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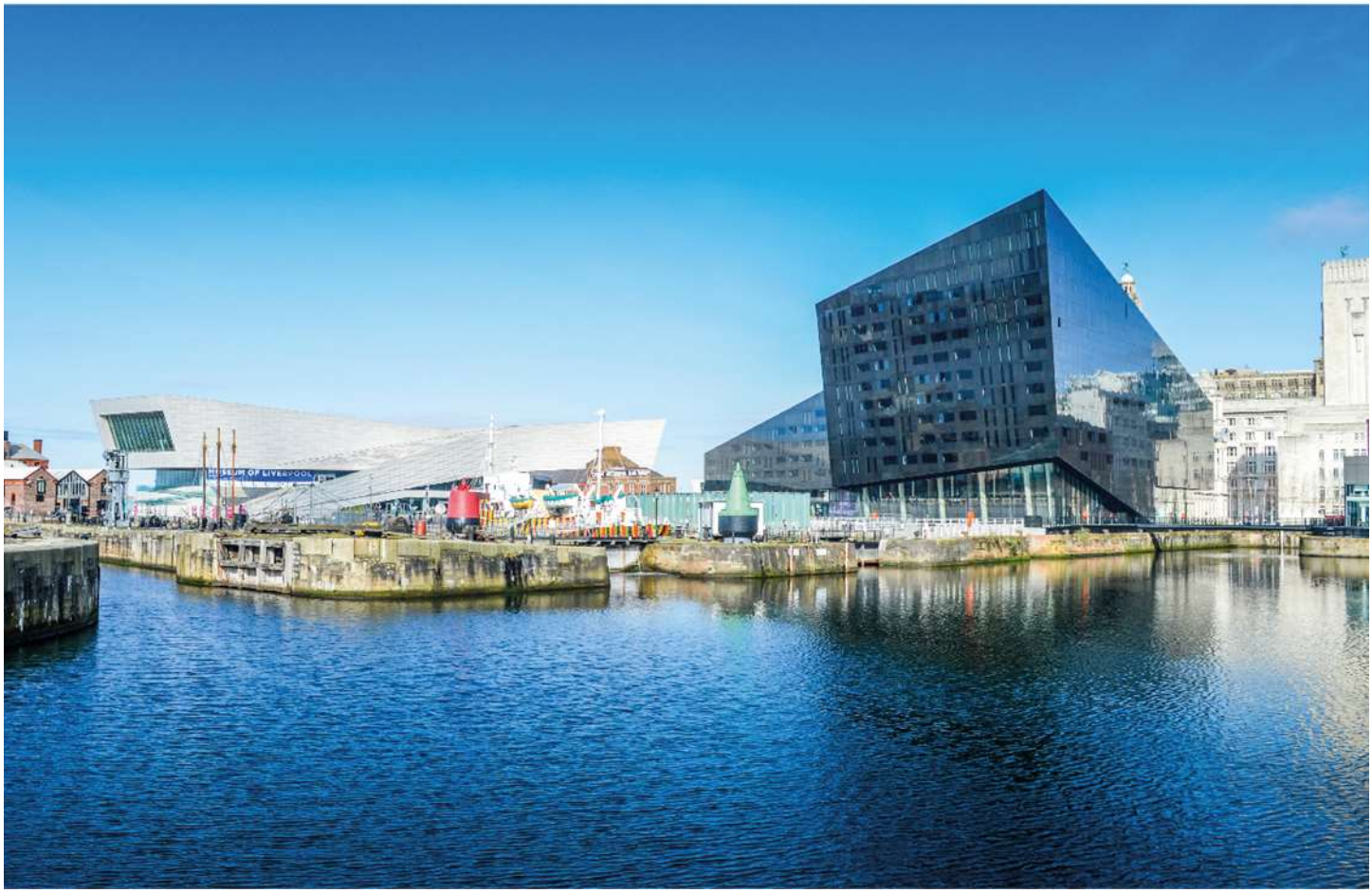
Creating Better Mental Health Pathways:

The Aintree A&E Medical Psychology Service model



Creating Better Mental Health Pathways: The Aintree A&E Medical Psychology Service model

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Key messages:

1. All service areas and programmes need to be willing to learn best practice and principles from other provision. This paper examines innovations within the Aintree A&E service, which provides important learning for the long term condition and multiple needs agendas, and beyond.

2. It explores the relationship between physical and mental health conditions. The link between long term physical health conditions and mental health is not something which is sufficiently addressed, despite there being a raft of evidence demonstrating the close interplay between the two. This has particular resonance within multiple needs, where the connection between mental and physical health has been particularly pronounced nationally and locally, as evidenced through evaluation work.

3. The approach at Aintree – a Clinical Health (Medical) Psychology Service – is delivered from within and as part of the A&E medical team. It is focused around an understanding that psychological/psychosocial needs of patients presenting with long term physical conditions, were frequently contributing to patterns of recurrent attendance, many of whom fell outside of established A&E mental health pathways.

4. The service works with staff across the A&E department, and more widely, to build more effective support. It has had significant impacts on patients, with a 41% reduction in A&E presentations maintained at six months (post-treatment) amongst 226 individuals that have been referred to the service. This has resulted in considerable cost-avoidance over that timeframe, linked to reduced rates of A&E attendance, hospital in-patient admissions, and ambulance call outs. Healthcare cost-avoidance, on average, of £7 for every £1 invested is suggested.

5. This is a universal service, supporting people with multiple needs amongst a wider medical cohort who need access to similar psychological and mental health support, within an integrated support pathway. The solution focused approach which underpins the service is an illustration that there are highly innovative interventions across the mainstream statutory sector that are universally focused, providing provision of care which is collaborative, effective and efficient without having to invest large amounts of resource.

6. A service such as this can provide significant support to many of those individuals (including those with multiple needs) who are known as frequent attenders at A&E, forging a pathway of support and intervention that will not have been readily accessible previously, under usual care. Above all, it is increasingly clear that mental and physical health needs to be placed at the centre of multiple needs related policy and delivery therefore a clinical approach needs to be at the forefront. This is highlighted in the Liverpool Waves of Hope evaluation work, where a closer connection to health (mental health in particular) has been called for repeatedly.

7. Critically, this service highlights that complexity of need should not equal complexity of support; this is key to providing value for money. Its approach links directly to the wider public service reform agenda and the development of structured/single care pathways, which underpins health transformation. Models such as this need to be further encouraged, supported and learned from in order to mainstream innovation and embed values based services across the system.

Introduction

It is important for any service area or programme of work to think broadly, make wider connections and seek to learn from services being delivered elsewhere. This is particularly pertinent where other provision relates to multiple needs, the service is innovative, and it demonstrates joined up, holistic approaches. This paper examines one such service – the Aintree A&E Clinical Health (Medical) Psychology Service – which provides some important learning for the long term condition/multiple needs agendas and beyond.

It highlights an important development for these complex client groups where mental health is perhaps the most predominant cross-cutting issue, yet is frequently unrecognised (or not recognised early enough); hence not considered within clinical management approaches, as it might (and should be), to yield best medical/patient outcomes.

Below explores the relationship between physical and mental health conditions and, in response to this, the development of the Clinical Health (Medical) Psychology Service within the A&E Department at Aintree University Hospital, which is focused on creating better patient outcomes, supporting improved patient flow and optimising medical management following A&E arrival. Significant healthcare cost-avoidance is demonstrated, highlighting further healthcare cost-opportunity savings should such a service be more broadly invested in and rolled-out, where it would offer direct, positive implications for the NHS and a range of user groups, including for those with multiple needs.

1. The close correlation between physical and mental health

Mental health resonates across the long term condition/multiple needs cohorts, as an overriding and cross-cutting issue. Despite the obvious depth of need, there are longstanding shortfalls, exclusion issues and limited connectivity between mental health and other directly related issues, including physical health challenges which many of those who access Fulfilling Lives[i] services experience. Mental health and physical health care pathways generally suffer from poor connectivity. The link between long term physical health conditions and mental health is not something which is sufficiently addressed across mainstream services at a regional or national level. This is despite a raft of evidence and national NHS guidance highlighting the close interplay between mental and physical health factors (e.g. research showing that individuals who experience physical illness are three to four times more likely to develop a mental health problem, (NHS Confed, 2012)). Certainly, there is increasing evidence from a large body of literature that suggests that physical and mental health problems do not happen in isolation.

This issue is perhaps illustrated most prominently within A&E. A&E attendances are increasing significantly every year (Baker, 2017) with many services facing unsustainable pressures. The number of people attending A&E has remained constant at approximately 14 million (Naylor et al, 2016) – this therefore suggests that increased attendances are not a result of more people attending, but of groups of patients attending more frequently (i.e. the growing population of patients struggling in living with long term conditions).

Half of A&E attendees involve at least one long-term condition (LTC) (Blunt, 2014) such as angina, arthritis, back pain, asthma, COPD, diabetes etc. A House of Commons Health Committee report (2014) outlines the long-term condition representation within A&E attendances as being even higher at 68%, and also explaining 77% hospital inpatient bed stays. At least 30% of people with LTCs experience co-morbid[ii] mental health problems (pre-existing or as a direct result of physical health), leading to poorer coping of their conditions and ultimately poorer health outcomes (Cimpean & Drake, 2011). Although it is likely that psychological factors may exacerbate physical symptoms and frequent attendance patterns, few of these patients are referred to mental health pathways because they only present to services with medical needs – with most A&E attendances driven by physical symptom crisis presentations (Blunt, 2014).

Acute services commonly struggle to identify and treat the underpinning needs of patients who present - very often and recurrently - with persistent medically unexplainable (also often termed 'functional') pain. This commonly includes chest pain, back pain or clusters of similarly unexplained, yet persistent physical symptoms such as headaches, gastro-intestinal complaints, neurological symptoms etc. Such patterns are known to be frequently impacted by psychological factors. Patients also often present with a mixed pattern of medically unexplainable and explainable needs, which even further complicates the clinical picture. These patterns of clinical complexity often make a clear medical diagnosis particularly problematic - this can then detrimentally affect patient flow and care plan outcomes. The limited consideration of non-medical approaches to an individual's assessment and treatment (i.e. with systems failing to take into account of psychological and psychosocial factors), are common deficiencies under usual care pathways. A lack of medical diagnosis clarity can lead to risk of unnecessary medical tests or hospital admission - when consideration of non-medical factors may well have offered a more fruitful and cost-effective pathway.

It is therefore increasingly recognised that many of these patients do not have emergencies in the medical sense, despite the physical symptoms struggled with, but rather suffer distressing and painful physical symptoms that while not 'harmful' are nevertheless hugely disabling and distressing (fuelling ongoing emotional/physical symptom cycles). All of the above indicates the importance of appreciating the psychological and health behaviour issues which accompany patients who present at A&E with persistent physical symptoms, in order for the most effective and efficient support to be provided.

The opportunity and gains that can be made in care improvement where system innovation is engineered to do so can be seen from the Aintree model described below and its outcomes achieved to date.

2. A local psychological/systems response to the issue

In Aintree the A&E service sees more than 88,000 patients each year. There are a wide range of reasons for attendance, including long-term physical conditions, alcohol and substance misuse, mental distress and illness, and suicidal/self-harm behaviours. Local audit reporting at Aintree (2015), details the nature of presentation types: highlighting that 76% of Frequent Attenders seen were medical Frequent Attenders (and thereby not meeting any criteria to hit a pathway on arrival that will seek to assess mental health status, potentially relevant to their medical presentation). This indicates a provision gap when accounting for the high level of mental health and physical health co-morbidity and interplay - the evidence base indicating that clinicians need to consider this in management planning.

In light of the above, the hospital made the decision to develop a specialist A&E Clinical Health (Medical) Psychology service, which commenced in October 2015 (the service being under a wider Department of Clinical Health Psychology within the Trust). The approach, delivered from within and as part of the A&E medical team, was focused around an understanding that mental health/ psychological/psychosocial needs of patients presenting with long term physical conditions, were frequently contributing to patterns of recurrent attendance, many of whom fell outside of established A&E mental health pathways (often because they did not meet defined thresholds). Many of the cases of re-representing within A&E are understood to be frequently underpinned by a range of factors such as psychosocial deficits; difficulties in managing emotions (provoked in living with long term physical conditions or chronic illness); and a lack of coping strategies, resulting in increased cycles of illness, then driving A&E attendance.

Additionally, the area in which Aintree A&E operates has some of the highest health inequalities in the UK. There are significant issues around poor health behaviours and a population who find it difficult to engage with health services appropriately. The more complex the individual is, and the longer term the physical health conditions are, then the more likely it is that they will become persistent or frequent attenders of A&E (further compounding clinical management difficulties faced). Many such

individuals are missed by local mental health services, despite the fact that psychological/mental health factors (and related behavioural implications) will frequently be very likely to be directly impacting upon their physical health status (and vice versa).

The Aintree model thus indicates an innovative approach, which is designed to complement, and enhance, A&E care pathways that traditional medical and mental health pathways offer. The service operates within the A&E departmental multi-disciplinary team (MDT) to support an enhanced model of care provision. This is potentially an important shift in breaking down barriers between physical and mental health services, therefore improving patient journeys through supporting integrated and holistic support and treatment - also within an acceptable care pathway from the patient's own perspective.

Supporting a more flexible and timely approach being put into place and drawing upon the combined specialisms of medical/physical health and clinical health psychology professionals in patient care management.

3. What the A&E Clinical Health (Medical) Psychology service does

The service works with staff across the A&E department, and more widely, to build more effective support through:

- Directly inputting into the MDT model of care and triaged needs assessment, to inform effective case management and treatment;

- Working closely with A&E medical teams and mental health colleagues at A&E (provided by Merseycare), to arrange or signpost the necessary treatment relating to needs identified by enhanced MDT assessment;

- Building capacity within the A&E staffing structure to better understand and identify psychological/psychosocial issues that may underpin physical presentations – this is undertaken through consultation delivery, supported MDT care, training and a liaison approach that is the foundation of the model;

- Providing a liaison function for other wards within the hospital following admission post A&E – this includes working with ward staff, mental health and social care to support the most effective management and onward care planning for patients with complex physical and mental health needs;

- Provision of a weekly psychological assessment/treatment clinic for complex cases, within a triage model of care;

- Liaising with partners (e.g. Merseycare, NWAS, Community Care Teams, and GPs), seeking to support enhanced case management across the wider system.

Importantly, the model is primarily predicated on providing and facilitating the right care/support pathways, with the direct provision of ongoing psychological intervention being more limited (although remaining a key aspect of this enhanced care pathway). This illustrates an appreciation that different services need to work together in a holistic fashion, rather than continuing to function in silos. Indeed, it is the opinion of the Consultant Lead to the service that it is the system change at A&E supported by input from the service and the professional relationships and discussions supported, that are the primary features of the model that have greatly supported the care quality and cost effective care gains achieved to date. Ongoing efforts are being made to make similar changes beyond the 'hospital doors', similarly at supporting progressive achievement of this goal.

4. Observed trends across the cohort

The service has been collecting an array of patient data to support its continued development. There are a number of key observations:

- Between the inception of the service and the end of May 2017 (i.e. 21 months), the total number of referrals stood at 226;

- All patients seen presented with self-recognised physical complaints/needs (not mental health ones);

- Patients seen (226) accounted for 894 A&E attendances over the six months preceding referral to the Medical Psychology service. This averages across the cohort, 4 A&E attendances per 6 month period (or equal to a rate of eight attendances per annum), thereby indicating an attendance rate that meets the most commonly used definition of Frequent Attender i.e. over 5 attendances per annum (Royal College of Emergency Medicine, 2017).

- 42 of this cohort can also be considered as High Intensity Users (attending more than 10 times over the preceding 12 months);

- Over half of the patients treated across the pathway (122) had no previous or current input from mental health services. Only 22% (50) had current contact with mental health services;

- 74% of patients on the service pathway presented with symptoms that were determined to be medically unexplained, or a mixed picture of established physical long-term conditions and medically unexplained symptoms (best understood as a product of the effects of stress on an individual's physical condition).

5. Key outcomes achieved for users and acute services

a) Impact on A&E attendance

One of the key aims of the A&E Clinical Health (Medical) Psychology service is to reduce persistent/frequent attendance. The table below illustrates the comparable changes at one month, three month and six month periods before and after the medical psychology team input into patient care.

The reduction ranges from **69% reduction at one-month post intervention to 41% reduction maintained at 6 months**, across the total cohort. Therefore this significantly reduced the levels of 'frequent attender' rates at A&E, and demonstrates a positive shift amongst individuals who have been re-presenting. Behavioural change is initially promoted and succeeds in holding a significant maintained change rate at 6 months.

N= 226	Timeframe	Change in A&E presentation statistics
	1 month prior to intervention	347
	1 month following intervention	109 (reduction of 69%)
	3 months prior to intervention	616
	3 months following intervention	277 (reduction of 55%)
	6 months prior to intervention	894
	6 months following intervention	526 (reduction of 41%)

b) Healthcare Performance Improvement Indications[iii]

Summarising what model outcomes can be seen to have achieved in healthcare performance improvement terms, immediate measures that come to the fore are outlined below.

Where the 6 months prior/post service intervention is used as the main measure, a reduction of **368** A&E presentations over the period is indicated, highlighting:

- A reduction rate of 61 A&E patient contacts per month
- Equivalent to a presenting case reduction of 2, every day

On its own, however, the reduction in A&E attendance is an under-representation of the total healthcare attendance avoidance supported, as a proportion of presentations avoided would have resulted in hospital inpatient admissions. With an assumption of a 27% admission rate risk following A&E arrival (Liverpool CCG report, 2017), relevant to the 368 presentations avoided, this suggests further healthcare system operational efficiency gains, through the avoidance of 99 ward admissions (that can otherwise be predicted from the data to have occurred).

Digging into the data even further (12 months post enhanced intervention) the following profile of activity changes is indicated*:* 184 patients spent 32.4 days less in A&E:

- Admission spells within these changed;
- A&E attendance patterns were 153 fewer; resulting in total time spent as an inpatient (for this cohort of 184 patients) being 704 days less, than 12 months previously; indicating an acute ward reduction of 4 bed days per patient.

704 less inpatient days broadly equates to two freed up patient beds for one year - these two saved beds then being made available to meet the needs of other urgent care activity needs; with significant patient flow improvement benefits thereby indicated.

Factoring in Ambulance use reductions supported by this reduced A&E activity (at an average call out cost of £223) – where audit data indicates an ambulance use reduction by the investigated cohort of 41 (at 12 months) - this implies additional healthcare resource gains being made in line with ambulance journeys to hospital averted.

Further significant healthcare usage savings are anticipated, with the individual health/behavioural changes facilitated being likely to promote reduced GP practice attendance as well (although the data was not available at the time of writing to provide details in this).

Note that deadweight (how much of a change would have happened anyway without the service i.e. 'business as usual') is not applied here. Because of the long term issues experienced by these patients, realistically it was only through this clinically led approach that their outcomes could be improved and meaningful reductions in A&E attendance achieved. Similarly, in terms of attribution, it is unlikely that the extent of these sustained positive changes experienced would have been due to other stakeholders (in the absence of Medical Psychology input) due to the specific clinical innovation approaches and pathways which needed to be developed.

Importantly, there are also likely to be other areas of cost-avoidance achievement within the system, which are not as clearly identified, both within and external to health. For example, as people manage their mental and physical health conditions in a more effective way, there may be savings within services related to social care, substance misuse and probation. These cannot be directly costed but should be taken into consideration when assessing total system cost avoidance and value for money in terms of the healthcare impact of these patients.

Of further note, the sub-cohort of established High Intensity User/Frequent Attender users (42 in total) – the most costly patient group in terms of health and social care costs – achieved a 21% re-attendance reduction at 6 months, following intervention. With this cohort being among the most

complex and at risk of ward admission following A&E arrival and processing, the cost-avoidance achievements suggested by such outcomes are particularly significant.

All of the above strongly suggests cost-avoidance achievement trends that could be significantly driven up, should additional investment be directed to expanding this type of model, both in terms of scope and with regional focus.

c) *A&E Performance Target Attainment Support*

This model will impact on performance against the national AED targets. As based on the observed trends in the data, the number of frequent attenders can be seen to reduce over time; thereby enabling the focusing of clinical input onto the remaining cohort; improving the use of available resources.

6. Model Cost-Effectiveness & Quality

The A&E Clinical Health (Medical) Psychology Service relies on the input of 0.7wte Band 8a Clinical Psychologist and 0.2 wte Consultant Lead Clinical Psychologist (Band 8d) time, altogether coming to a cost circa £66,000 per annum.

The pattern of healthcare usage change and system performance improvement facilitated by this enhanced provision model illustrates a highly cost-effective investment, where the activity changes described above suggest avoided healthcare costs for these patients in the region of £240,000[iv], over 6 months. **This indicates avoidance of £7 expenditure (on avoidable healthcare costs) for every £1 spent to support this enhanced model of care.**

a) Appreciation of benefits beyond savings

Although fiscal savings are important, they should only be viewed as one way of understanding the effectiveness of how a service delivers its outcomes. The overriding focus should be on delivering better outcomes and improving the efficiency in delivering services, with wider appreciation that this type of intervention is part of an 'invest to save' approach which will pay dividends across the whole life-course of individuals.

b) Clinician view on impact of change

Another indication of the clinical outcomes achieved is via clinician ratings, which are used by clinicians at the end of the intervention, to determine the intervention impact; with a particular focus on the assessment of reduced psychological factors influencing the A&E attendance. This was available for 211 patient contacts, and illustrated a high degree of positive impact on the patients' health attitudes/health behaviours:

Clinician Evaluations:

- Moderate to high impact of intervention: **75.4%**;
- Mild impact of intervention: **15.6%**;
- No impact from intervention: **1.4%**;
- Unknown impact from intervention: **7.6%**.

(The above ratings being determined by clinician assessment of intervention impact, informed by discussions with the patient).

c) Perception of change from the patients

Due to a range of reasons (such as the appropriateness of collating feedback in an acute/emergency setting and the brief nature of some of the intervention work), patient feedback at A&E contact has proven to be problematic in gathering. This challenge is currently being addressed with the use of a

new measure within routine service processes; the results are expected to be available within the next 12 months.

d) Impact upon integrated working

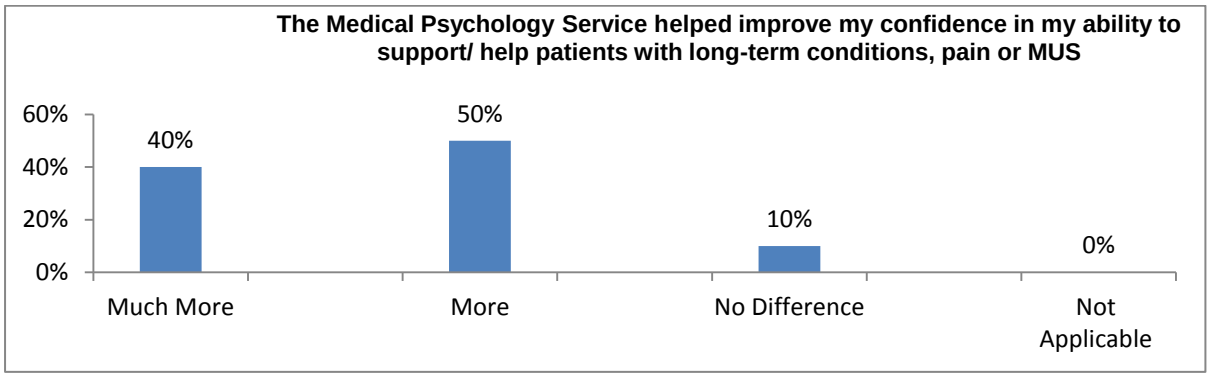
The feedback from staff within the A&E department illustrates that this service has been having a significant impact in terms of delivering a progressive cultural shift. Staff are becoming increasingly aware of the rationale and role of psychological and mental health factors that influence presentations at A&E. The proactive approach is resulting in staff being better able to deal with the needs of patients who present with pain, long-term conditions and symptoms where the specific medical issue is unclear.

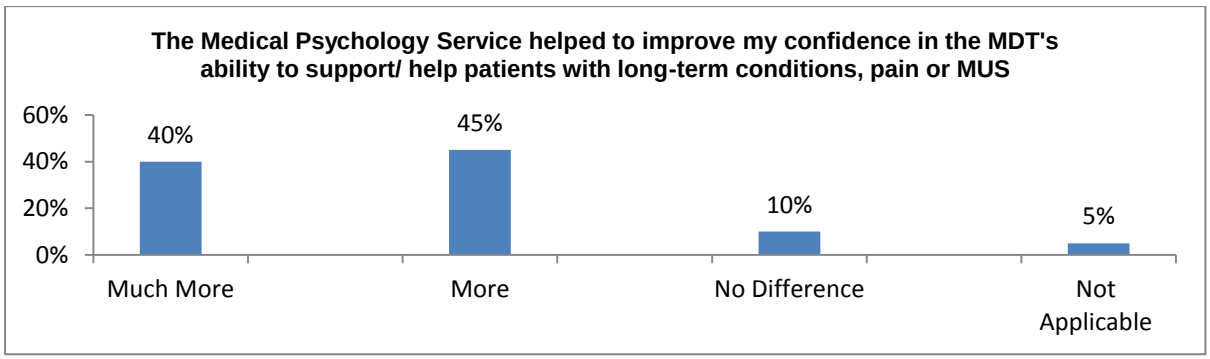
"This contributes to the MDT approach to A&E practice…supports medical staff to explore regular attenders"

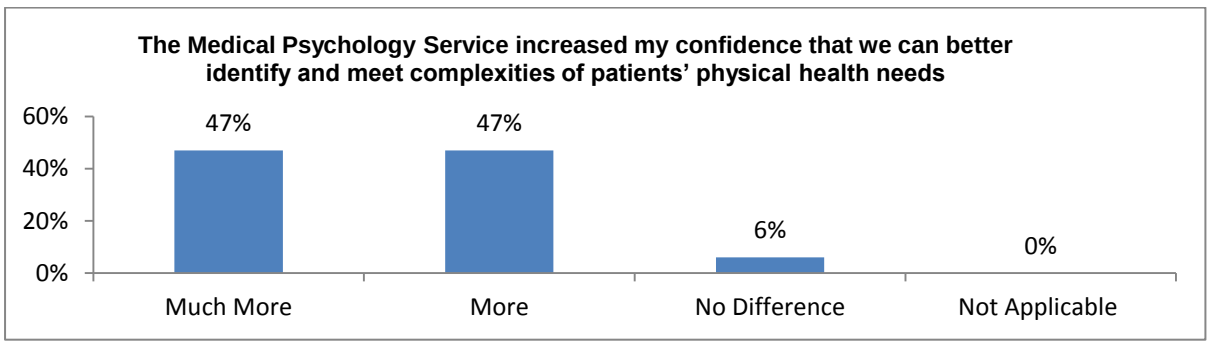
"A much needed service to A&E staff, so that patients' needs are now better addressed"

"Reduces dependences on the department by regular attenders, reducing incidence of complaints - accessible, but moreover proactive"

A survey of the opinions of the service of clinical colleagues working within the A&E department (October 2017) provides the following outcomes (respondents mainly including medical Consultants and Junior Doctors):







The implications of this holistic approach are that as staff members develop an enhanced understanding of issues as they present through the 'front door', there will increasingly be the right care mechanisms in place, which create pathways that are more effective and reduce unnecessary usage of services such as medical tests and hospital admissions for patients with no clear diagnosis.

7. Observations and implications for broader policy and delivery

The Clinical Health (Medical) Psychology Service has provided an important addition to an A&E department, delivering added value and a good return rate to investment; and supporting improved and more efficient, cost-effective care pathways and improved clinical outcomes. It is a pertinent example of understanding a gap and making steps to address it in a bespoke and logical fashion. In this, there are some important broader lessons and implications for services, including those directed to people with multiple needs.

a) Collaborative approaches for a universal client base

This is not a service specifically aimed at people with multiple needs;[v] rather it can support the cohort amongst a wider group of people who need access to similar psychological and mental health support, within an integrated care pathway following medical presentation. The solution focused approach which underpins the Clinical Health (Medical) Psychology Service is an illustration that there are highly innovative interventions across the mainstream statutory sector that are universally focused, providing provision of care which is collaborative, effective and efficient without having to invest relatively large amounts of capital. Through developing an evidence-based understanding of the gaps in provision, as illustrated here, it is the progressive cultural shifts and collaboration that can make the most significant difference.

b) Importance of the connection between physical and mental health

This service is important in that it addresses a key gap between physical conditions and mental health, and how to support people in dealing with coping strategies. For those with long term conditions and multiple needs this is acutely pertinent, and a service such as this (particularly if developed more widely) could provide significant support to many of those individuals who are known as frequent attenders at A&E, forging a pathway of support and intervention that will not have been readily accessible previously, under usual care. This provides an enhanced pathway that can support pro-active rather than reactive care and clinical management, optimising potential outcomes.

Further, can the principles of this approach be replicated both in other A&E departments and in other settings away from A&E? There could be potential for it becoming mainstreamed across wider mental health and complex needs pathways, together with developing the linkages across other services such as social care and alcohol/substance misuse. How could support from such a service be linked to the wider multi-disciplinary pathway of support? It is important that a 'whole' system approach is promoted where practitioners across different disciplines have a shared understanding, and that pathways of support, both medical and non-medical, are integrated as much as possible.

c) Health and wellbeing should be viewed as the primary issue for those with multiple needs

There is frequently a misconception that multiple needs are centred on homelessness and rough sleeping, when in reality, it is a combination of challenges related to physical health, mental health (the main cross-cutting issue), alcohol and substance misuse, and reoffending. It is an amalgamation of these issues which leads to homelessness, and that need to be addressed, with precipitation of homelessness often indicating evidence of failed care and failed support pathways, leading up to this development - pathways of support and care that can be improved. Given the central prominence of mental health, clinical pathways such as those developed through the Clinical Health (Medical) Psychology Service could be progressively important. Above all, it is increasingly clear that mental

and physical health needs to be placed at the centre of multiple needs related policy and delivery, as it is progressively evident that traditional support and usual care models – often predicated around homelessness or around access to specialist input being predicated by crisis status - cannot solve the issues on their own. Indeed, Waves of Hope evaluation work has repeatedly called for closer links with health (in particular mental health) if effective pathways for those with multiple needs are to be developed.

d) Patients need to be seen as people rather than a collection of problems

One of the key principles of Fulfilling Lives and Waves of Hope is that asset based approaches are central to the design and delivery of services, and supporting people through recovery towards independence. More broadly this is also becoming more of a feature particularly within health services, with a focus on mobilising people to recognise their assets, strengths and abilities, not just their needs. This Clinical Health (Medical) Psychology Service does that, and works directly with individuals to put a plan and pathway in place to help them overcome their issues. At a systematic level, the evidence of this happening for those with multiple needs has been limited; therefore the principles embedded in this approach should be transferred more widely within multiple needs and broader cross-sector provision across the city.

e) Sustainability of outcomes

The Clinical Health (Medical) Psychology Service is attempting to meaningfully understand the sustainability of outcomes for its patients, through measuring repeated A&E attendance over time and tracking individual pathways of support through the system. This is crucial in making a compelling case to strategic stakeholders that such services are worth investing in. Short-term outcomes (predominant in the Waves of Hope programme) can provide a 'sticking plaster' but with major pressures on budgets across the statutory sector, increasingly this is not enough. This is important for all services – from design through to commissioning and delivery - around planning and working towards longer term, sustainable outcomes, and effectively evidencing this.

f) The importance of feedback from people receiving the service

One of the most important elements of any service is to ensure that those who are on the receiving end have the opportunity to provide meaningful feedback in order to further shape and improve the provision. This service is working to achieve this, and efforts are ongoing to enhance the consultation with patients following interventions although there are a number of barriers, as briefly stated in section 5. This could be further informed by wider consideration around service user involvement (SUI),[vi] to help evolve the view on how practitioners should work with people who access services. Again, there is a wider agenda across health in particular to enable people to take a more active role in their health and care.

8. Summary

The Clinical Health (Medical) Psychology Service is a good example of innovative provision which is fully responsive and built up from an analysis of need. Most importantly, it is founded on the principles of clinical innovation, collaboration and cooperation, as part of a progressive cultural step change towards integrated approaches for individuals. Critically, it highlights that complexity of need should not equal complexity of support; this is key to supporting clinical system innovation to support healthcare system performance improvement and to provide increased value for money under the challenging climate of growing healthcare needs faced. It focuses on a philosophy of matched care delivery (i.e. the provision of the necessary care at the right time), being applied innovatively to good effect and outcome. This is one of the fundamental pre-requisites of the wider public service reform agenda and the development of structured/single care pathways, which underpins health transformation.

Models such as this need to be further encouraged, supported and learned from in order to mainstream innovation and embed values based services across the system. Opportunities to be realised through scaling up such an approach are clearly indicated.

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10. Reference Costs 2015-16, DoH (2016)
11. Complex Needs: Frequent Fliers to Secondary Care (Liverpool CCG, 2017)

Endnotes

[i] Fulfilling Lives is a Big Lottery funded programme, comprising 12 projects nationwide of which Liverpool Waves of Hope is one. Its aim is to test and learn different, more effective and efficient approaches to supporting individuals with multiple needs. See the links for more information https://liverpoolwavesofhope.org.uk/ https://www.biglotteryfund.org.uk/prog_complex_needs

[ii] Comorbidity refers to interactions between conditions/illnesses which affect the course and prognosis of both.

[iii] **Limitations to the analysis:** as with all evaluation methods there are limitations to cost benefit analysis that are important to be mindful of when utilising results in decision making - the financial proxies used in cost-benefit analysis are heavily dependent on the availability of suitable costings. Where available the most reputable costing sources have been utilised, although it can be the case that finding an exact match is difficult. Further, the figures rely on a number of assumptions as outlined above, and therefore any figures should only be interpreted as estimates which utilise the available data – they are not actuals.

[iv] £240,000 rounded-up figure relating to a calculated avoided healthcare cost for the cohort of £240,464 over 6 months (Average A&E attendance cost being £138; average single ward admission cost being £1863; average ambulance call out cost being £223 – DoH Ref Costs (15/16); New Economy Database, 2015).

[v] Many of those with multiple needs would be likely to fit within the High Intensity Users (equating to 16% of the total/42 individuals)

[vi] See the Liverpool Waves of Hope Service User Policy Statement for more information https://liverpoolwavesofhope.org.uk//app/uploads/2017/07/SUI-Policy-Statement-May-17.pdf