The Regulation and Quality Improvement Authority

Implementation of an electronic method to improve quality of physical health monitoring in patients with mental health conditions

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Introduction

People with a severe mental illness (SMI) die 15 to 20 years earlier than the rest of the population (Hayes et al 2017).

> *"The phrase severe mental illness (SMI) refers to people with psychological problems that are often so debilitating that their ability to engage in functional and occupational activities is severely impaired. Schizophrenia and bipolar disorder are often referred to as an SMI"* (PHE 2018, pg1).

The majority of the aetiology for this increased mortality are physical health conditions with identifiable and potentially reversible risk factors. These are mainly cardiovascular and cerebrovascular conditions (PHE 2018)

NICE guidelines for schizophrenia CG178 and Bipolar disorder CG185 have made clear recommendations about physical health monitoring. The AS audit report highlights that performance in monitoring important physical health risk factors is significantly less good in NI than in England and Wales .Trusts are not as efficient at ensuring all six important factors have all been monitored specifically , recording of BMI and blood pressure (NAS 2014) . The current audit builds upon the work undertaken by Grant, Charalampidou & Davidson (2016) which highlighted inconsistences in the recording of patient data using a paper based format. An online system of recording data was therefore designed and results from the current audit of the online application (App) are discussed within this document.

A previous audit undertaken by (Grant, Charalampidou & Davidson, 2016) with a sample size of 15 patients. The small sample was selected due to the audit timeframe and the lack of information available via the paper based reporting system. The sample technique examined the current practice of monitoring basic cardio-metabolic risk factors (including blood pressure, weight , waist circumference , BMI, prolactin , blood sugars and cholesterol) in preparation for the introduction of a new summary sheet for physical health monitoring and quality improvement project. Results from the audit (Grant et al 2016) indicated the following.

Blood Monitoring: There was sub optimal completion with seven being carried out in the patient sample. No patient in the sample (0 out of 15) had their prolactin

checked within the last year. All patients with an SMI should have these bloods checked on an annual basis and these should be included in the Quality Outcomes Framework (QoF) for general practice. The returns from the previous QoF indicate that this was being checked in about 85% of patients with SMI. The results of the audit indicate that the monitoring level by GPs is reducing. This raises the issue as to how this can be addressed for example, arranging an appointment for the patient with the GP or the Trust completing the monitoring process.

Electrocardiogram (ECG) There were sub optimal rates of completion of ECGs for eight patients). Five patients in the sample had identified reasons for having an ECG completed annually with one patient having multiple risk factors.

Body Mass Index (BMI) and Blood Pressure (BP): There was no record of either of these basic measurements in the mental health notes (0 out of 15). This information may be available in the General Practitioner (GP) surgery but is not available on the Electronic Care Record (ECR). However, this suggests that the results are less favourable than those recorded the National Audit of Schizophrenia which indicated that monitoring of service user's BMI was only recorded for n=8 of the sample.

Communication: Blood monitoring which was undertaken in all patients for sugar assessment, cholesterol and triglycerides were all completed in the primary care setting. We found that there was no communication from primary to secondary care as regards the action for an abnormal result.

Cholesterol: During the baseline audit period our chosen parameters were cholesterol and triglyceride levels, however it was recognised that one of the shortcomings in our data collection is the changing landscape of cardiovascular risk scoring. The wide use of the QRISK2 score (used to calculate cardiovascular risk scores) and much heavier focus in the literature on the parameter of Chol:HDL (high density lipoproteins which indicates beneficial cholesterol) resulted in us re-examining our original audit sample. In all patients with abnormal cholesterol or triglyceride levels their Chol:HDL ratio was in fact normal which is important to highlight.

The overall aim of the audit was to track negative physical health outcomes associated with anti-psychotic medication for community and hospital patients within mental health services. The basic recommended annual physical health monitoring

as identified in The NICE guidelines was used as the standard to assess all patient data retrospectively for a twelve month period between 1.4.2015 and 30.3.2016 (NICE 2014).

Currently, the physical pathway information is collected via a pre-printed monitoring form and stored in paper format in the Belfast Trust. The audit (Grant, Charalampidou & Davidson, 2016) highlighted that there was poor compliance with this method of data gathering and storage (albeit for the small sample) which can place patients at increased risk of corollary physical health outcomes. It was envisaged that an online application would ensure 100% compliance and enable standardisation of data gathering, recording and positively influence staff response time to risk indicators. Therefore, the current audit focused on a pilot of the online system which was created by Diamond and Charalampidou in 2018.

According to the recent strategy Health and Wellbeing 2026 (DOH 2017) there needs to be a stronger alignment between quality improvements and how organisations monitor and evaluate services. The strategy underlines the need to implement innovative methods of working with a view to upscaling successful initiatives across Northern Ireland. The document also highlights that we must proactively detect hazards in care settings and implement solutions to reduce risk before harm occurs.

In addition, Quality 2020 (DOH 2017) focuses on avoiding and preventing harm to patients and clients from the care, treatment and support that is intended to help them. In line with the focus on a high quality service, where services provided are the right ones at the right time in the right place, the current quality improvement initiative provides a risk monitoring system to intervene precisely when it is needed on the care continuum; ultimately to avoid harm and minimise risk.

Current Audit Objectives of electronic monitoring system

- To track patients physical health data via the use of an online system and compare this with the usual paper method of recording outcomes in order to ascertain the efficacy of an online system of recording data.

- To obtain the views of staff and patients as regards the use of the online system of gathering information.
- To seek the views of managers in mental health services in relation to the process, implementation and outcomes for staff and patients in accordance with current guidelines.
- To improve safety for patients in the care of the Belfast Trust via compliance with National Guidelines and Standards for Physical Health Monitoring.

The audit sought to initiate improvement in the monitoring of a range of risk factors for patients via the online system of recording information, including diet, exercise, smoking, family history of diabetes, family history of cardiovascular disease (CVD), weight, waist circumference, blood pressure (BP) and lipid profile. Data was collected over an eight month period, from March to October 2018.

In the longer term (post-pilot phase), the roll out of the online system will ensure improved patient safety whilst enabling real time data gathering. The online platform will also act as a monitoring tool to assess patient progress and improve risk assessment and management processes.

Audit Methodology

Four health care professionals, from one community mental health team, in the Belfast Trust used the App on a regular basis in respect of twelve patients. The four professionals were all participants in the subsequent interviews. They used the App to locate and highlight the information prior to appointment and as a basis for discussion in Multidisciplinary Team (MDT) meetings which focussed on approximately ten cases at each meeting. The staff members who used the App confirmed the importance of ease of access to information to observe what outcomes have been achieved and what further assessment/treatment/medication is required in respect of the patients. One of the primary tasks of the multidisciplinary team meeting is to focus on the physical health assessment/check-ups on patients. The MDT addresses the needs of approximately 160 patients at any given time.

Semi-structured interviews were conducted with 10 staff members (six in the hospital and four in the community) who had recently used the App (this included the four

workers referred to above and also six additional staff members who used the App on 1 or 2 occasions) within the standard working pattern.

Semi-structured interviews are flexible, allowing new questions to be brought up during the interview as a result of what the interviewee reports (Sarantakos 2013). This technique is beneficial in exploring complex issues that cannot be explored via questionnaires and is also useful for research work with individuals in professional settings. The interviews permitted greater depth and more flexible responses creating a more valid response in relation to the informants' perceptions of their experiences (Creswell, 2007).

A focus group, with four service managers, who had observed the App in their place of work was also convened to elicit their views on staff usage of the App. Focus group discussion precipitates interaction and discussions as the exchange of experiences stimulates ideas and thoughts on the topic being addressed.

Data from semi-structured interviews and focus groups were manually analysed using the principles of thematic content analysis (Burnard, 1991) in an iterative, cyclical process. He suggests four ways to improve credibility of qualitative research: reflexive analysis; participant checking data/report for accuracy; data saturation and inter-rater/peer checks. Inter-rater checks on the semi-structured interview data were carried out by members of the audit team.

Due to the sensitive nature of the subject and in recognition of the potential concerns of the audit participants, all respondents were assured about the highly confidential nature of the data collection and reporting process.

Participants were provided with project information sheets and requested to complete informed consent documentation. The auditor explained the purpose of the interviews, the information to be collected and for participant consent to tape the recording.

Qualitative data was held within separate Microsoft Word documents which were password protected. Both sets of data were held on the auditor's QUB University personal computer which is also password protected according to the University's network protocols. Participants' identities were protected by using a coding system,

the details of which were password protected and encrypted. Transcription of the interviews was then undertaken

Findings

Thematic analysis from structured set questions put in as an appendix

Preliminary themes from the data include the following:

1. Limitations of the physical health monitoring sheet

2. Accessibility of the App interface

3. Responsive Transfer of information between patient and community teams

4. Graphical representation of data

5. Accountability

Limitations of the Physical Health Monitoring Sheet

All staff (n=14) referred to the limitations of the paper copy and whilst there was agreement that this was a useful tool, they recognised the advantages of an online recording system.

> *"The paper copy is easy to fill in but not entirely useful in terms of accessibility, as it is just slotted in front of the notes and often just forgotten about. You would reference back to it around the three month date".*

Furthermore, it was reported that there were occasions when the paper copy in the patient files may be difficult to find or there may be a wait for documentation being returned from the medical records department upon readmission.

It was also clear that users appreciated that information could be gathered and stored over a period of time on the App and that trends would be noted from one fixed point of access.

> *"You don't go to the paper copy so much as we have moved to online with *PARIS [electronic case file management system] etc...this was not recorded online prior to this App. It makes much more sense that all results over time*

are available to you right there, rather than going through pages and pages of notes which would happen if someone was in services for years and years and also having it there in front of you would be so much easier and efficient"

*PARIS is an electronic information management system to support the care delivery process, from initial referral and registration, through assessment, to delivery of an agreed care plan.

Accessibility of App Interface

The majority of participants referred to the interface accessibility of the App. There was a general consensus that the interface was self-explanatory and the information was clearly presented.

"It's much more straightforward to use in capturing the information…we are more tuned in to gathering data online of course…its simple and clear and the interface is so easy to access and use".

Two managers commented on the flexibility of the App. One participant commented that often within the locked ward, patients with severe mental illness who may display aggressive behaviour may on occasion be unable to participate in an assessment or check-up. The App provides the opportunity to leave the information as pending for a period of time and then prompts the staff member to return and check the time lapse or proposed date of next meeting.

The App Dashboard shows the numbers of patients in each team and those who had the physical assessment completed (green), those due (yellow) and those who are overdue for a check-up (red).

Responsive Transfer of information between patient and community

A number of participants referred to access of information by GPs within the community.

"Hopefully, we will get to the stage where the community teams and particularly the GPs can access the information via the App".

One participant noted that problems which could have gone unnoticed prior to the introduction of the App could now be recognised and addressed by community healthcare teams.

> *"This is a way of capturing the information for community based services. If we upload information here then that can be accessed by the community team in terms of physical state and they can pick up on abnormalities".*

Others noted the advantages of an online system whereby information could be moved easily between community and inpatient settings**.**

> *"One system where all info is uploaded for community and in patient use is an excellent idea….much easier for everybody rather than scraping through old notes".*

The continuity of information processing and handling was deemed very important in assisting patient's transition into the community.

> *"It still is not as complete as we would like it and it does not follow the patient out into the community…the online application would enable this continuity of recording information".*

Managers were interested in whether the App could be used on a number of different online formats including electronic tablets and personal computers (PCs) to record information in the hospital and community based settings. It was also reported that it would be advantageous if the App was connected to PARIS via an external link rather than subsuming the App within the PARIS system. This is because one of the key features of the App was the gathering of information in community based settings, a function which would be hindered by being embedded completely within PARIS. The managers were advised that the multi modal formats of the online tool were also transferable to Microsoft IOS and Android platforms and not restricted to use on office phones only. Managers also raised some concerns about the security of the information on the App and were assured that information would be encrypted and stored in a highly secure Trust portal.

Graphical Representation of Data

All participants referred to the benefits of the graphical display function and almost all stated that this function should be included for each component of the App. It was suggested that it would be most helpful to look at weight loss or weight gain over a period of time using a temporal graph.

> *"It's great having the graph…there is a range depicted on the graph which is really helpful".*

> *"The graph function is particularly useful….simply working with a visual, the trends and seeing the changes".*

> *"It makes sense to have all information in graph form… Quick, efficient and all trends could be noted".*

Accountability

Almost all participants noted the accountability element of the App as it includes a 'do not progress' system of completion. It also assured staff members that someone had noted the results and had acted upon them where necessary.

> *"By recording the physical health there is accountability that you've seen it and that you are going to act upon it…this gives you an assurance that someone has seen and addressed the results".*

> *"The App forces you to action prompts when it is out of range…variation in baselines…reading it flags it up and you must action it ...you're prompted as you cannot go on further until you complete".*

It was also reported that whilst use of the paper copy could result in missing information or incomplete documentation, use of the App would prevent this occurring.

> *"It makes you fill it in correctly as it does not move automatically to next section as the paper copy allows you to leave gaps…realistically".*

In addition, all managers in the focus group agreed that the App would encourage staff to complete the pro forma; which would enhance efficiency and performance

and would also create a culture of completion. There was also a consensus that quality assurance or external inspection processes would be able to view evidence of patient tracking, levels of non-compliance as well as a record of contact and reasons for non-contact.

Future Directions

It is anticipated that the App will be rolled out on IOS and Android based multi modal platforms over the next 12-18 month period within the Belfast Trust. It is envisaged that it will sit alongside PARIS and will be accessed via a link on the Trust intranet.

In the longer term, it is expected that the App will be implemented throughout the remaining Trusts in NI which will enhance outcomes for those patients who have had to move between Trust areas for a number of reasons.

It is proposed that a long term research evaluation should focus on the mental and physical health outcomes for patients using a longitudinal cohort methodology.

Currently there is also discussion with the Chair of the Informatics Committee, Belfast trust who wishes to investigate the possibility of including the online tool in electronic health care records and within the **encompass** programme, a Health and Social Care (HSC) wide initiative that will introduce a digital integrated care record to Northern Ireland.

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