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## Belgium – AEDs for First Responders

# Improving the out-of-hospital cardiac arrest patient by empowering the first responder in Belgium.

We investigated the location, 24/7 availability and maintenance of the Belgian public access defibrillators (PAD). Secondly we validated the feasibility of an application that strengthens the chain of survival. At present, timely deployment of an AED in Belgium is a matter of being at the right place, at the right time: nationwide training programs for the public cannot integrate a bystander-driven PAD strategy. Therefore our group developed a four pillar plan.

## GOAL

The ERC Guidelines 2015 highlight the critical importance of the interactions between the emergency medical dispatcher, the bystander who provides CPR and the timely deployment of an AED. Our study group analyzed the possibility to implement an application that draws these elements together, in order to improve survival after an OHCA in Belgium.

## METHODS

We investigated datasheets of the mobile emergency team from 2010 to 2015 to examine the use of PADs before their arrival. A structured telephone survey of the AED database maintained by the MoH was conducted and captured three key questions: current PAD location, availability 24/7 and whether a certificate of maintenance was available.

Secondly, we carried out a modified Delphi approach with participants from the 5 major stakeholders: the bystander, EMS provider, Government, EMD center and patient. a systematic search as performed to identify commercial available alerting systems for community first responders and defined their essential components. Data were plotted using Tableau 9.1.2. software.

## RESULTS

An average of 10.924 OHCA was observed annually and survival rate was 7%. An AED was only used in 0,40% by bystanders before arrival of the ambulance.

We noted that in rural area coverage is limited (Fig. 2). In addition a telephone survey of 570 PADs (10,1%) was conducted. Only 361 (63,0%) of the addresses matched with the officially registered data. 20,4% of the PADs were 24/7 available. Equally important, we found that availability was mostly associated with commercial or other dedicated opening hours. Of all the PAD owners, 367 (88,2%) had purchased a maintenance contract at the selling company.

The essential components of commercial alerting systems for community first responders are a PAD database, volunteer database and communication system for dispatching and guidance. At present there are no such systems implemented in Belgium. However, Belgian EMD centers are compatible and the general public is eager to use innovative approaches.

### CONCLUSION

Recently our Belgian Healthcare Knowledge Centre (KCE) published a report about static AED's for opportunistic use by bystanders. We both highlight the lack of Belgian data on current PAD location, 24/7 availability, maintenance status and their use. This creates a significant delay in the development and launching of first responder applications for cardiac arrest in Belgium. PAD use prior to arrival of the ambulance is still rare. This weak link in the chain of survival needs strengthening.

### THE WAY FORWARD

Future perspectives include a nationwide plan based on four pillars: i) an intelligent database for PADs and volunteer registry, ii) harmonization of reanimation education and training, iii) civilians as the extra tier in EMS, and iv) continuous quality improvement through scientific analysis and feedback.

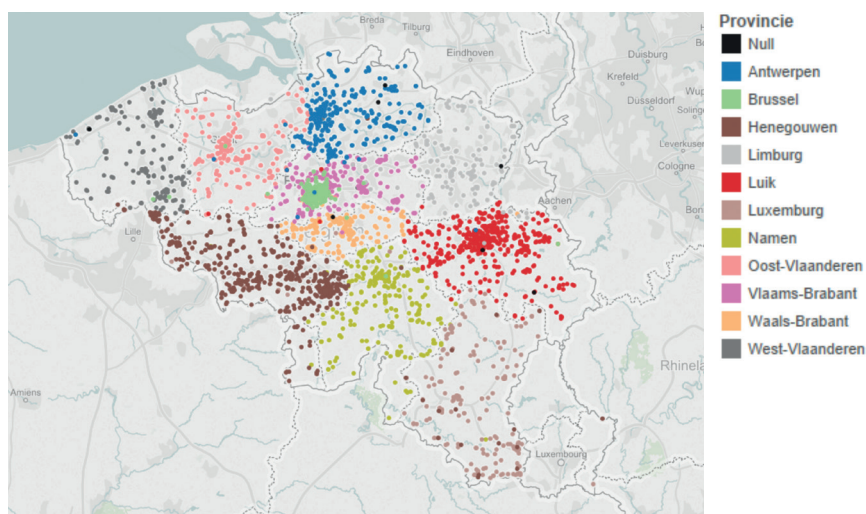


Figure 1: Localization of public-access defibrillators in Belgium. Each colour indicates another province.

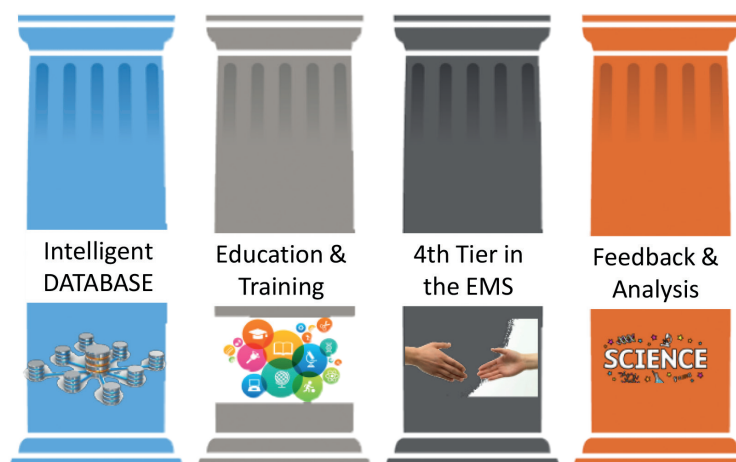


Figure 2: Four pillar plan to improve the out-of-hospital cardiac arrest patient in Belgium.



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