

## Healthy Housing Hub

## Service Evaluation

### The issue at hand

Research has demonstrated an association between poor housing and an increased risk of cardiovascular disease, respiratory diseases, home accidents and poor mental health (Thomson et al, 2013). The NHS Five Year Forward View calls for “a radical upgrade in prevention” and the expansion of evidence-based action (NHS England, 2014). Derby’s Healthy Housing Hub (HHH) recognises that people have the potential to enjoy a better home environment, improved health and well-being when they feel comfortable, confident, safe and secure at home. The aim of the Hub is to help those most vulnerable to poor health outcomes as a consequence of poor or unsuitable housing and fuel poverty, primarily through facilitating home improvements/modifications that could reduce the risk of poor health and home accidents. Up until recently there has been no objective mechanism by which to measure the impact of the Hub on wider service use. Using PI’s Care & HealthTrak and a local consent process, data collected on a cohort of individuals having received support to mitigate the risk of falling, was integrated with their wider health and care records from Derbyshire’s principal health and care providers.

### The pi intervention

A case group of falls clients (n=237) who had been referred into the HHH over the period Jan 2014 to Jan 2015 were retrospectively, statistically matched to a control group of service users receiving emergency inpatient treatment (n=1,164) or residential care (n=444) but whom had not received HHH support. All three cohorts had a history of falls. The new interactions with services that each group had engaged with at one, three, six and 12 months post intervention/admission were analysed. The table below highlights service use after one year (12 months).

Service	HHH record % (n)	IP emergency record % (n)	% diff in records	Residential Care record % (n)	% diff in records
A&E attendance	48% (114)	62% (722)	14%	54% (240)	6%
IP emergency	43% (102)	63% (733)	20%	51% (226)	8%
Outpatient	81% (192)	70% (815)	11%	65% (289)	16%
EMAS conveyed EMAS not	25% (59) 6% (14)	29% (338) 19% (221)	4% 13%	25% (111) 12% (53)	0% 6%
111	39% (92)	63% (733)	24%	49% (218)	10%
Out-of-hours	27% (64)	50% (582)	23%	38% (169)	11%
Residential	9% (21)	47% (547)	38%		

### The impact

At one year post intervention proportionally fewer HHH clients were in need of health and care services, other than in the case of outpatient appointments. In the case of inpatient emergency care, **20% fewer HHH clients were admitted to hospital** when compared to those originally admitted as a result of a fall 12 months earlier. This is less so (8%) when compared to those originally admitted to residential care, which is perhaps an indication of similarity between these and the HHH client group. However, **91% of HHH clients were still in their own homes at 12 months, at less cost** which adds weight to the stated benefits of the HHH. Of further note is the marked difference in contact with East Midlands Ambulance Service (EMAS) not requiring conveyance to hospital (6% HHH, 19% inpatient, 12% residential), and **in 111 and out-of-hours services in which there was an average 51% and 74% greater use respectively in the control groups**. Whilst increased service usage with no HHH intervention is apparent, it is important to note that not every circumstance will have been accounted for in the matching process.



### Participants included

- Derby City Council
- Southern Derbyshire CCG

### What’s next?

The King’s Fund has recently suggested that every £1 spent on improving homes saves the NHS £70 over 10 years (Making the Case for Public Health Interventions, 2014). Through now being able to measure and monitor longitudinally the services received by individuals supported by Derby City Council, we are able to more accurately determine cost effectiveness of the HHH. An economic evaluation based on these matched cohort statistics will now be considered, as well as additional analysis of an (at risk of) cold-related cohort.

Use of out-of-hours services post intervention

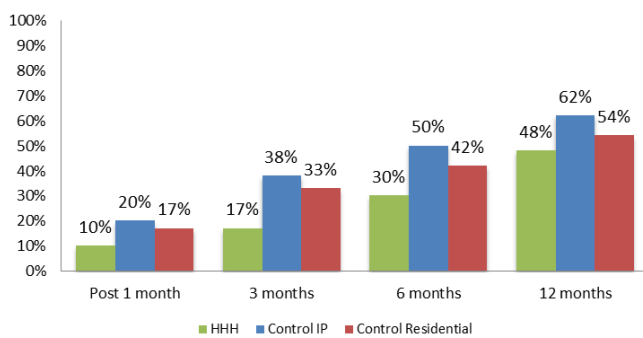


# Matched Cohort Analysis

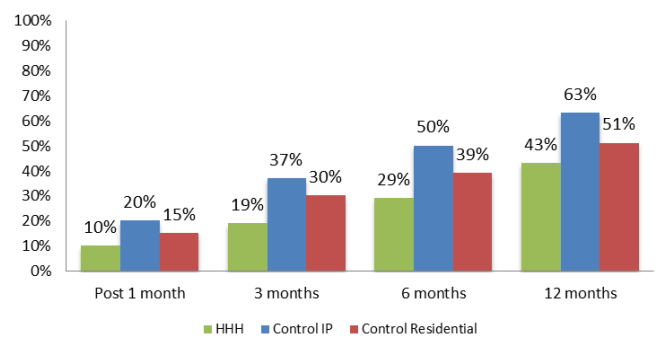
Following Nuffield Trust's cohort study to determine the effectiveness of Virtual Wards, PI has been developing a tool to effectively match individuals that are going through a specific service to a cohort group of very similar patients. Effectively matching individuals is an essential part of any cohort study; by reducing the effect of confounding variables allows for true analysis of the effectiveness of a specific service or event. Matching is based on variables from the SUS datasets and social care data and can be improved by the addition of other datasets e.g. GP, Ambulance or community health data. Before any cohort study is commenced, PI analyse the closeness of the variable for each cohort match and, if matched groups are within a satisfactory range, a study can then take place. By directly comparing treated individuals with their matched cohort groups (non-treated individuals) it is possible to understand not only if a service or event has an effect but also the extent to which this effect occurs. In the case of this study, individuals were matched on age, gender, number of LTCs, individual LTCs, GP practice, and latitude and longitude of residence. The Mahalanobis distance method was applied to each metric and the most similar people matched.

## Accompanying service charts

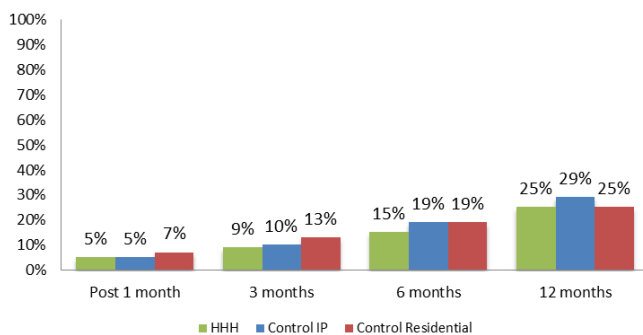
**A&E**



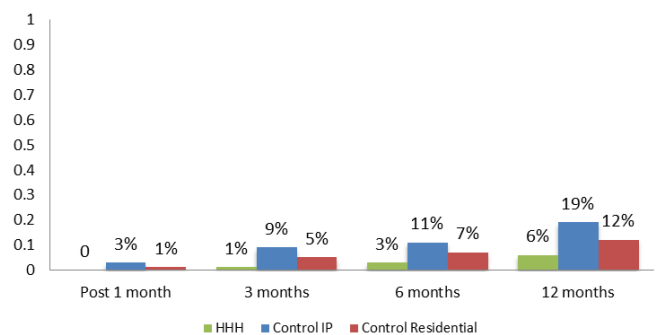
**Ip - Emergency Admission**



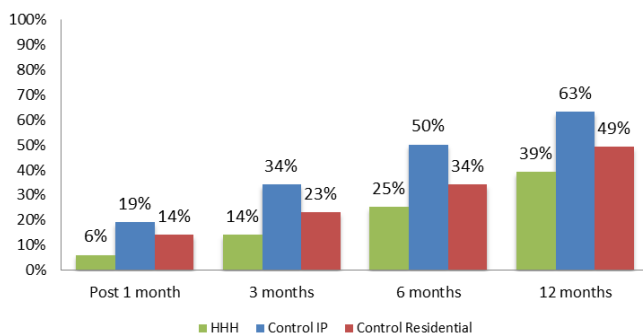
**Ambulance Conveyed**



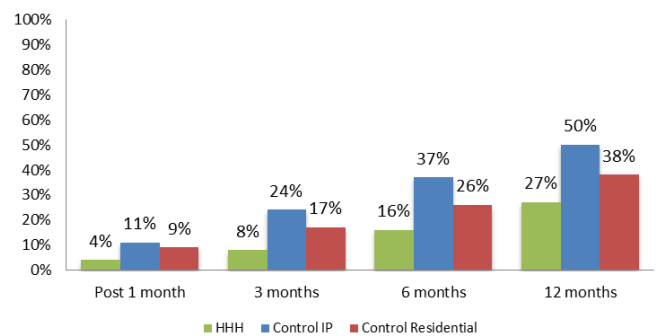
**Ambulance Non Conveyed**



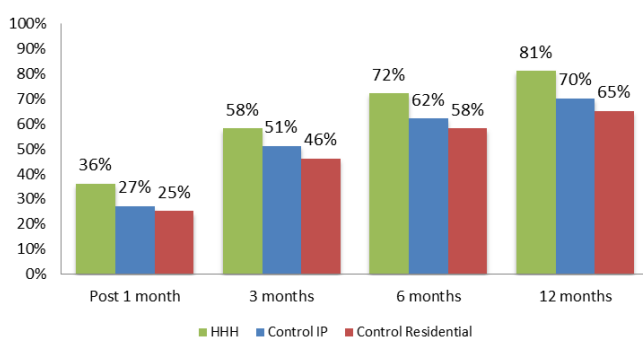
**111**



**Out-of-Hours**



**Outpatient**



**Residential**

