I work in general dental practice in Nottingham and we recently had a major medical emergency in which we had to use our recently purchased Automatic External Defibrillator (AED). The following is a case study to highlight the importance of having such a device in your practice.

**CASE STUDY:**

It was a normal working day in the practice but was extremely busy. Reception is usually staffed by three receptionists but due to illness was reduced to only two. As a consequence, queues were often forming and the staff were overwhelmed. It was at such a time that patient S arrived for his appointment; a long standing patient who is 84 years old was due for his check up and an appointment with the hygienist (case study author). The patient has a complex medical history and amongst other medications takes Warfarin and has a pace-maker fitted.

Whilst he was in the queue patient S collapsed and this was noticed by the reception team. The practice emergency protocol immediately swung into action and all patients waiting in the queue were politely moved into the waiting room and the patients’ examining GDP was called as he had no patients in the chair at this time.

The reception team split up to collect emergency equipment, oxygen and our newly acquired AED as well as asking patients who were waiting for an appointment to leave the practice as there was an incident and that we would contact shortly to re-arrange. Of course, a 999 call was made to summon the expert assistance of paramedics.

The patient was initially showing signs of life but these disappeared as time moved on; the decision was made, after assessment, that the patient required Basic Life Support and it was at this time that the further decision was made to attach the AED pads. After carrying out a few cycles of Cardio-Pulmonary Resuscitation (CPR) the pads of the AED were attached to the patient and switched on. The AED will automatically assess the patient and if required, it will shock the patient and then reassess as well as give instructions on when to continue with CPR.

After the first shock, the AED instructed the treating team to continue with CPR which they did and were, a short while later, instructed to stand clear...
as it sought to re-assess the patient to see if further shock was required. The AED administered a second shock to the patient and it was after this that a pulse returned. The team continued to monitor the patient and the paramedics arrived very soon after this.

The paramedics were full of praise for the team as they had felt that the patient had been well managed and the fact that he had a viable pulse and was breathing unassisted was testament to this.

Serious Event Analysis:
As a consequence of the incident the practice will carry out a Serious Event Analysis and subsequently audit the event. This will allow those involved to see what (if any) mistakes were made and how the practice can avoid such mistakes in future. The analysis and subsequent audit will also allow all the good points to be recorded and praised where due.

Defibrillators in practice
There is no requirement under Law for dental practices to have an AED but the Resuscitation Council UK do recommend them in their guidance ME in dental practice and the indemnity organisations ask that dental professionals study this guidance very carefully and consider the implications of not having one. There are some interesting facts that those who are resistant to purchasing one should consider:

- Cardiac arrests outside the hospital environment have, on average, a six per cent survival rate
- If a Cardiac Arrest is witnessed and an AED is applied within five minutes survival rates increase to 49 - 74 per cent

Impact:
It is the practice policy that in the event of a major medical emergency the remainder of the session be cancelled. This was done by the reception team and immediate event analysis was one of a state of shock amongst the staff. Time was needed for the treating staff to "get their head around it" as many had felt that the patient had passed away during the immediate situation yet the fact that the patient left alive is testament to the training the whole team had recently undergone at the Queens Medical Centre, Nottingham in their simulation suite. The team had the opportunity to train using a Sim-Man model that directly interacts with those undergoing training, a valuable yet underused resource that, as far as we're concerned, paid for itself.

The patient (at the time of writing) was still in hospital but was comfortable and recovering well.

There are no studies to show the uptake of AEDs in dental practice but the author currently works across three practices and only the where this incident occurred currently has one (with no plans on the others to buy a device)}

About the author
Shaun Howe trained and qualified in the Royal Army Dental Corps in 1993. He works in the NHS and privately full time in Derbyshire and Nottinghamshire. He is a fully qualified Dental Protection Ltd. he is also a Key Opinion Leader for Philips Sonicare and is currently training in Mentorship. Shaun has a keen interest in Clinical Governance and is an FGDP trained practice appraiser. He currently sits on the Editorial Board of Dental Tribune and contributes to the UK dental press. He has spoken widely to groups all across the U.K. drawing on his experiences on FtP and his work with Dental Protection.