

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

# Resuscitation Plus

journal homepage: [www.elsevier.com/locate/resuscitation-plus](http://www.elsevier.com/locate/resuscitation-plus)

## Letter to the Editor

## Who lives between the links?



To the Editor,

In March of this year, our community training team arranged a demonstration of lifesaving skills at a homeless shelter in Pittsburgh, Pennsylvania, USA. This was our first training engagement with the homeless community. We brought standard manikins and automated external defibrillators (AEDs), and, owing to America's parallel epidemics of opioid overdose and gun violence, we also brought naloxone training kits and a hemorrhage control training module. The demonstration was attended by approximately 20 people across the homelessness continuum, ranging in age from mid-20s to mid-60s. They engaged with our training with great interest and eagerly asked questions contextualizing the training with their own diverse experiences. Despite feeling certain that we left our new students with understanding of the links in the Chain of Survival, we almost certainly learned more from them than they did from us. The most important lesson for us was that it is imperative that this community not be overlooked in lifesaving education efforts. They must not slip between the links.

The unsheltered homeless population is a growing high-risk marginalized group.<sup>1</sup> Morbidity and mortality rates in this population are disproportionately high.<sup>2</sup> Studies have identified a correlation of homelessness with vulnerability to violence victimization, as well as a correlation with substance use.<sup>3,4</sup> The increased likelihood of an uncontrolled hemorrhage or opioid-associated out-of-hospital cardiac arrest manifesting among the homeless necessitates early recognition and resuscitative interventions.<sup>5</sup> High mortality rates for acute conditions may be due in part to lack of access to timely care, as individuals residing under bridges, in urban parks, along riverbanks, or in tent cities, are frequently in locations difficult to reach or inaccessible to emergency medical services (EMS). Moreover, the activation of EMS may be delayed due to a lack of a telephone, indirect communication barriers, or fear of legal consequences associated with contacting public safety. Inability to access an AED or other lifesaving equipment quickly may further complicate matters. These factors create a clear need for lifesaving skills at the individual and community level, mitigating the delays to definitive care.

Purpose-built curricula will be needed to effectively train this community while acknowledging the vast web of misinformation around lifesaving skills, the barriers to calling EMS, and the unique intersection of medical illness and substance use disorder. For life-threatening conditions that may require expedited interventions like bleeding control, naloxone administration, or hands-only cardiopulmonary

resuscitation, the probability of survival diminishes exponentially without rapidly deployed rescue efforts. We must commit to innovative strategies for making lifesaving equipment and supplies available to these vulnerable populations.

In summary, we believe people who are homeless, who currently occupy an uncertain place on the Chain of Survival, deserve an opportunity to learn and use lifesaving skills. To improve outcomes and build trust, we must emulate a core tenet of street medicine: to meet people where they are, on their own terms. Lifesaving training tailored to this community is an opportunity to return autonomy to the homeless in the face of societal neglect, systemic violence, and significant access barriers.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## REFERENCES

1. Foundation Abbe Pierre and FEANTSA. The 7th Overview of Housing Exclusion in Europe 2022; 2022. [https://www.feantsa.org/public/user/Resources/reports/2022/Rapport\\_Europe\\_GB\\_2022\\_V3\\_Planches\\_Corrected.pdf](https://www.feantsa.org/public/user/Resources/reports/2022/Rapport_Europe_GB_2022_V3_Planches_Corrected.pdf)
2. Roncarati JS, Baggett TP, O'Connell JJ, et al. Mortality among unsheltered homeless adults in Boston, Massachusetts, 2000–2009. *JAMA Internal Med.* 2018;178:1242–8. <https://doi.org/10.1001/jamainternmed.2018.2924>.
3. North CS, Smith EM, Spitznagel EL. Violence and the homeless: an epidemiologic study of victimization and aggression. *J Traumat Stress* 1994;7:95–110. <https://doi.org/10.1002/jts.2490070110>.
4. Doran KM, Rahai N, McCormack RP, et al. Substance use and homelessness among emergency department patients. *Drug Alcohol Dependence* 2018;188:328–33. <https://doi.org/10.1016/j.drugalcdep.2018.04.021>.
5. Dezfulian C, Orkin AM, Maron BA, et al. Opioid-associated out-of-hospital cardiac arrest: distinctive clinical features and implications for health care and public responses: a scientific statement from the American Heart Association. *Circulation* 2021;143:e836–70. <https://doi.org/10.1161/CIR.0000000000000958>.

Jorge A. Gumucio\*

Nicole Alindogan

*University of Pittsburgh School of Medicine, Pittsburgh, PA, USA*

*Street Medicine at Pitt, USA*

Danielle Schnauber Jones

*Operation Safety Net, Pittsburgh, PA, USA*

Ankur Doshi

David D. Salcido

*University of Pittsburgh School of Medicine, Pittsburgh, PA, USA*

\* Corresponding author at: 3600 Forbes Ave, Iroquois Building, Suite  
400A, Pittsburgh, PA 15261, USA.

E-mail address: [jag333@pitt.edu](mailto:jag333@pitt.edu) (J.A. Gumucio)

Received 12 June 2023

Accepted 12 June 2023

<https://doi.org/10.1016/j.resplu.2023.100423>

© 2023 The Authors. Published by Elsevier B.V. This is an open access  
article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).