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Melbourne, Australia – AEDs for First Responders

Reduce response times and time to defibrillation in Melbourne

CHALLENGE

An audit in 1995 of ambulance case records in Melbourne (capital city of Victoria, Australia) showed mean ambulance response to out-of-hospital cardiac arrest (OHCA) patients was 9.4 minutes. More than 50% of patients were defibrillated >10 minutes after onset of ventricular fibrillation (VF).

To reduce response times and time to defibrillation, the Emergency Medical Response (EMR) pilot program was established in 1998. This involved simultaneous dispatch of Ambulance Victoria (AV) paramedics and fire-fighters (trained in cardiopulmonary resuscitation and equipped with automatic external defibrillators) to suspected OHCA in a pilot area of Melbourne. At 12 months, the mean EMR response time was reduced by 1.6 minutes (95% CI, 1.2–2.0), from 7.5 minutes in a control area with ambulance dispatch only to 5.9 minutes in the EMR pilot area (171 km²). Survival was higher for patients in VF on arrival of the EMR than in the control area (29% vs 18%). Based on the outcomes of the pilot program, in 2000 the EMR program was expanded to include all 47 metropolitan Melbourne serviced by the Metropolitan Fire Brigade (MFB). At 12 months after the expansion, 90th percentile response time was reduced by >1 minute when fire-fighter response times to OHCA were included.

In 2008, AV proposed a trial to extend the EMR model into Country Fire Authority (CFA) areas. The pilot involved five volunteer brigades in outer metropolitan Melbourne. At 24 months, 90th percentile response time was reduced by more than four minutes to EMR eligible events in the CFA pilot area. A further five additional integrated CFA Brigades (with volunteer and career fire-fighters) were included in the program in 2011. At 12 months, the 90th percentile response time to OHCA patients in the expanded CFA pilot area was 12.2 minutes, compared to 14.0 minutes when considering AV response time only, $p < 0.001$. Median time to first shock was reduced by 1 minute when CFA provided first shock compared to AV (10.5 vs 11.5 minutes). Survival of patients first defibrillated by CFA fire-fighters (43%) was double that of patients first defibrillated by AV (21%).

In 2015, in recognition of the success of the EMR program, the Victorian Government committed to expanding the EMR program to all integrated CFA brigades. We anticipate that further expansion of the EMR program in Victoria will further improve response time and increase OHCA survival.

