

Improving *team confidence* in emergency management

How one dental team drastically improved their knowledge and confidence in managing medical emergencies, by general dental practitioner **Dr Rizwana Arshad** with H. S. Basra and B. S. Balaggaan.

The General Dental Council (GDC) requires that the entire dental team is competent at managing medical emergencies. It is important for patient safety and to comply with Care Quality Commission (CQC) requirements. A recent audit conducted by the Resuscitation Council (UK) concluded that many dental professionals do not feel confident or competent at managing a medical emergency.

AIM

The aim of this audit is to improve staff confidence, knowledge and competence at managing a medical emergency. The objectives are to:

1. Achieve an 80% target on knowledge and confidence
2. Improve the weakest areas of current staff knowledge
3. Identify and implement changes where appropriate.

What was audited and how (Fig. 1)

Assessment methods

Confidence: Perception and knowledge questionnaires
 Knowledge: Validated multiple choice question (MCQ) papers
 Competence: OSCE (objective structured clinical skills examinations)

Training methods (Fig. 2)

Basic Life Support (BLS) and Automated External Defibrillator (AED) training – external trainer
 Equipment demonstration
 Drug delivery demonstration
 Lecture and discussion
 Interactive learning

PILOT

Initially a pilot was carried out to identify current staff confidence and knowledge. The pilot once complete would also serve as the first cycle of the audit.

Method and data capture

Data were captured using confidence questionnaires and MCQs (Appendix 1 and 2). The MCQs for each of the cycles were validated to ensure they were of the same level of difficulty. A statistical analysis was used to assess whether there was a significant difference between each of these papers and the results showed that each of the papers were of the same level of difficulty.

The confidence questionnaires were the same as the previous medical emergency audit carried out in 2008-2009, to allow for a yearly comparison:

1. A collaborative practice audit was conducted
2. Staff confidence and knowledge were assessed two weeks before any training
3. Training stations provided a range of training tools
4. Confidence and knowledge were assessed two weeks after the training completed
5. Practice protocol was reviewed with DCPs using problem-based learning (PBL)
6. Staff confidence and knowledge were assessed two weeks after this training session.

Inclusion criteria

All staff were included in this exercise, including administrative staff.

Standards and criteria for pilot

Using the RESUS guidelines all the dentists in the practice agreed that the following medical emergencies should be audited:

Fig. 1 What was audited and how



Fig. 2 Training methods



Appendix 1 Example of questionnaire used

This questionnaire has been devised to assess your confidence levels in dealing with common medical emergencies that you may encounter at work. The aim is to identify areas where further training is required.

You should answer all the questions as honestly as possible and without discussion with your colleagues. The questionnaire should take no longer than ten minutes to complete. Anonymity will be maintained at all times throughout the audit process.

For the following medical emergencies please tick to indicate your confidence level for performing the listed tasks as A, B or C.

A = I would feel very confident in performing this task

B = I think I could perform this task

C = I would not know how to perform this task

ASTHMA	A	B	C
Identification of when a patient is having an asthmatic attack			
Management of an asthmatic patient, following our Medical Emergency Protocol			
Administering the correct number of activations of the Salbutamol Inhaler			
Using the Spacer Device			
Administering the correct flow of oxygen, if required			
ANAPHYLAXIS	A	B	C
Identification of when a patient is having an anaphylactic reaction			
Management of an anaphylactic shock, following our Medical Emergency Protocol			
Administering the correct dose of intramuscular adrenaline			
Using the Pulse Oximeter and identifying high or low oxygen levels			
When to administer a repeat dose of intramuscular adrenaline			
ANGINA	A	B	C
Identification of when a patient is having an angina attack			
Management of an angina attack, following our Medical Emergency Protocol			
Administering the correct number of activations of GTN spray			
Using the Pulse Oximeter and identifying high or low oxygen levels			
Using the blood pressure machine to identify whether blood pressure is high or low			

Appendix 2 Example of questions from confidence questionnaire

A patient starts having an anaphylactic reaction and has trouble breathing, you decide to administer oxygen and monitor patient BP until an ambulance arrives. At what BP would you begin to feel the condition is life threatening and administer adrenaline?

- A. 120/80
- B. 100/70
- C. 90/60
- D. 70/50

A patient is having an asthmatic attack; you monitor the pulse as part of your assessment. What would the pulse rate be?

- A. High
- B. Low
- C. Medium
- D. No change

After having administered aspirin to a patient having a Myocardial Infarction they become unresponsive. You find a faint pulse with shallow unsteady breathing. What do you do?

- A. Keep monitoring until ambulance arrives
- B. Start CPR
- C. Place oxygen mask and administer oxygen
- D. Place patient into recovery position

A 47-year-old male is choking in the chair, what do you do?

- A. Monitor to see if he gets worse
- B. Get him to drink some water
- C. Encourage coughing followed by back slaps and abdominal thrusts
- D. Encourage coughing and call an ambulance

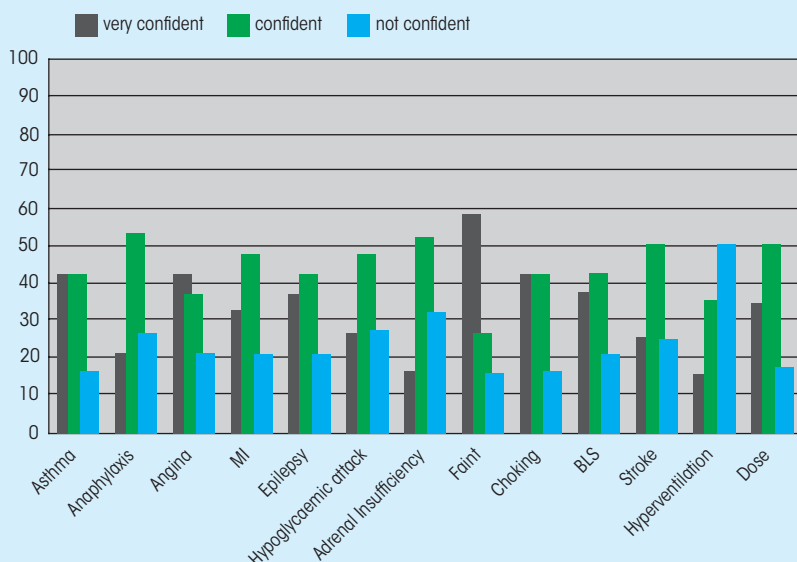
1. Asthma
2. Anaphylaxis
3. Angina
4. Myocardial infarction
5. Epilepsy
6. Hypoglycaemic attack
7. Adrenal insufficiency
8. Faint
9. Choking
10. Basic Life Support
11. Stroke
12. Hyperventilation
13. Drug dose
14. Regulations
15. Normal physiological values.

PILOT RESULTS

Figure 3 shows that confidence levels were very low, with a large number of staff members not feeling confident at all in managing an emergency. This was a huge fall in comparison to levels the year before (Appendix 3).

Figure 4 shows that staff knowledge was very poor, with the highest score being for choking which reached an average of 68%.

Fig. 3 Confidence cycle 1



Relevance

Good confidence and knowledge on management of medical emergencies is essential for competent and efficient patient care. From a legal perspective all members of the dental team should be competent at managing medical emergencies. Inefficient or poor management can lead to severe consequences for both patients and the practice.

AMENDMENTS FOR SECOND CYCLE

For the second cycle the training technique was changed to incorporate a range of training methods and make best use of resources. Staff were broken up into small groups of five and the following training stations were arranged:

- BLS and AED training – External Trainer
- Equipment demonstration
- Drug delivery demonstration
- Lecture and discussion
- Interactive learning.

‘From a legal perspective all members of the dental team should be competent at managing medical emergencies.’

The second cycle was carried out during January 2011.

RESULTS FOR SECOND CYCLE

The results for the second cycle (Fig. 5) showed an improvement. However, not all the emergencies met the 80% target. Results were broken down and divided into what the dentists scored and what the DCPs scored (Fig. 6). Figure 6 shows that overall the dentists did a lot better than the DCPs.

These results were discussed during a staff meeting, and it was discovered that the weak area was the protocol, which had been written

Appendix 3 Confidence levels in 2008-2009

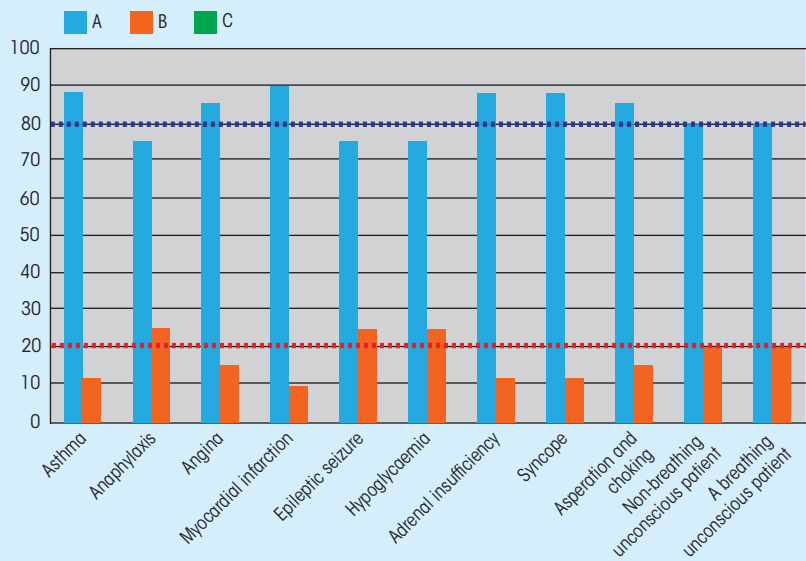


Fig. 4 Knowledge cycle 1

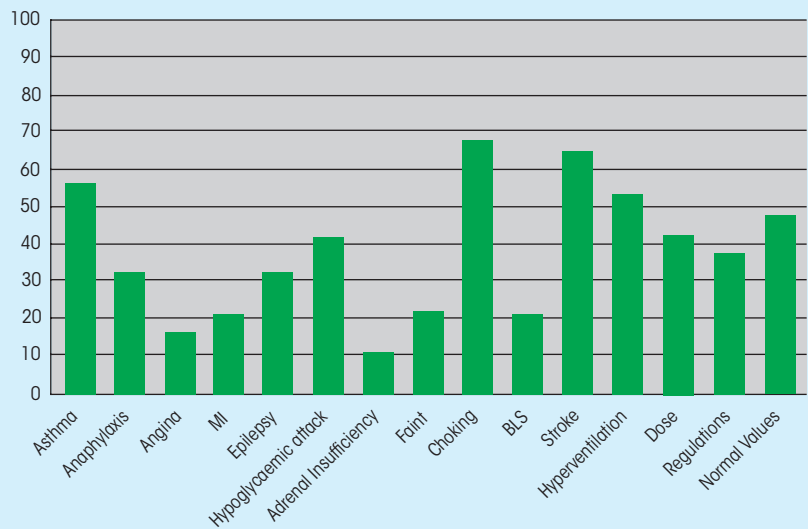


Fig. 5 Knowledge cycle 1 and cycle 2

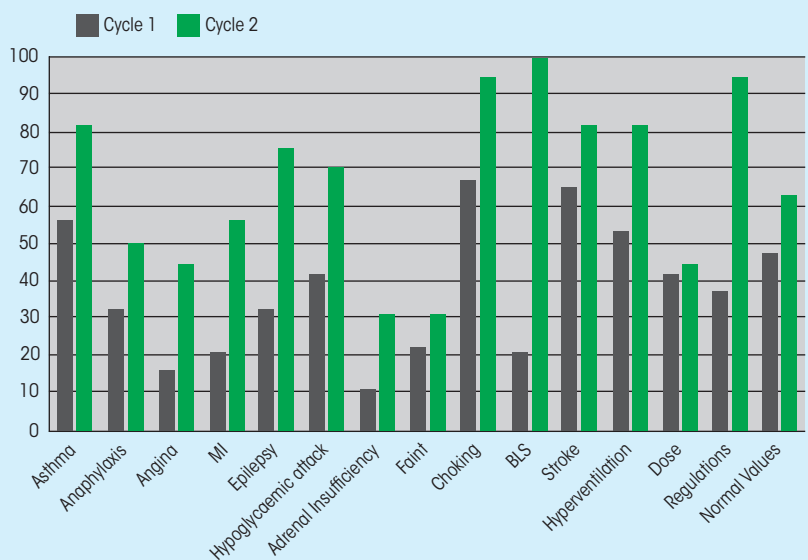
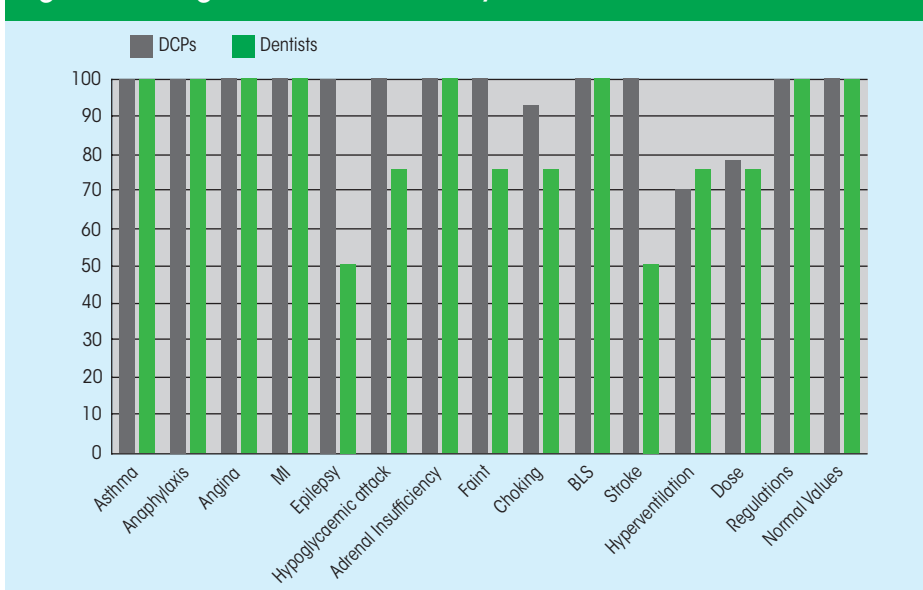


Fig. 6 Knowledge: DCPs and dentists, cycle 2



by the dentists but had never been explained to staff members, although each member had been given a copy as part of their induction. So, either the protocol was not being read or it was not being understood.

AMENDMENTS FOR THIRD CYCLE

At the practice meeting it was proposed that to help improve staff understanding of the practice protocol, problem-based learning exercises would be used as a different training tool. The main reasoning behind this was that it was one training method that had not been used previously in the training stations.

A list of scenarios based on the protocol were made and staff were given time to deliberate and research these. A small lunchtime training session was then held a week later and the scenarios were discussed (Appendix 4).

The third cycle was carried out during February 2011.

RESULTS FOR THIRD CYCLE

Figure 7 shows that confidence levels had greatly improved with all staff now being confident at managing an emergency. The only area that staff were still not confident in was administering the correct dose of drug in an emergency.

There was a huge improvement in knowledge (Fig. 8) with the 80% target being surpassed and staff moving into the 100% region.

One emergency that did not meet the 80% target was hyperventilation (Fig. 8); however, as this was a newly added emergency, knowledge in this can only improve.

RESULTS SUMMARY

Figure 9 shows the improvement in confidence levels over the three cycles. Figure 10 shows improvement in knowledge over the three cycles.

Once knowledge and competence had reached the 80% target, staff competence was assessed using an OSCE. An unexpected situation was created and staff were graded on their performance against a mark sheet. The results were averaged out and we found that the overall competence for the practice was 93%; this was a lot higher than we expected and has exceeded our 80% target.

CONCLUSIONS

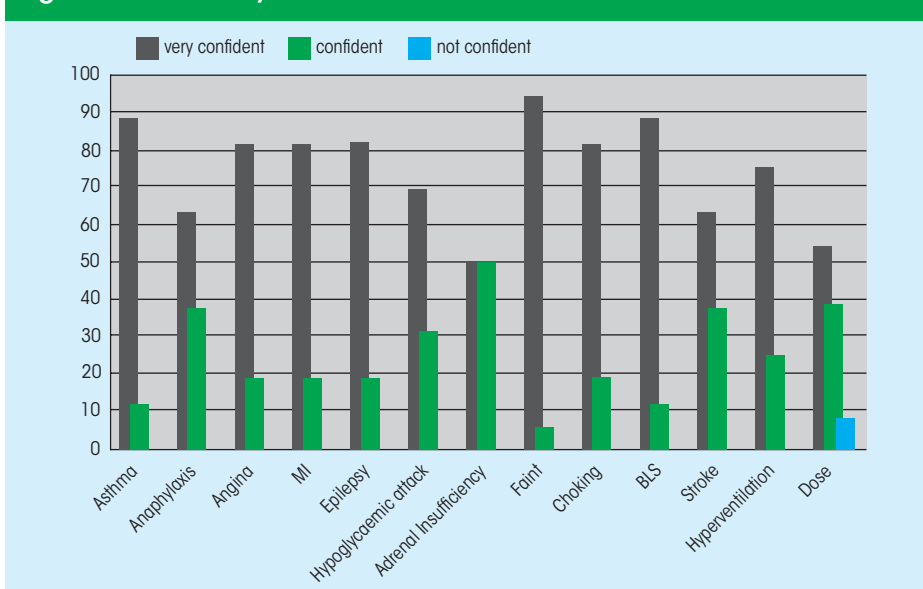
This audit fulfilled its aim and objectives. Knowledge and confidence on medical emergency management improved drastically in our practice. The improvements made will benefit both patients and practice efficiency.

The audit led to several changes being made to practice policy and protocol:

Appendix 4 Drug dose chart

	FIRST LINE	SECOND LINE
Adrenal shock	Raise legs	Oxygen
Anaphylaxis	Oxygen	Adrenaline
Asthma	Salbutamol	Adrenaline
Angina	GTN	Aspirin
Choking	Back slaps	BLS
Epilepsy	Observe for five minutes	Midazolam
Faint	Raise legs	Oxygen
Heart attack	Oxygen	Aspirin
Hyperventilation	Calm patient	Sealed bag
Hypoglycaemia	Glucose drink	Glucagon
Stroke	Oxygen	Oxygen

Fig. 7 Confidence cycle 3



- Different training method to involve training stations and small groups
- Use of audio-visual aids within the training process
- Use of problem-based learning
- Six-monthly in-house training discussions
- The addition of stroke and hyperventilation to practice protocol.

‘The improvements made will benefit both patients and practice efficiency.’

At the final presentation of the audit to the practice, a number of dentists were concerned that the knowledge and confidence in drug dose administration had not improved. Discussion with staff showed that drug dose levels were something that cannot be taught but needs to be learnt. As such to aid staff memory in case of a medical emergency, a drug dose chart has been placed on the medical emergency box (Appendix 4).

In the future it is important to ensure standards are being maintained. A re-audit should be carried out to ensure that confidence and knowledge levels are still at a high standard.

Information sources

1. *Medical emergencies and resuscitation – Standards for clinical practice and training for dental practitioners and dental care professionals.* A statement from the Resuscitation Council (UK). London, July 2006; revised May 2008.
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3. Atherton G J, McCaul J A, Williams S A. Medical emergencies in general dental practice in Great Britain. Part 1: their prevalence over a 10-year period. *Br Dent J* 1999; **186**: 72-79.
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Fig. 8 Knowledge cycle 3

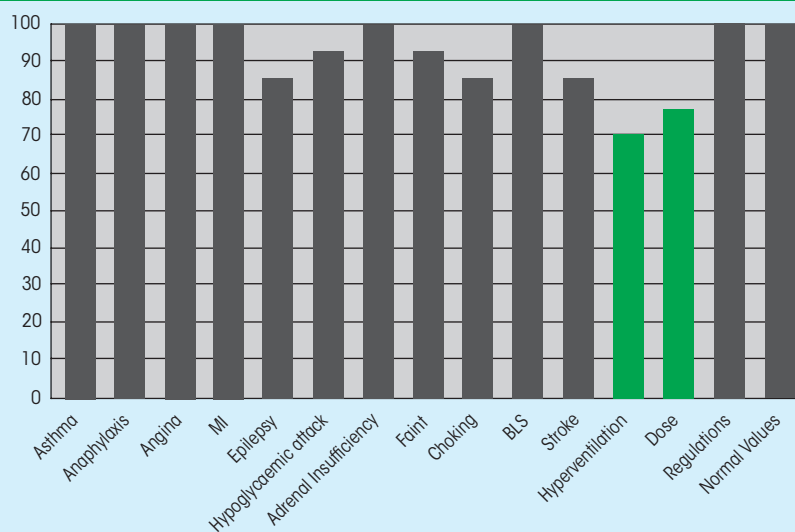


Fig. 9 Confidence cycle 1, 2, 3

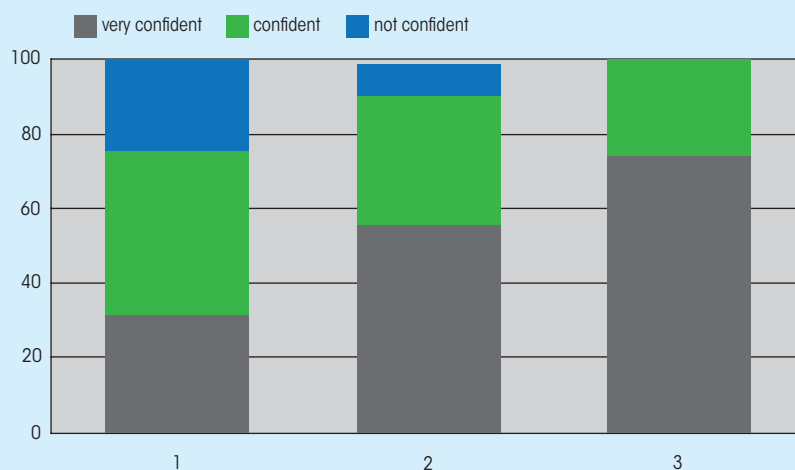
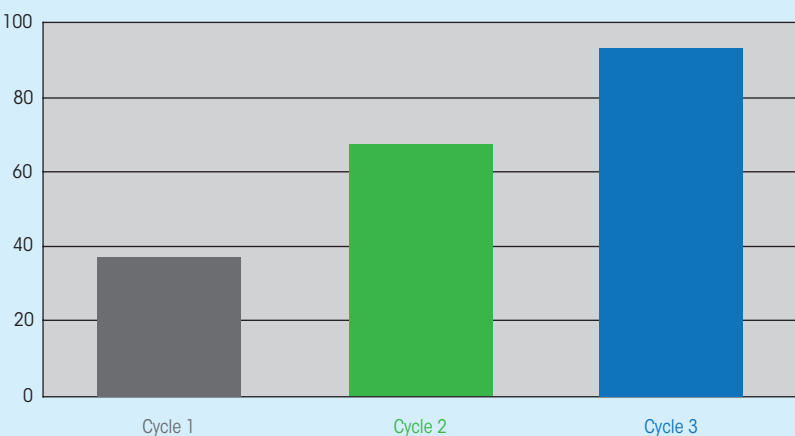


Fig. 10 Knowledge cycle 1, 2, 3



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