An analysis of the cost of acute health service use by rough sleepers in London

RESOLVING CHAOS

St Mungo's Broadway
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Resolving Chaos CIC and St Mungo's Broadway[1] have a shared interest in improving health outcomes for homeless people. In 2013, we collaborated to analyse the economic impact of current healthcare services for homeless people, described in our report *Health and Homelessness*. Part of this study drew upon analysis undertaken by the Tri-Public Health Intelligence Team's[2] report, *Rough Sleepers: Homelessness and Healthcare* (2013) which calculated the acute healthcare costs of homeless people in Hammersmith & Fulham, Kensington & Chelsea and Westminster.

This paper outlines **new** findings from that original study by the Tri-Public Health Intelligence Team. The data shows a wide variance in healthcare consumption within a sample of 561 rough sleepers, with significant differences in the costs of provision for this group. This paper describes those findings with a view to influencing future research priorities and policy development.

Key results

- There is significant variance in the cost per person of acute healthcare use within the sample. Over a two year period, the 'top 5%' cost an average of almost £27,000 per person while the 'bottom 10%' cost under £300 per person. These costs do not include medication, rather the cost of healthcare whether in community or hospital
- Half the total acute care costs of the sample were incurred by just 10% of the sample population
- 50% of the rough sleepers who accessed hospital services who and incurred the least cost accounted for only 7% of the total spend
- 32% of the sample did not have contact with acute services in the two years studied.

The policy implications of these findings include:

- Significant financial savings could be made by tackling healthcare problems earlier and preventing escalating health problems and associated treatment in later years
- It would be financially prudent to identify the 'top 10%' users of healthcare to learn if alternative, possibly cheaper healthcare can meet their needs; to understand whether their escalating costs could have been prevented; and to understand the causes of high-cost service use within this client group
- Further evidence should be sought to measure if the range of costs observed here is true on a wider scale and therefore should influence policy on a national scale.

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1 St Mungo's Broadway was formed by the merger of St Mungo's and Broadway in April 2014. The report *Health and Homelessness* was published by St Mungo's and Resolving Chaos CIC in 2013

2 Hammersmith & Fulham, Kensington & Chelsea and Westminster

Context: Resolving Chaos and St Mungo's report Health and Homelessness (2013)

The Resolving Chaos CIC and St Mungo's (now St Mungo's Broadway) report *Health and Homelessness* assessed the health conditions and known interaction with health services, including General Practice, across differing parts of England, for seventeen people with a verified history of long term rough sleeping, it also studied five case studies in detail. The case studies indicated annual costs of medical treatment alone, discounting medication, ranging from £6,468 to £44,612 per person.

This compares with an estimated £1,600 per person full annual cost of healthcare for the general population.[3] The information gathered suggested a very high prevalence of illnesses amongst homeless people which, if left untreated require even more significant medical intervention. However, what the data cannot tell us is whether this assertion is certainly true, and further research is needed.

Analysis of the Tri-Public Health Intelligence Team (HIT) data

In 2013, Resolving Chaos CIC and St Mungo's collaborated with the Tri-Public Health Intelligence Team to further analyse data gathered on the use of health services by people who are rough sleepers, or have experienced, homelessness. This opportunity arose following publication of the major piece of research *Rough Sleepers, Health and Healthcare*, which examined the use of health services between January 2010 and December 2011, by people who were identified as either rough sleeping or hostel residents in the North West London area. It examined use of **acute hospital services**; specifically accident and emergency, outpatients and inpatient hospital admissions, and ascribed associated costs.

The findings describe the service use of 561 people who are both registered on the CHAIN[4] database (which records information on people sleeping rough in London) and who have a traceable NHS number because they are registered with a GP, and have had one or more contacts with acute services. We recognise that this means the analysis is of a subsample of homeless people, and has associated limitations. However, even when this is taken into consideration, the results are a powerful indication of the service use of this group and are explored further in this paper.

The data suggests both a cohort of people with very light use of services, with another cohort, at the chronic end, being the main users of resource and services. In other words, we would expect to see a ***wide distribution*** of service use, health needs and an associated range of health care costs.

The Tri-Public HIT was asked to reanalyse the data to show how the use of services varied across the sample and the distribution pattern of service use.

For this report, the information is presented in two ways. Both graphs below show the distribution of cost of service use. The first shows the sample in order of cost, the second shows the cumulative cost of service use.

3 McCormick, B, (2010) *Healthcare for single homeless people* Office of the Chief Analyst, Department of Health

4 CHAIN is the Combined Homeless and Information Network. It is a database used by professionals working with rough sleepers and the street population in London

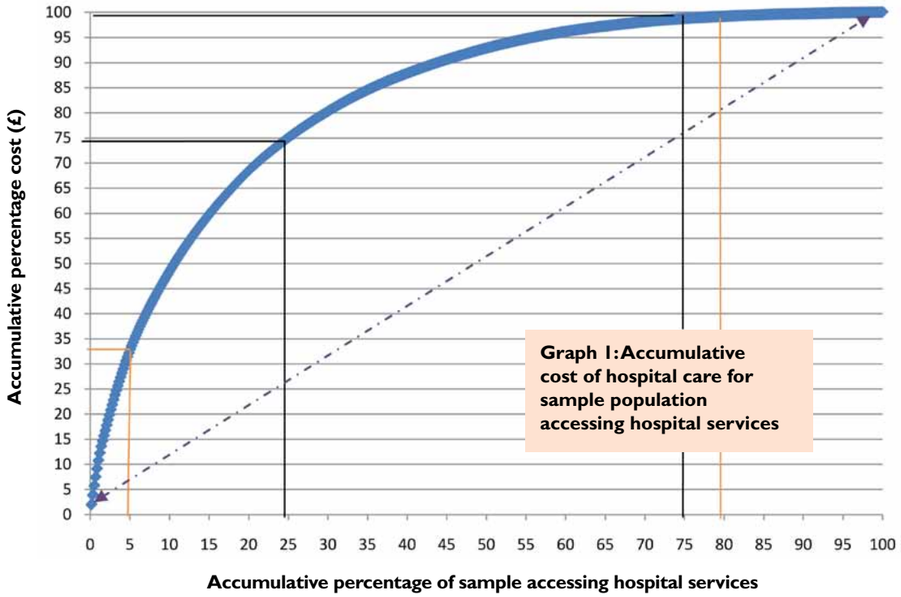
The results are striking, with highly variant use of services within the sample.

1) The cost of service use expressed across the sample population

Graph 1 depicts how costs are distributed within the sample of people studied. The horizontal axis shows the sample in order of costs, ranging from most expensive person (on the left at 0) through to the least (on the right at 100). The vertical axis offers the corresponding total spend in percentage terms. Each point on the line is the cumulative spend for a given proportion of the total sample.

The graph is useful because it shows how resources are spent across the sample, beginning with the most expensive and ending with the least costly. An entirely straight line, at a 45 degree angle (shown as a dashed purple line) would suggest that everyone uses the same amount of resource. Our graph shows a convex gradient indicating that costs vary significantly between members of the sample.

Each point on the line shows the proportion of total costs is spent on their acute care for a given percentage of the sample. The graphs indicates that 5% of the sample incurred 33% of the total spend on acute care incurred by the group.



The cost of service use expressed in £ Sterling

Graph 2 offers the same analysis, but costs are expressed in currency, not percentage. The same rules apply, with the highest cost users of health services to the left of the horizonatal axis, rising sequentially to the lowest cost. The line shows, at any given point, how much resource a proportion of the sample uses on acute care. Those accumulative costs are also shown in table 2.

Again a staight line (shown in the dashed purple line) would suggest that everyone uses equal amounts of resource. The disparity between the two lines indicates the wide range of different healthcare costs observed within the sample. What the graph tells us is that the most expensive 10% account for a high proportion of the total spend, £1.12 million between them, declining rapidly to where the least expensive 10% of the sample (between 90 and 100) use only £16,388 between them.

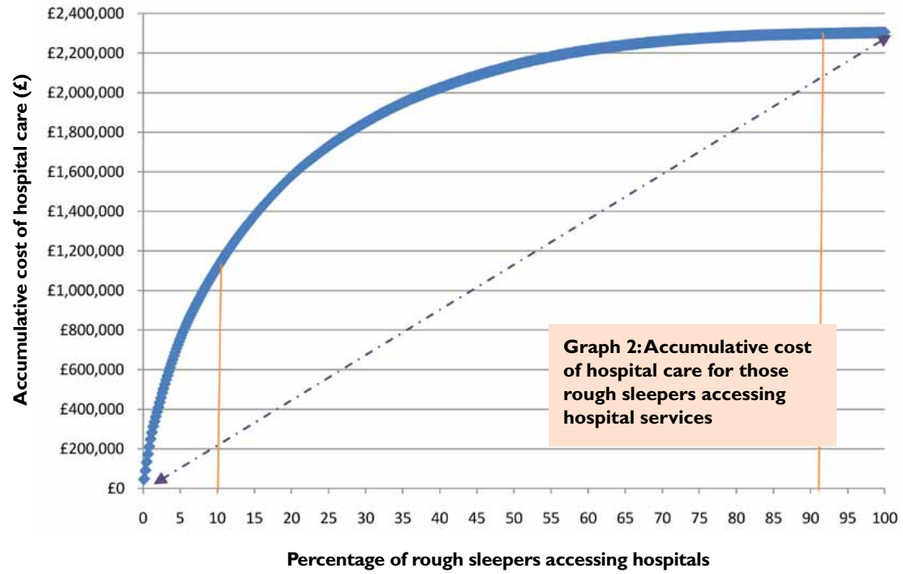
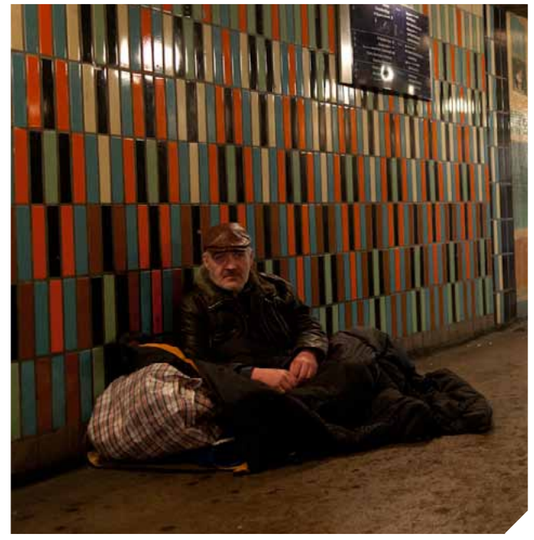


Table 2: Accumulative cost of hospital care for rough sleepers, by percentile

No of patients in terms of percentile (%)	Accumulative cost over two years(£)
5	**756,241**
10	**1,120,306**
15	1,373,649
20	1,576,946
25	1,729,871
30	1,851,311
40	2,024,226
50	2,138,838
60	2,215,686
70	2,259,917
80	2,284,953
90	**2,307,135**
100	**2,323,523**



What the data tells us:

Just over 10% of the sample who had contacts with a hospital between January 2010 and December 2012 contributed to half of the total cost of accessing hospital care. In contrast, half the sample with the lowest cost health use who accessed hospital services, cost only 7% of the group total for spending on acute hospital services.

This is what we might expect to observe if the population sampled consisted of people with general health problems who were only securing healthcare to remedy them once they had reached a state of chronic illness.

Examining each decile within the sample:

Graph 3 shows the results from the Tri-Borough Public Health Intelligence Team by decile in other words, dividing the group into ten groups of 56 people, from the most to the least expensive, and calculating the costs of each groups' acute care. For example, we observe that the most costly 56 people cost £1.12m, with the least expensive 10% costing just £16,000, in total.

Graph 3 – Cost per subgroup over 2 years (10% bands)

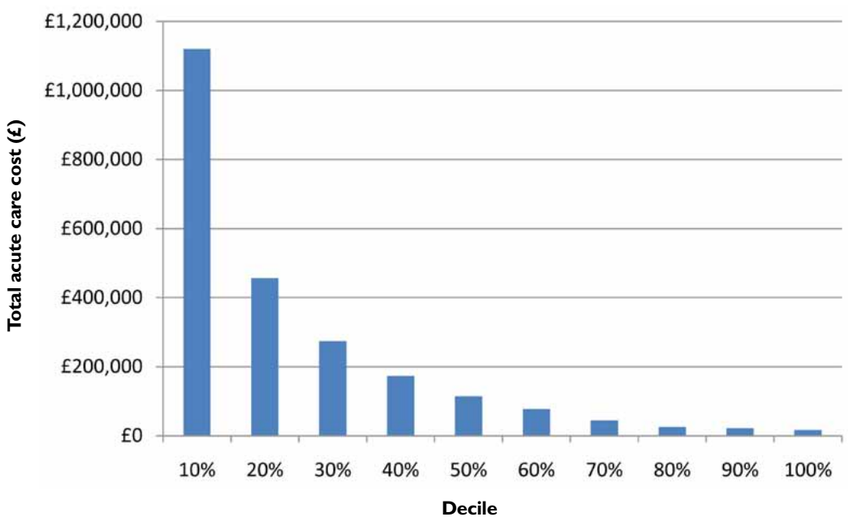


Table 3 offers the precise figures for the sample, showing the total amount spent on acute care per subgroup. For the 'top 30%' of users, the Tri-Borough HIT were able to divide the sample into five percentile groups to demonstrate the differences in spending for those who incurred the highest costs. Within these groups, person number 47 will cost more than 48 who costs more than number 49; and so on – they will all have different healthcare spends.

Table 3 – Indicative average acute service use costs by group

No of patients in terms of percentile (%)	Number of people within each subgroup[5]	Cost per 5% or 10% subgroup	*Indicative* mean cost per person over two years
5%	28	£756,241	£26,960.46
10%	28	£364,065	£12,979.14
15%	28	£253,343	£9,031.84
20%	28	£203,297	£7,247.66
25%	28	£152,925	£5,451.87
30%	28	£121,440	£4,329.41
40%	56	£172,915	£3,082.26
50%	56	£114,612	£2,042.99
60%	56	£76,848	£1,369.84
70%	56	£44,231	£788.43
80%	56	£25,036	£446.27
90%	56	£22,182	£395.40
100%	56	£16,388	£292.12

However the last column is interesting as it calculates the **indicative** mean value of acute healthcare spending for each subgroup. **Please note** it is just a theoretical and illustrative calculation, designed to give a simple view of the costs of acute hospital care for each of the percentiles.

It is of interest because it shows that at one end of the spectrum, the top 5% have an indicative mean spend of £26,960 **each** on acute care, in comparison to just £292 per person over two years for those in the bottom 10%.

Obviously, as the previous graphs show, within these subgroups, there will be differences in the exact costs between members of the sample. However the table offers a stark comparison.

We recommend that further research determines how this compares to the national population's use of acute care. It would be of worth to compare the trends, costs and use of acute health care by the general population and the homeless population. However a starting point could be contrasting data on the use of acute health care, for the tri-boroughs' general population, who have lowest 10% costs, and comparing this to the rough sleeping population, where data informs us that the sub-group with lowest 10% use of acute services, is valued at cost of £292 per person over a two year period.

[5] 561 people. Each sub-group is rounded to the nearest person. Calculations use two decimal places, eg 56.1 people in a decile

Recommendations

1) The analysis suggests that there are **significant financial savings to be made by better tackling health problems at an earlier stage** to reduce the numbers of very high cost individuals observed throughout this study. For one in twenty rough sleepers within a sample to be costing an average, over two years, of £26,960 in acute care alone, suggests need for a policy focus on how to **prevent those with lower level needs becoming future high cost users of health care, which would improve the individual's health and wellbeing, potentially decrease the spread of communicable diseases, resulting in reduced acute healthcare expenditure**.

2) A policy and practice focus **on targeted health interventions for designated groups would reap significant rewards**. In the Tri-Borough sample, the rough sleepers with top 10% of healthcare costs account for half the total spend on acute care, making them a priority to target in terms of financial impact.

3) In order to make a strong case for appropriate, including specialist, healthcare for rough sleepers and those at the margins of society, it is vital that more data is gathered on their use, need and cost of health care. This information is required in order **to influence new commissioning structures** currently being implemented, including **Health and Wellbeing Boards, Commissioning Care Groups, and changes to local authority delegated responsibilities** for housing, welfare payments and criminal justice budgets. Capturing service use data and the costs of it will assist commissioners and policy makers to account for the needs of rough sleepers and others at the margins of society when planning healthcare.

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