# Nurse-led homeless intermediate care: an economic evaluation

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## Abstract

**This article describes a homeless intermediate care pilot project that took place at a 120-bedded homeless hostel in South London in 2009. During the year, 34 hostel clients directly benefited from intermediate care. At the end of the year, the number of hospital admissions to the hostel had dropped 77% relative to 2008, and the number of accident and emergency (A&E) attendances had dropped 52%. Hospital 'did not attends' (DNAs) were 22% lower. An economic evaluation found that the pilot project was cost neutral overall, and there is some evidence that health outcomes improved. The project now has mainstream funding and has recently received a national community nursing award. Its success has been recognized nationally as an example of innovative practice in work with vulnerable groups (Department of Health (DH), 2010).**

**Key words:** Homeless ■ Intermediate care ■ Case management ■ Client engagement ■ Health outcomes

It is well known that homeless clients experience a higher rate of serious health problems than the general population (Wright and Tomkins, 2006). They also have a higher rate of attendance and admission to hospital (Department of Health (DH), 2010), a higher rate of self-discharge, and often suffer inappropriately early discharge or inadequate management while in hospital. They also often have high and complex support needs upon discharge. On account of this, a need for specialized homeless intermediate care was identified in Lambeth in 2002.

The Homeless Intermediate Care Pilot Project commenced in January 2009 based at a 120-bedded St. Mungo's homeless hostel in South London. A scoping analysis of available data on the clients residing in this hostel in 2005 had suggested that 93% had a substance misuse problem, 61% had a mental health problem, and 56% had a physical healthcare need. It also revealed that 15% of clients had had a recent hospital stay (Lane, 2005). The main aim of the pilot project was to reduce mortality and morbidity in clients residing in the hostel. In 2008, there had been seven deaths at the hostel, and the average age of death was 38 years old. The secondary aim for the project was to reduce secondary care usage at the hostel in line with NHS priorities.

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The term 'intermediate care' has been defined as a range of integrated services to promote faster recovery from illness, prevent unnecessary acute hospital admission, support timely discharge and maximize independent living (DH, 2002). Intermediate care is, of course, normally delivered within inpatient units, which are similar to hospital wards in their environment, philosophy and organization. The model adopted here was quite different, being delivered within a hostel setting, using a case management approach. Although there were discussions around establishing a more formal 'ward' or 'sanctuary' unit within the hostel environment, this was not financially or practically viable; and indeed, this proved to be unnecessary in order to achieve success. The organizational structure of the pilot project model was informed by extensive preparatory work (Lane, 2005; Dorney-Smith, 2007). The preparatory work and pilot project received funding from St. Mungo's and the Guys and St. Thomas' Charitable Foundation, as well as from NHS Lambeth.

The Three Boroughs Homeless Team was well aware that in order for the service to achieve mainstream funding, the pilot project would need to prove its own cost effectiveness. As such, the project was evaluated in detail with the examination of health outcomes data, as well as an economic evaluation. Ethics approval for all aspects of the project was sought, but not required, as the project was deemed to be a service evaluation rather than research. However, clients were still consented regarding their anonymized data being part of the service evaluation, and were informed clearly on admission that this data would later be placed in the public domain. Client participation was integral to the success of the project, and clients were present for (and took part in) presentations of the results. The final report was published in September 2010 (Hendry, 2010). The project was successful, and notice of mainstream NHS funding was given in March 2011. This article outlines how the project was delivered, its results, and some of the challenges experienced along the way.

## Method

The pilot project was undertaken using a caseload of 6-10 patients at any one time. The low caseload numbers reflected the ongoing evaluation activity that was taking place. Detailed data regarding secondary care usage was obtained for all participants. An in-depth analysis of the clinical aspects of the overall caseload was undertaken, and all clients on the pilot had 'before and after' health outcome measure scores taken with the EQ-5D standardized instrument (EuroQol, 2011), the SF-12v2 health survey, (Quality Metric, 2011)

**Table 1. Morbidity of HICP clients**

| Condition | Prevalence |
|---|---|
| HIV | 23.5% |
| Past Hepatitis B | 34% |
| Past or Active Hepatitis C | 84% |
| Drug Dependency | 83% |
| Alcohol Dependency | 74% |
| Mental Health Problems | 87.5% |
| Documented past suicide attempt | 71% |
| COPD / Asthma | 44% |
| Liver cirrhosis | 45.5% |
| Past or Active TB | 15.2% |
| Past or Active Syphilis | 11.8% |

and the SOCRATES (v8) scoring form (Stages of Change Readiness and Treatment Eagerness Scale) (Center on Alcoholism, Substance Abuse, and Addictions, 1995), as well as nurse dependency scores as part of the evaluation process. Reasons for using these particular health outcome measures, and copies of the tools used, can be found in the final report (Hendry, 2010). Time and motion data were also collected to assist in suggesting future caseload size and deciding on an optimum skill mix for the continuing service. Patient satisfaction surveys and focus groups were undertaken as well.

Our homeless intermediate care team is led by a full-time Band 7 intermediate care nurse and also includes a full-time health support worker, both of whom are based on site at the hostel Monday to Friday 9 am - 5 pm. A GP provides a weekly 4.5-hour session on site and is available for out-of-hours cover and at the surgery during the rest of the week. Clients needed to be prepared to register with this GP in order to receive intermediate care. Clients are selected for the pilot project at a weekly review meeting made up of project and hostel staff. Clients selected are those perceived to be most at risk of death or disability at any one time. During the pilot, the aim was to provide time-limited support for a period of 6-12 weeks, although there was some flexibility around this timing.

The pilot project ran alongside, and in addition to, the on-site health services already provided by the Three Boroughs Team and the local GP surgery. Three other walk-in nurse sessions, and one other GP session are also provided within the hostel. These sessions had always provided for the essential primary health needs of the 120 clients, but had never allowed time for the complex case management or intensive support often required. On discharge from intermediate care, clients were handed back to the mainstream homeless team as part of a care pathway.

**Table 2. Secondary care usage data including comparison with other hostels**

| | Number of inpatient episodes (number of days) | | Number of A&E visits recorded | |
|---|---|---|---|---|
| | Monthly average 2008 | Monthly average 2009 | Monthly average 2008 | Monthly average 2009 |
| Homeless Intermediate Care Project Hostel - St. Mungo's | 10.08 | ↓2.33 | 8.42 | ↓4 |
| Comparison Hostel A - Thamesreach | 5.17 | ↑6.12 | 0.42 | ↑0.78 |
| Comparison Hostel B – St. Mungo's | 0.08 | ↑0.12 | 0.58 | ↑0.89 |
| Comparison Hostel C – St. Mungo's | 0.67 | ↓0.47 | 8.92 | ↑13.11 |
| Comparison Hostel D - Thamesreach | 1.58 | ↑1.76 | 2.92 | ↑3.67 |

## Results

An economic evaluation of the secondary care usage data was undertaken by an economic advisor from the Department of Health (DH) as part of a wider piece of work looking at the economics of homeless health care. Secondary care usage data was obtained for the year prior, and year of the project using the unique postcode identifier of the hostel. Similar data was obtained for four other similar hostels in the locality which also receive on-site health services from the Three Boroughs Team, but did not receive the Homeless Intermediate Care Pilot Project intervention. This was done to provide a form of comparison.

Health outcomes data was analysed by a senior research fellow from the Institute of Primary Care and Public Health at London South Bank University. Client demographics and caseload capacity were also included to demonstrate the burden of client morbidity and inform future service delivery. Finally, patients' opinons were collated in order to help inform the direction of future services.

### Client demographics

Overall, 34 individual clients were admitted on to the project during the year (65% male; 35% female). There were 41 episodes of care (on account of readmissions). The average age of the clients was 39 years old. The average stated number of years homeless prior to admission to the project was 8.5 years. The clients were predominantly White British; only one client was non-White. A variety of very serious conditions were experienced by the clients. These included renal failure, osteomyelitis (bone infection) of the spine, acute bacterial endocarditis (infection within the heart endocardium) with septicaemia (generalized bacterial infection of blood), necrotizing fasciitis (bacterial infection of soft tissue and muscle sheath), jugular vein thrombosis (clot in the main vein of the neck), end-stage liver failure, Methicillin-resistant *Staphylococcus aureus* (MRSA) infection (rather than colonization), acute syphilis, pulmonary TB, and Wernicke's encephalopathy (thiamine deficiency-related degenerative brain disorder). The average number of current and clinical conditions logged was 10.5 per client. A summary of client morbidity is presented in *Table 1*.

### Secondary care usage

*Table 2* demonstrates how the monthly average of inpatient episodes and accidence and emergency (A&E) visits for

the hostel differed between the 2 years. These results are statistically significant (Hendry, 2010). In summary, the number of hospital admissions to the hostel dropped 77% relative to 2008, and the number of A&E attendances dropped 52%. The number of A&E visits conveyed by ambulance dropped 67%. It can also be seen from the table that when this data was compared to the data from the other four hostels, a similar trend was not seen at the other four hostels. This indicated that it was unlikely that the effect was due to external factors such as a policy change at a local hospital or a change in practice elsewhere in the local health system.

During the year, 198 appointments were made for Homeless Intermediate Care clients, and the documented 'do not attend' (DNA) rate was 11.6%. This DNA rate compares with average national levels of DNAs for mental health patients of around 19% (Commission for Health Inclusion, 2003). As there are currently no official homeless DNA rates, this comparison seemed a reasonable alternative (given the high mental health morbidity in our client group). In fact, analysis of Three Boroughs Team data suggests that 40-50% DNA rates are commonly experienced in this group. Common referrals were to liver services, HIV services, chest clinics, neurology, pain management, tissue viability, the local homeless community mental health team, psychology, dentistry, social work, occupational therapy, physiotherapy, palliative care and counselling services. Hospital DNAs arising from the hostel were reduced by 22% compared with the previous year.

## Health outcomes

A detailed analysis of the health outcome scale results is not possible within the limits of this article. However, the project had a significant impact on the general health sub-score of the SF-12 health survey, the Nurse Dependency Score, and the self-rated thermometer of the EQ-5D instrument. A case study describing some example health outcomes is presented in *Box 1*.

During the year of the pilot, there was one death at the hostel. This compared favourably with the mortality rate of seven deaths at the hostel in the previous year. However, longitudinal work is required to test whether the project is really having any effect on mortality, and indeed there have been several client deaths managed by the service since the close of the pilot phase. However, it is important to note that one of the key aims of homeless intermediate care has been to achieve death with dignity, and the project has been recognized by the National End of Life Care Programme (2010) for its role in delivering quality palliative care.

## Patient satisfaction/involvement

Client responses to the project were universally positive. A key message from the patient satisfaction surveys appeared to be the degree of importance that clients attached to having an escort and advocate at outpatient appointments, and how this was a huge motivator for attendance. Possible areas for service development suggested included increasing the time available from the doctor, and increasing the amount of time the clients were able to spend on the caseload as a whole.

The focus groups revealed a desire for:

- On-call and weekend services
- A possible need for an activities worker to work closely with the Intermediate Care team (boredom was seen as a primary cause of relapse)
- A possible role for a peer supporter and educator within the team
- Better access to appropriate mental health support
- Better post-detoxification arrangements.

The latter two issues are considered further in *Table 3*.

## Cost benefit analysis

The cost of secondary care usage to the NHS arising from the hostel in 2008 was estimated at £168 000. In comparison, the 2009 cost of the reduced secondary care usage arising from the hostel, together with the cost of the project was estimated at £160 000. Thus, the project was essentially cost neutral. It should be noted that the team was based within an existing team and housed at no cost to the NHS on the hostel site, keeping the overhead costs low. Further detail regarding this analysis can be found in the final report (Hendry, 2010).

## Caseload capacity and skill mix

Analysis of the pilot caseload enabled the team to recommend an ongoing caseload size of 8–12 clients. Analysis also suggested that employing an NVQ (National Vocational Qualifications) healthcare assistant training for the health support worker, e.g. to undertake dressings, observations, and work with medications, might mean that the overall caseload for the nurse could be increased.

### Box 1. Case Study

Male, 20s, 11-week admission

More than 50 A&E attendances and 11 hospital admissions during 2008

Social History – First ran away from care at age 9 due to 'abuse'. Up to age 14, frequently ran away from care. Started drinking heavily at age 12. Street homeless from age 14.

Medical history on admission - Chronic alcoholism with altered liver function. Frequent serious intoxication. Frequent withdrawal fits. Poor memory. Doubly incontinent. Underlying depression. Episodes of bizarre behaviour. Past Hepatitis C. Recurrent complaints of abdominal pain.

Other problems – General lack of trust in health professionals and poor engagement with services

Activities undertaken by Homeless Intermediate Care Pilot – Client engaged. Bloods. Twice daily nursing contact with weekly GP review. Physical nursing care as required, emotional support and alcohol reduction work. Outpatient neurology, memory clinic, gastroenterology and surgical review, and ultrasound, CT (computerized tomography) scan and EEG (electroencephalograph) test attended, escorted by pilot staff. Sectioned under section 2 for detoxification and subsequent mental health and mental capacity assessment. No severe and enduring mental illness found. Behaviour stabilized

Key achievements – Engagement, appropriate investigations and specialist opinions, reduced secondary care usage, detoxification

## Table 3. Key challenges encountered and solutions employed

| Key challenges | Solutions |
|---|---|
| Potential staff 'burn out' – as a result of role isolation, the intensity of the work, and conflict within the role (see below for further information re conflicts) | Management presence at weekly handover meeting to provide supervision and support<br>1-1 and group supervision monthly<br>Time away from hostel based at main team office, 2 sessions a week (to catch up on paperwork, phone calls, etc)<br>Probable need for post to be rotational |
| Partnership with the voluntary sector – differing expectations on both sides, differences in procedure and protocol | Honorary NHS contract for heath support worker<br>Joint recruitment processes<br>Weekly handover meeting attended by all available<br>Shared 'action planning' goal sheet produced weekly and distributed to all involved<br>Steering group meeting bi-monthly<br>Quarterly stakeholder meeting |
| Stigma experienced by clients when accessing mainstream services | Escorting of clients<br>Assertive/advocacy training for staff<br>Mentoring of staff<br>Supervision of staff |
| Continued problems with inappropriate hospital discharges | Commitment to write letters to the hospital regarding each situation in order for each to be properly investigated<br>Teaching sessions for the A&E staff, ward staff, and discharge teams regarding homeless health |
| Poor access to appropriate mental health treatments for some clients (in particular, very limited services available for clients with personality disorders and/or depression who have a co-morbidity of a serious substance misuse problem) | Ad-hoc counselling provided by project staff<br>Monitoring of condition by project staff (e.g. using PHQ-9 (nine-item depresssion scale of patient health questionnaire))<br>Full use of voluntary sector treatment provision (including hostel mental health specialist staff)<br>Key relationships built with a dual diagnosis psychologist, and addictions psychiatrist<br>Advocacy on behalf of individual clients<br>Lobbying of commissioners |
| Lack of appropriate move-on accommodation after urgent detoxifications (undertaken for health reasons) – resulting in relapse from detoxification | 'Relapse prevention' support provided<br>Ad-hoc counselling provided in case of relapse<br>Relapse NOT used by team as a contraindication to further treatment<br>Lobbying of commissioners<br>Attendance at relevant 'Supporting People' meetings |

## Discussion

Having a pilot phase precede the service has allowed for considerable reflection, and for resulting insights to be documented and shared with others. The discussion outlines some key considerations for anyone attempting to set up a similar service.

### Challenges

Numerous challenges were faced during the pilot, and many of these are still ongoing. *Table 3* outlines some of the key challenges, and the solutions that have been employed.

### The importance of escorting

One of the key features of this model of care has been the high use of escorting and advocacy. The benefits of escorting clients to, and attending various healthcare appointments with clients have included:

- A reduction in DNAs, because the clients feel supported/ less daunted by healthcare consultations
- An accurate 'memory' of clinical instructions/advice given during the appointment
- Immediate on-the-spot advocacy to challenge stigma, and negotiate realistic and achievable pathways of care
- Faster communication between healthcare providers.

### Engagement, motivation, and post-discharge deterioration

Another key feature of this model of care has been the high level of engagement work undertaken. Clients have often been difficult to engage initially but owing to very high levels of morbidity among many of these clients, the team has seen their eventual engagement as very desirable. Up to one month of engagement work has been allowed before quitting to accommodate for the suspicion and distrust that often presents in these clients. Other authors have noted the importance of engagement work in this field, concluding that it may take several months to achieve (Lam and Rosenheck, 1999; Chinman et al, 1999). It should be noted that the nurses who worked on this project were all carefully selected, as not all nurses have the appropriate engagement skills to work with these clients.

Motivating clients to the stage where they want to take

responsibility for and improve their own health has been a key target for project staff. Care planning during the pilot period was achieved through the identification of 5 individualized client goals, which were chosen and are also regularly reviewed, in partnership with the client. However, it is important to note that before and after SOCRATES scores (measuring readiness for change in substance misuse) did not show any change during the project. Many clients' health deteriorated again when discharged from the project and several were later readmitted.

Becoming motivated is often quite difficult for someone in very poor physical health, especially when also suffering from mental health and addiction problems. The starting point is about finding a way to get clients to believe they have something to live for (which is why the building of relationships is so important in this case), but progress from there may be quite slow. In general, commentators recommend long lengths of time for case management with this client group. One key systematic review (Vanderplasschen et al, 2007) suggested that even 24 months may not be long enough to generate sustainable change. It is, therefore, not surprising that relapse has been quite common after discharge from this relatively short-term case management intervention. However, it is important to note that the overall benefits of reduced secondary care usage occur regardless of whether individuals relapse.

### Skill mix

It is likely that anyone commissioning a similar service would be tempted to have more input from health support workers and less from nurses. In this pilot project, the health support worker provided social care support to clients and the nurse (e.g. escorting clients, collecting medications), and assisted clients to access their full benefits and entitlements. It is possible that providing additional healthcare assistant training for the health support worker might enable a larger nursing caseload. However, an additional role of the health support worker was to 'spread the word' to clients, creating goodwill towards the project within the hostel, and generally educating the clients about the benefits of being on the project. The impact of reducing this factor on overall client engagement levels is not known.

## Conclusion

This project has demonstrated that it is possible to provide time-limited intermediate care to homeless clients living in a homeless hostel, and to improve health outcomes and secondary care usage as a result. It has provided equal access to intermediate care services for this disenfranchised community based on clinical need, and demonstrated that tackling the health inequality experienced by homeless people can also be cost effective. BJN

*The author is Service Lead for the team who ran the pilot project described and evaluated in this article. The Three Boroughs Health Inclusion Team would like to network with other practitioners in the UK and abroad that are providing intermediate care or other primarily physical healthcare case management for homeless clients – either within homeless teams, or as part of their mainstream caseloads. Please contact the author at samantha.dorney-smith@nhs.net. For information regarding the Faculty of Inclusion Health please email nigelhewett@nhs.net.*

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### KEY POINTS

- Homeless people experience a higher rate of serious health problems, and present a far higher demand on secondary care than the general population
- Nurse-led homeless intermediate care provided within a homeless hostel has improved health outcomes for targeted homeless clients, while significantly reducing secondary care usage
- Engagement skills and escorting have been key factors in achieving improved outcomes
- Economic evaluation has demonstrated that the project was cost effective