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# The Health and Economic Impacts of Structural Energy Performance Investments in Wales: An Evaluation of the Arbed Programme

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## Objectives

Over Âč68M was invested in a housing regeneration programme (Arbed) in 2010-2011 to improve the energy performance of houses in a number of deprived areas across Wales. Houses within the areas were retrofitted with measures, such as external wall insulation, solar hot water systems, solar panels and air source heat pumps. The study aims to establish whether such interventions improve residentsâĂŹ physical and mental health, and the economic impact of change in health outcomes.

## Approach

Address and intervention data were collected from 28 administrative centres and anonymously linked within the SAIL (Secure Anonymised Information Linkage) databank. Two comparator groups were created, one consisting of social houses, another from properties situated in the most deprived areas of Wales. Individuals with continuous residence of at least 60 days over a 10 year period were selected to create a dynamic cohort. Data on emergency hospital admissions and primary care records were extracted from SAIL to assess the impact of investments on healthcare utilisation for cardiovascular and respiratory conditions. Healthcare utilisation data also contributed towards an economic evaluation and excess winter admissions analyses.

## Results

The final dataset comprises data from over half a million people contributing more than 3 million person years of exposure time to build up trends of hospital admissions across the study period. The intervention cohort consists of over 35,000 people, with about 7,000 separate hospital admissions recorded for our primary outcome. The analysis is based on a pooled time series regression using a difference-in-difference approach to estimate the health impact of the programme.

## Conclusion

Retrospective analysis of such a natural experiment using routinely collected health data is possible using data linkage techniques. Final results will show whether social programmes to improve energy efficiency to homes in fuel poor areas have a wider impact on the healthcare resource utilisation of residents. We discuss the requirement for more standardised, accurate and timely data capture at the time of such economic investments to ensure the future feasibility of such studies.

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