‘Don’t just screen intervene’; a quality improvement initiative to improve physical health screening of young people experiencing severe mental illness in North West England

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**ABSTRACT**

**Aims:** To improve the quality of monitoring of risk factors that predict the likelihood of people with severe mental illness (SMI) developing cardiovascular disease (CVD), diabetes and obesity, major contributors to poor physical health and risk of premature mortality.

**Method:** The first phase of the AQuA (An NHS membership based improvement organisation) ‘Don’t just screen-intervene’ initiative supported five specialised community based Early Intervention for Psychosis services in North West England to assess the effectiveness of monitoring of cardiometabolic risk in their patients using standards derived from the Lester Positive Cardiometabolic Health Resource, a nationally acknowledged framework for people with psychosis receiving antipsychotic medication. The initial findings formed the basis for a quality improvement programme which ran from November 2012 until May 2013.

**Results:** By the end of a six month quality improvement programme the likelihood of a patient receiving a comprehensive cardiometabolic risk screening (evidenced by recorded measurement of body mass index or waist circumference, blood pressure, blood glucose and lipid profile, assessment of smoking status, and enquiry of relevant family history) had increased from 10% to between 63-80%.

**Conclusions:** Cardiometabolic risk monitoring from the onset of psychosis and its treatment can be improved utilising quality improvement methodology in real-world specialist mental health services. Earlier identification and treatment of risk factors that predict higher rates of obesity, diabetes and cardiovascular disease may help people with SMI avoid life-restricting and life-shortening physical disorders.

**INTRODUCTION**

People with severe mental illnesses (SMI) such as schizophrenia die 15-20 years earlier on average than the general population. Around 20% of premature deaths can be explained by suicide and injury, but the remainder arise from a variety of natural causes such as cardiovascular diseases (CVD), chronic obstructive pulmonary disorder, and certain cancers and infections (Nordentoft et al, 2013).

A combination of social disadvantage and unhealthy lifestyles, adverse cardiometabolic impacts of antipsychotic medication and inequitable access to physical healthcare combine to put people with SMI at particular risk from CVD, the single biggest cause of premature death, and much more
common than suicide (Brown et al, 2010). Despite higher rates of potentially modifiable CVD risk factors (De Hert et al, 2009) people with SMI appear to be missing out on opportunities to actively prevent conditions like CVD and diabetes compared to the general population (Brown et al, 2010). Tobacco smoking illustrates the differential health risks: the general population has reduced smoking from 39% in 1980 to about 20% currently (Health and Social Care Information Centre, 2013) whereas those with established SMI such as schizophrenia continue to smoke at rates approaching 70%.

It is also becoming clear that many of the risk factors for conditions like CVD and diabetes are operating from very early in the course of emerging psychosis and SMI. While precise explanation is lacking it is clear that prescribing antipsychotic medication can adversely affect these risks, weight gain and adverse cardiometabolic disturbance accelerating within weeks of initiating treatment (Foley et al, 2011; Correll et al, 2014). Vulnerability to harm from adverse metabolic disturbance is even greater in younger people, a particular concern given the age of presentation for many with a first episode of psychosis (Kumra et al, 2008). These risks may be further exaggerated as about 59% of these young people are already regular smokers, a rate 4-5 times greater than their peers without psychosis (Myles et al, 2012). Moreover there are evidence-based ways to mitigate some of these cardiometabolic risks. For instance strengthening evidence for the effectiveness of behavioural interventions to reduce obesity and cardiovascular risk led Bartels to conclude in a recent editorial “the greatest current barrier to increasing the life expectancy of persons with serious mental illness is no longer a knowledge gap – it is an implementation gap” (Bartels, 2015). And the recently concluded SCIMITAR pilot study provides encouraging evidence for the potential benefits to be derived from mental health practitioners providing facilitated support to access smoking cessation services; the definitive RCT is now in progress (Gilbody et al, 2015).

Despite abnormal CVD risk being directly linked to prescribing antipsychotic medication in a vulnerable group of patients the National Audit of Schizophrenia (NAS 1, 2011/12) demonstrated inadequate monitoring in clinical practice. Using standards derived from NICE schizophrenia guidelines (NICE CG 82, 2009), the NAS revealed only 29% of 5091 patients, under community mental health teams from across England and Wales, recorded an adequate assessment of cardiometabolic risk within the previous 12 months (weight, smoking status, glucose, lipids, BP); weight was unrecorded in 43% (Crawford et al, 2014). In response to these deficiencies the NAS developed the Positive Cardiometabolic Health Resource (Lester et al, 2012). This had been adapted for use in the UK from an original New South Wales version (Curtis et al, 2012) to encourage a more collaborative framework between primary and specialist care for tackling cardiometabolic risks. The second NAS audit revealed little change in cardiometabolic monitoring with still under a third of patients receiving a comprehensive screen (NAS 2, 2013/2014).

Given the NAS findings of inadequate screening in those with established SMI alongside evidence that CVD risk can emerge early in the course of psychosis, the recent NICE psychosis and schizophrenia guidelines (NICE CG 178, 2014; NICE CG 155, 2013) made clear recommendations that specialist mental health services are responsible for this aspect of physical health monitoring in the first twelve months of treatment; responsibility for ongoing physical health monitoring would then

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1 This resource was more recently updated and adopted by NHS England and Public Health England (Lester resource 2014 update) available from www.rcpsych.ac.uk/quality/NAS/resources.
transfer to primary care once the patient’s condition had stabilised, usually at the end of this first twelve months. These recommendations (reinforced by the recently published relevant NICE quality standards for adults – see standards 6 and 7 [NICE QS 80, 2015]) reflect how Early Intervention in Psychosis services can play a key role in monitoring cardiometabolic health of patients through the critical early phase of treatment. Accordingly a group of early intervention in psychosis services in North West England decided to examine this aspect of their routine clinical practice. This service evaluation describes the effectiveness of a quality improvement programme based on the Lester Positive Cardiometabolic Health Resource (referred to as Lester resource henceforth) to improve the effectiveness of monitoring of risk factors that predict the likelihood of people experiencing psychosis and schizophrenia developing cardiovascular disease (CVD), diabetes and obesity.

METHOD

Five community-based early-interventions in psychosis teams working across five mental health trusts in North West England engaged the support of AQuA (Advancing Quality Alliance) to help them assess the quality of cardiometabolic screening they provided. The initiative focussed on people accessing services in the early phase of psychosis who were prescribed antipsychotic medication. This included some service users for whom diagnosis remained to be clarified but antipsychotic medication had been initiated.

Based on the AQuA six-step improvement model (fig 1) the main principle of the programme was to measure physical health monitoring performance through an initial audit against agreed standards; then provide participants with support from the experienced AQuA project team to identify, analyse and overcome obstacles; and finally conclude with a re-audit of performance to evaluate changes and hopefully benefits.

![Figure 1 AQuA six step model of improvement](image)

Participating trusts completed a project charter to formalise commitment to the project. A project advisory group was established whose membership included representatives from the participating
sites, the AQuA project team and external membership of a Clinical lead, public health and service user representation. This group continued to meet at approximately six weekly intervals through the project.

At an initial regional meeting of participating teams, audit standards were developed and agreed based on the Lester resource, focusing on known risk factors for cardiovascular disease and diabetes, namely body mass index (BMI), weight, height, blood pressure (BP), blood glucose and lipids, smoking and family history. The standards also included an assessment of whether interventions were offered to those where an abnormal risk had been identified.

The audit was completed within one day, extracting data from either paper or electronic case records depending on the local system used. Uncertainties over data returns were queried before being included for analysis. This consisted of removing incomplete paper based data return forms that contained no data information on cardio metabolic screening. The initial audit findings then formed the basis of a quality improvement programme delivered through a simple structure of team engagement using:

- Regional learning events (with some supplementary learning facilitated by WebEx discussions led by experts in the field)
- Regular local team site visits by AQuA team

Teams were encouraged to identify problems, prioritise what was do-able based on their local capacity and capability, and implement small changes which they then reviewed and amended. This process of improvement extended over a planned period of six months, at the end of which evidence was sought through re-audit of whether service users were receiving a more consistent and systematic approach to cardio metabolic screening.

At the core of the AQuA six step model for improvement was the application of plan-do-study-act (PDSA) cycles to help define and then overcome identified obstacles, thereby improving outcomes for service users. Participating teams were encouraged to use evidence from the initial audit to agree local action plans described within a sequence of driver diagrams. The driver diagrams enabled each team to identify key themes and the actions around each theme required to achieve the aim, essentially a ‘plan on a page’ that helped in the construction of local Plan Do Study Act cycles (PDSA’s). All teams completed a driver diagram as seen in figure 2, noting actions across identified themes.
As the local improvement programmes went forward participants were encouraged to note what 'worked well/what was difficult' to inform a qualitative appreciation of the implementation. This was fed back to participating sites on a continuing basis, to encourage shared learning and development in preparation for the final phase of re-audit. The experiences and insights gained from the PDSA cycles developed following the initial audit are summarised in the results section below.

**Refinement of method as the project advanced.** In the light of these qualitative findings the project methodology itself underwent some modifications. The main changes introduced were:

- Appreciation of the importance of the young user’s perspective led to the appointment of a group of five young service users to take on a peer support role for each of the participating sites. This group had previously participated in service improvement work via the VIK (Very Important Kids) programme run by Young Minds. They met as a group about every eight weeks for mutual support and to collaborate together to develop some shared resources for the project.

- Based on low rates of comprehensive cardiometabolic screening identified by the first audit (about 10% on average), participating teams agreed a 50% improvement target within six months measured by a re-audit on a planned census day. This re-audit would compare rates of comprehensive screening completed within 4 weeks, 3 months, 12 months and 24 months following commencement of antipsychotic medication.

- Data entry for the re-audit was exclusively electronic via a web-site, replacing the mixed paper or electronic entry for the first round of audit.

**RESULTS**

The audit surveyed about 500 service users in total drawn from five early intervention services. This consisted of 69% male and 31% female aged between 14-61. The three main ethnic groups were White UK 81%, Pakistani at 5.6% and black British 2.8%. The initial audit demonstrated that only about 10% (6-11%) of service users received the audit standard of having a comprehensive cardiometabolic screen documented in the case record (fig 2). Performance was disappointing and
similar whether measured at 4 weeks, 3 months, 12 months or 24 months following commencement of antipsychotic medication.

**Figure 2**: Cardio-metabolic screening performance for the first audit in November 2012.

**Figure 3**: Cardio-metabolic screening performance for the re-audit in May 2013

When re-audited six months later rates of a comprehensive cardiometabolic screening had risen to between 60-80% documented in the case records. Performance had greatly improved at all time points of comparison (4 weeks, 3 months, 12 months or 24 months following commencement of antipsychotic medication). The likelihood of receiving a full set of screening measures had greatly increased by the time of the re-audit.

**Qualitative learning – ‘what worked well, what was difficult’**

An important aspect of this project was the learning that teams gained from their participation with a quality improvement programme, particularly in light of the audit findings. One team manager commented on the team’s ‘belief that service users were receiving screening and interventions and the reality was poor and patchy.’ Initially most teams struggled with the language of quality improvement and a tendency to see a problem and rush to action, with only limited success. However repetition of the processes such as taking the teams through examples of how to do
PDSA’s, how to develop a driver diagram, how to interpret stakeholder feedback and analyse data saw their confidence and competence in utilising quality improvement tools grow. Teams regularly shared their learning, particularly at regional learning events and regular contacts were set up between teams to collaborate on developing solutions.

Illustrative examples of obstacles common to all the teams and identified for improvement included:

- Service user participation in quality improvement
- Interface between primary and secondary care
- Interface with public health programmes
- Access to smoking cessation programmes

**User and carer experience**

At the start of the project none of the teams had identified the value of engaging service users or carers to support their improvement activity. Although teams were aware of such groups/forums linked to their wider services the common view was that these were not constituted in ways that encouraged their active participation in service improvement.

As the project progressed all the teams acknowledged this was a serious weakness and it became a priority to address this to better understand service users’ experience of services and their perspective on quality improvement. Subsequently each team was asked to appoint a young service user to bring their expertise to the project. Apart from their direct contribution to the individual team these young service users also worked together to provide ongoing peer support through the project with its own positive benefits. For instance the group worked together to develop a short film to help the teams better understand what matters to them about their physical health. The group also assembled a proposal to develop a web based physical health passport.

**Interface between primary and secondary care**

A universal issue identified was the uncertainty about whether clinical responsibility for screening lay with primary or secondary care. Although shared agreements were usually in place most project sites reported these were either not enforced or needed improving.

In addition to lack of clarity over clinical responsibility, participants also described poorly integrated access to pathology services and ineffective communication of results between primary and secondary care. Particularly highlighted were difficulties in recording and accessing screening results in secondary care case records and their linkage to primary care electronic records. Examples of identified weaknesses included:

- Physical health information frequently had to be drawn from across a number of electronic systems
- Lack of connection to GP practice electronic systems prevented secondary care knowing whether screening had been done in primary care
• Where secondary care electronic record systems did recognise physical health these would have no coding system capable of flagging up when screening was required

In response work was done by teams to improve the quality and clarity of their letters to GPs highlighting cardio metabolic screening results at the top of the letter with request to complete screening with dates.

Some teams visited a number of local GP practices to discuss and review their existing SMI register to clarify who required screening and whether the right people were on it. This revealed a particularly vulnerable group who rarely attended appointments with their GP practice but for whom secondary mental health where often not informed of their non-attendance. A flagging system was developed by some of the teams to highlight these individuals and alert clinicians to enquire if they had attended primary care for a routine physical check.

**Public Health**

All sites reported that links with their local health promotion teams or individual Health Trainers was either limited or non-existent. Health Trainers work to support individuals in accessing community based activities focused on health and wellbeing. Clinical staff had little awareness of how to refer service users to these services. The use of personal budgets/direct payments was a little used tool, although most sites had a small budget allocated for this purpose. The project prompted discussions with public health and local authority partners into how these budgets might facilitate health promoting activities (e.g. physical activities) on an individually funded basis or as a pooled fund for a group of service users.

All the teams engaged with their local public health, health improvement teams which led to the benefits of more active support by public health in building capability and supporting the capacity of the team to deliver public health interventions.

**Access to smoking cessation programmes**

Although some sites had a nominated lead within their team, links to mainstream smoking cessation programmes were generally weak. Refusal to receive referral to smoking cessation services was noted for over 80% of those identified as smokers (40% of team caseload), who were offered the service. Participants identified poor staff attitudes including staffs low expectations of success for smoking cessation referrals as potential obstacles that could discourage uptake by service users and explain such high refusal rates.

All sites engaged with their local public health team to receive support in smoking cessation approaches. One site identified staff within the team to set out a strategic approach to improving smoking cessation rates through improving data collection, amending the pathway, building capability in the team through motivational interviewing techniques.

**DISCUSSION**

The cardiometabolic monitoring performance revealed by the initial AQuA audit was weaker than that recorded in the 2012 National Audit of Schizophrenia, itself already acknowledged as being
seriously inadequate (Crawford et al, 2014). Furthermore the AQuA audit examined service performance in a younger client group much earlier in their service pathway, whereas the NAS audit focused on people with established mental illness. Although much has been written about the lack of systematic physical health monitoring in people with psychosis and schizophrenia little has been written about how this problem can be addressed.

The AQuA initiative demonstrates how a quality improvement programme based on the Lester resource; an implementation resource developed and recommended by the NAS, can facilitate striking improvements in CVD risk monitoring by specialist mental health services. This is particularly encouraging given that the benefits of the AQuA initiative have been experienced by people in the early phase of psychosis at a critical time of accelerating cardiometabolic risk following antipsychotic treatment initiation, underlined by the scale of potential early weight gain shown in figure 4 (Alvarez-Jimenez et al, 2008).

**Figure 4**

![Antipsychotic-Induced Weight Gain in Chronic and First-Episode Psychotic Disorders: a Systematic Critical Reappraisal](image)

With thanks to Mario-Alvarez-Jimenez for permission to show this graph

The qualitative findings allowed identification of some important themes to help appreciate the limited effectiveness of existing systems and processes to support the physical health of clients. In recognising these weaknesses it is also important to acknowledge the hard work and considerable success these participating early intervention services and their respective Mental Health Trusts have already had previously in securing positive benefits in other aspects of patient care.

The improvements reported in this project were achieved in the face of real-world barriers, many common to all five services. The barriers encountered were often predictable ones that have eluded systematic implementation despite:

- Various published guidance (NICE CG 155, 2013; NICE CG 178, 2014; De Hert et al, 2009)
- Recommended actions such as those of the National Audit of Schizophrenia (NAS, 2012) and the Schizophrenia Commission (2011).
• Collaborative commitments by the Royal Colleges such as Parity of Esteem (RC Psych 2013); and the Integrated Physical Health Pathway collaboration between RCGP, RCN, RC Psychs and Rethink (2012);

The positive results of the AQuA programme suggest that prioritising this aspect of physical healthcare requires Mental Health Trusts to consider how they can routinely and systematically enable opportunities for clinical staff, in collaboration with service users, to identify small practical steps to improve measured local performance against a set of simple agreed standards.

Less tangible but nonetheless critical to success was the shared can-do attitude, a comment by one service manager, that emerged as the programme went forward, ultimately evident in the striking improvement in monitoring performance.

‘We found the process very positive, I was amazed to see the improvements made by the team and their enthusiasm in the processes’

The importance of this subtle shift in attitude is illustrated in how teams overcame the difficulties in gathering initial audit data. This data was often elusive in poorly organised clinical records or cumbersome to locate in unconnected primary and secondary care electronic information systems. This led to initial frustration which had to be actively managed to avoid teams feeling that improving cardiometabolic screening was yet ‘more work to do.’ Although initially the main lever to encourage participation was the blunt one that this was trust policy, what emerged with the initial audit findings was a realisation that there were weaknesses that the teams could identify as within their control to improve. For instance a paper-based checklist was adopted early on by all teams to alert them to service users identified from their case records as not having had a cardiometabolic screening. This list was reviewed at weekly team meetings. However this approach proved time-consuming and unpopular until one team decided to devise an alternative alert system using electronic reminders based on Outlook Calendar which care co-ordinators used to flag-up when a cardiometabolic screening was due. This simple action led to major improvements in completed screenings which was then successfully shared with other teams. Small but significant improvements like this marked a turning point in the attitudes of teams as they began to embrace the purpose of the improvement programme.

Strengths and limitations

A limitation of the project was the difficulties caused by not having engaged young service users at the commencement of the programme. Attempts to overcome this problem by appointing young service users linked to Young Minds were only successful for two out of the five local teams. However these two teams did benefit from young service user insights, feedback and support in making improvements. It was recognised by teams the need to be more strategic in the way they support young people in supporting improving the service and not just through surveys. In terms of the wider regional programme, appointed service users sometimes struggled to attend all the regional meetings due to travel, work or illness. This weakness may have limited the services who
didn’t appoint a service user to develop more effective solutions relevant to the specific needs of this young client group.

Another potential limitation in interpreting the improvements between the initial and final audit is that the process of data return improved between the initial and final audit. Data input errors based on inadequate completion of documentation were identified using the paper based approach by some teams in the initial audit, whereas in the re-audit all teams were using the web-based approach, Survey Monkey, and no errors were identified. Thus it is possible that some of the weak performance apparent in the initial audit could be due to changes in the system of data input in the re-audit although this would be unlikely to explain the scale of improvement seen. A further limitation in terms of data returns may have been caused by reliance on only an initial audit followed by a re-audit at six months, thereby limiting sensitivity compared for instance to a system which allowed a more continuous data input. Such an improvement could provide teams a monthly data review (run chart) over time, allowing earlier identification of variation/problems and more rapid feedback of whether these were effectively dealt with.

A strength of the improvement programme was that it was able to offer flexibility of approach which succeeded in allowing on-going adjustment and tuning of the support as the programme advanced. This strength was illustrated in responding to teams who consistently struggled to overcome time constraints/competing priorities to release staff to attend the collaborative regional learning events engaging all five sites. This potential limitation was mitigated by the AQuA programme facilitators increasing local team visits to engage staff in the project and build consensus on do-able improvements balanced against realistic team capacity.

CONCLUSIONS

People with severe mental illness experience low levels of physical health monitoring and interventions despite high rates of morbidity and mortality from obesity, diabetes and CVD, known adverse cardiometabolic effects from antipsychotic medication and oft-repeated national guidance. A quality improvement programme demonstrated it is possible to improve the quality of monitoring in real world specialist mental health services within just six months.

In this short period of time some common themes for improvement were identified across services. These included the importance of learning from the experience of service users, agreeing clearer clinical responsibilities between primary and secondary care, improving information sharing between services, developing better links with public health initiatives such as smoking cessation programmes, and equipping mental health staff with practical tools and systems to effectively monitor physical health.

Of particular importance to this vulnerable group, the AQuA programme was able to improve cardiometabolic risk monitoring in the critical early phase of psychosis and its treatment. However the improvements in monitoring practice, whilst encouraging, are not yet sufficient for us to claim these have transformed the physical health of service users. Nevertheless this initiative demonstrates how a quality improvement programme can engage and empower committed local practitioners to identify and overcome gaps in service provision.
What this study means for policy implementation. Reducing the 15-20 year premature mortality of people with serious mental illness is a priority both nationally and within the Northwest.

- No health without mental health (DH 3.26 2011)
- NHS Mandate / NHS Outcomes Framework 1.5)

The region has among the lowest life expectancies at birth in the UK and the highest level for cardiovascular disease in England (Health and Social Care Information Centre, 2011). The region has one of the highest percentages in the UK of smokers at 23% compared to England average of 20% (Health and Social Care Information Centre 2013). Research by the North West Public Health Observatory, (Harrison et al, 2010) showed that approximately half of the population of the North West are not of normal weight, with 34.1% recorded as overweight and a further 14.2% being obese.

The importance of preventing CVD, obesity and diabetes is encouraged in the national mental health CQUIN (NHSE, 2014), which specifically incentivised the incorporation of the Lester resource into clinical practice (continuing into the current national mental health CQUIN 2015/16 [NHSE, 2015]). Moreover these issues have attracted concern as an international human rights issue (Thornicroft 2011), and have led to an international consensus declaration on the importance of tackling these problems from the onset of diagnosis and treatment, entitled Healthy Active Lives and launched in the UK by the Royal College of Psychiatrists in 2013 and now attracting wide international support (HeAL, 2014)

What this study means for practice. Improved systematic physical health monitoring from the time of first diagnosis and initiation of antipsychotic treatment provides an important platform for informed treatment choices by service users, safer prescribing practice and a shift in emphasis towards promoting healthier lifestyles in a population vulnerable to accumulating cardiometabolic risk. Such an approach aligns with recommended clinical practice in current NICE clinical guidelines and clinical standards for psychosis and schizophrenia (for children and adolescents – NICE CG 155; for adults – NICE CG 178 and linked NICE QS 80).

Future work AQuA are looking to extending this initial improvement work to include over 30 teams from both early intervention services and other community mental health teams. Through continuous measures utilising run charts in line with the Lester Positive Cardiometabolic Health Resource and the HeAL declaration’s five year targets (HeAL, 2013), AQuA hopes to build on the success of this current programme to implement more systematic recording and interventions to prevent future physical illnesses in this vulnerable group of people. AQuA are also working with the Advancing Quality team within AQuA to transfer the continuous measures, which are in line with NICE quality standards into a regional CQUIN for all Early Intervention teams in the region ensuring spread and sustainability is embedded into the system in meeting the physical health needs of service users.

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North West Young Minds, VIK programme

Service users from across the Early Intervention Teams

DECLARATION OF INTERESTS

DS: Member of current NICE quality standard group for bipolar disorder, psychosis and schizophrenia in children and adolescents; member of current national expert reference group on Early Intervention in Psychosis commissioned by NICE; board member of the National Collaborating Centre for Mental Health; Clinical Advisor (paid consultancy basis) to National Audit of Schizophrenia. These are my personal views and not those of NICE, NCCMH or NAS

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