







### **Our Thanks**

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- HEALTH E1, Homeless Medical Service, London
- StreetMed, a Homeless Healthcare service, London
- St John's Ambulance Sussex Homeless Service
- Joseph Cowen Healthcare Centre, Newcastle
- Compass Healthcare Centre, Bristol
- Groundswell, London
- Department of Health

### Introduction

It is widely known that homelessness, especially rough sleeping, has significant and negative consequences for an individual's health. Many studies have found strong correlations between homelessness and a multiplicity, and increased severity, of both physical and mental health conditions.<sup>1</sup>

However, despite this increased morbidity, homeless people consistently miss out on the healthcare they need. As a result, health problems are left untreated and health deteriorates. When homeless people do access health services, they are likely to do so in an unplanned way (for example through accident and emergency) and to be in a state of chronic ill health. This results in longer stays in hospital and multiple readmissions, and has clear cost implications for the NHS.2

While there has been some evidence to date on the cost of use of health services by homeless people and the cost benefit of health services for homeless people<sup>3</sup>, there remain gaps in the evidence base, in particular regarding homeless people's use of primary health services.

As part of the Inclusion Health Programme's work to understand and address the health needs of the most excluded, the Department of Health

<sup>&</sup>lt;sup>1</sup> For example Bines, W (1994) The health of single homeless people (Centre for Housing Policy Discussion Paper 9); Homeless Link (2010) The health and wellbeing of people who are homeless: evidence from a national audit; Homeless Link (2013) Survey of Needs and Provision (SNAP); St Mungo's (2013) Client Needs Survey; MacGuire, N, Johnson, R, Vostanis, P, Keats, H, (2009) Homelessness and Complex Trauma: A Review of the Literature

North West London NHS (2013) Rough sleepers: health and healthcare; Brighter Futures (2012) Better Treatment for Rough Sleepers, reducing A&E attendances; Homeless Link & St Mungo's (2012) Improving Hospital Admission and Discharge for people who are homeless

For example North West London NHS (2013) Rough sleepers: health and healthcare, Hewitt, N (2010) Evaluation of the London Pathway for Homeless Patients



commissioned St Mungo's to investigate the extent to which evidence to address this gap exists.

The report is based on consultation with six services providing health care to homeless people, 17 case studies showing the range of presenting health issues and use of health services by homeless people, and analysis of five case studies illustrating the financial impact of this pattern of service use.

# Summary findings and recommendations

#### 1) High costs of healthcare to address multiple chronic illnesses

The case studies analysed illustrate medical histories of multiple, chronic illnesses and disease which may have gone untreated for many years, resulting in substantial levels of healthcare being required. In-depth analysis of **five** of these case studies shows the cost of services to address these physical health conditions ranging from £6,468 to £44,612 per person in a 12 month period. This does not include mental health care, treatment for substance use or medication.

#### 2) Need for improved data collection and analysis

However, these case studies are **only illustrative** as **data was not available to ascertain the potential cost savings for services overall**. The most pertinent finding is that although specialist health services for homeless people have established successful models for working with people who have long histories of multiple and chronic problems, **data to inform commissioning and demonstrate the financial benefit of this work is not routinely collected.** 

Data on the **costs** and **outcomes of treatment** in homeless primary care services was not routinely available. **Longitudinal data**, spanning primary and secondary care usage over a period of years by homeless people is almost entirely unavailable. Neither hospitals nor primary care services keep or coordinate this kind of data.

The nature of commissioning contracts means that data gathering is focused on outputs rather than cost or longer term outcomes. There is a lack of clarity on where responsibility for collating this data lies.

Without this information, it is impossible to show the true impact of these services and, consequently, to make a case for the additional resources required to address the health needs of homeless people in primary care. These are vital to influencing national and local commissioning decisions by NHS England, Clinical Commissioning Groups and Local Authorities.

There is a clear role for NHS England in leading efforts to address this evidence gap and ascertain the true value and financial savings generated by primary care services for people who are homeless.



Efforts to address this evidence gap should cover both the cost benefit of primary healthcare services for the homeless and longitudinal data exploring use of both primary and secondary care.

The case studies analysed for this report only covered physical healthcare. They are therefore an underestimate of the full costs incurred as they do not include mental health or substance dependency.

Further research is required to ascertain the full cost implications of homeless people's use of healthcare services including mental health and substance dependency treatment, and the implications of a lack of treatment. Comparison with healthcare use by the general population would further strengthen the evidence base.

## 3) Role of primary care services in addressing the health needs of homeless people

The services consulted work with homeless people who have often been living with multiple and chronic health conditions, which may have been exacerbated by years of sleeping rough. The case studies illustrate the extremely broad range of health conditions presented, and how homeless health services work to address these conditions.

Common themes in providing appropriate primary care to homeless people include a flexible approach, longer appointments to enable assessment and investigation of complex healthcare needs, assertive outreach offering support in a range of settings including street-based support, and a triage approach where different health needs are prioritised and addressed through a structured health programme.

The data gathering and research recommended above is vital to ensure the continuation and development of primary care services for homeless people which address significant health inequalities and avert high costs in acute services.

### 1. Background

A growing body of evidence clearly demonstrates that people who are or have been homeless experience multiple and chronic health problems at a rate that is significantly higher than the general population. Multiple and co-occurring physical and mental health problems alongside substance use are common.<sup>4</sup>

Mental ill health is far more common amongst homeless people than amongst the general population, in particular personality disorders (c.60 per cent compared to 5-15 per cent), depression and schizophrenia (c.30 per cent compared to 1-4 per cent). Homeless people are over nine times more likely to

<sup>&</sup>lt;sup>4</sup> Deloitte: (2013) Healthcare for the Homeless, Bines, W (1994) The health of single homeless people (Centre for Housing Policy Discussion Paper 9); Homeless Link (2010) The health and wellbeing of people who are homeless: evidence from a national audit; Homeless Link (2013) Survey of Needs and Provision (SNAP); St Mungo's (2013) Client Needs Survey; MacGuire, N, Johnson, R, Vostanis, P, Keats, H, (2009) Homelessness and Complex Trauma: A Review of the Literature



commit suicide than the general population (and 42% have attempted suicide, compared to 1.5% of general population)<sup>5</sup>.

Drug and alcohol addiction often develops as a means to cope with the difficulties of homeless life and past trauma; the effects of drug and particularly alcohol misuse also have a strong and destructive force on the physical health of homeless people. In 2011, Westminster specialist primary care services found homeless people with alcohol dependency were 28 times more likely to have emergency admissions to hospital than general public.<sup>6</sup>

Crisis<sup>7</sup> found that the average death of a homeless person is 47 years old and even lower for a woman at just 43, compared to 77 for the general public.

Research in Leicester also indicates a disproportionate use of emergency and acute health services. Leicester City NHS Community Health Service found that homeless people for whom data was available attended A&E up to six times as often as the general population, were admitted four times as often. Once admitted, they were likely to stay three times as long in hospital. The resulting costs of acute services were four times and unscheduled hospital costs are eight times those for general patients.<sup>8</sup>

While there is some evidence on the costs of providing health care to homeless people, much of this has focused on acute care. There appears to be an evidence gap in understanding the costs of homeless people's use of primary care services and the cost benefit of these services. This report seeks to address this gap.

# 2. Findings from consultation with homeless healthcare services

Consultation was undertaken with six specialist healthcare services which work with people who are homeless and have street based lifestyles in order to identify, understand and report on:

- why specialist provision was required and how these services operate
- what evidence these services hold on their outcomes
- how and whether they provide value for money
- their role in preventing escalation of health problems and potentially avoiding higher costs later.

<sup>&</sup>lt;sup>5</sup> Bernal, M., Haro, J.M., Bernart, S., Brugha, T., de Graaf, R., Bruffaerts, R., Lepine, J.P., de Giralomo, G.,Villagut, G., Gasquet, I., Torres, J.V., Kovess, V., Heider, D., Neeleman, J., Kessler, R. and Alonso, J. (2007), "Risk factors for suicidality in Europe: results from the ESEMED study", Journal of Affective Disorders, Vol. 101 Nos 1-3, pp. 27-34. and Bonner, A., Luscombe, C., van den Bree, M. and Taylor, P. (2008), *The Seeds of Exclusion*, The Salvation Army, London.

Data from Central London CCG 2011

<sup>&</sup>lt;sup>7</sup> Crisis (2011) Homelessness: A silent killer

<sup>&</sup>lt;sup>8</sup> Leicester Homeless Primary Health Care Service (2008) *Annual report 2007/8*, Leicester City NHS Community Health Service, 2008

<sup>&</sup>lt;sup>9</sup> For example North West London NHS (2013) Rough sleepers: health and healthcare, Hewitt, N (2010) Evaluation of the London Pathway for Homeless Patients



The healthcare services include four homeless healthcare centres and two outreach services and are based in London, Newcastle, Brighton and Bristol.

Each of the services were asked to provide a range of client case studies designed to demonstrate the typical types of patient they encountered, the key issues presented, and the treatment offered. Case studies are illustrative examples, selected as representative of the patients the services work with. These are described later in the report.

#### i) Data collection

The most pertinent finding was that specialist services record outputs such as numbers of assessments, clinics held, and referrals made, However they were not able to provide large scale evidence of the impact of their work to avoid escalation of health problems through evidence of longer term outcomes or details of the costs, or cost benefits, of their services.

Longitudinal data, spanning primary and secondary care usage over a period of years by homeless people is almost entirely unavailable, despite many rough sleepers having histories of chronic health problems and multiple hospital admissions over many years living on the streets. Neither hospitals nor primary care services keep or coordinate this kind of data. This appears an evidence gap within front line services and one which this report recommends is remedied in order to ascertain the true costs and potential financial savings that could be generated by more efficient and timely healthcare interventions.

#### ii) Approach of specialist homeless health services

Despite the lack of data to clearly evidence impact and longitudinal outcomes, consultation with the healthcare services identified several common approaches taken when working with homeless people.

**Flexible working:** There was consensus among the services consulted of a clear need to engage and work **flexibly** with people who are homeless or have street based lifestyles because of the multiple health needs they experience. This includes:

- Ensuring a welcoming, non-judgmental approach to clients
- A flexible approach to appointments through a mix of both drop-ins and scheduled consultations
- Seeing the client as a whole person, not simply a list of problems requiring a treatment.

**Double-length appointments:** The specialist services reported a need for longer than average appointment times - typically double - in order to assess and respond to the broad range of complex and multiple health needs presented. Longer appointments are needed to investigate issues such as drug and alcohol addiction, mental health support, blood borne viruses, respiratory problems, diabetes management and podiatry.

**Assertive outreach:** The StreetMed team actively tries to engage rough sleepers with chronic acute health problems by meeting them in the street and



offering them flexible, regular support, and specific help to access primary and secondary care.

It is of note that two of the four case studies provided by StreetMed outlined cases where people had been refused treatment or been turned away by statutory services with their conditions unexamined. Three featured concerns over citizenship and the clients' right to healthcare in this country, however with proper understanding of issues, the StreetMed team were able to assist the client to access appropriate healthcare and liaise with Social Services, UKBA and other agencies to plan appropriate heath and housing pathways.

Multiple needs – the necessity of prioritisation: The Health E1 Homeless Medical Centre suggested that patients with complex health problems are likely to find it difficult to cope with a programme where health services are fragmented into diagnosis led pathways. Patients often find that the multiple appointments needed to treat each of the problems at once are impossible to comply with. Consequently, triaging the conditions and structuring a health programme over time is a key tool to enabling someone to navigate services in order to help improve their health.

**Support and advocacy:** Support, particularly peer support, such as Groundswell's Health Peer Advocacy Service is a valid and cost effective means of improving homeless people's likelihood of attending follow up or planned medical appointments. Street Med's nurse led advocacy has also been successful in helping rough sleepers to access the range of health services they need, and particularly in overcoming refusals to offer treatment.

#### iii) Difficulties with some mainstream services

A consistent message from services consulted was that some mainstream GP surgeries and some hospitals struggle to serve the needs of homeless people. Staff attributed this to both organisational and attitudinal factors. Operational factors included a strict, and at times inappropriate, application of rules requiring identification documents or an address when joining a surgery and highly structured appointment pre-booking systems which do not operate well for individuals who live chaotic lives. There was also a perceived lack of understanding of multiple health problems and the impact on homelessness, and reports of unwelcoming attitudes from staff or other members of the public. Although the latter may in part be explained by the challenging behaviour which homeless people may present, there is a clear need to improve perceptions and understanding of homelessness and its relationship to health problems.

### 3. Case studies

The following section provides an overview of 17 case studies supplied by the six homeless healthcare services. It also outlines the results of financial analysis undertaken with five case studies to illustrate the cost implications of health service use. Full details of the 17 case studies are provided in appendix A.

The homeless healthcare services were asked to provide a range of case studies which represented of the patients the services work with. They should



be seen as illustrative of the extent of the multiple health conditions that homeless people typically experience. They detail the support and interventions given within a twelve month period; they also note the health problems an individual has experienced over the time known to the agency, typically five to six years.

The case studies focus on health needs, rather than the life story and current situation of the person they describe. It is noted that this is a small study, offered as illustrative of the **extent** of health needs that are **typical** in this population, rather than claiming to be descriptive of the homeless population.

#### **Recurrent themes:**

- People who are homeless live with serious health conditions, which are
  often only treated when they have developed to a significant or serious
  state. These are usually accompanied by a range of other health
  problems.
- These serious health conditions require comparatively frequent and high levels of treatment. Where data was available (13 cases) the mean number of visits to the specialist service was over 50 in 12 months.
- It is of note that in each case where a homeless healthcare patient was required to stay in hospital, the stay was longer than the national average.
- The case studies suggest that there are significant gains to be made from increased preventative treatment to stop people reaching the point of needing emergency care or hospital admission.
- Even when conditions are serious, or life threatening, this population
  may not engage with the healthcare that is offered, or do so
  sporadically when pain is greatest. Additionally, healthcare
  professionals may not engage with the homeless person's range of
  needs. The impact of this is that conditions do not receive the best
  treatment and chance of recovery, and there is waste to health
  providers through appointments not kept (at high cost for specialist
  consultations) and through inefficient healthcare practices such as
  focusing treatment on one condition which then recurs because of
  untreated co-morbidities.

#### **Common conditions:**

The case studies demonstrate that certain health problems were common amongst this sample group.

Issues frequently reported were:

- Respiratory and circulatory problems, particularly chronic obstructive pulmonary disease, bronchitis, pneumonia and lung infections
- Alcohol-related problems such as Korsakoff's Syndrome, cirrhosis, liver disease
- Skin conditions, ulcers, swelling, cellulitis, itches, painful conditions at extremities, particularly feet
- Severe infections which take a long time to recover from, due to malnourishment, weak immune systems and effects of other illnesses.



- Falls, cuts, self harm
- Neurological problems, particularly memory loss and confusion
- Mental health problems, particularly personality disorder, depression and schizophrenia.

#### **Medication:**

- Where details of medication were given, these ranged from antibiotics, pain relief and creams to drug treatment, usually methadone
- Of those who provided details of the prescriptions issued within a year, the range was between two and fifteen, and the mean number was eight
- The cost of medication has not been assessed due to the complexity of doing so accurately e.g. ascertaining length of use.

Health services also highlighted the prevalence of mental health problems observed amongst the group. Of the 17 case studies, 10 had an overt reference to depression, suicidal thoughts, or other mental illnesses such as schizophrenia, with 9 case studies detailing problematic use of alcohol and/or drugs.

It is also likely that undiagnosed personality disorder features among at least some of the case studies. Estimates of how common personality disorders are among homeless people vary widely, but generally cluster in the region of 64–85%. However, as a number of studies 10 show, many people who show behaviours consistent with personality disorder have no formal diagnosis. People with personality disorder commonly have little or no insight into their problems and will in many cases deny they have a mental health problem; mental health services reportedly often collude with this analysis.

#### Financial analysis of case studies:

Five of the case studies summarised above, and outlined in Appendix A, were selected for further analysis and financial costing. These were selected as an illustrative sample of the 17 provided by specialist homeless health services across the country. They present a range of interventions - from healthcare provided mainly through their specialist healthcare service; to mostly community healthcare with some specialist assessments; to a combination of A&E, hospital admissions and community healthcare - as well as a range of illnesses and conditions. As a small sample these case studies must be recognised as only illustrative of the needs the services work with.

Health costs were assessed over a twelve month period through detailed application of the Department of Health 2011/12 Reference Costs<sup>11</sup>. Where hospital stays occurred, these were calculated by using the national average cost per procedure, with the applicable daily excess fee added, to reflect the length of the hospital stay.

<sup>&</sup>lt;sup>10</sup> For example Middleton R (2008) Brokering realities: A review of service provision in Leeds for homeless people with personality disorder/complex needs

<sup>&</sup>lt;sup>11</sup> Department of Health (2012) Reference costs 2011-12



In our consultation with specialist healthcare agencies, all said they meet with the client for as long as is necessary, which they estimated would be on average double the standard GP time of 10 minutes, which is costed at £33.12 Therefore this research uses a fee of £66 per consultation at a specialist healthcare provider – whether this is with the doctor, nurse, or specialist clinic.

This analysis of health costs should be treated as an underestimate of true resources used for the following reasons:

- Movement of the client group makes it very likely that reported use of health services by one agency is less than the full extent of their contacts with all health services.
- Where there was doubt over whether clinics were held at the specialist centre or hospital outpatients, it has been assumed to be the former, so no outpatient charge was applied. This means costs will be a cautious underestimate.
- Costs of medication are not described, due to information not being available on duration of use, which would have threatened reliability of cost data.
- Mental ill health is a challenge faced by many homeless people, and mental health clinics were part of the contacts that the individuals in the case studies had with health services. However our costings do not include financial evaluation of contact with treatment by or admission to mental health services, as this data was not available.

The case studies were put forward by services in the following regions:

Brighton	2
Newcastle	2
Bristol	1
London (3 agencies)	12
Total	17

The demographics were as follows:

Gender	Male	14
	Female	3
Age range	18-30	2
	31-40	2
	41-50	7
	51-60	5
	61-70	1
	70+	0

The findings have been shared and agreed with the health services that provided case studies.

The following case studies contain medical terms; a glossary has been provided in Appendix B to describe those that are less common.

<sup>&</sup>lt;sup>12</sup> PSSRU (2011) Unit Costs of Health and Social Care



#### Case Study A - Number 4 in Appendix A

This client had high use of hospital emergency services before reaching satisfactory management of health with a specialist healthcare centre.

Over 5 years he attended one hospital 69 times, an average of 17 attendances per year, at minimum cost of £264 per occurrence when not admitted, and £359 if admitted, before costs of treatment are counted. The researchers have estimated the breakdown of A&E visits which resulted in A&E admissions and those which did not.

Appointments at homeless healthcare service, emergency and hospital care over a 12 month period was estimated at:

Appointments at a homelessness healthcare service	Eight appointments (estimate) while he was still making heavy use of hospital care – this has now settled into more primary and less hospital care.	£528
A&E	A&E presentations without being admitted x12 = £3168 A&E presentations and admitted x5 (plus further charges incurred depending upon nature of illness) = £1795	£4,963
Hospital treatment	Confusion (possible Korsakoff's Syndrome): Assessment of cognitive impairment or dementia (moderate need) = £220 Falls without specific cause, with major care= £1752 Fractured hand: Intermediate hand procedures for trauma = £2508 Severe malnutrition: Respite care with length of stay between 5 and 8 days, with intermediate care = £2849 Haematuria: Gastrointestinal bleed, with length of stay 2 days or more = £2042	£9,371
	Total cost over 12 months	£14,862

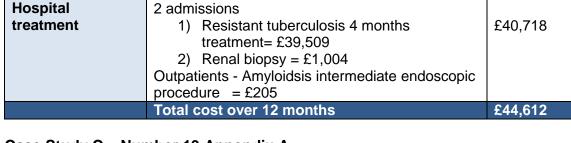
The client is now maintaining better health, without crises, through the support of a specialist healthcare clinic.

If we assume he visits the clinic every two weeks to manage his still considerable health needs, this would be estimated to cost £6,864 per annum, which is just under £8,000 less than the costs outlined above.

#### Case study B - Number 12 Appendix A

A client with long history of homelessness and poor health, who attends frequent clinics at a primary care centre, yet who, due to his lifestyle and weak physical health, is very prone to infections and illnesses that result in hospital treatment.

Appointments at	59 appointments for a variety of issues and	£3,894
a homelessness	specialisms	
healthcare		
service		



#### Case Study C - Number 13 Appendix A

A case which presents significant health problems which are largely being managed through the homeless healthcare service the client uses. The effects of rough sleeping and a street based lifestyle have resulted in the client having a low immune system which twice led to infections affecting him and requiring hospital care.

Appointments at a homelessness healthcare service	33 appointments for a variety of issues and specialisms	£2,178
Hospital treatment	2 admissions Respiratory/ coughing of blood, 17 days admission = £4,733 Diabetic and chest infection, 10 day admission = £3,226	£7,959
	Total cost over 12 months	£10,137

#### Case study D - Number 2 Appendix A

The client was sleeping rough for approximately six years which put enormous strain on his physical and mental health. The street outreach team helped him address health needs, find temporary accommodation, address legal issues and engage with relevant support services.

Emergency and hospital care over a 12 month period was estimated at:

A&E	A&E presentations without being admitted, deep vein	
	thrombosis x 2, kidney pain x 2, malnourishment & infection x 1	£1,320
Hospital	Chronic lymphedema - Procedures on the lymphatic system =	
treatment	£1056	£18,573
	Pruitus all over body – dermatology appointment £93 per time,	
	allowed $x 3 = £279$	
	Athletes foot - dermatology appointment £93 per time, allowed	
	x = £279	
	A&E plus admissions for cellulitis - 41 days admission =	
	£16,959	
	Total cost over 12 months	£19,983

This client is now maintaining better health and while he continues to have frequent, regular treatment for his various healthcare issues. These are maintained by primary care services, in a planned, coordinated manner, also at lower cost than over this twelve month period.



#### Case study E - Number 6 Appendix A

The client has a long history of rough sleeping and has been using the health centre for at least four years. He has multiple health problems and used the GP, Nurse and clinics at the service a total of 90 times over the past 12 months. While a heavy user of health services over a recent 12 month period, including making use of A&E on two occasions, it can reasonably be assumed that his health would deteriorate without primary support and the costs of emergency and hospital care would increase without the appropriate healthcare being available to him. Notably his history is of higher A&E use before working with this clinic.

Appointments	90 appointments within a 12 month period	£5,940
at a		
homelessness		
healthcare		
service		
A&E	A&E presentations without being admitted x2	£528
	Total cost over 12 months	£6,468

#### **Summary**

The case studies and financial analysis described above provide striking examples of the range of healthcare needs that homeless people often experience.

It is clear that, even when recognizing that the figures supplied in this document are an underrepresentation of true costs, the resources involved in providing healthcare needed to address these complex health needs are sizeable.

There is a clear case for further research to ascertain the full cost implications of homeless people's use of healthcare services including mental health and substance dependency treatment, and the implications of a lack of treatment.

# Appendix A –Table summarising health case studies Definitions of medical terms are provided in Appendix B.

	Reported health issues	No. of appts at health centre in 12 month period	No. of A&E presentations in 12 month period	Details of Hospital admissions	Details of medication / treatment
1	Severe leg ulcers and necrosed tissues to both lower legs     Infections to lower legs, fungus on toe nails     Deep vein thrombosis     Pulmonary emboli     Acute cardiac syndrome     Decreased immune defences     Tuberculosis     Depression	Prior to working with this health team, had not been given appropriate advice or assistance by GP services.	At least three reported presentations due to lower leg pain.  On third occurrence he was admitted for treatment.	Treated with antibiotics for infection in lower legs - aware that risk of further deterioration would require amputation.  Investigated chest pains.  Assisted to access Tissue Viability Nurse.	6 repeat prescriptions (minimum).
2	Chronic lymphedema Pruitus (all over body Athlete's feet Severe mobility problems Poor circulation to extremities – concerns of possible future amputation. Pain in kidneys and lungs Cellulitis High risk of deep vein thrombosis and pulmonary emboli Blood results bring concern - raised white cell count, severely anaemic and low platelets.  Malnourishment	Limited contact with GP service, even though it offered enhanced service for homeless people.	Many presentations due to cellulitis	Multiple stays for up to 4 weeks.  One Hospital detailed he had been admitted for 82 days over 2 years.	A plan has been put into place for managing his physical health issues, primarily blood monitoring, addressing anaemia and treatment of leg ulcers / infection.  Client has been assisted with housing needs, is now in contact with GP service and culturally appropriate support.

	Reported health issues	No. of appts at health centre in 12 month period	No. of A&E presentations in 12 month period	Details of Hospital admissions	Details of medication / treatment
3	<ul> <li>Terminal liver disease with recurrent jaundice</li> <li>Infected ascites</li> <li>Shortness of breath &amp; lethargy</li> <li>Life threatening &amp; recurrent hyponatreamia</li> <li>Lower leg cellulitis</li> <li>Clinical depression</li> <li>Schizophrenia</li> <li>Drug/alcohol induced psychosis</li> </ul>	Was registered at GP surgery some distance from home so not attending, therefore had regular emergency care and deterioration of health conditions.	Regular attendances for pain management.	Working with hepatolgy dept.  Referred to specialist liver unit. Possibility of future liver transplant.	Was assisted to join new, local practice.
4	<ul> <li>Alcohol dependence</li> <li>Cirrhosis</li> <li>Alcohol related brain damage</li> <li>Falls</li> <li>Fits</li> <li>Fractured hand</li> <li>Double incontinence</li> <li>Confused – assessment of whether he has Korsakoff's syndrome</li> <li>Severe malnutririon</li> <li>Haematuria</li> </ul>	Is now engaged in coordinated treatment for health problems by homeless healthcare centre - before working with this centre, he was homeless with no GP.	17 in 2011.	Liaison with Alcohol nurse in A&E.  Alcohol nurse in hepatology dept.  Psychiatric assessment.  Offered appointments in Fracture Clinic) did not attend).	Many medicines, required help to manage through dosset box.
5	<ul> <li>Fracture of bones</li> <li>Abnormal liver scan</li> <li>Alcohol dependence</li> <li>Varicose eczema</li> <li>Impaired fasting glycaemia</li> <li>Bilateral cataracts</li> <li>Earache &amp; wax</li> </ul>	36 attendances including Did Not Attends. 6 years' history, detailing multiple issues of issues, mostly connected with alcohol.	5 A&E presentations, including admissions.	Included in the A&E data.	6 repeat medications.
6	<ul> <li>Leg ulcer</li> <li>Deep vein thrombosis</li> <li>Fracture of metacarpal bone</li> <li>Diarrohea symptoms</li> <li>Osteomyelitis</li> <li>Hepatitis C</li> <li>Acute osteomyelitis</li> <li>Septic arthritis</li> </ul>	90 consultations in 12 month period.	2 A&E presentations.	0 recorded.	12 repeat medications.

	Reported health issues	No. of appts at health centre in 12 month period	No. of A&E presentations in 12 month period	Details of Hospital admissions	Details of medication / treatment
7	<ul> <li>Leg pain, associated with accident a few years before where metal plate had been fitted. Pain recurred.</li> <li>Many tests related with problem drinking and tests for various conditions.</li> </ul>	22 consultations in 12 month period.	Not available.	0 recorded.	2 repeat prescriptions.
8	<ul> <li>Depression</li> <li>Self harm</li> <li>Shingles</li> <li>HIV positive</li> <li>Pulmonary tuberculosis</li> <li>Mild dyskaryosis (issue associated with cervical smear)</li> <li>Drug dependence</li> <li>Family planning</li> </ul>	69 consultations in 12 month period.	9 recorded, including admissions.	Included in the A&E data.	5 repeat prescriptions.
9	<ul> <li>Pneumonia</li> <li>Septicemia</li> <li>HIV positive</li> <li>Chronic pulmonary disease</li> <li>Infection of lumbar spine</li> </ul>	171 consultations in 12 month period.	5 recorded, including admissions.	Included in the A&E data.	8 repeat prescriptions.
10	<ul><li>Personality disorder</li><li>Schizophrenia</li><li>Raised blood pressure</li></ul>	35 consultations in 12 month period.	Not available.	Not available.	3 repeat medications.
11	Bronchiectasis     Chronic obstructive pulmonary disease     Hypertension     Diabetes type 2     Drug dependence     Inguinal hernia     Syphilis     Hypothyroidism     Vitamin D deficiency	31 consultations in 12 month period.	Not available.	Not available.	19 repeat prescriptions.

	Reported health issues	No. of appts at health centre in 12 month period	No. of A&E presentations in 12 month period	Details of Hospital admissions	Details of medication / treatment
12	<ul> <li>Drug dependence</li> <li>Abnormal weight loss</li> <li>Hepatitis C</li> <li>Botulism</li> <li>Leg ulcer</li> <li>Raised blood pressure</li> <li>Renal impairment</li> <li>CKD stage 4 with proteinuria</li> <li>Anaemia</li> <li>Tuberculosis</li> <li>Poor sleep pattern</li> <li>Amyloidosis</li> </ul>	59 consultations in 12 month period  Medical support is required from the following services:  Blood Borne Virus team  Specialist Addictions Unit (SAU) for methadone Renal team  Hepatology team Renal/liver clinic Pre-dialysis team  TB team  Respiratory clinic	Not available.	Not available.	9 repeat prescriptions.
13	<ul> <li>Acute asthma</li> <li>Diabetes type 1</li> <li>Drug dependence</li> <li>Secondary pulmonary hypertension</li> <li>Severe depression</li> <li>Hepatitis C</li> </ul>	33 consultations in 12 month period.	Not available.	Not available.	13 repeat prescriptions.
14	<ul> <li>Had undergone a Femoral Angiogram</li> <li>Blocked cardiac valves, requires Angioplasty operation</li> </ul>	Had been in hospital and was put in touch with medical outreach team – appears there was no contact with primary care.  Client had been sofa surfing and street homeless.	Not available.	Outreach team alerted that client was due for discharge from hospital. Assistance given to secure appropriate temporary housing, to maintain recovery and contact with health services.	9 different prescriptions.

	Reported health issues	No. of appts at health centre in 12 month period	No. of A&E presentations in 12 month period	Details of Hospital admissions	Details of medication / treatment
15	<ul> <li>Alcohol dependent</li> <li>Poor mental health, incl. paranoia</li> <li>High blood pressure</li> <li>Impaired liver function</li> <li>Cellulitis</li> <li>Insomnia</li> <li>Blood tests, urine tests</li> <li>Endoscopy uncovered Gastritis</li> <li>Referred to Cardiac Consultant</li> </ul>	Outreach service helped advocate for detox, then engaged and accompanied him to GP.	Not available.	Admissions not known  Referred to two consultants - Endoscopy and Cardiac.	Secured bed for Alcohol Inpatient detox.  Details of mediaction not available.
16	<ul> <li>Alcohol dependent</li> <li>Previous amputation of toes</li> <li>Wound on foot required regular dressing. Required follow up and help to ensure this was done.</li> <li>Self neglect</li> <li>Hep B &amp; C</li> <li>Chronic</li> <li>Epilepsy</li> <li>Frostbite of foot</li> <li>Cirrohosis</li> <li>Hyponatraemia</li> </ul>	Received practical help e.g. warm clothing, as well as medical care.  2010 – 46 visits, particularly with Foot Clinic.  Required a lot of help and reminding re. regular feet dressing. Also was assisted to find hostel accomm. 2011 – 1 visit, had been disheveled and sleeping rough. 2012 - 2 visits.	Not available.  Poor foot management led to emergency hospital stay.	Epilepsy.  Vascular risk, due to critical schaemia of toes.	8 prescriptions (minimum).  Had undergone detox.
17	<ul> <li>10 years' history describing:</li> <li>Falls</li> <li>Suicidal ideation</li> <li>Depression</li> <li>Alcohol dependent with increasing use and abusive behaviour</li> <li>Cardiology</li> <li>Skin complaints</li> <li>Domestic violence</li> </ul>	Regular use of health centre over many years, with varying patterns of frequency, sometimes abusive behaviour. Often moving between hostel, sleeping rough and sofa surfing.  26 appointments in a 12 month period.	Not available.	Not known – appears her health was mostly managed in the community.	Multiple medications.

# **Appendix B Glossary of medical terms**

- Amyloidosis A group of rare but serious diseases caused by deposits of abnormal protein, called amyloid, in tissues and organs throughout the body. Amyloid can build up gradually in organs for many years before it causes symptoms. The symptoms will depend on which organs are affected.
- **Bronchiectasis** Bronchiectasis is an abnormal widening of one or more airways. Extra mucus is made in the abnormal airways which is prone to infection. Treatment often includes regular physiotherapy and courses of antibiotics.
- Cellulitis is a localized or diffuse inflammation of connective tissue with severe inflammation of the skin. Skin on the face or lower legs are most commonly affected by this infection
- Chronic Kidney Disease stage 4 Preparation for renal replacement therapy
- Chronic lymphedema A condition of localized fluid retention and tissue swelling caused by a compromised lymphatic system. Tissues with lymphedema are at risk of infection.
- Cirrhosis A consequence of chronic liver disease characterized by replacement of liver tissue by fibrosis, scar tissue and regenerative nodules leading to loss of liver function. Cirrhosis is most commonly caused by alcoholism, hepatitis B and hepatitis C, and fatty liver disease, but has many other possible causes.
- Impaired fasting glycaemia Sometimes called pre-diabetes.
- Haematuria The presence of blood in the urine. It can be a sign that there is a kidney stone or a tumor in the urinary tract ranging from trivial to lethal.
- Hypothyroidism This is when the thyroid produces less thyroid hormone than it should which causes the metabolism to run too slow, often caused by stress.
- Infected ascites Ascites is the abnormal collection of fluid in the abdominal cavity, most often as a result of chronic liver disease.
- **Inguinal hernia** A hernia is a lump that results from a part of the intestine (bowel) slipping through a weakness in the abdominal wall. Inguinal hernias are in the groin.
- Korsakoff's syndrome A neurological disorder caused by a lack of thiamine (vitamin B<sub>1</sub>) in the brain. Its onset is linked to chronic alcohol abuse and/or severe malnutrition.
- Mild dyskaryosis Abnormality of cervical smear results
- Necrosed is a form of cell injury that results in the premature death of cells in living tissue. The result is a build-up of dead tissue and cell debris at, or near, the site of the cell death. A classic example is gangrene. For this reason, it is often necessary to remove necrotic tissue surgically, a process known as debridement.
- Osteomyelitis Infection of a bone, a serious infection that needs prompt treatment with antibiotics. Surgery is usually needed if the infection becomes severe or persistent.
- Pruitus Simply means itching. It can be associated with a number of disorders, including dry skin, skin disease, pregnancy, and rarely, cancer.
- Pulmonary emboli is a blockage of the main artery of the lung or one of its branches
  by a substance that has travelled from elsewhere in the body through the bloodstream
  (embolism). PE most commonly results from deep vein thrombosis (a blood clot in the
  deep veins of the legs or pelvis) that breaks off and migrates to the lung
- Recurrent hyponatreamia Often a complication of other medical illnesses in which
  excess water accumulates in the body at a higher rate than can be excreted
- **Septicemia** Bacteria in the blood that often occurs with severe infections. It is a serious, life-threatening infection that gets worse very quickly.



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