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François Morin, Delphine Douillet, Lionel Lamhaut, Marc Fadel, Dominique Savary

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Deployment of “super lay-rescuers” equipped with AED to improve OHCA survival: An innovative partnership between emergency medical service, city hall and a mobile application in France

To the Editor,

Early defibrillation is a major determinant of survival in out-of-hospital cardiac arrest (OHCA).^{1,2} Shockable rhythms account for 18.7% of treated OHCA patients in emergency medical services (EMS), thanks to automated external defibrillators (AED). Shockable rhythms are strongly associated with improved survival rates compared to non-shockable rhythms in OHCA.³ Defibrillation within 3–5 min of collapse can lead to survival rates as high as 50–70%.⁴ Thus, reduced time between call to the emergency call center (ECC) and AED using is a major issue.^{2,5}

Early recognition of OHCA and resuscitation performance with early defibrillation is the best way to increase survival chances. However, professional EMS arrive on site in about ten minutes in France.⁶ The two steps to improve survival are one, to have volunteer rescuers on site quickly and two, to have them perform early defibrillation by an AED.

For the first step, notifying citizens as first responders to an OHCA event through a smartphone application with a mobile positioning system or a text message alert system increases early defibrillation and thereby improves survival.^{5,7,8} The smartphone application SAUVLife© (Paris, France) currently used in France allows the ECC to solicit trained and registered lay-rescuers. If you are connected and present in a one-kilometer perimeter around the victim, the application will alert and guide you to start CPR. It also warns another available lay-rescuer to a referenced AED and guides him to the victim.

Angers is a city in western France with 152,960 inhabitants and covers 42.70 km². The ECC of the Angers University Hospital handles about 245 OHCA p.a. SAUVLife© has been implemented in Angers in December 2021, with 11,300 lay-rescuers registered to this date. In 77 cases, SAUVLife© lay-rescuers began basic life support, with 6 (7.8%) returns of spontaneous circulation. Among them, despite 165 AED (10,8/10000 inhabitants) in the city, only two (2/77; 2.6%) were brought and used on victims before EMS arrival.⁹ Many reasons can be given: difficulty for non-professional rescuers to find an AED nearby, too great a distance to retrieve the defibrillator, damaged equipment. . . Stieglis et al. highlighted that increasing

AEDs' density and alerting first responders with a text message decreased time to defibrillation in residential areas compared with time to defibrillation by EMS.¹⁰

From May 2022, a partnership between the EMS of the Angers University Hospital, the city of Angers and the SAUVLife© application will allow to equip volunteer citizen rescuers with their own portable AED. These “super lay-rescuers” can be municipal staff, medical students or volunteers who agreed to always keep the defibrillator with them, day, and night. The geographical distribution of the portable AED in the 6 geographical districts of Angers will allow a homogeneous coverage of the city and rapid action regardless of the location of the OHCA.

With this innovative method, which is a first in France, aiming to increase AED usage before arrival of professional rescuers and to improve OHCA survival. This experiment should also allow to recruit more standard lay-rescuers and if successful, be extended to other areas.

Conflicts of interest

None.

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REFERENCES

79 1 Caffrey SL, Willoughby PJ, Pepe PE, Becker LB. Public Use of
80 Automated External Defibrillators. *N Engl J Med* 2002;347:1242–7.
81 <https://doi.org/10.1056/NEJMoa020932>.
82 2 Ringh M, Jonsson M, Nordberg P, et al. Survival after Public Access
83 Defibrillation in Stockholm, Sweden—A striking success. *Resuscitation*
84 2015;91:1–7. <https://doi.org/10.1016/j.resuscitation.2015.02.032>.
85 3 Grunau B, Reynolds JC, Scheuermeyer FX, et al. Comparing the
86 prognosis of those with initial shockable and non-shockable rhythms
87 with increasing durations of CPR: Informing minimum durations of
88 resuscitation. *Resuscitation* 2016;101:50–6. <https://doi.org/10.1016/j.resuscitation.2016.01.021>.
89 4 Larsen MP, Eisenberg MS, Cummins RO, Hallstrom AP. Predicting
90 survival from out-of-hospital cardiac arrest: a graphic model. *Ann*
91 *Emerg Med* 1993;22:1652–8. [https://doi.org/10.1016/s0196-0644\(05\)](https://doi.org/10.1016/s0196-0644(05)81302-2)
92 [81302-2](https://doi.org/10.1016/s0196-0644(05)81302-2).
93 5 Perkins GD, Graesner J-T, Semeraro F, et al. Executive summary.
94 *Resuscitation* 2021;2021. <https://doi.org/10.1016/j.resuscitation.2021.02.003>.
95 6 Luc G, Baert V, Escutnaire J, et al. Epidemiology of out-of-hospital
96 cardiac arrest: A French national incidence and mid-term survival rate
97 study. *Anaesth Crit Care Pain Med* 2019;38:131–5. <https://doi.org/10.1016/j.accpm.2018.04.006>.
98 7 Ringh M, Rosenqvist M, Hollenberg J, et al. Mobile-Phone Dispatch of
99 Laypersons for CPR in Out-of-Hospital Cardiac Arrest. *N Engl J Med*
100 2015;372:2316–25. <https://doi.org/10.1056/NEJMoa1406038>.
101 8 Derkenne C, Jost D, Thabouillot O, et al. Improving emergency call
102 detection of Out-of-Hospital Cardiac Arrests in the Greater Paris area:
103 Efficiency of a global system with a new method of detection.
104 *Resuscitation* 2020;146:34–42. <https://doi.org/10.1016/j.resuscitation.2019.10.038>.
105 9 Géo'DAE – Base Nationale des Défibrillateurs (Géo'DAE) –
106 data.gouv.fr; n.d. [https://www.data.gouv.fr/fr/datasets/geodae-base-](https://www.data.gouv.fr/fr/datasets/geodae-base-nationale-des-defibrillateurs/)
107 [nationale-des-defibrillateurs/](https://www.data.gouv.fr/fr/datasets/geodae-base-nationale-des-defibrillateurs/) (accessed April 27, 2022).
108
109
110
111

10 Stieglis R, Zijlstra JA, Riedijk F, Smeekes M, van der Worp WE,
Koster RW. AED and text message responders density in residential
areas for rapid response in out-of-hospital cardiac arrest.
Resuscitation 2020;150:170–7. <https://doi.org/10.1016/j.resuscitation.2020.01.031>.

François Morin^{a,b,*}
Delphine Douillet^{a,c}
Lionel Lamhaut^{d,e,f}
Marc Fadel^g
Dominique Savary^{a,b,g}
^a *Department of Emergency Medicine, University Hospital of Angers, Angers, France*
^b *Ventlab, University Hospital of Angers, Angers, France*
^c *UNIV Angers, UMR MitoVasc CNRS 6215 INSERM 1083, Angers, France*
^d *Samu de Paris, CHU Necker-Enfants-malades, Assistance publique-Hôpitaux de Paris (APHP), Paris, France*
^e *Université de Paris, F-75015 Paris, France*
^f *UMR Inserm 970, Paris Cardiovascular Research Center (PARCC), université de Paris, F-75015 Paris, France*
^g *UNIV Angers, CHU Angers, Univ Rennes, Inserm, EHESP, Irset (Institut de recherche en santé, environnement et travail) – UMR_S1085, SFR ICAT, CAPTV-CDC, F-49000 Angers, France*

* Corresponding author at: Univ Angers, University Hospital of Angers, Emergency Department, 4, rue Larrey, 49933 Angers Cedex 9, France.

E-mail address: Francois.Morin@chu-angers.fr (F. Morin).