



## Letter to the Editor

## Public access defibrillation is insufficiently available in rural regions – When layperson efforts meet a lack of device distribution



Sir,

The odds of mortality and unfavorable neurological outcome are directly proportional to the time delay from collapse to defibrillation in case of cardiac arrest [1]. Therefore the placement of publicly available automated external defibrillators (AED) and their use by laypeople are recommended in densely populated areas [2]. Whereas it may be cost-effective to only set up AEDs in dense urban regions, a higher need for AEDs must be considered especially in the countryside, based on significantly longer response-times of emergency medical services (EMS). However, many efforts to increase the numbers of AEDs in rural areas were limited due to allegedly reduced disposition of laymen to perform public access defibrillation (PAD) in certain populations [3]. In this regard, the better prognosis of urban cardiac arrest patients compared to their rural counterparts might mirror a result of poor AED-distribution in rural areas and therefore withholding a crucial treatment approach [4]. It seems of utmost importance to enlighten data on the availability of AED devices and the laypersons' willingness for PAD-use

from a population-based rural perspective. Therefore, we investigated the current situation of PAD in the mostly rural area of the state Lower Austria (Austria) with approximately 1.6 million inhabitants and about 19.000 square kilometers between January 2017 and September 2017. Within this observation period, a total of 1394 AEDs were publicly and permanently available and registered on a public website. Additionally, in case of an emergency call with the indication for AED assessment (acute coronary syndrome [AED for standby] and cardiac arrest), the dispatcher guides a second bystander towards the nearest AED (maximum of 5 min of walking distance) via telephone.

We found that an AED would have been indicated for use in 8917 emergency calls during the observation period. (Fig. 1) Of utmost importance, there was no AED available in 97.3% (n = 8677) of all cases. In 240 cases, an AED was available, including 66 situations (27.5%) when the assessed AED was not used at the patient for defibrillation or standby: in 2 cases the AED was not accessible for the layperson and in 58 cases the EMS arrived at the scene at before the AED (87.9%). Of note, in only 6 cases (2.6% of available cases) bystanders were not

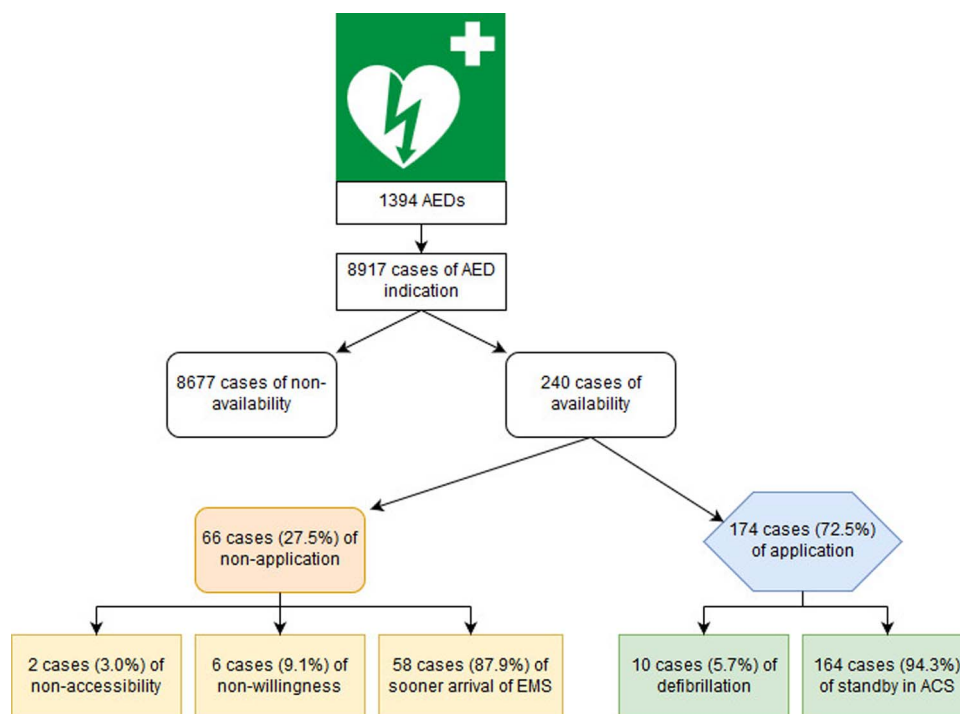


Fig. 1. The distribution of available AEDs and their indicated use. ACS = acute coronary syndrome.

cooperative to fetch an AED device for basic life support. This leaves 174 (72.5% of available cases) situations when an AED was administered at the patient (10 cases [5.7%] for defibrillation, 164 cases [94.3%] for standby).

### The need for densification

Our findings underline the need for a higher density of AED placement in rural areas. Since only 6 bystanders in 240 cases were not willing to assess an AED device, our data mirror a high commitment of layperson-AED-use efforts in this population based analysis. Improving the availability of an AED might shorten time to first defibrillation and therefore impact on survival and good neurological outcome after cardiac arrest in rural regions.

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### Conflict of interest

None.

### References

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