be the only providers available to manage patients presented with dental pain or injury (Ryan & Stone, 2010).

Aside from hospital resources available, every emergency physician is expected to be competent in managing basic emergency dental procedures (Amsterdam, 2009). This paper provides the first guidelines that outline the stages of developing an educational workshop that will target emergency medicine residents and physicians for the purpose of improving their knowledge and skills in managing several dental emergencies. It describes the theoretical steps that are usually completed before conducting the workshop. These steps include describing the context in which the workshop will take place, assessing residents’ and physicians’ needs, developing the design and the delivery strategy, and evaluating the learners and workshop (Figure 1).

Context
The Saudi Program of Emergency Medicine (SPEM) under the Saudi Commission for Health Specialties envisions becoming the strongest and most active academic department of emergency medicine in the Middle East. It offers a four-year residency program. Residents are offered a four-year rotating curriculum of core topics in emergency medicine during their course of study that lasts from years PGY1 to PGY4. Academic half day (AHD) rounds are scheduled weekly. Occasionally, special guests are invited to join these rounds, and skill developing workshops are also sometimes conducted. After the fourth year of the program, residents must pass the Saudi Board of Emergency Medicine Exam in order to graduate and be certified as emergency physicians. (www.scfhs.org.sa)

Conducting need assessment
Dental emergency cases are rarely encountered in emergency departments because patients usually prefer to wait to see their dentists. However, some patients cannot tolerate the pain or may require emergency treatment due to accidents and major face trauma. Therefore, EM physicians require sufficient knowledge and skills to deal with such cases when they do arise even if they are infrequent (Amsterdam, 2009)

The conduction of needs assessment is consistently advisable in order to develop relevant curriculum (Aherne et al, 2001). For this proposed workshop, the use of surveys and a focus group interview is suggested. The questionnaire introduced in this paper is composed of five 4-point Likert questions and one open-ended question asking residents and physicians to describe one dental emergency case they have faced, how they felt about dealing with it, and their approach in managing the case (Appendix A). Because of our target group’s busy schedule and because email is used as the official method of communication, the questionnaire will be emailed. Residents ranging from those in their first year of their EM
residency program to those who are in their final year will be expected to participate as will EM physicians and consultants. A focus group open interview with chief residents and the program director will provide more insight regarding the types of dental emergencies usually encountered in the emergency department. The findings are expected to help demonstrate the need and obtain information that could be helpful in drafting the development of the workshop. There is no doubt that such a workshop will increase the confidence of emergency medicine residents and physicians when treating dental emergency cases.

**Designing and developing the workshop**

Data collection and analysis from both questionnaire and focus group interviews will help in developing a preliminary list of relevant categories and themes. Designing and developing the workshop will involve deciding what content to include, writing the content, and gathering the learning material. The content of the teaching sessions should be relevant, interesting, and practical. Six themes are expected to emerge: 1.) dental abscess; 2.) pericoronitis; 3.) TMJ disorders; 4.) dental nerve blocks; 5.) dental fractures; and 6.) tooth avulsions (Ryan & Stone, 2010).

Emergency medicine is a profession that deals with problems, diagnostic dilemmas, and variability in treatment plans and algorithms. Managing dental complaints is not a well-defined process. Therefore, teaching strategies that involve analysis and problem solving skills such as problem-based learning and simulation are essential components for this workshop.

Since problem-based learning was first introduced at McMaster University in the mid-1960’s, it has been extensively used in education. Problem-based learning (PBL) is the learning that happens during the process of understanding and solving a problem (Barrows & Tamblyn 1980). It is a pedagogic strategy in which facilitators present scenarios that allow learners to gain knowledge in a self-directed form (Gidman & Mannix 2007). PBL creates an enjoyable learning environment, which promotes problem-solving skills in conjunction with communication and verbal skills. In addition, it gives learners the opportunity to discuss the moral and ethical dimensions of given scenarios (Federnman 1999).

In addition, simulation is a teaching strategy that has been a favored teaching method in healthcare education for a while. It is used to reproduce elements of a real-life situations integrated in such a way in order to achieve specific goals. Simulation provides a risk-free environment that creates a safe hands-on setting. It promotes not only critical thinking and decision-making skills but also the clinical expertise needed to manage simple and complex clinical situations (Decker et al 2008). Simulation comes in three levels of fidelity: 1.) low-; 2.) moderate-; and 3.) high-fidelity simulators. For this workshop, the use of low- and moderate-fidelity simulators is suitable.

Problem-based learning combined with simulation is expected to provide residents and physicians with critical thinking abilities in addition to the knowledge and the skills needed to effectively manage their cases.

**Workshop evaluation**

Evaluation is composed of several organized steps taken to both gather and convey information about a delivered program (Hawthorn & McDavid, 2006). For this proposed workshop, an evaluation should be conducted to measure the benefits of the program and to evaluate the workshop as a whole (context, design, and delivery). The use of multiple-choice questionnaires is common in assessments. It can be administrated in a relatively short-period of time and also covers several contents areas. As such, the administration of this evaluation format is straightforward and standardized (Epstein, 2007). The questionnaire should ask learners to choose the best answer from a list of possible answers. Pre- and post- tests should be conducted before and after the workshop. The significance of the differences between each resident’s scores before and after the workshop will give insights into the program efficiency and effectiveness. Questions should address all six themes of the program and focus on assessing, stabilizing, investigating, and managing dental emergencies.

A modified version of the Learner Experience Feedback Form (Appendix B) that was built to align with W(e)Learn can be used to evaluate the workshop. It is a framework developed to guide the design, delivery, development, and evaluation of interprofessional courses and programs (MacDonald, Stodel, Thompson, & Casimiro, 2009).

**Summary**

Throughout this paper, we have explained the steps needed to conduct a dental emergency educational workshop, including a discussion of a need assessment, how to design and develop the workshop, and evaluation of learners and the workshop. These guidelines are general and can be used for planning any educational workshop.
**Recommendation**
- Conducting a questionnaire to assess if there is an actual need for this proposed workshop
- Developing and conducting the workshop
- Continuous evaluation and improvement of the workshop

**Notes On Contributors**
Nozha M. Sawan

Bacholar of Dental Surgery from King Saud University- Riyadh, Saudi Arabia (BDS)

Masters in Health Profession Education from University of Ottawa- Ottawa, Canada (MEd)

Masters in Dental Science from Indiana University- Indianapolis, USA (MSD)

Diplomate of the American Board of Orthodontics

Works at Princess Nourah Bint Abdulrahman University- College of Dentistry, Department of Preventive Science, Division of Orthodontics

**Declarations**
The author has declared that there are no conflicts of interest.

**Appendices**

**Appendix A**
You are about to participate in a training need survey. Please choose the answer that best reflects your level of satisfaction

**Are you a:**
- Consultant
- Staff physician
- Senior resident
- Junior resident

**Are you obtaining or have obtained your training:**
- Locally (in Saudi Arabia)
- Abroad (Europe)
- Abroad (North American)
- Other, please specify

**Satisfaction with your level of knowledge about dental emergencies:**
- Very satisfied
- Satisfied
- Slightly dissatisfied
- Very dissatisfied

**Satisfaction with your skills in assessing any case with a dental emergency:**
- Very satisfied
- Satisfied
- Slightly dissatisfied
- Very dissatisfied

**Satisfaction with your skills in stabilizing any case with a dental emergency:**
- Very satisfied
- Satisfied
- Slightly dissatisfied
- Very dissatisfied

**Satisfaction with your skills in managing any case with a dental emergency:**
- Very satisfied
- Satisfied
- Slightly dissatisfied
- Very dissatisfied
Satisfaction with the amount of information about dental emergencies in your current curriculum:
- Very satisfied
- Satisfied
- Slightly dissatisfied
- Very dissatisfied

Describe one dental emergency that you have faced. How did you manage the emergency? Did you feel comfortable dealing with the case?

Thank you for your participation!

Appendix B  Learning Experience Feedback Form

The information you provide here will be kept completely confidential. Results will be reported in a group format and no individually identifying information will be included. Only the Evaluation Team will have access to this information. Please rate how much you agree or disagree with the following statements by checking the answer that best reflects your experience with the Dental Emergencies workshop:

|                                      | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|--------------------------------------|-------------------|----------|---------|-------|----------------|
| **Content**                          |                   |          |         |       |                |
| The objectives of the workshop were made clear |                   |          |         |       |                |
| The workshop was well organized      |                   |          |         |       |                |
| The workshop was of appropriate depth and breadth |                   |          |         |       |                |
| The workshop included information that I will be able to use to deal with dental emergencies in the workplace |                   |          |         |       |                |
| The workshop included information that I will be able to use to deal with dental emergencies |                   |          |         |       |                |
| The workshop addressed learning situations similar to those I face at work |                   |          |         |       |                |
| The workshop covered current best practices in dental emergencies |                   |          |         |       |                |
| **Delivery**                         |                   |          |         |       |                |
| I received useful feedback from the facilitators |                   |          |         |       |                |
| The workshop was presented in an interesting manner |                   |          |         |       |                |
| The workshop was presented in an interactive manner |                   |          |         |       |                |
| There was sufficient variety in the way the content was presented |                   |          |         |       |                |
| **Service**                          |                   |          |         |       |                |
| Facilitators responded quickly to suggestions made by learners |                   |          |         |       |                |
| Facilitators responded quickly to complaints made by learners |                   |          |         |       |                |
| Facilitators were knowledgeable about dental emergencies |                   |          |         |       |                |
| **Structure**                        |                   |          |         |       |                |
| The workshop kept my interest        |                   |          |         |       |                |
| The workshop built my confidence in understanding how to deal with dental emergencies |                   |          |         |       |                |
**Continued**

| Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|-------------------|----------|---------|-------|----------------|
| The workshop contained realistic and relevant cases | | | | |
| There was a positive learning environment | | | | |
| **Outcomes** | | | | |
| I enjoyed the experience | | | | |
| As a result of attending this workshop I can correctly assess patients with dental complaints | | | | |
| As a result of attending this workshop I can stabilize patients with dental traumas and pain | | | | |
| As a result of attending this workshop I can properly manage patients with dental emergencies | | | | |

**Bibliography/References**

Amsterdam, J. T (2009). *Emergency dental procedures*. In: Roberts, J.R, Hedges, J, (Eds.), *Clinical Procedures in Emergency Medicine*. 5th ed. Philadelphia: WB Saunders.

Aherne, M., Lamble, W., & Davis, P. (2001). *Continuing medical education, needs assessment and program development: theoretical construct*. Journal of continuing education in the health professions. 21(1): 6–14.

Barrows, H. S, & Tamblyn, R. M (1980). *Problem-based learning, an approach to medical education*. New York: Springer Publishing Co.

Bradshaw, M. J, & Lowerstein, A. J (2007). *Innovative teaching strategies in nursing and related health professions*. (Electronic reproduction. New York: Ovid technologies, Inc.)

Braden, S., Sportsman, S., Puetz, L., & Billings, L. (2008). *The evolution of simulation and its contribution to competency*. The Journal of Continuing Education in Nursing. 39(2): 74–80.

Decker, S., Sportsman, S., Puetz, L., & Billings, L. (2008). *The evolution of simulation and its contribution to competency*. The Journal of Continuing Education in Nursing. 39(2): 74–80.

Epstein, R. M (2007). *Assessment in medical education*. The New England Journal of Medicine. Retrieved from (Reference Source) on March 15, 2017.

Ericsson, K. A (2004). *Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains*. Academic Medicine: Research in Medical Education Proceedings of the forty-third Annual conference.

Federman, D. D (1999). *Little-heralded advantages of problem-based learning*. Academic Medicine. 74(2).

Federman, D. D (1999). *Little-heralded advantages of problem-based learning*. Academic Medicine. 74(2).

Gidman, J., & Mannix, J. (2007). *Problem-based learning*. In Woodhouse, J. (Ed.) *How to teach in the 21st century: teaching strategies in health care education*. (pp. 29–42). Oxford: Radcliffe.

Hawthorn, L. R, & McDavid, J. C (2006). *Program evaluation & performance measurement: an introduction to practice*. Thousand Oaks, California: Sage Publications Incorporation.

Hemelso- Silver, C. E (2004). *Problem-based learning: What and how do students learn?* Educational Psychology Review. 16(3).

Issenberg, S. B, Chung, H. S, Devine, L. A (2011). *Patient safety training simulations based on competency criteria of the Accreditation Council for Graduate Medical Education*. Mt Sinai J Med. 78: 842–853.

MacDonald, C. J, Stodel, E. J, Thompson, T-L., Casimiro, L. (2009). W (e) Learn: A framework for interprofessional education. International Journal of Electronic Healthcare. 5(1), 33–47.

Rayn, M. T, & Stone, W. A (2010). *Dental emergencies*. The Practical Journal for Emergency Physicians. 13(5).

Waldrop, R. D (2000). *Increasing frequency of dental patients in the urban ED*. American Journal of Emergency Medicine. 18: 687–689.
Open Peer Review

Migrated Content

Version 1

Reviewer Report 03 April 2019

https://doi.org/10.21956/mep.19260.r27982

© 2019 Masters K. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Ken Masters
Sultan Qaboos University

This review has been migrated. The reviewer awarded 3 stars out of 5

This is an interesting paper, but I feel that the author has not completed all the steps. The model outlined in the Introduction, does, indeed, give a comprehensive overview of steps to be followed in conducting a useful workshop. When the author fleshes it out, however, too much information is missing:

- There is no discussion of the Learning Objectives creation
- Structurally, the pre-test should be described earlier, and its relationship to the Objectives and Needs Assessment clearly defined.
- The relationship between the post and pre test should be discussed – for example, are they to be the same or different, and the advantages and disadvantages of each. In addition, while “significant differences” is a useful start, the authors might wish to choose a model for assessment of differences, or at least give more criteria (e.g. on how many items would a significant difference be considered a success).

So, I think that the paper is of interest to many, but the author has a little more work to do on fleshing out the activities described in the model.

Competing Interests: No conflicts of interest were disclosed.

Reviewer Report 07 March 2019

https://doi.org/10.21956/mep.19260.r27983

© 2019 Gibbs T. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Trevor Gibbs
This review has been migrated. The reviewer awarded 4 stars out of 5

An interesting paper which is written very clearly and is based upon need. I feel that it will prove useful to all those involved in dental emergencies. My only other suggestion regarding the paper would be to arrange a more longitudinal evaluation that looks at how these guidelines affected the real life work experiences.

**Competing Interests:** No conflicts of interest were disclosed.

Reviewer Report 26 July 2017

https://doi.org/10.21956/mep.19260.r27980

© 2017 Gulzar Z. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

---

Zain Gulzar

Institute of Advanced Dental Sciences and Research

This review has been migrated. The reviewer awarded 4 stars out of 5

This paper clearly and concisely describes the guidelines for designing an educational workshop on the topic of dental emergencies handling, by emergency medicine department's residents and physicians. It's essential for emergency medicine department residents and physicians to have basic knowledge and skills to assess, stabilize, investigate, and manage critical and acute cases. Teaching strategies like problem bases learning combined with stimulation are better choices to acquire competencies to manage dental emergencies, facing real life situations in risk free environment. This paper is informative and these guidelines are helpful for those who are designing and conducting the continuing professional development workshops. However, validity of these guidelines needs to be searched upon to make it implementable in various situations. Learner and workshop evaluation questionnaire is generic that can use for evaluation of any workshop after making some modifications and changes in it.

**Competing Interests:** No conflicts of interest were disclosed.

Reviewer Report 19 July 2017

https://doi.org/10.21956/mep.19260.r27981
This paper offers guidelines for the development of an educational workshop in dental emergencies targeting the needs of residents and physicians in Emergency Medicine. The guidelines are enumerated and described in clearly presented sections making the ideas easy to identify and the method of implementation easy to follow. A useful flow-diagram is supplied together with questionnaires for the use of participants before and after the workshop. The paper gives clear guidelines to anyone wishing to implement a workshop in this field and the generic nature of the instructions makes them relevant for anyone considering providing an educational workshop. Unfortunately, I could not trace one of the references supplied either because of misspelling or because of insufficient citation details.

**Competing Interests:** No conflicts of interest were disclosed.