

# Cardiovascular health monitoring in patients with psychotic illnesses: A project to investigate and improve performance in primary and secondary care

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## Abstract

Patients with psychotic illnesses are predicted to die 15 years younger than the national average. The chief cause is cardiovascular disease (1). Evidence-based guidelines including those produced by the National Institute of Health and clinical Excellence and the Quality Outcomes Framework, recommend regular monitoring of their cardiovascular risk (2,3,4).

Primary health care audits were undertaken in an urban and a rural setting. These looked at the proportion of patients who had their physical health regularly monitored in line with NICE guidelines. Following an audit in general practice, it became clear that there was a group of patients that were chronic non-attenders. It was not clear whether these patients were the responsibility of the general practices or psychiatric services. An audit in secondary care then looked at the level of cardiovascular health monitoring in that setting, and the communication of results to primary care. These audits demonstrated that monitoring of cardiovascular health did not meet standards as set by NICE. Further to this, communication of findings between primary and secondary care was also poor.

Primary care interventions included setting up Alert reminder boxes on the computer system and sending invitations for clinic attendance to 'at risk' patients. In secondary care interventions included redesign of the patient lists to include a way of monitoring cardiovascular health and generation of a new discharge summary to facilitate communication of cardiovascular indicators to primary care.

These interventions have resulted in marked improvements in cardiovascular health monitoring in primary care, however, there is still room for considerable improvement. Discussions about further intervention strategies, and further audit cycles, are ongoing.

## Problem

The authors' personal experiences of a placement in an urban General Practice, and discussion with General Practitioners working there, made it quite clear that with regards to the care of patients with psychotic illnesses, monitoring of cardiovascular health might be dangerously insufficient. Informal observation of current practice demonstrated that there was poor clinic attendance of patients with psychotic illnesses, that current clinic reviews were insufficient and that general practitioners were unclear as to who was ultimately responsible for these aspects of a psychiatric patients care. Should it be the general practice, or should it be psychiatric services, including the community mental health team (CMHT)? The impact on psychiatric patients was clear, as they displayed a number of cardiovascular risk factors and events. Our investigation, extending to a rural practice, and then into secondary care, uncovered that part of the fault lay in poor patient concordance (e.g. addictive behaviours, lack of insight), part in poor healthcare performance (e.g. insufficient knowledge, conflicting guidelines) and part in poor communication between different healthcare services (e.g. unclear responsibilities, poorly integrated systems).

## Background

Severe mental illness is a highly prevalent problem (5). Patients can often lack insight into the nature of their condition and hence be

more resistant to medical intervention, resulting in severe bio-psycho-social consequences. Therefore the quality of healthcare provided makes a profound difference to patient outcomes. They are at a much greater risk of cardiovascular complications due to both patient factors, i.e. they demonstrate more cardiovascular risk factors such as smoking (6), and pharmacological factors such as metabolically disruptive antipsychotics (7). In addition the impact of clinicians plays a role in adverse cardiovascular outcomes. In spite of numerous clinical guidelines (2,3,4), clinicians consistently under-perform at monitoring cardiovascular health in these patient groups (8,9). Ultimately these factors culminate in the fact that the largest cause of physical morbidity and mortality in individuals with psychotic illnesses is cardiovascular disease; individuals with serious mental illness die 15 years younger than their peers (1).

This is a significant health problem. In addition to the massive personal cost of cardiovascular disease in this patient group, the financial cost of these diseases in an increasingly constrained health budget makes it vital to institute good preventative medicine.

There are multiple guidelines covering which physical health indicators should be monitored and how often they should be assessed:

NICE guidance on Bipolar Disorder (2) state: 'People with bipolar disorder should have an annual health review, normally in primary care, to ensure that the following are assessed each year: Lipid

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levels, plasma glucose, weight, smoking status, alcohol use and blood pressure.'

NICE guidance on Schizophrenia (3) state: 'GPs and other primary healthcare professionals should monitor the physical health of people with schizophrenia at least once a year.'

The Quality and Outcomes Framework (QOF) for 2012 (4) offer financial incentives for reaching a range of outcomes in primary care. They recommend that BMI, blood pressure, alcohol consumption, cholesterol and blood glucose, or HbA1C, be measured every 15 months.

The standards used were based on the Quality and Outcomes Framework (QOF) for 2012 (4): Guidance for PCOs and practices. The QOFs set financial incentives and targets for services provided by general practice. They set desirable outcomes for five indicators of cardiovascular health in patients with psychotic illnesses. The indicators are body mass index (BMI), total cholesterol, alcohol consumption, blood pressure and blood glucose monitoring. The midpoint of the desirable range set by these QOFs was taken as the standard for all three audits. The BMI standard was 70%, total cholesterol was 62.5%, alcohol consumption was 70%, blood pressure was 70%, and blood glucose monitoring was 62.5%.

## Baseline Measurement

Rural Primary Care 2010:

This investigation took place in a practice in a rural area of Dorset. The practice database was searched for a list of patients with a diagnosis of schizophrenia and related disorders for whom the NICE guidelines on schizophrenia (3) were applicable; these diagnoses were schizophrenia (all sub-types), schizopreniform disorder, schizoaffective disorder and delusional disorder. For each of these patients, we searched their electronic notes for the date of their last BMI recording and last serum total cholesterol level. We then calculated the proportion of patients who had a record of each of these variables within the 15 months prior to data collection.

Baseline results showed a total of 28 people fitting the inclusion criteria. Within the 15 months prior to data collection:

1. 25% had a serum total cholesterol measured
2. 46% had a BMI measured

Urban Primary Care 2011:

This investigation took place in a practice in an urban area of North London. We searched the practice database for patients with a diagnosis of schizophrenia and related disorders for whom the NICE guidelines on schizophrenia (3) were applicable; these diagnoses were schizophrenia (all sub-types), schizopreniform disorder, schizoaffective disorder and delusional disorder. For each of these patients, we searched their electronic notes for the date of their last BMI recording. We then calculated the proportion of patients who had a record of this variable within the 15 months prior to data collection.

Baseline results showed a total of 38 people fitting the inclusion criteria. Within the 15 months prior to data collection:

1. 56.2% had a BMI measured.

## Design

The underlying causes for poor monitoring of cardiovascular health in individuals with psychotic illnesses are complex. On discussion with partners in both general practices, and further analysis of the data, it became clear that there was a core group of long-term non-attenders to general practice. These patients tended to be the worst effected by psychotic illnesses. It was clear that the partners were uncertain as to exactly who should be looking after these patients; should it be the community mental health team and other psychiatric services, or should it be general practice? As a consequence the cardiovascular monitoring of these patients was poor. Thus it was discussed that our interventions should include both a primary and a secondary care arm.

In primary care the interventions required needed to fit in with the tools available in a typical general practice. Alert boxes were placed on patient's notes to encourage opportunistic screening if these patients arranged an appointment at the practice and letters were sent out to individual patients. The letters emphasised that cardiovascular monitoring was important for their physical health rather than their mental health. This was an aspect that we felt patients with psychotic illnesses would be more likely to identify with, and it was felt that even in the chronic non-attenders, that patients may retain better insight into their physical, than their mental, health.

The secondary care arm was designed to look at how secondary care mental health facilities approached cardiovascular monitoring. We felt that they were more likely to deal with the group of patients who chronically avoided monitoring in primary care. Further information about secondary care practice could therefore guide primary care as to how to manage the cardiovascular health of this group of patients. An audit cycle in an acute psychiatric unit was completed. It looked at two factors:

1. How well was secondary care was monitoring cardiovascular health?
2. How well was the acute psychiatric unit communicating its findings to primary care?

## Strategy

Improvement (PDSA) 1

Even though our standards were selected after consulting the literature, and practitioners at the general practices that we investigated, the baseline results fell unexpectedly short of them. Discussion of these results with the practitioners and community psychiatrists generated three possible factors contributing to our poor performance:

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1. Patient factors: With poor insight into their mental and physical illnesses they are less motivated and more cynical of monitoring. They may also have poorer impulse control, which might impact on smoking, alcohol intake and diet.
2. Health professional factors: With inadequate knowledge and multiple guidelines, health care professionals are less inclined to monitor correctly.
3. System factors: There is a lack of clarity as to who is responsible for this monitoring. Additionally, even if variables are measured, there is inadequate communication of results between different services, so useful cardiovascular data cannot be used appropriately.

We initiated some simple interventions that might counteract some of the issues above:

1. Producing an alert-box system on the electronic notes to remind health care professionals to carry out the various cardiovascular checks for these patients
  2. Sending letters out to these patients requesting an appointment for a cardiovascular health check
  3. Encouraging the community mental health team to perform cardiovascular health checks and train to perform venepuncture.
- Then to communicate these results back to the GP

These interventions provoked a sizeable improvement in the cardiovascular monitoring of these patients in both the rural and urban settings (see post-measurement). However, standards were still not being achieved. Feedback from practitioners and the community mental health team now pointed away from these community problems and towards secondary care: Many patients who had not been monitored had not attended the practice for several years; these patients are more likely to be seen by hospital psychiatrists and therefore could their cardiovascular monitoring be performed in secondary care? If so, could these results then be communicated back to the GP to complete the care cycle and ensure appropriate follow-up care?

This shift of the spotlight onto secondary care formed the basis of our second interventional cycle.

### Improvement (PDSA) 2 (Secondary Care 2012)

The secondary care arm of the project audited how well five indicators of cardiovascular health as specified by the Quality and Outcomes Framework (QOF) and NICE guidelines were monitored in the last 15 months in an acute psychiatric unit. The five markers of cardiovascular health were, as discussed in standards, blood pressure, blood glucose monitoring, BMI, cholesterol levels, and an up to date alcohol history. 28 patients out of the last 40 patients discharged from the acute psychiatric unit were identified as having a diagnosis of bipolar affective disorder, schizophrenia or other psychosis. For these patients over the last 15 months:

1. 84% of patients had had their blood pressure measured
2. 42% of patients had had their cholesterol levels measured
3. 0% of patients had had their BMI measured
4. 84% of patients had had an alcohol history taken

5. 40% of patients had had a capillary blood glucose or HbA1c monitored

As a second step the amount of the above indicators communicated from secondary care to primary care was also audited. Out of the information collected in secondary care the following percentages of recordings were not forwarded on either through admission or discharge summaries. 50% for blood pressure, 15% for cholesterol, 10% for alcohol history and 72% for blood glucose monitoring. As no BMIs were taken there was none to forward on to primary care.

This audit and the results of the first rounds of the primary care audits were presented at a teaching session to both senior psychiatrists and junior doctors. Barriers to more widespread cardiovascular monitoring in secondary care were felt to be that the day patients are acutely admitted to the ward was the time-point when junior doctors were most likely to perform these cardiovascular checks and take blood samples. However patients were often most unwell and most difficult to take blood samples from on admission. As a patient's condition improved there was no easy way of keeping track of who had had these cardiovascular indicators monitored.

Barriers to communication with general practice were felt to be lack of awareness of the importance of continued cardiovascular monitoring on discharge and of the difficulty of cardiovascular monitoring in primary care.

Two main interventions were suggested.

1. The ward doctors generate an extra column on their patient list whereby indicators of cardiovascular health could be recorded and outstanding results highlighted. The rationale was that this would serve as a reminder for the junior doctors to take blood samples and allow them to keep an up to date list of which investigations were outstanding.
2. An additional box was added to the discharge form which contained these indicators of cardiovascular health. This would serve as a reminder to both consultants and junior doctors to communicate all findings already taken to primary care.

## Post-Measurement

### Rural Primary Care 2011:

We re-collected data 15 months after the first data collection, using the same methodology: This investigation took place in the same practice in a rural area of Dorset. We searched the practice database for patients with a diagnosis of schizophrenia and related disorders for whom the NICE guidelines on schizophrenia (3) is applicable; these diagnoses were schizophrenia (all sub-types), schizopreniform disorder, schizoaffective disorder and delusional disorder. For each of these patients, we searched their electronic notes for the date of their last BMI recording and last blood total cholesterol level. We then calculated the proportion of patients who had a record of each of these variables within the 15 months prior to data collection.

Baseline results showed a total of 67 people fitting the inclusion criteria. Within the 15 months prior to data collection:

1. 54% had a serum total cholesterol measured, as compared with 25% in the first collection.
2. 45% had a BMI measured as compared with 46% in the first collection.

#### Urban Primary Care 2012:

We re-collected data 15 months after the first data collection, using the same methodology: This investigation took place in a practice in an urban area of North London. We searched the practice database for patients with a diagnosis of schizophrenia and related disorders for whom the NICE guidelines on schizophrenia (3) is applicable; these diagnoses were schizophrenia (all sub-types), schizopreniform disorder, schizoaffective disorder and delusional disorder. For each of these patients, we searched their electronic notes for the date of their last BMI recording. We then calculated the proportion of patients who had a record of this variable within the 15 months prior to data collection.

Baseline results showed a total of 37 people fitting the inclusion criteria. Within the 15 months prior to data collection:

1. 73% had a BMI measured as compared with 56% in the first collection.

## Lessons and Limitations

This project highlighted some of the widespread difficulties in managing patients with illnesses affecting their mental health. The authors are also more aware of some of the deficits with regards communication between primary and secondary care and how this can have a detrimental effect on patients.

The authors learnt that having support for your project by the local audit department and senior mentors is vital to ensuring the success of an intervention.

The primary care arm of the quality improvement project was limited by relying on accurate psychiatric diagnoses of patients with accurate coding. In past experience this has been shown to not be an entirely reliable process when assessing different psychotic illnesses and this might affect why some patients have been monitored in a different way. An additional limitation is that before 2012 QOF did not specify which cardiovascular variables were to be monitored. Ultimately the variables that were measured prior to 2012 were those deemed necessary for cardiovascular monitoring, as recommended by the QOF at the time. The specifying of variables after 2012 means that some of the improvements from 2012 onwards may be due to the financial incentives of QOF.

The secondary care arm of the quality improvement project was limited by the rapid turnover of junior doctors. New doctors were rotated onto the ward every three months rendering the need for ongoing teaching cycles about both the importance of cardiovascular health monitoring in psychotic patients and about how to use both the ward lists and the newly implemented

discharge summaries. Within secondary care we believe the intervention to be potentially sustainable as long as we can implement a longstanding program for ongoing teaching.

## Conclusion

Cardiovascular health monitoring of patients with psychotic illnesses failed to meet the standards as set by the Quality Outcomes Framework and NICE guidance in both primary and secondary healthcare settings.

Simple interventions such as the GP Alert box system, letters to patients for cardiovascular checks and the process of starting and completing the audit cycle has increased the levels at which cardiovascular health is monitored in the two primary care settings.

More complex interventions aimed at improving communication between primary and secondary care, both through primary care liaison with the CMHT and through addition of cardiovascular health indicators on secondary care trusts discharge summaries have the potential to allow combining of primary and secondary care resources to manage patients identified as persistent non-attenders.

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