Irish Journal of Psychological Medicine, (2023), **40**, 262–266. © The Author(s), 2020. Published by Cambridge University Press on behalf of The College of Psychiatrists of Ireland
doi:10.1017/ipm.2020.82

SHORT REPORT

Psychiatry NCHD referrals to the local emergency department in the context of an in-house primary care service

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Objectives. Patients with psychiatric illness are at increased risk of developing non-psychiatric medical illnesses. There have been positive reports regarding the integration of primary care services into mental health facilities. Here, we evaluate the appropriateness of psychiatry non-consultant hospital doctors (NCHD) transfers to the local emergency department (ED) in the context of an in-house primary care service.

Methods. We reviewed the inpatient transfers from St Patrick's University Hospital (SPUH) to the local ED at St James' Hospital (SJH) from 1 January 2016 to 31 December 2017. We used inpatient admission to SJH as our primary marker of an appropriate transfer.

Results. 246 inpatients were transferred from SPUH to the SJH ED for medical review in the years 2016 and 2017. 27 (11%) of these were referred to the ED by the primary care service. 51% of those referred were admitted with similar rates of admission for both general practitioner ($n = 27$, 54% admitted) and NCHD initiated referrals ($n = 219$, 51% admitted). Acute neurological illness, concern regarding a cardiac illness, and deliberate self-harm were the most common reasons for referral.

Conclusion. Our primary finding is that, of those transferred to ED by either primary care or a psychiatry NCHD, a similar proportion was judged to be in need of inpatient admission. This indicates that as a group, psychiatry NCHD assessment of acuity and need for transfer was similar to that of their colleagues in primary care.

Received 14 January 2020; Revised 12 June 2020; Accepted 16 June 2020; First published online 06 August 2020

Key words: Emergency department, in-house primary care, NCHDs, psychiatric hospital, transfers.

Introduction

Patients with psychiatric illness are at increased risk of developing non-psychiatric medical illness when compared to age-matched controls (Dickey *et al*. 2002, Laursen *et al*. 2014). For patients with severe mental illness, the mental health services may be their main point of contact for all medical care (Horvitz-Lennon *et al*. 2006). However, these patients are poorly managed in mental health settings (Nasrallah *et al*. 2006). Sadly the interface between mental health services and general hospitals is not always easy to navigate. This can be a source of difficulty even when psychiatric wards are incorporated into general hospitals, and it is an even greater issue for standalone mental health inpatient units. In these situations, there is potential for local emergency departments (EDs) to become the main point of contact for general medical care. This is an outcome that proves unsatisfactory to all stakeholders; patient, ED and the treating psychiatry team: previous surveys of psychiatry physicians have described a perception of suboptimal care of their patients in ED along with difficulty obtaining information about the care provided (Bazemore *et al*. 2005).

Consequently, a number of standalone hospitals now employ an in-house primary care service. In Ireland, there has been much discussion regarding the integration of mental health into primary care (Cooper *et al*. 1992; Goldberg, 2003; Wright and Russell, 2007; Ramperti *et al*. 2012) but less so regarding the incorporation of primary care into mental health facilities. Positive reports elsewhere have cited improved care coordination, health maintenance (Druss *et al*. 2001), staff (Behroozi *et al*. 2008) and patient satisfaction (Welthagen *et al*. 2004) with in-house primary care services (Cerimele and Strain, 2010).

An in-house primary care service was established in St Patrick's University Hospital (SPUH) in September 2015. The aim of this service is to improve patient care, reduce ED transfers, and reduce nursing escorts. The primary care team will conduct an overview of its own activities and measure overall effects on patient care. This study primarily aims to examine ED transfers

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https://doi.org/10.1017/ipm.2020.82 Published online by Cambridge University Press

and to compare those made by psychiatry non-consultant hospital doctors (NCHDs) as compared to our colleagues in primary care. We are not aware of any other studies making this comparison.

Methods

Study setting

St Patrick's University Hospital is an independent psychiatry hospital. The in-house primary care service was introduced in September 2015. This involves five sessions each week where general practitioners are available to review inpatients as referred by psychiatry NCHDs and nursing staff. Sessions are held during the following times: 14:00 to 17:00 p.m. on Mondays and Wednesdays and 09:00 to 12:00 a.m. on Tuesdays, Thursdays, and Fridays. Patients are typically seen by psychiatry NCHDs initially to decide on acuity and whether they should be sent to the local ED, the in-house primary care service, or be directly referred to other services such as specialist outpatient clinics. This varies depending on NCHD availability, in which case nurses may refer directly to primary care. Outside primary care service hours, medical review, and management are conducted as usual by the team NCHDs during normal working hours and by the on-call psychiatry NCHD out of hours. The out of hours service is in-house, and so psychiatry NCHDs are asked to review a range of issues ranging from mild to severe acute medical issues.

Study design

All transfers from SPUH to other hospital EDs are routinely recorded by the nursing team and stored electronically. Most transfers are to St James' Hospital (SJH), the local ED. To put this study in context, we first looked at the overall transfer rate to the local ED from 2014 to 2017 to assess whether there had been a change following the introduction of the in-house primary care service. We then conducted a retrospective review of the records from 1 January 2016 to 31 December 2017, after the in-house primary care service had been established. This data included socio-demographic data, date and time of transfer, reason for transfer, and outcome. Patients were divided into two groups based on whether they were referred by the primary care service or psychiatry NCHDs. We used inpatient admission to SJH as our primary marker of an appropriate transfer. Ethical approval was attained through SPUH research ethics committee.

Data analysis

Statistical analysis was conducted using IBM SPSS version 23 (IBM Corp., Armonk, NY, USA). Characteristics of the cohort were explored using descriptive statistics. One sample t test was used to compare the differences between years. Characteristics of the two referral groups and transfer factors were compared using chi-squared (X^2) tests as all data were categorical. *Post hoc* testing was used to compare reasons for transfer. A p-value is considered statistically significant at an alpha level of $p < 0.05$.

Results

Referrals to the local ED 2014–2017

There was a reduction in transfers to the local ED from prior to the establishment of the in-house primary care service in 2014 ($n = 154$) to after its establishment in 2016 ($n = 138$) ($\boldsymbol{t}$ (1) = 18.3, $\boldsymbol{p}$ = 0.04). There was a further reduction from 2016 ($n = 138$) to 2017 ($n = 108$) ($\boldsymbol{t}$ (1) = 8.2, $\boldsymbol{p}$ = 0.08).

The in-house primary care service

3043 patients were seen by the primary care service in total; 1454 in 2016 and 1589 in 2017. 0.9% ($n = 27$) of those referred to the primary care service in 2016 and 2017 were transferred to the ED.

Population characteristics and nature of transfers across both years

Across the two years, 246 patients were transferred to the local ED with 33 being repeat transfers, that is, patients requiring more than one transfer to the ED within 1 year. The primary care service referred 11% ($n = 27$) of those transferred to the ED. There was an age range of 18–98 with a median age of 60 years and 28% ($n = 69$) aged 65 or above. The majority were female (71.5% ($n = 176$) of transfers). Just over half (53% ($n = 125$)) were referred during daytime hours. Acute neurological disturbance, cardiac issues, and deliberate self-harm were the three most common reasons for transfer. We compared their admission rates below in Table 1. Admission recording was missing in 21 cases and 55% ($n = 124$) of those referred were admitted as inpatients to SJH.

Differences in patient and service factors between primary care and psychiatry NCHD initiated referrals

Of the primary care referrals 26% were age 65 or above, this is similar to NCHD referrals where 25% were age 65 or above (X^2 (1, $N = 238$) = 0.1, $p = 0.93$). Male patients accounted for 37% of primary care referrals and 27% of NCHD referrals (X^2 (1, $N = 238$) = 1.3, $p = 0.53$). We found differences between the two groups comparing all reasons for transfer (X^2 (13, $N = 223$) = 36.2, $p = 0.001$***) (See Fig. 1). Primary care more often transferred patients with abdominal pain or infection.

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Table 1. *Admission rates according to patient and service factors*

Patient and service factors	Admission rates	*N*	X^2	*p*-value
Age	Under 65: 45% 65 or above: 70%	225	11.2	0.004*
Sex	Male: 58% Female: 48%	225	2.1	0.35
Time of day	Daytime (09:00 a.m. to 17:00 p.m.): 54% After hours (17:00 p.m. to 09:00 a.m.): 48%	225	2.1	0.72
Referral source	Primary care: 54% Psychiatry NCHD: 51%	218	0.12	0.94
Reason for transfer	We found differences in admission rates comparing all reasons for transfer. Most common reasons:	215	100	$p < 0.0001$**
	Acute neurological disturbance: 61% *versus* Deliberate self-harm: 17%	81	15.6	$p < 0.0001$**
	Cardiac issues: 62.5% *versus* Deliberate self-harm: 17%	72	15	$p = 0.0001$**

Statistical significance: *$p < 0.01$, **$p < 0.001$.

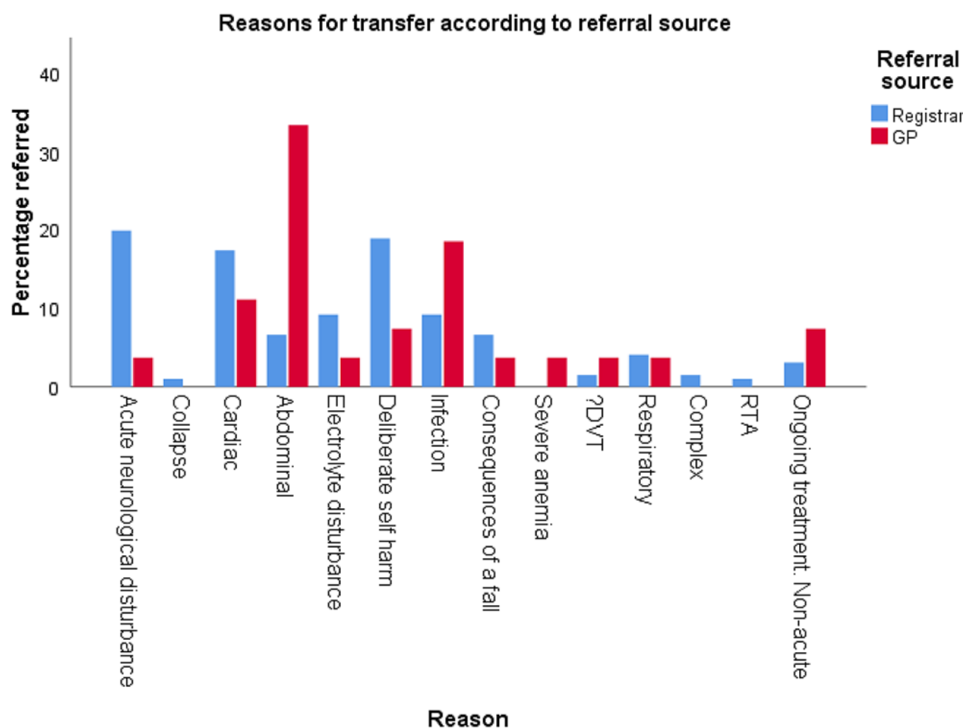

Fig. 1. Reason for transfer according to the referral being primary care or psychiatry NCHD initiated. DVT = referral for investigation of deep vein thrombosis; RTA = road traffic accident. Complex indicates that there were too many issues to be included in the database.

Psychiatry NCHDs more often transferred patients for acute neurological disturbance, cardiac issues, or deliberate self-harm. There was a significant difference between primary care and NCHDs for referral of patients with abdominal pain (X^2 (2,245) = 11.1, $p = 0.001$**). There was no notable difference for referral of patients with an infection (X^2 (2,246) = 0.96, $p = 0.3$), acute neurological disturbance (X^2 (2,263) = 2.3, $p = 0.12$), cardiac issues (X^2 (2,260) = 0.2, $p = 0.67$), or deliberate self-harm (X^2 (2,262) = 1.0, $p = 0.3$).

Treatment without admission

Of those who were not admitted a number appear to have been treated in the ED. For example, '*6 sutures*'

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are noted in one of the recordings. However, this is not sufficiently consistent to allow for analysis. Instead of admission, one patient referred by primary care and nine referred by NCHDs were offered a follow-up appointment.

Discussion

The in-house primary care service was established to improve overall quality of non-psychiatric medical care and to reduce the rate of transfer to the local ED. There was a notable reduction in ED transfers in 2016 and 2017 following the introduction of the service. There was a significant reduction comparing transfer rates in 2014 with those in 2016. We queried whether clinical judgment regarding the need for transfer might be driving this change and used admission as a marker for appropriate transfer. As psychiatry NCHDs rotate every 6–12 months, including the years 2016 and 2017 ensures that these findings are not merely representative of one group of psychiatry NCHDs.

Just over 70% of those transferred were female. This was not explained by other factors such as age or reason for transfer. It may represent the demographics within SPUH over the two years, but we do not have data to confirm this. There was no difference in admission rates between males and females. Patients over the age of 65 were more likely to be admitted. Time of day did not affect the likelihood of admission. Looking at the three most common reasons for transfer, patients were much more likely to be admitted for inpatient treatment to a medical setting if they had an acute neurological disturbance or cardiac issue. Patients were less likely to be admitted following deliberate self-harm. The primary care service was significantly more likely than NCHDs to refer patients with abdominal pain.

Our primary finding is that the rate of admission for referrals made to the local ED by NCHDs is comparable to that of the primary care service, indicating that psychiatry NCHDs make referrals that are at least as appropriate as our primary care colleagues. Furthermore, this study shows that, while the primary care service reviewed 3043 patients over the 2 years, <1% subsequently required transfer to the ED. This indicates that psychiatry NCHDs are appropriately triaging patients in deciding whether they should be referred to the ED or to the primary care service.

Some limitations to this study include the use of inpatient admission as a proxy measure of appropriate transfer to the SJH ED. A future recommendation may be to co-ordinate with SJH to look at the emergency severity index, a routine measure of acuity in EDs. It would also be useful to record length of stay for those admitted and the treatment provided in the ED where admission was not required. Given the low rate of admission for deliberate self-harm and the likelihood that this group might be treated in ED, it would be pertinent to look at this cohort in particular. A second limitation is the reliance on accurate recording from transfer forms. Lastly, only one public ED was included in this study and so we may also be reflecting practices specific to that ED.

While this study is based on an independent psychiatric hospital, it is of direct relevance both to other services that have in-house primary care services and for psychiatric services that may be concerned by their rate of transfer to the ED, particularly those with an older population. It is reassuring to find that psychiatry NCHDs neither appear to over-refer to the local ED, at least as compared to the primary care service, nor do they appear to refer inappropriately acute cases to primary care rather than the ED. While we were unable to fully evaluate the primary care service, it is also evident that a substantial number of in-patients were reviewed by the service in 2016 and 2017, presumably easing the burden of care for psychiatry NCHDs. It may be interesting for future studies to evaluate whether psychiatry trainees felt that the in-house primary care service de-skilled them in relation to their ability to manage routine medical issues. However, our findings generally appear to reflect a healthy synergistic use of the in-house primary care service.

Financial support

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflict of interest

Cornelia Carey has no conflicts of interest to disclose. Eimear Doody has no conflicts of interests to disclose. Roisin McCafferty has no conflicts of interests to disclose. Michelle Madden has no conflicts of interests to disclose. Nia Clendennen has no conflicts of interests to disclose. Declan Lyons has no conflicts of interests to disclose.

Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. The authors assert that ethical approval for publication of this service evaluation has been provided by their local ethics committee.

https://doi.org/10.1017/ipm.2020.82 Published online by Cambridge University Press

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https://doi.org/10.1017/ipm.2020.82 Published online by Cambridge University Press