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Effects of national housing quality standards on hospital emergency admissions: a quasi-experiment using data-linkage

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Abstract:

Background

National housing quality standards are now being applied throughout the UK. The Welsh Government has introduced the Welsh Housing Quality Standards. A housing improvement programme in Wales has been delivered through one local authority to bring 9500 homes up to standard. Homes received multiple elements, including new kitchens, bathrooms, windows and doors, boilers, insulation, and wiring, through an 8 year rolling work programme. The study aimed to determine the impacts of the different housing improvements on hospital emergency admissions for residents over 60 years of age.

Methods

Intervention homes (council homes that received at least one element of work) were data linked to individual health records of residents. Counts of admissions for respiratory and cardiovascular conditions, and for falls and burns, were obtained retrospectively for each individual in a dynamic housing cohort (Jan 1, 2005, to March 31, 2015). The criterion for the intervention cohort was for someone to have lived in any one of the 9500 intervention homes for at least 3 months within the intervention period. Counts were captured for up to 123 consecutive months for 7054 individuals in the intervention cohort and analysed in a multilevel approach to account for repeated observations for individuals, nested within geographical areas. Negative binomial regression models were constructed to determine the effect on emergency admissions for those living in homes compliant for each element of work compared with those living in homes that were non-compliant at that time. We adjusted for background trends in the regional general population, and for other confounding factors.

Findings

For residents 60 years old and over there was a reduction in admissions for people with compliant boilers (rate ratio 0.71, 95% CI 0.67–0.76), loft insulation (0.87, 0.80–0.95), wall insulation (0.74, 0.69–0.80), and windows and doors (0.56, 0.52–0.61) compared with those living in homes that were non-compliant for those work elements.

Interpretation

Improving housing to national standards reduces the number of emergency admissions to hospital for older residents. Strengths of the data-linkage approach included the retrospective collection of complete baseline and follow-up data using routine data for a long-term intervention, and large scale regional adjustment.

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Contributors

SER, WP, and RAL conceived and designed the study and interpreted findings. RB and RJ completed data preparation and statistical analyses, and contributed to interpretation of the findings. DB and FD directed statistical analyses and contributed to interpretation of the findings. All authors were involved in abstract revisions and have approved the final version.

Declaration of interests

We declare no competing interests.

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