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# Association Between Income and Risk of Out-of-Hospital Cardiac Arrest: A Retrospective Cohort Study

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Originally published 12 Dec 2022 | <https://doi.org/10.1161/CIRCOUTCOMES.122.009080> |  
Circulation: Cardiovascular Quality and Outcomes. 2022;0:e009080

## Abstract

### BACKGROUND:

Previous studies have observed a higher out-of-hospital cardiac arrest (OHCA) risk among lower socioeconomic groups. However, due to the cross-sectional and ecological designs used in these studies, the magnitude of these inequalities is uncertain. This study is the first to assess the individual-level association between income and OHCA using a large-scale longitudinal study.

### Methods:

This retrospective cohort study followed 1 688 285 adults aged 25 and above, living in the catchment area of an OHCA registry in a Dutch province. OHCA cases (n=5493) were linked to demographic and income registries. Cox proportional hazard models were conducted to determine hazard ratios of OHCA for household and personal income quintiles, stratified by sex and age.

### Results:

The total incidence of OHCA per 100 000 person years was 30.9 in women and 87.1 in men. A higher OHCA risk was observed with lower household and personal income. Compared with the highest household income quintile, the adjusted hazard ratios from the second highest to the lowest household income quintiles ranged from 1.24 (CI=1.01–1.51) to 1.75 (CI=1.46–2.10) in

women and from 0.95 (CI=0.68–1.34) to 2.30 (CI=1.74–3.05) in men. For personal income, this ranged from 0.95 (CI=0.68–1.34) to 2.30 (CI=1.74–3.05) in women and between 1.28 (CI=1.16–1.42) and 1.68 (CI=1.48–1.89) in men. Comparable household and personal income gradients were found across age groups except in the highest (>84 years) age group. For example, household income in women aged 65 to 74 ranged from 1.25 (CI=1.02–1.52) to 1.65 (CI=1.36–2.00). Sensitivity analyses assessing the prevalence of comorbidities at baseline and different lengths of follow-up yielded similar estimates.

## Conclusions:

This study provides new evidence for a substantial increase in OHCA risk with lower income in different age and sex groups. Low-income groups are likely to be a suitable target for intervention strategies to reduce OHCA risk.

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## Footnotes

Supplemental Material is available at

<https://www.ahajournals.org/doi/suppl/10.1161/CIRCOUTCOMES.122.009080>.

For Sources of Funding and Disclosures, see page XXX.

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