

'MISSING IN ACTION': Debunking risk perceptions of theft and vandalism of public access defibrillators in Wales



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PURPOSE

Community public access defibrillators (CPADs) facilitate provision of early defibrillation yet speedy access to these devices may be hindered by storage in locked cabinets. Rationale for locking cabinets seems based on an exaggerated perception of vandalism/theft risk, despite low incidences of such in the UK.¹

Wales, has one of the largest fleets of CPADs (n=7,612) of the 14 UK ambulance services registered (with a named Guardian) on The Circuit (the national defibrillator network, <http://www.thecircuit.uk/>), with 73% of these available on a 24/7 basis and 57% placed in unlocked cabinets.

This study explores the nature and frequency of 'missing' or 'vandalised' CPADs in Wales and forms part of a work programme (adopting quality improvement methodology) to better understand CPAD accessibility challenges.

METHODS

Save a Life Cymru (SaLC), a national programme, established to improve 30-day survival rate for OHCA in Wales, have a dedicated community team who manage the Welsh fleet of CPADs on behalf of the Welsh Ambulance Services NHS Trust.

Data from daily activity logs of SaLC's community team and The Circuit were reviewed between 6th February 2023 and 20th November 2023, to identify 'missing' or 'vandalised' devices. The term 'missing' rather than 'theft' or 'stolen' was adopted in this work until proven otherwise.

Quality improvement methodology² was adopted to assist understanding of the nature of the problem regarding CPAD accessibility.

Figure 1. Fishbone diagram displays initial root cause analysis regarding reasons why the 'public' may be unable to access locked cabinets.

Pareto charts, based on the "80/20" rule, also called the "vital few and trivial many"³ were developed to assist with identification of root causes regarding:

- (i) **Why** defibrillators were missing (and in some instances how these were identified as missing), and
- (ii) **Where** defibrillators that were subsequently 'found' were located. Location of any defibrillators found to be 'vandalised' was also recorded.

Additional work, (not reported here) is in progress regarding any location specific features for vandalised defibrillators.

Figure 1.

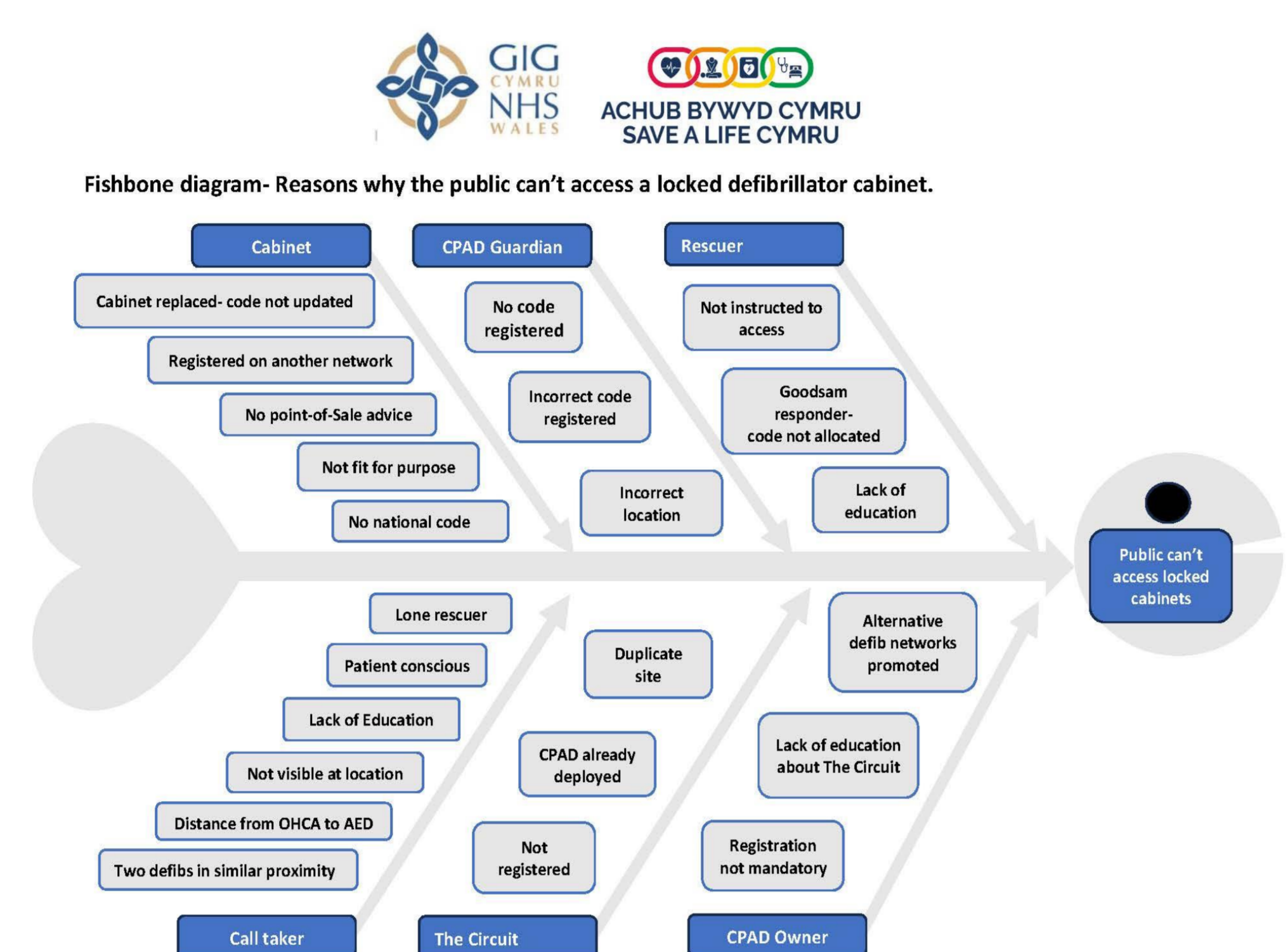


Figure 2.

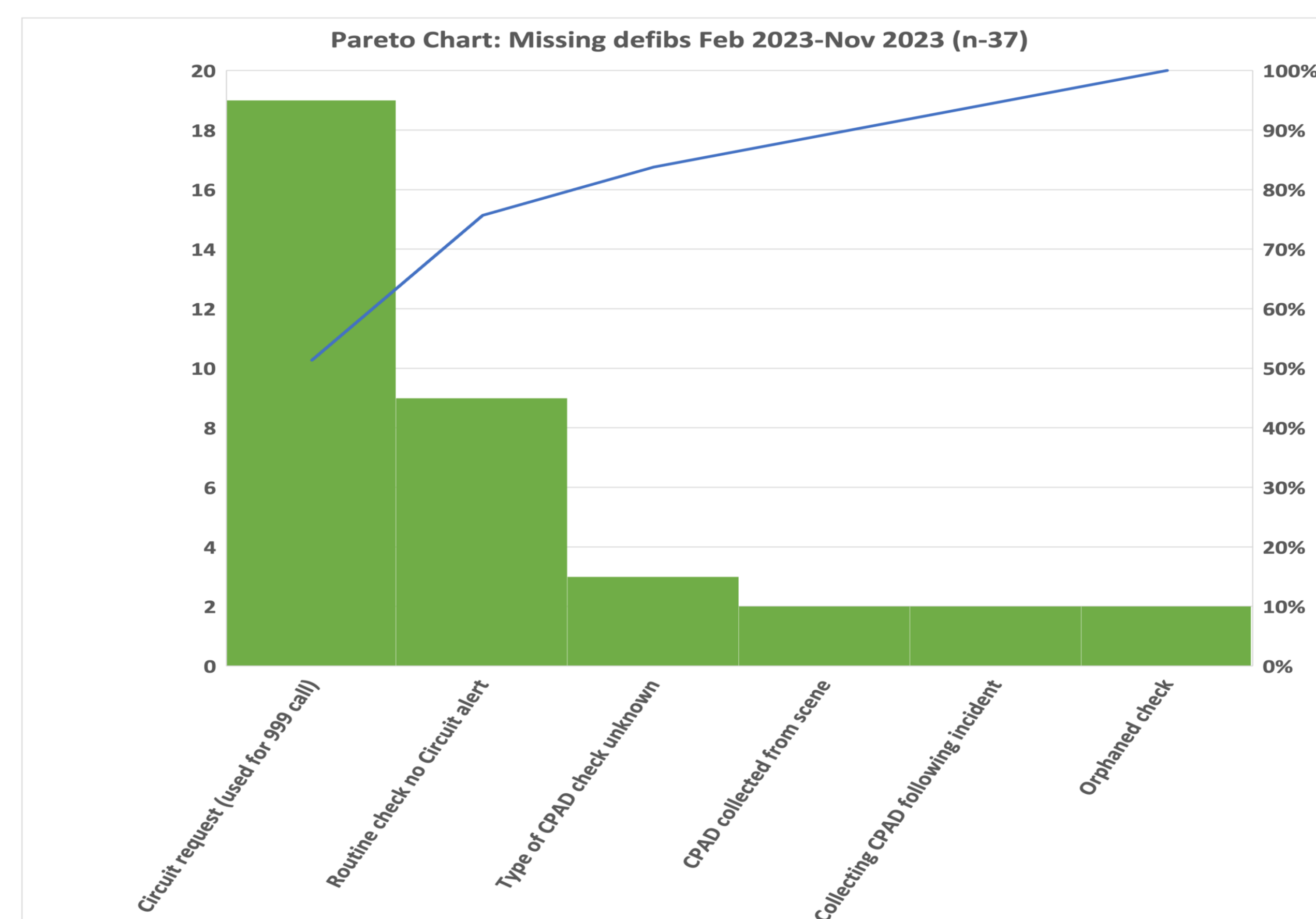
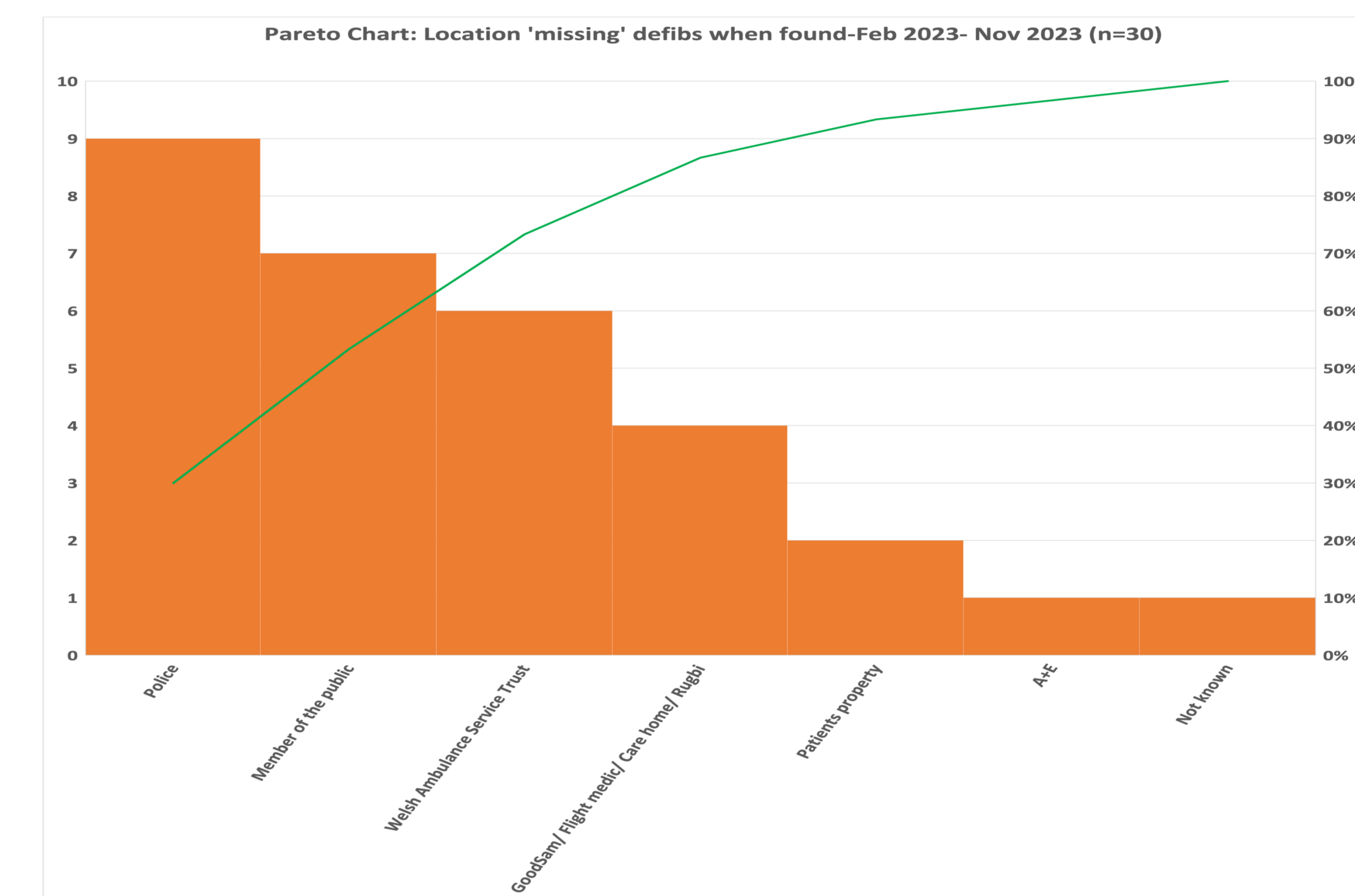


Figure 3.



RESULTS

Thirty-seven of the total Welsh CPAD fleet (n= 8,027) on The Circuit database during the study period were recorded as 'missing', with **19 of these (51%) flagged as deployed** (used for an emergency call).

Figure 2. presents a Pareto analysis of the reasons why defibrillators were identified as missing, with this predominantly attributed to deployment of the resource following a 999 call (as recorded on The Circuit). Other missing defibrillators were identified through additional checks by SaLC's Community Team.

Follow-up of 'missing' CPADs resulted in location and **recovery of 30 CPADs**, with 57% (17 CPADs) recovered from emergency service providers (Police, Ambulance Service, Accident and Emergency Department).

Figure 3. presents a Pareto analysis of the actual places where those defibrillators initially classified as missing were located.

Seven CPADs remained 'missing' (1 locked cabinet, 3 unlocked cabinets, 3 unknown), with four of these flagged as deployed.

Frequency of vandalism was low during the study period. Only **eight CPADs were vandalised** (0.1% of the total Welsh CPAD fleet registered on The Circuit), and this occurred at a hyperlocal level.

Equivocal numbers of vandalised CPADs were stored in **locked and unlocked cabinets**.

Additional findings from this study revealed 'fitness for purpose' of cabinets selected to store defibrillators outside required urgent review. The SaLC Community Team found the integrity of some cabinets and defibrillators were compromised i.e., cabinets with locking mechanisms that had rusted; water ingress in cabinets; incorrect heating mechanisms.

SUMMARY

This study raises important issues to navigate to increase accessibility to CPADs, with devices more likely to be 'missing' because of **use**, than theft or vandalism. Work is underway regarding the potential for a Wales wide policy regarding the return of defibrillators after deployment or use.

The number of 'missing' or 'vandalised' CPAD's was found to be very low in this study. These study results challenge 'risk perceptions' regarding the extent of 'theft' and vandalism of these devices.

Careful consideration is required prior to installation of a locked cabinet, with this choice weighed up against the extra time needed to gain access in an emergency.

Type of cabinet selected also requires an evidence-based decision. Work has been undertaken in Wales to assess cabinets against a set of criteria believed to be needed to extend the longevity and rescue readiness of a defibrillator placed in an outside cabinet. This is to ensure the Welsh community is better advised and able to make informed choices regarding storage of CPADs.

ACKNOWLEDGEMENTS

Thanks to the SaLC Community Team for their hard work, dedication and contribution to this study. Thanks also go to the British Heart Foundation and Welsh Ambulance Services NHS Trust for their continued collaboration with SaLC.

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