

High intensity users: reducing the burden on accident & emergency departments

ANALYSIS OF ACCIDENT & EMERGENCY ATTENDANCES IN ENGLAND
2017/18

Turning data into decisions

Our aim at Dr Foster is to equip healthcare organisations to make better and faster decisions on the quality and value of connected healthcare. We do this by working with our clients to deliver easy to use and role-relevant solutions that deliver actionable insights – insights that play a significant role in driving decisions.

Introduction

Following an analysis of high intensity user (HIU) attendances to the accident and emergency (A&E) department commissioned by a clinical commissioning group (CCG), Dr Foster carried out a detailed analysis of A&E attendances nationally.

This work was undertaken with the aim of uncovering common characteristics of HIUs - people who regularly attend A&E departments - and patterns in HIU attendances to provide valuable insight and a better understanding of the reasons they attend with such high frequency. This understanding is fundamental in tackling the issue of high intensity use effectively.

National level data from NHS England highlights the extent of the HIU challenge. It shows that around 5,000 people attend major A&E units more than 20 times each year. In 2016, patients that attended more than 20 times in 12 months accounted for 0.05 per cent of A&E visitors but cost the NHS £53 million – around 3 per cent of spending.¹ As well as generating high healthcare costs, HIUs also increase the risk of overcrowding in emergency departments, affecting the safety and care that can be offered to other patients. This relatively small proportion of patients can, therefore, have a significant impact on limited NHS resources and, as such, presents an opportunity to reduce the strain on emergency services. It is also important to understand why high intensity users are visiting A&E so

frequently – their needs are potentially not being addressed elsewhere in the system one way or another, whatever the root cause of their visits.

With A&E attendances at an all-time high, reducing people's reliance on urgent and emergency care has been an area of focus for the NHS in recent years. Numerous initiatives have been launched to encourage the public to consider whether they really need to visit A&E. However, successful initiatives specifically targeting HIUs, suggest that this group of patients may require a more personalised approach.

One such initiative was launched by paramedic Rhian Monteith in Blackpool and targeted 23 frequent callers that had visited A&E a total of 703 times in three months. She began by offering them one-to-one mentoring and getting them involved in community activities until they could eventually cope on their own and, as a result, A&E attendances, 999 calls and hospital admissions among the group dropped by about 90 per cent. The scheme was then scaled up to cover about 300 patients in Blackpool over the following three years, saving the NHS more than £2 million².

North East Essex CCG has created an HIU project using a 'multi-disciplinary team approach by agreeing care plans for frequent users', including clinicians from the ambulance service, community services, mental health, and out-of-hours GP services. The team collaborates with police, voluntary services and social care, empowering HIUs to look after their own health and wellbeing at home and enabling them to access care when they need it, outside of A&E.³

These types of programmes have shown that agencies and other parts of the health and social care system can offer HIUs services and support that addresses their needs outside of the emergency room. Data analysis is key to informing these targeted programmes.

For the purpose of this analysis we reviewed over 13 million A&E attendances at Type 1 departments in England. HIUs are defined as patients that attended A&E 10 or more times in a one-year period. The number of HIU attendances across the year totalled 522,312, and these were analysed according to factors including length of stay, referral source and time of admission, as well as age and deprivation.

1. <https://www.economist.com/britain/2018/05/03/the-patients-who-dial-999-dozens-of-times-a-year>

2. <https://www.england.nhs.uk/2018/05/paramedics-brainwave-eases-ae-pressure-by-keeping-frequent-callers-away/>

3. <https://fabnhsstuff.net/fab-stuff/high-intensity-user-project-north-east-essex-ccg>

Summary findings

522,312 No of HIU attendances	0.4% HIU proportion of all patients	
31,492 No of HIU patients	4.0% HIU proportion of all attendances	16 Median attendances per HIU in a year

From June 2017 to May 2018, the 31,492 patients that made up the HIU group represented just 0.4 per cent of all patients seen in A&E but almost 4 per cent of all attendances. At the most extreme, some users attended A&E in excess of once a day on average. The top ten HIUs visited A&E over 235 times each in a year – a large number by any measure. The median number of attendances per HIU was 16 in a year, which averages out as 1.33 attendances at A&E per month.

Compared with other users, HIUs have a more consistent profile of attendance throughout the week and, although still the most popular day for attending, do not appear to have shown the same propensity to attend on a Monday as other users of A&E services (Figure 1). This might suggest that there are different patient needs driving different behaviours for HIUs.



Figure 1 – Percentage of HIU compared to non-HIU attendances by day of the week

Our analysis reveals that HIUs appear to have peaked in attendances in October, differing from non-HIU attendances, which peaked in May (Figure 2). HIUs attended less frequently in May and June than other A&E users. This may be because they are less of a burden outside the winter months from conditions that may influence high intensity usage such as chronic obstructive pulmonary disease (COPD) or homelessness.

HIUs attended less frequently in May and June than other A&E users.

There is significant variation in the spread of HIUs across the country, with some areas having over seven times the proportion of their population falling within this category than others (Figure 3). CCGs that include urban areas appear to have greater HIU rates per population than other areas, which could be linked to a higher level of deprivation or it could relate to there being more choice of A&E departments for HIUs to 'shop around' in urban areas.

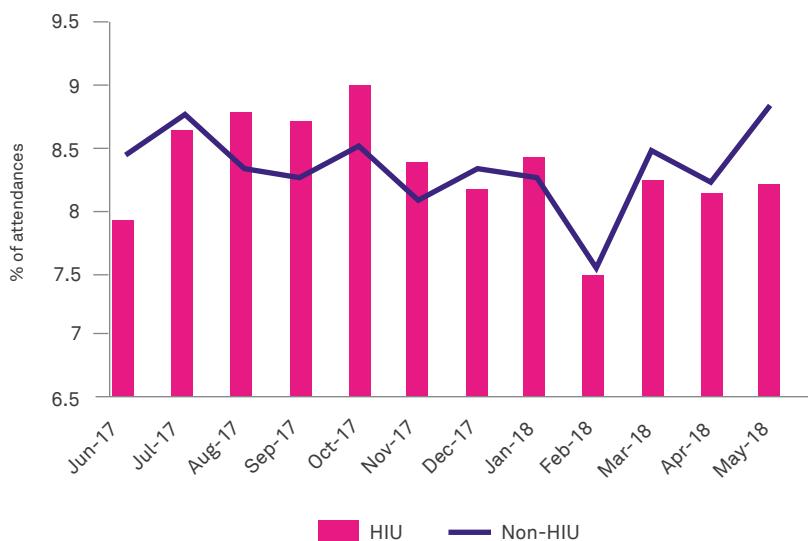


Figure 2 – Percentage of HIU compared to non-HIU attendances by month

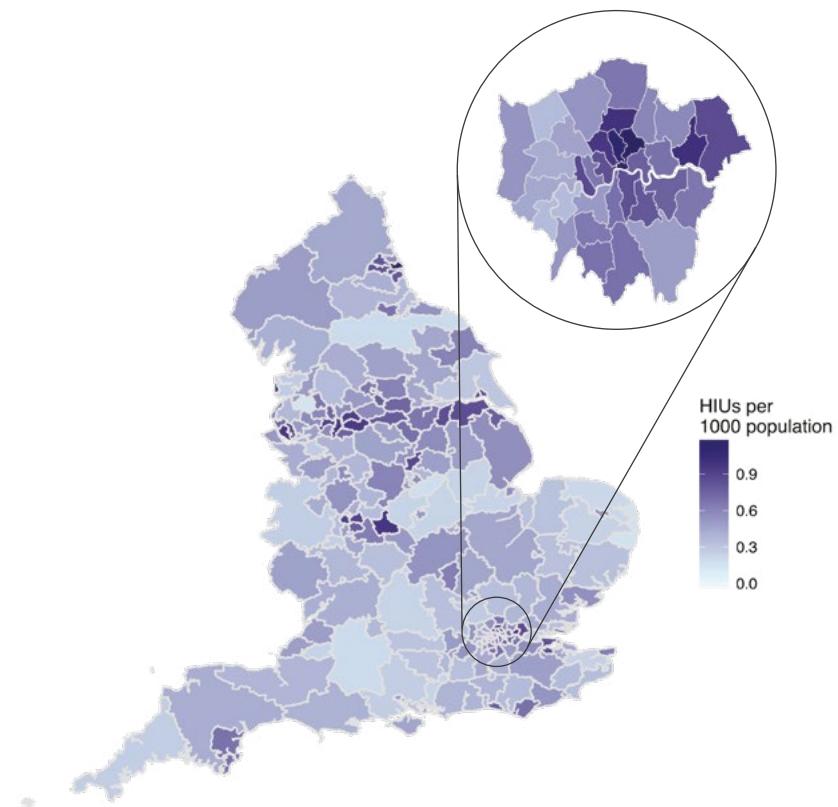


Figure 3 – Volume of HIUs by CCG per 1000 population

Characteristics of high intensity users

There are many contributory factors that can lead to high intensity use, which makes it difficult to generalise, or define HIUs by any single characteristic, but this study has explored some common ones.

DEPRIVATION

The link between poverty and poor health is well documented. Socioeconomic conditions play a big role in determining education and lifestyle, both of which can influence mental and physical health, and, on average, those living in more deprived areas have a lower life expectancy, with fewer years spent in good health.⁴

The data in this study shows that around 70 per cent of HIUs live in more deprived areas (Figure 4). The proportion of HIUs that live in areas in the most deprived decile is around 21.9 per cent compared with around 12.9 per cent for other users of A&E. The opposite is true of those in the least deprived decile.

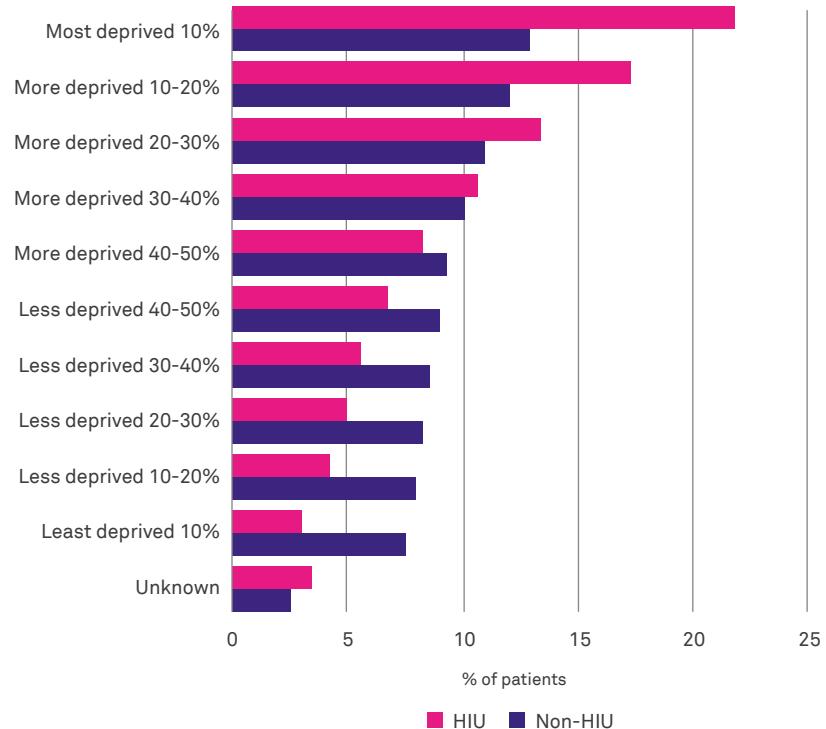


Figure 4 – Percentage of HIUs compared to non-HIUs by Index of Multiple Deprivation deciles

4. <https://www.gov.uk/government/publications/health-profile-for-england/chapter-5-inequality-in-health#patterns-in-health-inequality>

ADMISSIONS BY DIAGNOSIS

An analysis of attendances resulting in admission to hospital by diagnosis groups reveals that the proportion of HIUs admitted with abdominal pain, nonspecific chest pain, alcohol-related mental disorder, poisoning from drugs or psychotropic agents was higher than for non-HIUs (Figure 5). The proportion of HIUs admitted with COPD, the main cause of which is smoking, was more than twice as high as non-HIUs.

Poor mental health could be both a cause or a consequence of deprivation.

In 2017 a UK government health profile of England found that “circulatory (heart disease and stroke), cancer, and respiratory causes of death are the top three contributors to the difference in life expectancy between the most and least deprived quintiles”. It also found that the prevalence of smoking, poor diet and lack of exercise is higher in the most deprived areas.⁴

Poor mental health could be both a cause or a consequence of deprivation. While there is not a clear trend linking mental health and deprivation, the highest rate of mortality from suicide occurs in the most deprived areas of England.⁵

While it appears that poor physical and mental health plays an important role in whether someone is a high intensity user, it is not the sole determining factor, and other aspects of a lifestyle linked to deprivation could contribute to high intensity use.

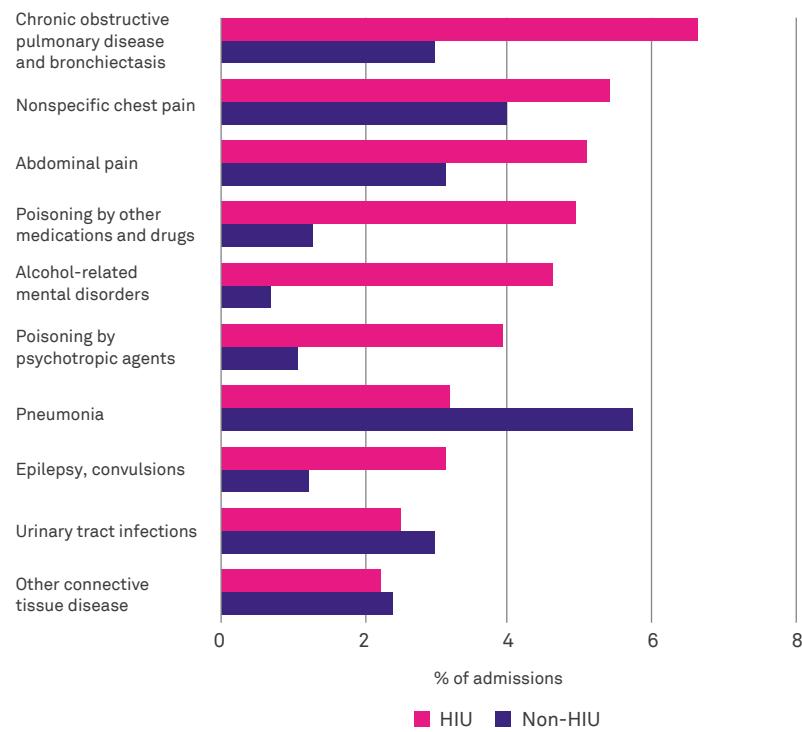


Figure 5 – Percentage of HIU compared to non-HIU admissions by diagnosis groups



5. <https://www.gov.uk/government/publications/health-profile-for-england-2018/chapter-5-inequalities-in-health#mental-health-and-wellbeing>

REFERRAL SOURCE

The data suggests that referral sources for attendances remained relatively consistent between the two groups, suggesting that regardless of demographic variances or reasons for attending, methods for accessing the health system were not substantially different. However, small differences were found in some of the more common referral sources. HIUs, for instance, were around 6.5 per cent less likely to have self referred to A&E than other A&E users, and 7.4 per cent more likely to have been taken to A&E by the emergency services (Figure 6).

While HIUs were overall less frequently referred by a GP than non-HIUs, when broken down by location there was great variation in the proportion of HIU attendances that were referred by a GP across the country (Figure 7). London CCGs appear to have a low proportion of their HIU attendances referred from a GP, while in certain other areas GP referrals account for a much higher proportion of attendances. This may vary depending on how local areas identify and respond to vulnerable patients and high-risk groups.

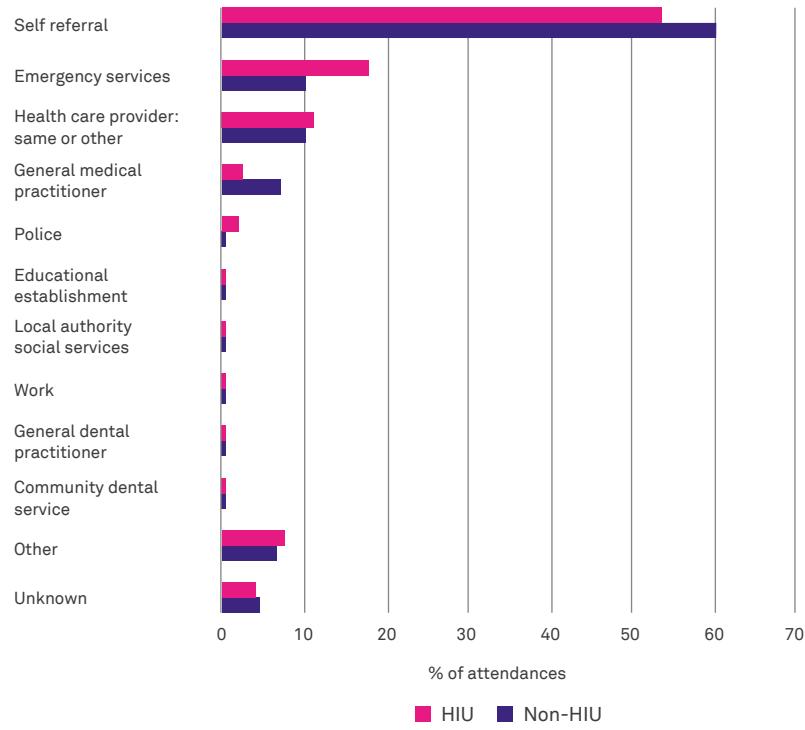


Figure 6 – Percentage of HIU compared to non-HIU attendances by referral source

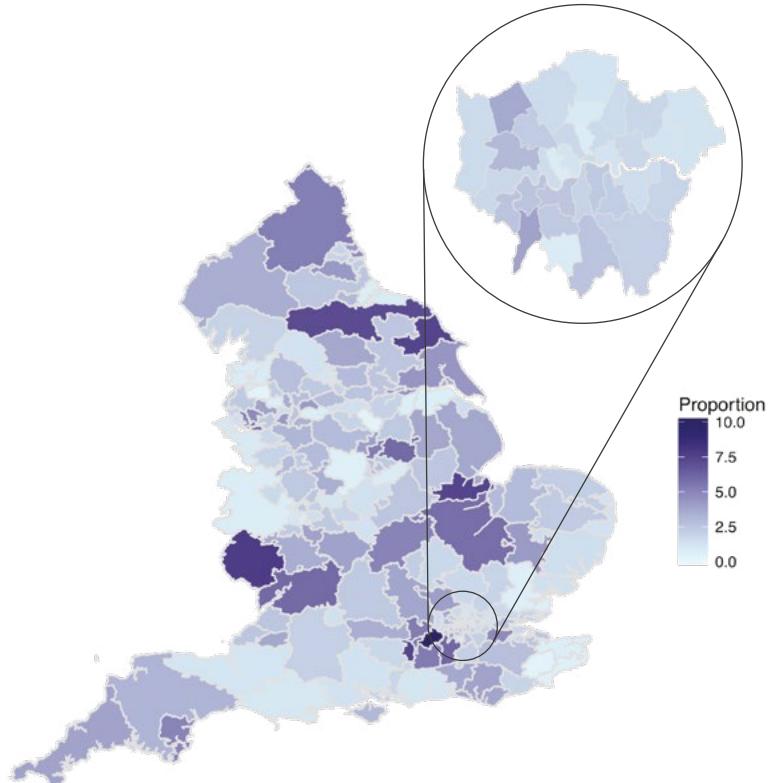
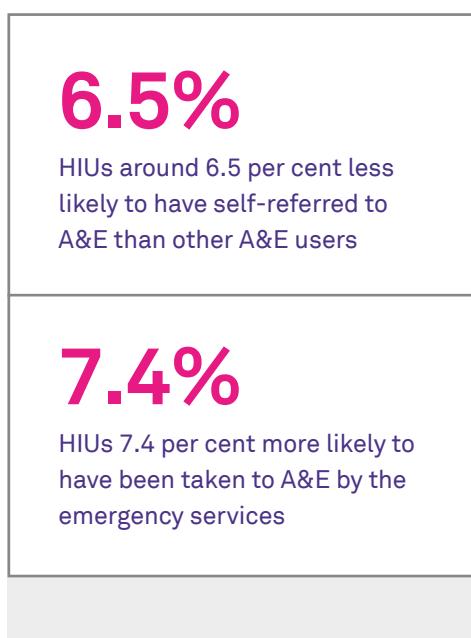


Figure 7 – Proportion of HIU attendances referred from a GP by CCG

THE AGE FACTOR

The assumption might be that HIUs will fall into older groups, but the analysis appears to contradict this. The highest percentages of all patients were between 21 and 30 years old, with the percentage of HIUs in this age band slightly higher than non-HIUs, and the percentage of HIUs steadily decreasing with each advancing age band (Figure 8). The percentage of patients aged 61 or older was higher for non-HIUs than HIUs. This difference to the norm with HIUs compared to non-HIUs may be related to the more common reasons for HIU attendances that are observed when reviewing those admitted to hospital, for example drug, alcohol misuse, and mental health issues.



Figure 8 – Percentage of HIU compared to non-HIU patients by age band

DISCHARGE AND LENGTHS OF STAY

HIUs and non-HIUs showed very similar patterns of departure methods from A&E although, interestingly, HIUs were around 5.6 per cent more likely to have left the department before being treated.

It could be that HIUs more frequently leave A&E before treatment because the reasons for their attendances are for chronic conditions rather than isolated incidence of poor health, or related to the socio-demographic characteristics of this patient group; their experience of care is low and therefore mistrust of the service high.

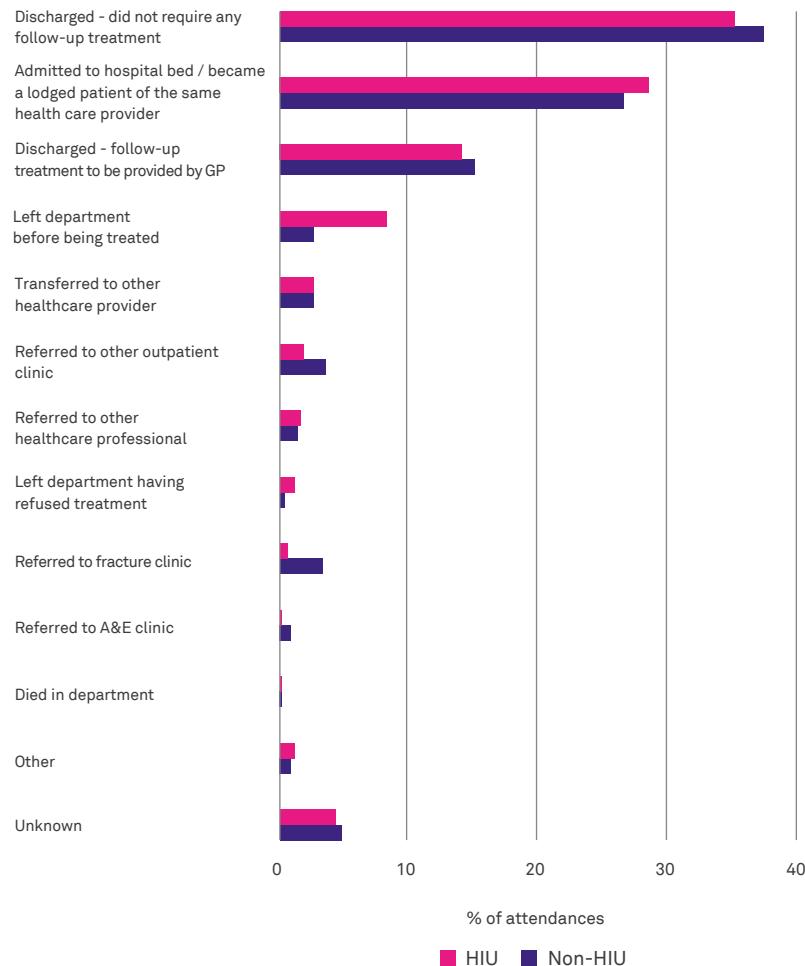


Figure 9 – Percentage of HIU compared to non-HIU attendances by departure

These anecdotal findings are supported by the analysis on length of stay. Of the A&E attendances resulting in admission to hospital, a greater proportion of HIUs stay either zero, one or two days compared to non-HIUs (Figure 10). If a considerable proportion of HIU admissions are due to mental health or drug and alcohol misuse then their length of stay at an acute level will be relatively short. These patients may be admitted for assessment or diagnostics rather than an acute episode requiring a longer hospital stay. It could also relate to issues in primary and social care provision, that HIUs are admitted while they wait to be transferred to another service or self-discharge before this happens.

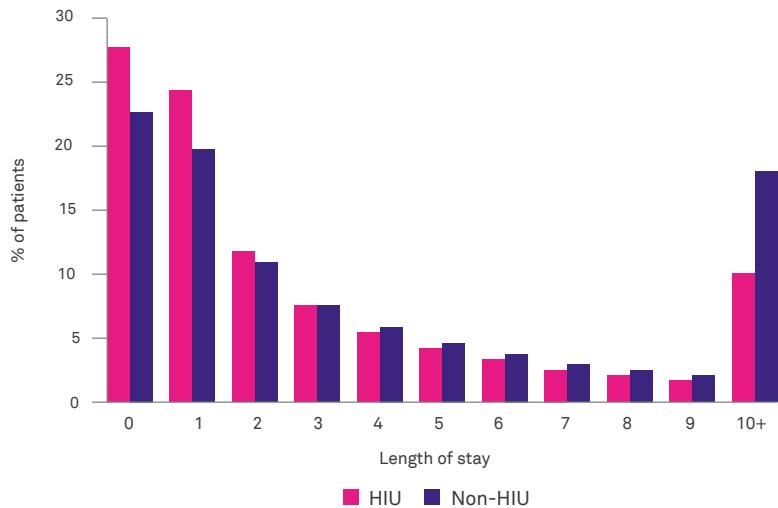


Figure 10 – Percentage of HIU compared to non-HIU admissions by length of stay

TIME OF DAY

Perhaps the starker contrast of all, the spread of attendances by hour in A&E for frequent users of the system compared with other users. Data suggests that HIUs attended more frequently in the night, between 8pm and 6am, than their non-HIU counterparts (Figure 11). This could be because other health and social care services are inaccessible during the evening or it could also relate to the factors influencing HIUs, that they are impacted more by social factors such as homelessness, loneliness, depression or anxiety.

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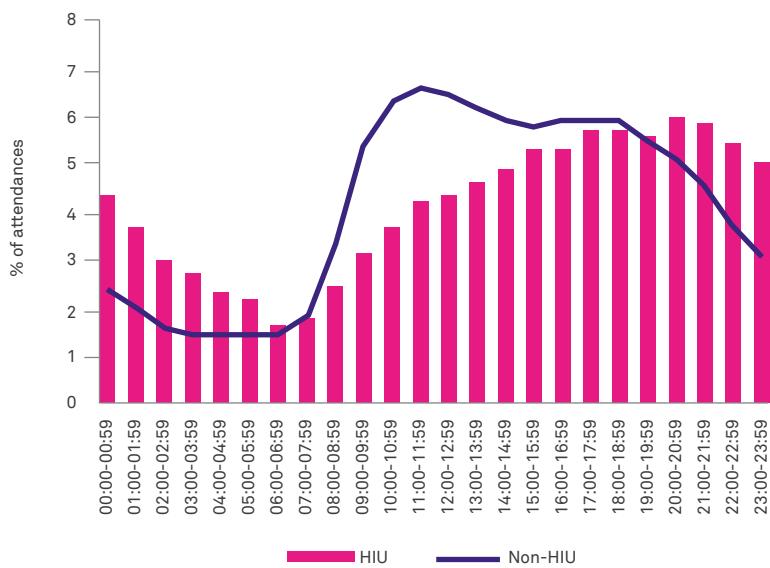


Figure 11 – Percentage of HIU compared to non-HIU admissions by hour

“The aim of the service is to catch these people at A&E and to drive a case management approach that prevents them coming back, because they can be better managed elsewhere.”

Dr Mark Griffiths, consultant lead clinical psychologist at
Aintree University Hospital NHS Foundation Trust

Case study

How data has helped to explore the role of mental health in frequent attendances at Aintree University Hospital NHS Foundation Trust

An innovative A&E service targeting medical frequent attenders has been launched at Aintree University Hospital after Dr Mark Griffiths, consultant lead clinical psychologist at the trust, recognised a common theme among the patients.

Dr Griffiths says data plays a big role in gaining funding for these kinds of innovative services targeting frequent attenders. “We know from the very high costs to the NHS of medically unexplained symptoms every year that millions of pounds of A&E activity is avoidable, but you need the investment to save money. NHS England and CCGs require a lot of evidence to invest money in new service models in any scaled-up way so, practically, scaled-up clinical innovation is a challenge.”

The team at Aintree University Hospital worked with Dr Foster to analyse the data on HIUs and create an evidence base for taking a different approach. The trust set up a frequent attender review process (with other provider partners) and the data revealed that a significant percentage of re-attendances involved medical frequent attenders. The most common re-attendance reasons were persistent pain presentations and, in particular, clinical presentations that frequently involved presentation of medically unexplained symptoms (MUS). These patients were being put on care pathways that didn’t match their needs, due to the complex relationships raised.



“I went to the trust board and proposed a new model for treating these frequent attenders by having clinical psychology staff as part of the medical team at A&E, as part of the medical care pathway. After a lot of deliberation, I was given the funding to develop a new care pathway to support reduced A&E activity in frequent attenders,” he says.

The service is based on an understanding of the relationships and interplay between physical and mental health processes and conditions. Dr Griffiths says: “If you look at what drives MUS processes, it is essentially the impact of stress and how that can manifest itself in bodily form, which can then drive distressing patterns of physical symptomology, setting up a vicious cycle if not understood.”

Pain, for example, causes a cognitive response that can lead to an increased focus on the symptoms; this then increases the severity of the pain experience and affects the person's emotional state (and behaviour), increasing illness.

"The psychologist will help the A&E team give the patient a 'biopsychosocial' explanation of their problems and offer strategies to manage the cycles highlighted differently"

"Where pain experienced cannot be adequately medically explained, this lack of explanation in itself can drive further illness, distress and disability. Such effects can be moderated by developing a better understanding of what is going on in the body and adapting our cognitive and behavioural responses to medically unexplained pain – which is where the role of a psychologist comes in."

Now, when a patient is admitted to the Aintree University Hospital A&E department presenting with medical complaints that cannot be fully medically explained, following an A&E medical assessment they can be seen by a clinical psychologist from the medical psychology team. The clinical psychologist is then able to support the multi-disciplinary team in their assessment of the presenting clinical problems, assist in explanations given to the patient and provide advice on care planning.

Dr Griffiths adds: "The psychologist will help the A&E team give the patient a 'biopsychosocial' explanation of their problems and offer strategies to manage

the cycles highlighted differently. Instead of telling the patient what it (the illness) isn't, we're offering them an explanation of what is causing the symptoms, offering them strategies to manage the cycle differently, and directing them to community-based support where needed."

The psychologist can also offer the patient's GP advice on how to manage their treatment in primary care. "The aim of the service is to catch these people at A&E and to drive a case management approach that prevents them coming back, because they can be better managed elsewhere."

The model was the only one of its kind in the country. Since the service was launched in October 2015, it has been hugely successful in reducing rates of readmission among medical frequent attenders. In doing so it saves the trust, on average, £7 for every £1 spent – achieved through healthcare cost-avoidance, reducing the activity involved in the care of these patients treated.

There is definite scope for other trusts to replicate the principles of the Aintree service, says Dr Griffiths. "From a psychological point of view, there are commonalities as to why people attend and every acute trust will have very high rates of medical frequent attenders who present with a common pattern of medical presentations that can't be fully medically explained, whether co-existing with a medically explainable disease or not, leading to patterns of attendance (and re-attendance) that could be managed differently, as we have sought to do here – and achieved to good effect, so far."

Conclusions

This study has uncovered important characteristics of HIU patients and patterns in their attendances. It shows that the vast majority of HIUs are living in the most deprived areas of England, suggesting that the most vulnerable members of society may be more prone to high intensity use. Smoking, drugs and alcohol all appear to play an important role in frequent A&E use, in relation to the most common reasons that HIUs are admitted to hospital.

That HIUs were more likely to be referred to A&E via the emergency services suggests they are an important point of contact at which a proportion of HIUs could be helped so that they no longer require admission – particularly during the night.

As is demonstrated by the spread of visits throughout the week, HIUs are patients whose A&E visits have become a significant part of their life, and undoing this is not straightforward. Wider societal factors undoubtedly have an impact on HIU behaviour but, as has been illustrated by several successful initiatives, these can be addressed by focusing on individual human need.

While this study can inform areas of focus nationally, the data presented here is only a starting point. The proportion and profile of HIU attendances varies across CCGs, so localised data is an important asset in tackling the issue and is an area that Dr Foster can help CCGs, trusts and integrated care organisations to understand. If utilised, this data can help commissioners and social care to direct services in ways that can most effectively help these patients and in doing so reduce their use of limited NHS resources.



Ideas for change

1

Health and care organisations should work with paramedics and A&E staff to identify HIUs of services and their primary reasons for attendance.

2

Commissioners and health and care organisations in local areas should conduct population segmentation analysis to understand the characteristics of the HIUs and where they are coming from and enable integrated services to target resources at particular cohorts of patients.

3

NHS trusts should ensure that clinicians have access to training and support in identifying mental health issues and provide guidance on the local framework for referring patients to the appropriate service, where available.

4

Integrated care systems should ensure that local health services are coordinated to enable patients to successfully manage their own long-term health needs in the community.

5

Government should direct further resource to public health programmes focusing on the maintenance of both physical and mental health in younger people - particularly those relating to alcohol and drug misuse.

6

Health and care organisations should work with HIUs on a one-to-one basis to determine their needs, directing them to other health and care services as appropriate.

