



Research School for Operations
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Strategic placement of volunteer responder system defibrillators

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Volunteer responder systems (VRS) alert and guide nearby lay rescuers towards the location of an emergency. An application of such a system is to out-of-hospital cardiac arrests, where early cardiopulmonary resuscitation (CPR) and defibrillation with an automated external defibrillator (AED) are crucial to increase survival chances. However, numerous AEDs are barely used due to poor location choices, while many areas lack appropriate AED coverage instead. We present a comprehensive data-driven algorithmic approach to optimize deployment of (additional) public-access AEDs to be used in a VRS. Using real-world instances from the Netherlands we show that coverage can be increased substantially by relocating existing AEDs, or by strategically placing 5 or 10 additional AEDs per municipality.