

## Microstream® Capnography Used to Detect Changes in Perfusion During a Code

Submitted by:  
 Monty Neel  
 Carrollton Fire Department  
 Carrollton, Texas



### Profile

A 73-year-old female was reported unconscious and lying on the floor of a commercial warehouse. Carrollton Fire Department responded to find the patient who was pulseless and apneic at the scene with no bystander CPR being performed.

### Clinical Situation

The patient was found to be in ventricular fibrillation when the paramedics arrived and was immediately defibrillated three times with no change in rhythm. The patient was intubated and first round medications were administered intravenously. Endotracheal tube placement was confirmed by auscultation, an esophageal bulb detector and EtCO<sub>2</sub>. A good CO<sub>2</sub> waveform was maintained during manual compressions with continued ventilatory support.

### Clinical Data

EtCO<sub>2</sub>: 12-14 mmHg



### Clinical Situation

A second crewmember took over manual compressions and, although the depth/rate of compressions appeared adequate, the EtCO<sub>2</sub> began to fall. When this was noticed, the crewmember adjusted the depth/rate of compressions and the EtCO<sub>2</sub> began to rise to previous levels. After a return of spontaneous circulation, the end-tidal value rose sharply. A drop in end-tidal CO<sub>2</sub> was noticed when the patient lost her radial pulse but not the carotid pulse. A dopamine drip was started to treat the hypotension and the patient was prepared for transport. Enroute, the patient lost all palpable pulses with the monitor still showing sinus tachycardia and EtCO<sub>2</sub> waveform decreased slightly. Initial diagnostic assumption was PEA per protocol, but this was unlikely since end-tidal levels were around 26 mmHg. The patient's condition was unchanged on arrival at the ED where the patient was stabilized and transported to the ICU.

### Clinical Data Summary

Parameter	Initial Values	Effective Compressions	Ineffective Compressions	Return of Spontaneous Circulation	Hypotension	PEA (or drop in BP)
EtCO <sub>2</sub> (mmHg)	12-14	12-14	Fell towards 0	86	32-35	26
BP (mmHg)	Low	Low	Low	60/palpable	low	low
HR (bpm)	Absent	Absent	Absent	120	120	120