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Recurrent Emergency Department Attendance by a Patient Experiencing Homelessness: A Narrative Review of Inclusion Health Models of Care

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Abstract

A patient who attends the emergency department repeatedly is usually described as a problem for the department. The evidence suggests the reverse: repeated attendance is what happens when every other door is closed, and it marks a population dying decades early.

Objectives: *To review the published evidence on health outcomes and service use among people experiencing homelessness, and on the models of care developed in response: what the mortality gap is, how emergency and inpatient use differs from the housed population, and what the evidence for intervention actually supports.*

Material and Methods: *Narrative review of systematic reviews, meta-analyses, matched cohort studies, randomised trials of housing and care interventions, and policy guidance indexed in PubMed and the major public health and general medical journals. No new patient data were generated; every estimate quoted is one published by the original investigators.*

Results: *Across 337 studies, all-cause standardised mortality ratios were 11.86 (95% CI 10.42 to 13.30) in women and 7.88 (7.03 to 8.74) in men, and were significantly raised in 91 of 92 extracted datapoints. In a matched English cohort of 16,161 homeless and 74,780 housed emergency department attendees, admissions ran at 470 against 230 per 1000 patients per year; adjusted rate ratios were 1.79 for all admissions, 2.08 for emergency admissions and 1.65 for ambulatory care-sensitive admissions. Housing First reduced emergency department visits (IRR 0.63) and hospitalisations (IRR 0.76), from four trials all judged at high risk of bias.*

Conclusion: *The excess use concentrates in conditions that should have been managed elsewhere, which locates the failure upstream of the emergency department rather than inside it. The interventions with the best evidence supply housing and continuity rather than clinical novelty, and the quality of that evidence is weaker than the consistency of its direction suggests.*

Abbreviations: *ACS – Ambulatory Care-Sensitive, ED – Emergency Department, HF – Housing First, IRR – Incidence Rate Ratio, SMR – Standardised Mortality Ratio, CI – Confidence Interval.*

Keywords: *Inclusion Health; Homelessness; Emergency Department Attendance; Housing First; Health Inequality*

Introduction

Inclusion health describes people in extremely poor health as a result of poverty, marginalisation and multimorbidity, and the term was coined partly because conventional epidemiology tends to lose these populations [1,2]. They are under-counted in surveys that sample households, absent from registers organised around addresses, and over-represented in the parts of the health service that record least about them [3,4].

The scale of their disadvantage is nonetheless well established. A systematic review and meta-analysis of 337 studies from high-income countries found all-cause mortality several times that of the general population across homeless populations, people with substance use disorders, sex workers and imprisoned individuals, with the excess present in almost every dataset examined [1]. Average age at death in this group is decades below the population average [5,6], and the descriptive epidemiology has been set out in detail [23]. Mental disorder is substantially over-represented [24].

Recurrent emergency department attendance is the point at which these patients become visible to acute services, and it is frequently framed as inappropriate use. This review examines what the evidence says about that framing: what the excess use consists of, what it is a symptom of, and which interventions have been shown to change it.

Material and Methods

Search strategy: PubMed and the archives of the major public health, general medical and emergency medicine journals were searched for studies of health outcomes and service use among people experiencing homelessness. Search terms combined homelessness, inclusion health and social exclusion with mortality, emergency department, frequent attendance, ambulatory care-sensitive, Housing First and intermediate care. Reference lists of the inclusion health series and national guidance [1,2,7] were screened by hand for primary sources.

Eligibility: Studies were included if they reported morbidity, mortality or health service use in populations defined by homelessness or related exclusion, or evaluated an intervention intended to change those outcomes. Studies of the general population are cited for comparison and identified as such.

Data extraction and handling: Design, setting, sample size, comparator, the definition of homelessness used and the reported estimate were extracted as published. The definition matters and is reported alongside every figure, since studies variously capture rough sleeping, hostel residence, temporary accommodation or a recorded no-fixed-abode status, and these populations differ. No pooling or re-analysis was performed. Figures 1 to 4 and Tables 1 and 2 reproduce published values only. This is a narrative synthesis and was not registered as a systematic review.

Results

The mortality gap: The pooled analysis identified 7946 articles and included 337 for analysis. All-cause standardised mortality ratios were significantly raised in 91 of 92 extracted datapoints, at 11.86 (95% CI 10.42 to 13.30) in women and 7.88 (7.03 to 8.74) in men (Figure 1) [1]. The sex difference is consistent and worth noting: exclusion carries a higher relative mortality penalty for women, whose baseline mortality is lower. Cause-specific ratios were raised across most ICD-10 categories rather than concentrated in one [1,8].

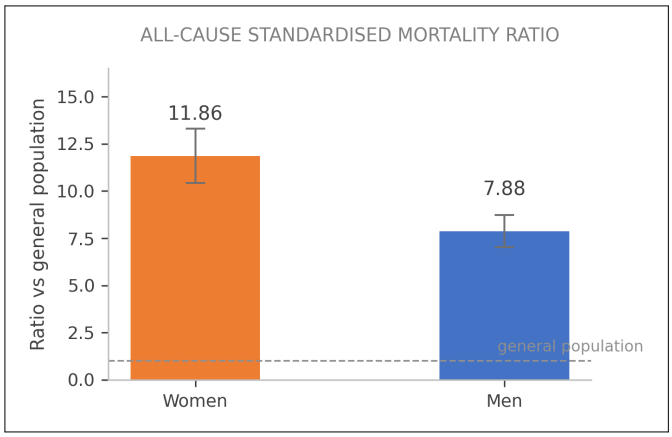

Figure 1: All-cause standardised mortality ratios for socially excluded populations in high-income countries, with 95% confidence intervals [1]

What the excess use looks like: A matched cohort of 16,161 homeless and 74,780 housed patients who attended an English emergency department, matched on age, sex, department attended and primary diagnosis, followed admissions over the subsequent four years. Mean admissions were 470 per 1000 patients per year against 230 (Figure 2) [9]. Adjusted for confounders, annual admissions were 1.79 times higher (IRR 1.79, 95% CI 1.69 to 1.90), emergency admissions 2.08 times higher (1.95 to 2.21) and ambulatory care-sensitive admissions 1.65 times higher (1.51 to 1.80) (Figure 3) [9].

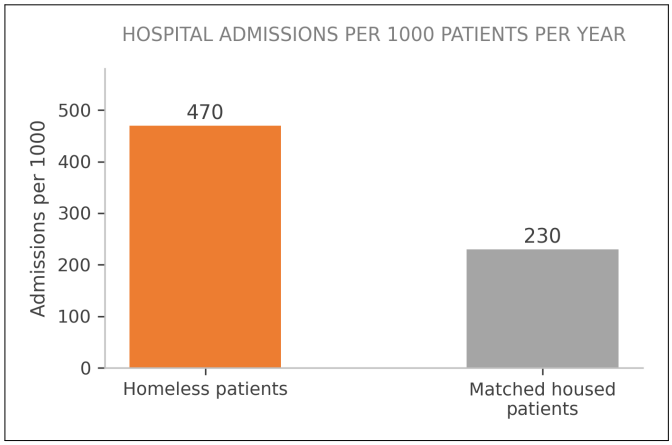

Figure 2: Mean hospital admissions per 1000 patients per year, homeless against matched housed emergency department attendees [9]

The important detail: The excess was greater for acute ambulatory care-sensitive conditions (IRR 1.78) than chronic ones (1.45), and the conditions relatively more common among homeless patients were cellulitis, convulsions and chronic angina [9]. Ambulatory care-sensitive admissions are, by definition, those that timely primary care should have prevented. An excess concentrated there is not evidence of misuse of emergency services; it is evidence that the services upstream were not reachable [10,11].

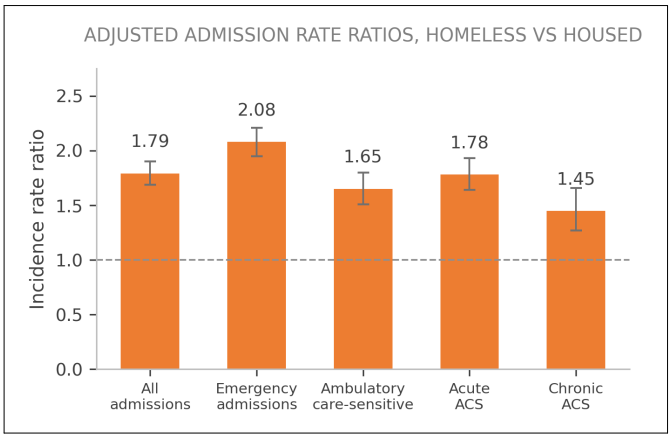

Figure 3: Adjusted incidence rate ratios for admission types, homeless against matched housed attendees, with 95% confidence intervals [9]

Study	Design and cohort	Principal reported finding
Aldridge et al. 2018 [1]	Meta-analysis, 337 studies, high-income countries	All-cause SMR 11.86 in women, 7.88 in men
Moss et al. 2021 [9]	Matched cohort, 16,161 vs 74,780, England	470 vs 230 admissions per 1000 per year; ACS IRR 1.65
Baxter et al. 2019 [12]	Systematic review and meta-analysis, 4 RCTs	Housing First: ED visits IRR 0.63; hospitalisations IRR 0.76
Luchenski et al. 2018 [2]	Overview of effective interventions	Synthesises what works across inclusion health populations
Hwang et al. 2009 [5]	Cohort, mortality in homeless adults	Substantially reduced life expectancy
Sadowski et al. 2009 [13]	RCT, 407 homeless adults with chronic illness	Housing with case management reduced hospitalisations and ED visits
Hewett et al. 2016 [14]	RCT of specialist homeless discharge support	Tested in-reach support at the point of hospital discharge

Table 1: Principal studies reviewed, with the finding as reported by the original investigators

What has been tried: Interventions divide into those that address housing and those that address the interface with health services. Housing First provides rapid access to permanent housing without requiring abstinence or treatment compliance first. A systematic review and meta-analysis of four randomised trials found fewer emergency department visits (IRR 0.63, 95% CI 0.48 to 0.82) and fewer hospitalisations (IRR 0.76, 0.70 to 0.83) in intervention groups (Figure 4), with effects on most short-term health outcomes imprecisely estimated and no clear difference in substance use [12]; comparisons of housing-led against treatment-led programmes reported similar findings [31], and multi-city trials have tested the model with assertive community treatment [32,33]. A randomised trial of housing with case management in 407 homeless adults with chronic illness reported relative reductions of 29 per cent in hospitalisations and 24 per cent in emergency department visits [13].

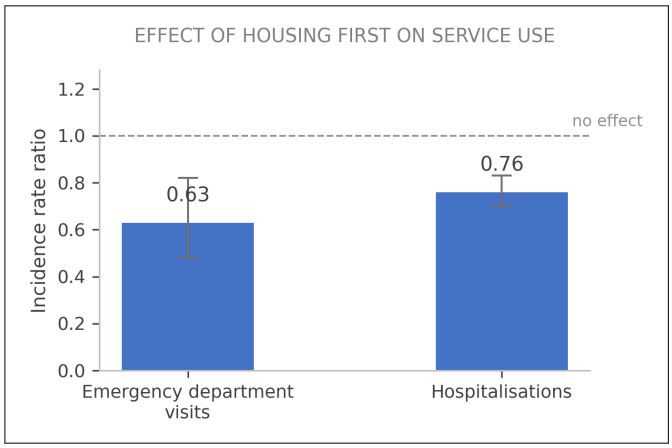

Figure 4: Effect of Housing First on emergency department visits and hospitalisations, pooled across four randomised trials [12]

Interface interventions: Within services, the approaches tested include specialist homeless health teams, in-reach at the point of admission and discharge, intermediate care and step-down beds for people with nowhere to recover, and care navigation [2,14,15,16]. Discharge from hospital to the street is a specific and well-documented failure point, since recovery from the condition that prompted admission is not possible in the environment the patient returns to [14,17]. National guidance now addresses this directly [7,18], and overviews of what works in this population have been published alongside calls to act on them [25,26].

What the encounters are like: Beyond utilisation counts, homeless patients spend longer in departments and are discharged rather than admitted more often than housed patients, and present more frequently with behavioural health and alcohol-related concerns [19]. Systematic review of emergency department use in this population reaches consistent conclusions [27], as do earlier community-based and national analyses of who attends and why [28,29,30]. Reported experiences of care include being treated as undeserving, which itself predicts later avoidance of services and is one mechanism by which presentation is delayed until a condition is unavoidable [20,21,22].

Finding	What it indicates	Evidence
SMR 11.86 women, 7.88 men	Mortality several times the population rate	337 studies, high-income countries [1]
470 vs 230 admissions per 1000	Excess inpatient use after matching	Matched English cohort [9]
ACS admission IRR 1.65	Failure of upstream primary care	Conditions preventable by timely care [9,10]
Acute ACS exceeds chronic ACS	Late presentation rather than disease burden alone	IRR 1.78 vs 1.45 [9]
Housing First: ED IRR 0.63	Housing changes service use	Four RCTs, all high risk of bias [12]
Discharge to the street	Recovery is not possible after discharge	Identified failure point [14,17]

Table 2: Principal findings and what each indicates about where the failure lies

Discussion

The framing of recurrent attendance as inappropriate does not survive contact with the data. The excess admission risk after matching on age, sex, department and presenting diagnosis was concentrated in ambulatory care-sensitive conditions, and more so in the acute than the chronic ones [9]. Those are the admissions a functioning primary care relationship prevents. A patient attending an emergency department with cellulitis that a general practice would have treated a week earlier is not misusing the service; they are using the only service that was open to them.

That reframing has a practical consequence. If the problem is located inside the emergency department, the solutions are triage, signposting and discouragement. If it is located upstream, the solutions are registration without an address, outreach, and somewhere to be discharged to. The interventions with randomised support are overwhelmingly of the second kind, and none of them is clinically novel [12,13].

The evidence for those interventions deserves an honest description. The Housing First meta-analysis included four trials, all judged at high risk of bias, and found effects on most short-term health outcomes imprecisely estimated with varying directions; what it found consistently was reduced service use and improved housing stability [12]. Reduced emergency attendance is a real outcome and a reasonable one to value, but it is not the same as improved health, and the studies do not demonstrate the latter. Nor is reduced utilisation necessarily a saving, since the housing itself has to be paid for, though cost analyses before and after housing provision have reported substantial reductions [34].

Two further cautions. Definitions of homelessness differ substantially between studies, and a cohort of people recorded as having no fixed abode at an emergency department is not the same population as those sleeping rough or those in temporary accommodation [3,9]. And the mortality figures, though enormous, are drawn from populations that overlap heavily with substance use and imprisonment, so attributing the excess to housing status alone would over-read them [1]. The social determinants underlying all of it are the more fundamental target [35].

Study limitations

The limitations belong to the underlying literature. Definitions of homelessness are inconsistent and often determined by what an administrative dataset happens to record [3,9]. The populations studied overlap with substance use, imprisonment and severe mental illness, and the meta-analysis reporting mortality deliberately pooled all four, so effects specific to housing cannot be isolated [1]. Heterogeneity in that analysis was very high. Matched cohorts adjust for measured confounders only, and the most important confounders here are poorly recorded [9]. The randomised evidence for Housing First rests on four trials at high risk of bias with short follow-up [12]. Service-use outcomes are easier to measure than health outcomes and dominate the literature as a result. People who die before contact with services are absent from every dataset cited. And the evidence is drawn almost entirely from high-income countries, chiefly the United States, Canada and the United Kingdom [1,12].

Conclusion

People experiencing homelessness die at several times the expected rate, attend emergency departments repeatedly, and are admitted roughly twice as often as matched housed patients. The excess concentrates in conditions that timely primary care prevents, which places the failure upstream of the department where it becomes visible. The interventions with the strongest evidence are housing and continuity of contact, and even these rest on four small trials at high risk of bias, showing reduced service use more clearly than improved health. The honest conclusion is not that the problem is solved but that it is misdescribed: a patient who returns to the emergency department eleven times in a year is not failing to use the health service correctly, they are demonstrating which parts of it were available to them.

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Conflict of Interest

The authors declare no competing interests.

Ethics Statement

This article reviews previously published studies only. No new patient data were collected and no participants were recruited, so ethical approval was not required.

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