

The Langeland AED project


Incorporates emergency dispatch, **FirstAED** GPS technology, smartphones, first responders with distinct roles and an AED network

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Background – the Langeland Island

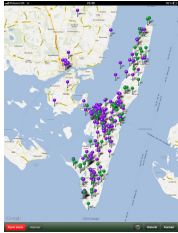
- Part of rural Denmark.
- ~ 13,000 inhabitants.
- Long distances to the nearest hospital (55 km).
- Long ambulance response times (40 % ≥ 15 minutes, 13 % ≥ 20 minutes).
- Bystander CPR provided by 215 trained first responders.
- 95 AED's purchased by the population.
- All AED's available around the clock.
- General "first responder" response times (8-10 minutes).



Action: Emergency call

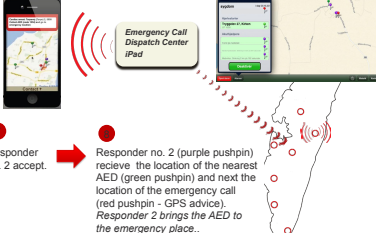
Dispatch Center iPad – GPS tracking

- All first responders (n= 215 (purple pushpins)) (GPS-tracking)
- AED's (n= 95 (green pushpins))
- Emergency Call Activate iPad – GPS Tracking



Responder no. 2 accept.

Responder no. 2 (purple pushpin) receive the location of the nearest AED (green pushpin) and next the location of the emergency call (red pushpin - GPS advice). Responder 2 brings the AED to the emergency place..



Key results of the first 17 months – 513 alarms

- 3 first responders On Site in 90 % of the cases.
- Arrival before ambulances in 95 % of the cases.
- Median time to First Person On Site (FPOS) time = 246 seconds = 4 minutes and 6 seconds.
- Median time to AED On Site time = 370 seconds = 6 minutes and 10 seconds.
- Estimated median time to Ambulance On Site time = 714 seconds = 11 minutes and 54 seconds.

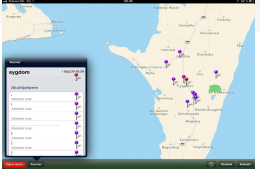
FirstAED activate trained volunteer first responders



Action: GPS tracking

Emergency Call Dispatch Center iPad

- GPS tracking will immediately find the geographically closest responders.
- The 9 closest first responders are alarmed (push message).
- The 3 most optimally located first responders are organized in a team.
 - First responder no. 1 and no. 3 hurry to the emergency place (GPS advice)
 - First responder no. 2 collects the AED (GPS advice)
- The IT-system activate the AED cabinets (unlock, sound & flash light).



Key results of the first 17 months : Alarm type


Alarm type	Number	Percentage
Disease	414	~ 80,8 %
Traffic accident/ fire	15	~ 2,9 %
Accident	38	~ 7,4 %
Cardiac Arrest	32	~ 6,2 %
Others	14	~ 2,7 %
Total	513	

Key results of the first 17 months – FirstAED Emergency Call

- 6 Cardiac arrests
 - 2 survived, 1 survived more than 30 days.
- 5 Respiratory insufficiency
 - 4 survived more than 30 days, 1 died at the hospitalet.
- 20 AMI (AED monitoring).
- 2 Hangings
 - 1 survived more than 30 days, 1 died.
- 5 Children with febrile seizures (Complete restituted)
- 2 Divers with decompression sickness (Complete restituted)
- 1 Subarachnoid haemorrhage (Restituted)

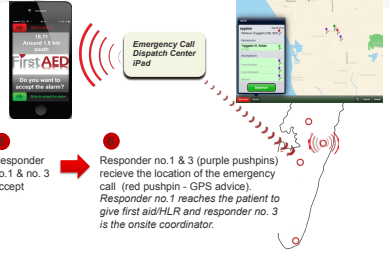
Methods:

- An IT-system combining ideas from the AED center and modern information and communication technology (FirstAED app).
- All first responders are provided with an rescuer smartphone (iPhone 4S/5).
- An auxiliary to the public services.
- FirstAED organizes the three first responders in a team with distinct roles.
- The IT-system activate the AED cabinets (unlock, sound & flash light).



Responder no. 1 & no. 3 accept

Responder no. 1 & 3 (purple pushpins) receive the location of the emergency call (red pushpin - GPS advice). Responder no. 1 reaches the patient to give first aid/HLR and responder no. 3 is the onsite coordinator.



Response times and arrival

Median Response time – Langeland	Time seconds	Number first responders	Arrival On Site	Percentage
First Person On Site (FPOS)	246	3 first responders		90 %
AED On Site	370	2 first responders		6,5 %
		1 first responders		2,7 %
		0 first responders		0,8 %
Arrival				
Before ambulances/paramedics/ doctors				95 %

Perspectives: FirstAED

- The Langeland AED project developed the FirstAED in the hope to get shorter response times.
- The FirstAED GPS app technology entails a significant reduction in first responder median response times from more than 8 minutes before to 4 minutes 6 seconds after.
- FirstAED organizes the three first responders in a team with distinct roles.
- FirstAED activate the AED cabinets (unlock, sound & flash light).