AN EVALUATION OF THE NORTHAMPTON PHYSICAL HEALTH AND WELLBEING (PhyHWell) PROJECT

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Dedications

To George, Ella and Emmie.

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Abstract

Background

The first study to demonstrate that life expectancy in patients with a severe mental illness (SMI) was reduced was by Farr in 1841. More recently, comparative research has demonstrated a higher level of cardiovascular disease (CVD) than the rest of the population in this group. Despite this knowledge, little has changed in routine practice. One barrier could be that the educational needs of the primary care healthcare professionals in this area are not being met.

Aims

The aim of this programme of research is to address the physical health needs of people with SMI by improving the practice of healthcare professionals in primary care.

Methods

The methods employed are the development of a training package and a programme of research divided into eight studies:

1. A retrospective audit to find out whether patients will attend for a health check if they are invited.

2. A prospective audit to see if a tool used for people with physical illnesses to improve their lifestyle (a food diary) is as effective when used with the SMI population.

3. A systematic search to find out what evidence there is for the efficacy of healthcare professional educational outcomes in studies of physical health in SMI.

4. The development of a training package for practice nurses to teach them how to carry out physical health checks for people with SMI.

5. A retrospective audit to establish whether as many people with SMI are being screened for cardiovascular disease as people with physical conditions in Northampton.

6. An audit to find out whether as many people with SMI are being screened for cardiovascular disease as people with physical conditions in England.

7. A before and after study to measure the effect of a physical health and SMI training on the practice nurses' motivation to carry out physical health checks for people with SMI.

8. A before and after study to establish whether training practice nurses to carry out physical health checks for people with SMI increases the level of screening for cardiovascular risk in this group.

9. A qualitative study using interviews with patients with SMI to find out what they think about the physical health checks.

Results

There were a total of 2,796 patients and eight healthcare professionals included in the programme in Northampton and 2,911,914 patients in the national study. People with SMI will attend for a health check if invited by letter giving them an appointment with a named practitioner (66%). The patients with schizophrenia were all successful in completing food diaries. There were no studies identified as suitable for a systematic review. In the five participating primary care practices in Northampton, the people with SMI received less CVD screening than those with diabetes (21% v 96%, CI=64.53 to 126.55: p<.01). In the

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national study, patients with diabetes received higher levels of screening in the previous 15 months than those with SMI (97.3% vs 74.7%; $p<0.0001$). The attitudes of the practice nurses involved in the study towards their role in providing health checks appeared to be modified in a positive direction. Following the training of practice nurses, each individual patient received more CVD screening and lifestyle information (3.85 v 2.69: $t=8.22$, $p<.05$). The patients who were interviewed about their physical health check had a good understanding of the importance of a healthy diet and taking regular exercise but did not appear aware of the risk of cardiovascular disease.

Conclusion

Simple changes in the way patients with SMI are invited to attend a health check increases attendance rates. The quality of primary care health checks for this population is inferior to those provided to patients with diabetes. Training practice nurses improves the quality of the health checks but still not to the levels received by other patient groups.

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Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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The author

I trained as a general nurse at Northampton General Hospital, qualifying in 1985. I then did the shortened training at St Crispin Hospital, Northampton to become a mental health nurse, gaining my registration in 1987. I worked in variety of hospital settings until 1993 when I took the post of practice nurse at Park Avenue Medical Centre, Northampton. During this time I have undertaken many courses to develop and update my skills. In the last nine years I have completed the Nurse Independent and Supplementary Prescribing course, a BSc (Hons) in practice nursing gaining a 2:1 and an MSc in mental health with distinction. I have had a number of promotions within the practice and I am now employed as Nurse Consultant for primary care. My clinical work includes clinics for diabetes, learning disability, severe mental illness, depression, anxiety, dementia and minor ailments. I also consult with patients on the phone who feel they need to be seen urgently and assess the severity of their complaint. I manage a small team of nurses in the practice and I am the Mental Health, Diabetes, Research (Primary Care Research Network), and Quality and Outcomes Framework (QOF) lead.

Since May 2012 I have been a visiting fellow at the University of Northampton, where I am the Physical and Mental Health lead on the mental health research steering group. I am presently principal investigator (PI) for two research projects. The first is the PHyHWell project described in this thesis. The second is the CUPId project. This is a pilot study of incorporating a psychological element to the annual review in primary care for people with chronic obstructive pulmonary disease.

I am keen to promote the understanding of mental health to general nurses through the creation of training, by writing educational articles for nursing journals and have also written a book (Hardy and Gray 2012a).

I am acting as consultant for the foundation trust's physical health in severe mental illness (SMI) Commissioning for Quality and Innovation (CQUIN) payment framework which was developed in part from my research. I have secured a Health Innovation Education Cluster (HIEC) grant to develop the training which I piloted for my PhD. I am involved in two other HIEC projects: I am a steering group member of 'In-Reach', a project to engage practice nurses in research; I am project lead for 'One More Step', which aims to prepare non-medical healthcare professionals to 'step onto' the clinical academic careers pathway.

I am an expert reference group member of NHS London's Primary Care Mental Health Leadership Development Programme and took part in teaching the participants. I also gave advice regarding NHS London's programme to develop an information tool as an aid to commissioning. I developed the tools and trained the trainers for NHS London's practice nurse project.

I was an expert peer reviewer for the Mental Health Commissioning Pack, Cases for Change authored by Professor Kingdon, the University of Southampton on behalf of the Mental Health Foundation.

Most recently, I have secured a grant from the Charlie Waller Memorial Trust to carry out a practice nurse mental health training needs analysis.

Interest in the topic of physical in SMI emerged from clinical experience in a primary care medical centre. Having carried out physical health check clinics for this patient group successfully since 2004, I was informed by some of

my mental health colleagues and carers of people with SMI that other GP practices were not offering the same service. Discussions with nurses and GPs working in other practices suggested that this was influenced by the clinicians' beliefs and lack of knowledge about SMI.

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Abbreviations

CHD   Coronary Heart Disease

CBT   Cognitive Behavioural Therapy

CVD   Cardiovascular disease

CMHW   Community Mental Health Worker

DH   Department of Health

EBN   Evidence Based Nursing

GP   General Practitioner

HIP   Health Improvement Profile

HIP-PC   Health Improvement Profile for Primary Care

ICDC   Interdisciplinary Chronic Disease Collaboration

MRC   Medical Research Council

NICE   National Institute for Health and Clinical Excellence

PI   Principal Investigator

QOF   Quality and Outcomes Framework

RCT   Randomised Control Trial

SMI   Severe mental illness

UK   United Kingdom

WHO   World Health Organization

Chapter one: What is severe mental illness and how is it treated?

1.1 What is severe mental illness

In primary care mental health conditions are identified through disease registers alongside the physical conditions. Severe Mental Illness (SMI) includes Schizophrenia, Bipolar Disorder and other psychoses. In this chapter I have talked about the two main conditions (schizophrenia and bipolar disorder). Other psychoses includes schizotypal personality, persistent delusional disorder, acute/transient psychotic disorders, induced delusional disorders, schizoaffective disorders, manic episodes, severe depression with psychosis schizotypal personality and non organic psychosis. These conditions are not explained individually in this thesis as they all share symptoms with schizophrenia or bipolar disorder. Mental illnesses, such as depression and eating disorders, are not discussed because the care of patients with SMI is considered separately in United Kingdom (UK) guidance (NICE 2006, 2010, BMA and NHS Employers 2011).

1.1.1 Schizophrenia

Schizophrenia is a psychotic disorder characterized by positive, negative and cognitive symptoms (figure 1.1). Positive symptoms include hallucinations (hearing voices or seeing visions), delusions (beliefs held strongly by the patient but not shared by people around them) and thought disorder (for example conversation jumping from one thought to a completely unrelated thought). Social isolation and withdrawal are examples of negative symptoms. Cognitive

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symptoms are very common and include problems in concentration and task planning. Schizophrenia is a long term condition and life expectancy is reduced by around 20 years compared to the general population (Wahlbeck *et al.* 2011). About two thirds of the excess mortality is due to natural causes, including heart disease, cancer, and cerebrovascular, respiratory, and lung diseases (Colton and Manderscheid 2006). The symptoms of schizophrenia often result in major social or occupational disturbance. For example few patients with schizophrenia are in employment (Rosenheck *et al.* 2006).

Figure 1.1 Symptoms of schizophrenia

Positive symptoms (that are not normal for the person)

- Hallucinations

- Delusions

- Thought disorder

Negative symptoms (that the person doesn't usually experience)

- Poor motivation

- Social isolation

- Withdrawal

Cognitive symptoms

- Impaired attention and memory

- Difficulty forward-planning and problem solving

Affective or mood symptoms

- Signs of depression and/or anxiety

Adapted from Andreasen (1995)

Epidemiology

Schizophrenia is not a common illness, affecting approximately one person in a hundred at some point in their lives (Saha *et al.* 2005). A meta-analysis of international studies of schizophrenia found using the pooled data, a prevalence estimate of 4.2 per 1000 (Saha *et al*. 2008). This means that in a primary care practice with 6,000 patients, there will possibly be 25 patients with schizophrenia on the SMI register.

Onset tends to be when patients are in their teens to early twenties, and although schizophrenia is equally common in men and women, men tend to develop the illness when they are younger than women. This may be explained by the female hormone oestrogen having a protective effect against schizophrenia (Palmer *et al.* 2001).

Cause

Fifty percent of the cause of schizophrenia can be attributed to genetics (Tsuang *et al.* 2001). It occurs in ten percent of people who have a first-degree relative with the disorder and is still more likely to develop in those who have second-degree relatives with the disease than the general population. The identical twin of a person with schizophrenia has a 40 to 65 percent chance of developing the disorder (Cardno and Gottesman 2000). Several genes are associated with an increased risk of schizophrenia (Harrison and Weinberger 2005). Recent research has found that people with schizophrenia have higher rates of rare genetic mutations involving hundreds of different genes (Walsh *et al.* 2008). Other recent studies suggest that schizophrenia may result when a gene malfunctions that is needed to make important brain chemicals. This

problem may affect the part of the brain involved in developing higher functioning skills (Huang *et al.* 2007).

Interactions between genes and the environment are necessary for schizophrenia to develop. Many environmental factors may be involved, such as exposure to viruses or malnutrition before birth, problems during birth, and other not yet known psychosocial factors (Tsuang *et al.* 2001),

An imbalance in the complex, interrelated chemical reactions of the brain involving the neurotransmitters dopamine and glutamate, and possibly others also play a role in schizophrenia. Studies of brain tissue after death have revealed changes in the distribution or characteristics of brain cells (leading to faulty connections) that could have occurred before birth (Mueser and McGurk 2004). The problem may not show up in a person until puberty when the brain undergoes major changes; these changes could then trigger psychotic symptoms.

In a study of 229 people with schizophrenia, the majority had prominent positive symptoms and a sudden onset of disease, with 69% of the cases having a record of heavy cannabis abuse at least one year before onset of psychotic symptoms. The authors argue that the high number of cases of schizophrenia in this cohort and the temporal relation between cannabis abuse and schizophrenia further supports the hypothesis that cannabis abuse may be a risk factor for schizophrenia. (Allebeck *et al.* 2007).

Early detection of schizophrenia

Making a diagnosis of schizophrenia requires psychotic symptoms to be present for at least a month (American Psychiatric Association 2000). GPs or practice

nurses are frequently the patient's first point of contact with a health professional. Early detection and treatment by the primary care team is essential in order to ensure that patients are effectively treated as quickly as possible. Intervening early can improve the outcome of the illness and can reduce the risk of suicide (Melle *et al.* 2006). Early schizophrenia often starts with increasing social isolation and deterioration in intellectual functioning (Andreasen 1995).

Diagnosis

The Diagnostic and Statistical Manual of Mental Disorders (4th Edition; DSM-IV) are the recommended criteria for health professionals in the United Kingdom to use in making a diagnosis of schizophrenia and bipolar disorder (American Psychiatric Association 2000 – see figure 1.2).

Figure 1.2 DSM -IV diagnostic criteria for schizophrenia

Two or more of the following symptoms during a one-month period (or one of these if the delusions are bizarre or hallucinations are commentary style):

Delusions

Hallucinations

Disorganized speech (e.g. incoherence or derailed thinking)

Grossly disorganised or catatonic behaviour

Negative symptoms (e.g. avolition (loss of ability to motivate, choose or resolve), lack of planning, emotional blunting or poverty of speech)

Social or occupational dysfunction. Disturbance in one or more major areas, such as work, self-care or interpersonal relationships

Continuous signs of disturbance for at least six months

Schizoaffective disorder and mood disorder with psychosis have been ruled out

Substance misuse or a general medical condition have been excluded

If autistic disorder or another pervasive developmental disorder is present, then schizophrenia can only be diagnosed if prominent delusions or hallucinations are present for at least one month

1.1.2 Bipolar disorder

Bi-polar disorder is a long term condition characterised by episodes of elated mood (mania or hypomania) and depression (figure 1.2). Making a diagnosis of bipolar disorder is challenging. Many patients experience long delays in the diagnosis of bipolar disorder, with an average of eight years from initial presentation to secondary care mental health services (Mantere *et al.* 2004). Substance use is extremely common with both epidemiological and clinical studies showing rates ranging from 35-60% (Grant *et al.* 2005, Fry *et al.* 2003, Chengappa 2000, Kessler *et al.* 1997, Feinman and Dunner 1996, Regier *et al.*

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1990). Life expectancy is reduced in people with bipolar disorder due to the increased prevalence of CVD, respiratory disease and high rates of suicide (Colton and Manderscheid 2006).

Figure 1.3 Symptoms of bipolar disorder

Depression

> Feeling sad and hopeless, empty or worthless, guilty or despairing, pessimistic
>
> Lacking in energy
>
> Difficulty in concentrating and remembering things
>
> Loss of interest and enjoyment in everyday activities
>
> Self-doubt
>
> Problems with sleeping and waking up early
>
> Suicidal thoughts

Mania

> Feeling extremely happy, elated or euphoric, full of energy, self-important, full of great new ideas and having important plans
>
> Talking quickly
>
> Being easily distracted, irritated or agitated
>
> Doing pleasurable things with distressing consequences, such as spending large amounts of money or having risky sexual encounters
>
> Not sleeping or eating

Other

> Psychosis may be present
>
> Some people self-harm as a distraction from mental pain and distress

Adapted from American Psychiatric Association (2000)

Epidemiology

Bipolar disorder is divided into type I and type II (Type I: episodes of mania with or without episodes of depression, Type II: episodes of hypomania or elevated mood but patients are able to function, and depression - American Psychiatric Association 2000). Lifetime prevalence of bipolar I reported in European studies vary widely from 0.1 to 2.4 percent (Pini *et al.* 2005, ten Have *et al.* 2002, Szadoczky *et al.* 1998). An Australian study reported a lifetime prevalence of 2.5 percent (Goldney *et al.* 2005). Estimates of the lifetime prevalence of bipolar II disorder also vary widely. Authors of European studies estimate between 0.2–2.0 percent prevalence (Faravelli, *et al.* 1990, Szadoczky, *et al.* 1998).

Signs and symptoms of bipolar disorder

Mania

Manic symptoms include an elated mood accompanied by increased drive, over activity and decreased need for sleep. The patient thinks at speed and this is expressed in pressure of speech. To begin with they may work more efficiently until symptoms of poor concentration and distractibility occur. Some patients experience extreme irritability. Hardy and Gray (2012a) describe some common features:

- o Hallucinations and mood-congruent delusions and occur in nine out of 10 patients.
- o Loss of social inhibitions and extravagant plans may result in grave consequences for an individual's professional life, social functioning and financial stability.

- o Mania often results in such a severe disruption of functioning, that hospital admission is necessary, sometimes requiring compulsory detention.

Depression

The symptoms and the diagnostic criteria of depression in bipolar disorder are the same as those for unipolar depression: low mood; loss of interest and pleasure; reduced energy; poor concentration; disturbed sleep; a change in appetite; and low self-esteem and confidence (American Psychiatric Association 2000). Some patients have ideas of guilt, hopelessness and suicide may occur. Psychotic symptoms may feature in severe episodes and are typically mood congruent (American Psychiatric Association 2000).

In comparison to unipolar depression, bipolar depression is more likely to present with psychomotor retardation, melancholic symptoms such as worthlessness, psychosis and atypical features such as hypersomnia (Hardy and Gray 2012a). Bipolar depressive episodes are typically shorter than in unipolar depression. However, patients presenting with depression directly following mania may be less likely to respond to treatment.

Mixed states

Some patients can experience a mixed emotional state, mania and depression (American Psychiatric Association 2000); for example, racing thoughts during a manic episode.

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Diagnosis

Das *et al.* (2005) report that bipolar disorder is associated with a high attendance rate in primary care, which provides the opportunity for detection However their study showed that little attention has been given to primary care patients who have current depression and past episodes of hypomania or mania, history that may indicate bipolar disorder and a need for specialized treatment.

DSM-IV criteria for a depressive episode

To meet the criteria for a major depressive episode the patients should have been experiencing at least five symptoms for at least two weeks. One of the symptoms has to be depressed mood or loss of interest or pleasure; there should also be distress or impairment in social or occupational functioning (American Psychiatric Association 2000).

DSM-IV criteria for a manic episode

The DSM-IV criteria for a manic episode are a distinct period of abnormally and persistently elevated, expansive or irritable mood, lasting one week (or any duration if hospitalisation is necessary). During the period of mood disturbance, three or more symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree (American Psychiatric Association 2000).

Early intervention

Early intervention in patients with bipolar disorder can be effective in improving long term outcomes by ensuring the patient is prescribed and adheres with effective treatment. Primary care provides a necessary and valuable service for people with bipolar disorder because many of them never consult secondary care mental health services (ten Have *et al.* 2002).

1.2 Treatment of Severe Mental Illness

1.2.1 Schizophrenia

Schizophrenia requires treatment with antipsychotic medication to stabilize psychosis and prevent relapse of symptoms. Although many patients express a desire to come off medication, good adherence is essential to ensure effective management of the illness and psychosocial recovery (Hardy and Gray 2012a).

Antipsychotic medication

Antipsychotics improve psychosis by diminishing abnormal transmission of dopamine by blocking the dopamine D2/3 receptor (not D1 or D4), and although several brain regions may be involved, it is suggested that the ventral striatal regions may have a particularly critical role (Kapur *et al.* 2006).

Typical antipsychotics include chlorpromazine, haloperidol, pimozide, and zuclopenthixol. They were first introduced in the 1950s. Although still commonly used, most patients with schizophrenia are now treated with atypical antipsychotic drugs that started to be introduced in the early 1990s (Nasrallah 2003). Atypical antipsychotics include clozapine, olanzapine, quetiapine, risperidone and aripiprazole.

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All antipsychotics (both typical and atypical) are, clinically, equally effective against the positive symptoms of schizophrenia. The older or typical drugs do not improve the negative symptoms which are associated with low levels of dopamine in the cortex (Van Rossum 1967). As might be predicted by their pharmacology atypical medicines seem to be more effective in treating some of the negative and cognitive symptoms and may be more helpful in treating mood symptoms of schizophrenia (Darba *et al.* 2011). This is because they are also serotonin (5-HT) antagonists at the 5-HT2A receptor subtype, they mitigate the negative signs and symptoms of schizophrenia by disinhibiting the dopamine system in the nigrostriatum and prefrontal cortex (Burns 2001).

Approximately a fifth of patients will fail to respond to treatment with antipsychotic medication (typical or atypical) and are deemed to have treatment resistant schizophrenia (Pantelis and Lambert 2003). These patients should be treated with a drug called clozapine. This is a complex to use drug but very effective (Pantelis and Lambert 2003). In about one per cent of patients it can cause agranulocytosis; consequently patients will require regular blood monitoring and should be registered with a clozapine patient monitoring service (Atkin *et al.* 1996).

Side effects
Antipsychotic medicines can cause a number of side effects.

Extrapyramidal Symptoms
Typical antipsychotics have diffuse effects blocking dopamine receptors throughout the brain. As a consequence they cause a range of dopamine

related side effects that include extrapyramidal symptoms (EPS). These include dystonia, akathisia and tardive dyskinesia (Hardy and Gray 2012a). The newer atypical medicines have lower affinity for dopamine receptors and this results in less EPS (Worrel *et al.* 2000).

Other side-effects

One study has shown that long-term treatment with antipsychotic drugs is associated with lower mortality compared with no antipsychotic use (Tiihonen *et al.* 2009). However, some of the newer antipsychotic drugs have a greater propensity to cause physical problems (Nasrallah 2003). They can induce endocrine abnormalities (for example, diabetes and galactorrhoea), metabolic abnormalities (for example, lipid abnormalities and weight gain) and cardiovascular side effects (for example, lengthening of the QT interval on electrocardiography) (Holt *et al.* 2005, Nasrallah 2003, Thakore 2005). However, the excess of other CVD risk factors, such as smoking, poor diet and physical inactivity mean that the choice of treatment is not a factor for inclusion in a lifestyle management programme. These problems are discussed in more detail in chapter two.

Other treatment

Antipsychotic medication is the main treatment of schizophrenia. Additionally the authors of a meta-analysis conclude that family intervention should be offered to people with schizophrenia who are in contact with carers, and that cognitive behavioural therapy (CBT) may be useful for those with treatment resistant symptoms (Pilling *et al.* 2002). This is recognised by the authors of the

government guidelines for schizophrenia (NICE 2010a), who recommend offering:

- Cognitive behavioural therapy (CBT) to assist in promoting recovery in people with persisting positive and negative symptoms and for people in remission.

- Family intervention to families of people with schizophrenia who live with or are in close contact with the service user. This may be particularly useful for families of people recently relapsed or are at risk of relapse or have persisting symptoms.

- Arts therapies to assist in promoting recovery, particularly in people with negative symptoms.

1.2.2 Bipolar disorder

Medication is used in bipolar disorder to treat depression and mania, and to prevent depressive and manic symptoms from returning. Therefore, many patients require treatment with more than one medication. The medications used to treat bipolar disorder include:

- Antipsychotic medication as described in 1.2.1

- Valproate

- Lithium

- Lamotrigine

- Carbamazepine

- Selective serotonin Reuptake Inhibitors (SSRIs)

- Benzodiazepines

Valproate

Valproate (2-propylpentanoic acid) is an anticonvulsant drug used in the treatment of bipolar disorder (Fisher and Broderick 2003). It has a number of side effects including weight gain.

Lithium

Lithium is used for the prophylaxis of bipolar disorder (Cookson 2001). It is highly effective at preventing relapse (particularly manic episodes) and reducing the risk of suicide (Cipriani *et al.* 2005, Geddes *et al.* 2004). Due to the risk of toxicity lithium should only be started under specialist supervision and thyroid function, creatinine and plasma lithium levels need to be monitored regularly (Geddes *et al.* 2004). Lithium can also cause weight gain.

Lamotrigine

Lamotrigine is an anticonvulsant used to prevent depressive episodes associated with bipolar disorder (BNF: British Medical Association, 63, 2012a). Side effects include nausea, vomiting, diarrhoea, dry mouth, aggression, agitation, headache, drowsiness, dizziness, tremor, insomnia, ataxia, back pain, arthralgia, nystagmus, diplopia, blurred vision (BNF, 63, 2012a).

Carbamazepine

Carbamazepine is an anticonvulsant used for the prophylaxis of bipolar disorder (BNF, 63, 2012b). Side effects include dry mouth, nausea, vomiting, oedema, ataxia, dizziness, drowsiness, fatigue, headache, hyponatraemia, blood disorders, dermatitis and urticaria (BNF, 63, 2012b).

Selective serotonin Reuptake Inhibitors (SSRIs)

SSRIs are antidepressants which work by inhibiting pre-synaptic reuptake of the neurotransmitter serotonin (5-hydroxytryptamine, 5HT). This increases the availability of serotonin at synapses and enhances stimulation of postsynaptic neurones. The increased synaptic serotonin causes changes in receptor sensitivity which helps to reduce depression. Side effects include headache, changes in sleep pattern, gastrointestinal function and sexual functioning (BNF, 63, 2012c). The use of SSRIs in bipolar disorder is controversial as they can cause some patients to rebound into mania (Goodwin 2009).

Benzodiazepines

Benzodiazepines are used as anxiolytics, sedatives, hypnotics, anticonvulsants, and/or skeletal muscle relaxants (BNF, 63, 2012d). They are helpful in bipolar disorder for the treatment of behavioural disturbance or agitation; they should not be used for long periods because of the risk of dependence (BNF, 63, 2012d).

Acute or mixed episode

An acute manic or mixed episode of bipolar disorder may require treatment with a number of medications. Some patients will also be admitted to hospital or receive care from a crisis or home treatment team. Goodwin (2009) explains which drugs to use in each phase:

- Antipsychotics to bring mania under control and treat any psychosis (alternative treatments are valporate, lithium and carbemazepine)

- Sleep problems and behavioural disturbances can be treated with PRN benzodiazepines

- Antidepressant medication should be gradually stopped in patients experiencing a manic episode of illness to prevent further mania

Psychological treatments are not effective in this phase of the illness (Hardy and Gray 2012a).

Acute depressive episode

Goodwin (2009) describes how a patient should be treated in this phase

- SSRIs - but to prevent a switch to mania patients can be co-prescribed lithium, valporate or an antipsychotic. Then after 12 weeks taper treatment off and stop

- Lamotrigine may be a potentially helpful treatment

There is compelling evidence from a number of randomised controlled trials that quetiapine is effective in the treatment of bipolar depression (including any anxiety) and does not appear to switch patients into mania (Calabrese *et al*. 2005).

Long term treatment

Long term treatment (for at least two years following the first episode of illness) is required in bipolar disorder to prevent the reoccurrence of both the depressive and manic poles of the illness (Hardy and Gray 2012a).

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Psychological therapies

As an addition to medication, psychosocial treatments are helpful in providing

support, education, and guidance to people with bipolar disorder and their

families (NICE 2006). Psychosocial interventions can lead to increased mood

stability, fewer hospitalisations, and improved functioning in several areas

(NICE 2006). Therapies that have been found to be helpful are described in

figure 1.4.

Figure 1.4 Psychological therapy

After an acute episode
Consider individual structured psychological interventions, such as cognitive
behavioural therapy, in addition to prophylactic medication for people who are
relatively stable, but may have mild to moderate affective symptoms. The
therapy should normally be at least 16 sessions over 6–9 months and:

> Include psychoeducation, the importance of a regular routine and
> concordance with medication

> Cover monitoring mood, detecting early warnings and strategies to
> prevent progression into full-blown episodes

> Enhance general coping strategies

> Be delivered by people who have experience of patients with bipolar
> disorder

Consider a focused family intervention if appropriate. This should last 6–9
months, and cover psychoeducation, ways to improve communication and
problem solving.

Psychosocial support
> Consider offering befriending to people who would benefit from additional
> social support, particularly those with chronic depressive symptoms.

> This should be in addition to pharmacological and psychological
> treatments, and should be by trained volunteers providing, typically, at
> least weekly contact for between 2 and 6 months.

NICE (2006).

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1.3 Summary of chapter

In this chapter I have described the two main conditions included on the primary care SMI disease register. I have explained the usual treatment offered to this group and some of the possible side effects of medication.

Chapter two: Why do people with severe mental illness die so young?

In this chapter I discuss the increased mortality of people with SMI when compared to the general population and the physical conditions which are more prevalent in this group. The healthcare professionals' responsibilities to screen for CVD risk are explained.

2.1 The increased mortality of people with SMI

The earliest study of mortality in people with SMI was in 1841 by Farr (Singer 2001). Very early studies observed patients in hospitals and found increased mortality from diseases such as tuberculosis, pneumonia and gastrointestinal infections (Shepherd 1957). Excess mortality of people with SMI from these causes decreased with improved facilities (Norris 1959).

In epidemiological research, disease frequency is measured in a number of standardised ways. These include:

- Relative risk (RR) is the ratio that denotes how much more likely a person in one group are likely to die at a certain age than someone in the general population (Richards and Donaldson 2009). A score of greater than one means the risk is increased.

- Standardised Mortality Ratio (SMR) is the ratio of deaths observed to those expected on the basis of the mortality rates of some reference population (Liddell 1984). If the SMR is higher than one, then there are a higher number of deaths than expected. Standardised mortality ratios

can also be reported around 100. That means that values greater than 100 indicate increased mortality.

- Years of Potential Life Lost (YPLL) provides information about the risk of premature death by using the difference between the patient age at death and the current life expectancy, or mean survival age for living cohorts of the same age during the year of death (Colton and Manderscheid 2006).

- Hazard Ratios reflect the analysis of time survived. A hazard ratio of one corresponds to equal survival times; a hazard ratio of two implies that at any time twice as many patients with SMI died compared with the comparator group (Duerden 2009).

Relative risk (RR)

A study in America (Babigian and Oderoff 1969) showed that the mortality in people with SMI was increased; with the relative risk of death being three times more than the general population. Innes and Millar (1970) carried out a study in Scotland, their results showed a relative risk of two. Harris and Barraclough (1998) looked at 152 reports to identify whether people with mental illness still died prematurely. They examined 27 different categories of mental disorder and eight treated categories. They concluded that all mental disorders have an increased risk of premature death but people with schizophrenia have a higher risk from unnatural causes (suicide and accidents). Joukamaa *et al*. (2006) carried out baseline comprehensive health assessments to predict the mortality of 7,217 people with schizophrenia treated with antipsychotics. The relative mortality risk between those with schizophrenia and others was 2.84. These

results are similar to those studies carried out 36 and 37 years earlier by Babigian and Oderoff (1969) and Innes and Millar (1970) suggesting that life expectancy for people with SMI has increased in line with the general population.

Standardised mortality ratio (SMR)

Mortensen and Juel (1993) studied the psychiatric case register of a Danish hospital and the central person registry to find out the cause of death in people first admitted with schizophrenia. They studied the records of 9,156 people with schizophrenia and found increased mortality. Fifty percent of deaths were caused by suicide. Pooled data showed an SMR of 3.51 and of those, avoidable mortality (including CVD, suicide, accidents) was SMR 2.19. This was consistent with the findings of a meta-analysis by Brown *et al.* (1997). The authors found a large increased mortality from suicide and a moderate increased mortality from natural causes. In contrast, Brown *et al.* (2000) studied 370 patients with schizophrenia over 13 years in order to measure SMR and find out reasons for excess mortality. All cause SMR was 2.98. Two thirds of the deaths were due to physical diseases. Colton and Manderscheid (2006) had similar findings; they compared the mortality rates in people with mental illness and the general population using submitted records from eight different states in the United States of America. All cause SMR ranged between 1.2 and 4.9 in different states. The authors concluded that the majority of the excess premature deaths in people with SMI were due to CVD, not suicide. A later systematic review of 37 studies drawn from 25 different nations explored the distribution of standardized mortality ratios (SMRs) for people with

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schizophrenia (Saha *et al.* 2007). Saha *et al.* found that most of the major causes-of-death categories were elevated with the median SMR being 2.58. In this analysis, suicide was associated with the highest SMR but the authors note that the SMRs for all-cause mortality have increased during recent decades. Hoang *et al.* (2011) studied the records of people with schizophrenia and bipolar disorder discharged from hospital. They wanted to investigate whether the mortality gap has reduced in recent years between people with schizophrenia or bipolar disorder and the general population. They reported that the SMR for people with schizophrenia was 2.2 and 1.9 for people with bipolar disorder. There was an increase in ratios for deaths caused by circulatory and respiratory disease. This group of studies illustrates that in the last two decades, the SMR of people with SMI has remained largely unchanged.

Years of Potential Life Lost (YPLL)

Colton and Manderscheid (2006) also measured YPLL in addition to SMR in their study; this ranged from a mean of 13.5 to 32.2. Similarly, using a large secondary mental healthcare database in southeast London linked to national mortality returns, Chang *et al.* (2011) found that life expectancy in people with SMI was reduced by 12-19 years. Laursen (2011) had the same results. He used the entire Danish population as a cohort to estimate the life-expectancy of people with schizophrenia and bipolar disorder and make a comparison to the general population. Life-expectancy was 18.7 years shorter for men with schizophrenia and 16.3 years for women. For men with bipolar disorder it was 13.6 years and for women, 12.1 years. Wahlbeck *et al.* (2011) carried out a five year consecutive cohort study of people admitted to hospital for mental

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disorders in Denmark, Finland and Sweden. They wanted to evaluate trends in health outcomes of people with SMI. They found that men with mental disorders live 20 and women 15 years less, than the general population. These studies show that despite the general population living longer (Wang *et al.* 2012) people with SMI still have reduced life expectancy.

Hazard ratios (HR)

Osborn *et al.* (2007) carried out a retrospective cohort study with the objective of estimating the excess mortality of people with SMI and the contribution of antipsychotic medication, smoking, and social deprivation. A total of 46,136 people with SMI and 300,426 without SMI were selected for the study. Hazard ratios were 3.22 for coronary heart disease (CHD) mortality and 2.53 for stroke deaths in people with SMI under 50 years of age compared with controls. Osborn *et al.* (2007) also found that patients taking a higher prescribed dose of antipsychotics predicted a greater risk of mortality from CHD and stroke. The authors explain that the dose response observed in the relationship between antipsychotic medication and CHD mortality might be due to adverse effects of higher doses. Alternatively, the dose could be an indicator of the severity of the mental illness, which might in turn affect mortality through diet and exercise, intensity of tobacco use or the stresses of psychiatric symptoms. This contrasts with the findings of Tiihonen *et al.* (2009), who found that long-term treatment with antipsychotic drugs is associated with lower mortality compared with no antipsychotic use in people with SMI. However, Osborn *et al,* is describing dose of treatment in a cross sectional study while Tiihonen *et al.* is reporting the duration of treatment in a cohort study.

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Healy *et al.* (2012) compared data from two epidemiologically complete cohorts of patients (1875-1924 and 1994-2010). The survival analysis shows the absolute mortality in the historical period was higher than today, but the actual years of life lost in the historical cohort are less than those lost now.

I have described a number of studies which measure the mortality of people with SMI in different ways (relative risk, standardized mortality ratio, years of potential life lost, hazard ratio). The presented studies show that YPLL, SMR, RR and HR for mortality remain as high as in the 1970s, and that the physical causation is reminiscent of the pre ninety-fifties.

2.2 Suicide

Suicide is one of the top ten causes of death world wide and one of the three leading causes of death in people aged between 15-35 years (World Health Organization 2000). However, most people with SMI (i.e those with schizophrenia or bipolar disorder) neither attempt nor die by suicide (Litts *et al.* 2008). It is estimated that the lifetime prevalence of suicide is 6-15% for people with mood disorders and 4-10% for those with schizophrenia (World Health Organization 2000).

A research study (Dutta *et al.* 2010) involving almost 2,723 patients in the UK who presented with their first psychotic symptoms between 1965 and 2004 found that the rate of suicide was highest in the first year following diagnosis (12 times greater than the general population). This risk reduced but was still four times greater than the general population ten years after diagnosis when there may be less intense monitoring. A key aim of this study was to dispute the widely held view that 10-15% of people with SMI could commit

suicide. They found that 1.9% took their own lives within an average period of 11.5 years after their first episode of psychosis.

Leitner *et al.* (2008) carried out a systematic review of 24 studies to provide a comprehensive overview of the known effectiveness of interventions aimed at preventing suicidal behaviour and ideation both in key risk groups and in the general population. In the studies evaluating treatment for people with schizophrenia or schizoaffective disorder the focus was almost exclusively on treatment with clozapine. The outcomes for treatment with clozapine were universally favourable but none of the available studies chose to evaluate clozapine against either a placebo or treatment as usual. Only three of five studies provided statistical evidence of reductions in suicidal behaviour. Only four studies in this review specifically evaluated interventions for people with bipolar disorder. All of these studies evaluated treatment with lithium, either as a main treatment or as an adjunct. The two studies evaluating lithium alone reported statistically significant reductions in suicide and attempted suicide (Goodwin *et al.* 2003) and in 'suicidal acts' (Tondo *et al.* 1998). One study evaluated lithium with a limited range of other pharmaceutical interventions in addition to interpersonal and social rhythm therapy (Rucci *et al.* 2002). They reported no significant impact of the combined therapy on any measure of suicidal behaviour or suicidal ideation. One study (Baker *et al.* 2004) compared treatment using olanzapine plus lithium with olanzapine plus valproate. This failed to find any significant differences between the two treatments though there was a statistically significant reduction in suicidal ideation.

Suicide prevention has narrowly focused on identifying proximate, individual-level risk factors, rather than thinking about population mental health

in terms of complex social and ecological relations (Knox 2004). To prevent suicide in SMI the focus should be on recognizing risk factors as well as adopting strategies to reduce the stigma associated with having a mental illness (United Nations 1996). Galon and Graor (2012) report from their study of 32 people with SMI that the process of engagement in primary care includes mattering, being perceived as credible and capable, and working together. Therefore managing people with SMI in primary care in the same way as those with other long term physical conditions has the potential to limit these risk factors because the focus of managing long term physical conditions is to engage the patient as a partner in care (Long term conditions Quality Innovation Productivity and Practice Workstream 2012)...

2.3 Higher prevalence of co-morbidities

Oud and Meyboom-de Jong (2009) carried out a systematic review of 15 original research articles on somatic co-morbidity in patients suffering from psychotic disorders. They found that the prevalence of chronic physical illnesses among patients with SMI was as high as 74%.

In their comprehensive review of the literature, Leucht *et al.* (2007) highlighted the conditions which had good and very good evidence for increased risk in people with SMI (see table 2.1). I have discussed each disease.

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Table 2.1 Physical Health - prevalence

Disease category	Physical diseases with increased frequency
Bacterial infections and mycoses	Tuberculosis (+)
Viral diseases	HIV (++), hepatitis B/C (+)
Neoplasms	Obesity-related cancer (+)
Musculoskeletal diseases	Osteoporosis/decreased bone mineral density (+)
Stomatognathic diseases	Poor dental status (+)
Respiratory tract diseases	Impaired lung function (+)
Urological and male genital diseases	Sexual dysfunction (+)
Female genital diseases and pregnancy complications	Obstetric complications (++)
Cardiovascular diseases	Stroke, myocardial infarction, hypertension, other cardiac and vascular diseases (++)
Nutritional and metabolic diseases	Obesity (++), diabetes mellitus (+), metabolic syndrome (++), hyperlipidemia (++)
(++) very good evidence for increased risk, (+) good evidence for increased risk	
Leucht *et al.* (2007)	

2.3.1 Tuberculosis

There are very few epidemiological studies on the association between schizophrenia and bacterial infections. Single studies from Japan (Ohta *et al.* 1988) and the United Kingdom (Baldwin 1979) found a higher incidence of tuberculosis (TB) among patients with schizophrenia compared with the general population. Ohta *et al.* studied out patients living in a city and Baldwin looked at the statistical linkage between diseases using the Oxford Record Linkage Study from which in-patient data could be extracted. Reports from Israel (Zeenreich *et al.* 1998) and Russia (Fisher *et al.* 1996) were also indicative of an increased

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prevalence of TB in psychiatric hospitals. As most of these studies were carried out in hospital settings, it could be argued that it is not the mental illness that is the risk factor for developing TB but the patients' environment. This view is shared by Cavanaugh *et al.* (2012) who recently suggested that assisted living accommodation and residential homes (commonly housing people with SMI) may lack TB prevention infection control procedures. They report the example of one such facility for adults with mental illness in America. In 2008, 15 of the residents and three of the non residents contracted tuberculosis. Residents were not routinely screened for medical problems.

2.3.2 Lung function

One study in the United Kingdom (Filik *et al.* 2006) found higher rates of lung function impairment in people with schizophrenia compared to the general population. The prevalence of chronic respiratory problems such as chronic obstructive pulmonary disease (COPD) is also significantly higher in people with SMI (Himelhoch *et al.* 2004, Sokal *et al.* 2004, Chafetz *et al.* 2005, Carney *et al.* 2006, Copeland *et al.* 2007, Batki *et al.* 2009). A systematic review found that COPD was the most prevalent disease in this population (Oud and Meyboom-de Jong 2009).

2.3.3 Human immunodeficiency virus (HIV)

There are many studies on the association between schizophrenia and HIV (Leucht *et al.* 2007). These show that the prevalence of HIV positivity in people with schizophrenia is generally higher than in the general population but is very variable. This may be because some studies were performed in high risk areas

(such as the East coast of the United States) while studies in other parts of the world (e.g. Asia) showed lower HIV prevalence. Factors such as the high frequency of substance abuse, sexual risk behaviours and a reduced knowledge about HIV-related issues could account for the higher prevalence. A study of 430 psychiatric outpatients in the United States, (Carey *et al.* 2004) found significant rates of risky sexual behaviour in people with SMI particularly in those with mood disorders.

More recently, an American study examined 6,417,676 patients who were without HIV in 2001 (Prince *et al.* 2012). They compared the number of new diagnoses of HIV in 2002–2004 between people with SMI, a substance use disorder, and other psychiatric comorbidity. After controlling for substance abuse or dependence and other factors, their analyses indicated that the odds of new HIV/AIDS diagnoses among people with or without SMI did not differ significantly. Compared with people without a substance use disorder or SMI, individuals with a substance use disorder but without SMI were 3.1 times more likely, and those with both substance abuse or dependence and SMI were 2.1 times more likely, to receive a new HIV diagnosis. However, people with SMI without a substance use disorder were 23% less likely than people without SMI or a substance use disorder to receive a new HIV diagnosis. A number of earlier studies have identified possible reasons why it is the people with a substance use disorder who may be more vulnerable to HIV and STI (Cournos *et al.* 1994, Gray *et al.* 2002). These include: poor decision-making about safe sex and the increased likelihood of having sex with someone who is injecting drugs (due to intoxication); hypersexuality; neglecting to use a condom; vulnerability to coercion for sex; and selling or swapping sex for cash or drugs.

2.3.4 Hepatitis B/C

There has been little research carried out on hepatitis in psychiatric disorders, but studies from six different countries showed an increased prevalence of hepatitis in people with schizophrenia compared to the general population (Chaudhury *et al.* 1994, Cividini *et al.* 1997, Rosenburg *et al.* 2001, Said *et al.* 2001, Nakamura *et al.* 2004, Kalkan *et al.* 2005). A later study illustrated similar findings to those relating to HIV prevalence; 2.5% of participants with SMI and a substance abuse disorder were infected with hepatitis compared to 0.6% of patients without a substance abuse disorder (Rosenburg *et al.* 2005).

2.3.5 Sexual dysfunction

There are a number of relatively large studies that show sexual dysfunction to be more frequent in people with schizophrenia compared to the rest of the population (Aizenberg *et al.* 1995, Smith *et al.* 2002. McDonald *et al.* 2003). The antipsychotic drugs prescribed to treat SMI are associated with sexual dysfunction as they can cause hyperprolactinaemia (Kasperek-Zimowska *et al.* 2008). The propensity to cause hyperprolactinaemia differs between antipsychotics as a result of differential dopamine D_2 receptor-binding affinity and ability to cross the blood–brain barrier (Holt and Peveler 2011). This side effect has a significant negative impact on the patients' satisfaction with treatment and adherence (Hippisley-Cox *et al.* 2007).

2.3.6 Obstetric complications

There are many studies that demonstrate increased occurrence of obstetric complications among mothers with schizophrenia (De Hert *et al.* 2011a). Most

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women with SMI cannot stop taking their medication as this would interfere with their activities of daily living, especially taking care of a baby (Einarson and Boskovic 2009). However, so far, there is no definitive association between the use of antipsychotics during pregnancy and an increased risk of birth defects or other adverse outcomes (Trixler et al. 2005, Einarson and Boskovic 2009). Therefore it may be the high rates of smoking, the use of illicit drugs and alcohol, and low socio-economic status that play a role in causing obstetric complications (Bennedsen 1998).

2.3.7 Osteoporosis

People suffering from osteoporosis have decreased bone mineral density and are more likely to suffer from fractures (Halbreich and Palter 1996). Leucht *et al.* (2007) found thirteen studies which consistently established that more people with schizophrenia had osteoporosis compared to normal controls (Baastrup *et al.* 1980, Ataya *et al.* 1988, Delva *et al.* 1989, Halbreich *et al.* 1995, Keely *et al.* 1997, Bergemann *et al.* 2002, Bilici *et al.* 2002, Zhang-Wong and Seeman 2002, Abraham *et al.* 2003, Liu-Seifert *et al.* 2004, Meaney *et al.* 2004, Hummer *et al.* 2005, Kishimoto *et al.* 2005, O'Keane and Meaney 2005). Most of the studies examined had very small samples, the smallest cohort being just 10 patients and the largest 402. Despite this knowledge, there is evidence that people with schizophrenia receive less care for their osteoporosis than age-matched controls (Bishop *et al.* 2004).

Reduced bone mineral density can be caused by a sedentary life style, lack of exercise, smoking, alcohol and drug abuse, dietary and vitamin deficiencies, decreased exposure to sunshine and polydipsia inducing

electrolyte imbalance; these are behaviours frequently chosen by people with schizophrenia (Halbreich and Palter 1996). Additionally, many antipsychotic drugs increase prolactin levels which can cause osteoporosis (Holt and Peveler 2011).

A more recent meta-analysis (De Hert *et al.* 2011a) has found further studies which confirm the increased prevalence of osteoporosis in people with mental illness, particularly those taking antipsychotics. However, they report that data describing the epidemiology of osteoporotic fracture and antipsychotics in patients with SMI are limited and there are some conflicting results.

2.3.8 Cancer

Studies relating to cancer and people with schizophrenia have conflicting findings. Some have established that there is actually a decreased risk of cancer in this population (Barak *et al.* 2005, Dalton *et al.* 2005, Goldacre *et al.* 2005, Grinshpoon *et al.* 2005, Dalton *et al.* 2004, Lichtermann *et al.* 2004, Dalton *et al.* 2003, Cohen *et al.* 2001, Lawrence *et al.* 2000, Mortensen 1994, Gulbinat *et al.* 1992, Mortensen 1992, Mortensen 1989, Dupont *et al.* 1986, Nakane *et al.* 1986, Driscoli *et al.* 1978). The authors of these studies speculated that genetic factors that may lead to schizophrenia could protect the person from cancer. Other theories are that certain antipsychotic drugs may prevent tumours growing (Driscoli *et al.* 1978), or frequent admissions to hospital that provide good medical care and less exposure to urban air pollutants may be protective (Mortensen 1989, Grinshpoon *et al.* 2005, Goldacre *et al.* 2005, Dalton *et al.* 2003). In contrast, a large study carried out in

Finland found an increased cancer risk in patients with schizophrenia (Lichtermann *et al.* 2004). The results are also contradictory when examining studies looking at specific cancer sites. For example, some studies show decreased risks of lung cancer in people with schizophrenia (Mortensen 1989, 1994) while others show increased risks (Lichtermann *et al.* 2004, Grinshpoon *et al.* 2005). Prostate cancer is an exception, the studies consistently found this to be rarer in patients with schizophrenia compared to the general population (Barak *et al.* 2005, Dalton *et al.* 2005, Goldacre *et al.* 2005, Grinshpoon *et al.* 2005, Lichtermann *et al.* 2004, Lawrence *et al.* 2000, Mortensen 1992, Dupont *et al.* 1986).

More recently, in a cohort analysis within a large UK primary care database, the incidence of colo-rectal, breast and lung cancer and of all common cancers, did not differ significantly in people with SMI, including schizophrenia, compared with people without SMI (Osborn *et al.* 2013). It is worth noting that people with SMI are less likely to get screened for cancer. For example, a number of studies have shown that in comparison to the general population, women with schizophrenia were less likely to have received a mammogram in the last two years (Chochinov 2009, Carney and Jones 2006, Werenke 2006, Druss 2002).

Turning from incidence of cancer to mortality from cancer, one study has shown that having a SMI does not increase the risk of death from the seven most common cancers in the UK (Osborn *et al.* 2007).

2.3.9 Poor dental status

There are a number of studies which highlight the poor dental status of people with schizophrenia (Thomas *et al*. 1996, Velasco *et al.* 1997, Kenkre and Spadigam 2000, Lewis *et al.* 2001, McCreadie *et al*. 2004, Tang *et al.* 2004, Velasco-Ortega *et al.* 2005). Caries, gingivitis and periodontal disease may be caused by poor diet, neglecting oral hygiene and smoking; behaviours which are common in people with schizophrenia (Frielander and Marder 2002). In addition, antipsychotics, antidepressants and mood stabilisers can cause reduced saliva flow which causes additional risk (Frielander and Marder 2002).

2.4 Cardiovascular disease

The most common cause of premature death in people with SMI is CVD (Hennekens *et al.* 2005). Multiple risk factors for CVD are significantly increased in this patient group (Osborn *et al.* 2006). People with SMI have a higher risk of developing metabolic syndrome (prevalence of 36%) and there is a much higher prevalence of diabetes mellitus (9–14%) than the general population (Holt and Peveler 2010, Oud and Meyboo-de Jong 2009).

CVD is a term mainly used to describe disorders affecting the heart and/or the arteries and veins that are associated with atherosclerosis (the build up of fatty deposits and debris inside blood vessels). CVD, such as coronary heart disease and peripheral artery disease, are long term conditions but acute events such as myocardial infarction and stroke can occur suddenly when a vessel supplying blood to the heart or brain becomes blocked or bursts.

It is the combination of lifestyle factors (McCreadie 2003), poorer physical healthcare (Thornicroft 2011) and the side-effects of antipsychotic

medication (De Hert *et al* 2009a) which result in the high incidence of CVD in people with severe mental illness.

2.4.1 Risk factors for cardiovascular disease

Family history and ageing are the strongest risk factors for developing CVD. The most important behavioural risk factors for CVD are unhealthy diet, physical inactivity and tobacco use, which together cause about 80% of coronary heart disease (CHD) and stroke (World Health Organization (WHO) 2011). The effects of these unhealthy behaviours can contribute to metabolic risk factors such as raised blood pressure, raised blood glucose and cholesterol, and obesity. Therefore, public health initiatives focus on decreasing the development of CVD by encouraging people to follow a healthy diet, avoid smoking, exercise regularly, control blood pressure and blood glucose, and lower blood cholesterol. Underlying determinants of CVD may include poverty, stress and hereditary factors (WHO 2011). Risk factors for CVD can be divided into those that cannot be modified and modifiable types.

Risk factors that cannot be modified

Risk factors that cannot be modified are those that a patient cannot change, such as age, gender, ethnicity and genetics.

Age and gender

In the general population, the incidence of CVD increases with age (World Heart Federation 2012). CVD is more common in males than females up to the age of 65, when the incidence equalises across the genders (World Heart

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Federation 2012). Men aged 35 to 44 years are more than six times more likely to die from CVD than their female counterparts of the same age, although mortality due to CVD equalises in men and women over 75 years of age (Mercuro *et al.* 2010). In comparison, in a study of 46,163 people with SMI (Osborn *et al* 2007), risk of death from CHD was increased between the ages of 18-75 years but did not increase further over the age of 75. The study also revealed that risk of stroke was increased in people with SMI people aged 18-49 years, but this increased risk disappeared in people aged over 50 years (Osborn *et al.* 2007).

Ethnicity

Risk factors vary significantly by ethnic group; for example, atherosclerotic disease and CHD are relatively rare in black Africans and black Caribbeans (Lip *et al.* 2007). Despite this group having an increased risk of glucose intolerance, very low density lipoprotein (VLDL), small dense LDL, and lower triglyceride concentrations than in Europeans, the latter does not increase to the same extent in the presence of glucose intolerance (Chaturvedi 1994). In contrast, the prevalence rates of CVD in South Asians are at epidemic proportions (Lip *et al.* 2007). Risk factors such as smoking, blood pressure, obesity, and cholesterol vary between subgroups of South Asians, some levels are equivalent to, or lower than, a comparable European population; however, levels of glucose intolerance, central obesity, fasting triglyceride, and insulin are uniformly elevated in comparison (McKeigue 1991).

Family history

Individuals with a family history of CVD are at greater risk of an early CVD event (Williams *et al* 2001). A positive family history is defined as having a father diagnosed with CVD younger than 55 years of age or a mother diagnosed younger than 65 years of age (Wood *et al* 1998).

Modifiable risk factors

Modifiable risk factors are within the patient's control, such as obesity, smoking, dyslipidaemia, physical activity, diet, blood pressure, alcohol intake and diabetes management.

Several antipsychotic drugs, particularly the atypicals such as clozapine and olanzapine, appear to contribute to cardiometabolic risk. In patients maintained on some of these antipsychotics, rates of metabolic syndrome and diabetes (or prediabetes) can exceed 50% (Manu *et al*. 2012). In contrast, a number of studies found that the rate of metabolic syndrome is 10% in patients with schizophrenia who are untreated (Manu *et al*. 2012, Chiu *et al*. 2010). This disparity could be due to the difference in severity of the SMI rather than the medication.

Obesity

There is strong evidence of an association between obesity and atherosclerosis, high blood pressure, high total blood cholesterol and type 2 diabetes (Wilson *et al* 2002). This is due to an altered metabolic profile, a variety of adaptations/alterations in cardiac structure and function as adipose tissue accumulates in excess amounts (Poirier 2006). Some antipsychotic

medication can cause weight gain (Allison and Casey 2001). One study concluded that histamine receptor blockade is the primary cause of antipsychotics-induced weight gain and diabetes mellitus (Matsui-Sakata *et al.* 2005). However, Holt and Peveler (2009) argue that it is too simplistic to ascribe all obesity in people with SMI to their drug treatment. They suggest that the development of obesity in SMI results from the complex interaction of the genotype and environment of the person with mental illness, the mental illness itself and antipsychotic medication.

Two recent meta-analyses of patients with schizophrenia and bipolar disorder who were systematically monitored found about half were obese (Vancomfort *et al.* 2013, Mitchell *et al.* 2011).

Smoking

Smoking rates are high in people with SMI. Two meta-analyses of patients with SMI found about half smoked (Vancomfort *et al.* 2013, Mitchell *et al.* 2011). More recently, a study showed the same results, with approximately 50% of people with SMI smoking compared with 28% of the general population (Osborn *et al.* 2013). Patients with SMI have reported an improvement in their symptoms when using smoking to self medicate (Johnson *et al.* 2010). This may be due to an increased dopamine release in the pre-frontal cortex which alleviates positive and negative symptoms (Lavin *et al.* 1996). Additionally there may be a reduction in side effects of antipsychotic medication because of the enhanced metabolism of these drugs in smokers (Jeste *et al.* 1996).

Dyslipidaemia

The two major lipids (or fat chemicals) in the blood are cholesterol and triglyceride. As they are both insoluble they are transported in the blood by lipoprotein structures: low-density lipoproteins (LDL) known as 'bad' cholesterol and high-density lipoproteins (HDL) known as 'good' cholesterol. Dyslipidaemia is an abnormally high concentration of lipids or lipoproteins in the blood (it may also refer to abnormally low concentrations of HDL cholesterol) and is a risk factor for CVD; for example, a prospective cohort study of 7587 women and 6394 men showed that elevated triglyceride levels were associated with increased risk of heart disease and death (Nordestgaard *et al.* 2007).

A primary care study showed that patients with SMI had significantly lower HDL-cholesterol levels and higher total cholesterol to HDL-cholesterol ratio (Osborn *et al.* 2006). Two recent meta-analyses of patients with SMI found that two in five had hypertriglyceridemia (Vancomfort *et al.* 2013, Mitchell *et al.* 2011).

Physical activity

Regular physical activity decreases the risk of death from CVD in general and death from CHD in particular (Kesaniemi *et al.* 2001). Regular physical activity prevents or delays the development of high blood pressure and reduces blood pressure in people with hypertension (Fagard 1999). Exercise can also lower blood cholesterol levels and help with weight loss (Cullinane 1982, Kantor *et al.* 1987). Low levels of exercise are common among people with SMI (Brown *et al* 1999). This may be due to the symptoms of their condition (such as poor

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motivation) and/or sedative effects of the antipsychotic medication they are taking.

Diet

Diet affects blood cholesterol levels, body weight, blood pressure and blood glucose levels (Parikh *et al.* 2005). Studies have shown that the diets of people with SMI tend to be poor, for example lacking in fruit and vegetables (McCreadie *et al.* 2005), high in fat, salt and carbohydrates (Henderson *et al.* 2006) and low in nutritional content (Peet 2004).

Blood pressure

Persistently high blood pressure increases the risk of myocardial infarction and stroke (NICE 2011). The two most recent meta-analyses showed that two in five people with SMI had hypertension (Vancomfort *et al.* 2013, Mitchell *et al.* 2011). A study of 800 patients with SMI in the UK found that 34% were hypertensive (Eldridge *et al.* 2011). But in comparison, a UK survey of the general population showed that 32% of men and 27% of women aged over 35 were hypertensive (The Information Centre for Health and Social Care 2009). Other studies have found little overall difference in the blood pressure of people with SMI compared with the general population (Osborn *et al* 2006, Leucht *et al.* 2007). This may be due to the hypotensive effect of antipsychotic medication (Guggar 2011).

Alcohol intake

Consumption of one to two units of alcohol a day is associated with a reduced risk of cardiovascular disease (Rimm *et al.* 1991, Marmota 1983). Government

guidelines in the United Kingdom presently recommend a daily limit, two to three units (e.g. 175ml of ABV 13% wine is a standard glass of wine and is 2.3 units) for women and three to four units for men (e.g. one pint of ABV 5.2% beer is 3.1 units) (Drinkaware 2011). Excessive alcohol intake is associated with increased all-cause mortality (Vogel R 2002). There is little recent evidence regarding alcohol and people with SMI. The National Psychiatric Morbidity Survey in England found that 16 per cent of people with schizophrenia were drinking over the recommended limits for that time of 21 units of alcohol for men and 14 units or alcohol for women a week (Meltzer *et al.* 1996). A population survey found high alcohol use in people with bipolar disorder (Kessler *et al.* 1997).

Psychosocial stress

There is increasing evidence to support the hypothesis that psychosocial stress is an important risk factor for CVD (Bairey Merz *et al.* 2002). Patients with schizophrenia have an impaired ability to adapt to stress (Kudoh *et al.* 1999).

Diabetes

CVD is the main cause of death in patients with diabetes, accounting for 50% of all diabetes-related mortality and a high proportion of diabetes-related disability (Morrish *et al* 2001). Diabetes occurs in 15% of people with schizophrenia (Holt and Peveler 2005) compared with 5% of the general population (Bushe and Holt 2004). More recent meta-analyses of patients with SMI found one in three having metabolic syndrome, diabetes or prediabetes (Vancomfort *et al.* 2013, Mitchell *et al.* 2011). Risk factors include family history of diabetes, physical

inactivity, poor diet, smoking and the metabolic effects of antipsychotic medication (Gough and Peveler 2004). Patients with diabetes are three times more likely to suffer from depression (Goldney *et al.* 2004) and/or anxiety symptoms (Grigsby *et al.* 2002). This in turn further increases their risk of CVD due to poor self management of their condition (Williams and Pickup 2004).

2.4.2 Prevention of cardiovascular disease

There are two general strategies for the primary prevention of CVD: the population approach, in which population-wide changes in risk factors are made, and the high-risk approach in which individuals at high risk of the disease are identified and targeted for preventive treatment (Rose 1992). The former approach works on the assumption that making relatively small reductions in the most important risk factors for CVD (for example, blood cholesterol levels and blood pressure) throughout the whole population may lead to large reductions in CVD burden (Strachan and Rose 1991). In the UK, the government has made some effort to use this approach by producing policies and guidance for the general population regarding both physical activity (Department of Health (DH) 2011a) and diet (DH 2011b). However, the emphasis of current policy for the primary prevention of CVD is mainly placed on strategies to target those at high risk, for example health checks for people aged over 40 (DH 2009), diabetes annual reviews (British Medical Association and NHS Employers 2011) and smoking cessation services (DH 2011c). People with SMI are a high risk group; reducing any one of their independent risk factors can lead to a significant decrease in CVD risk (Table 2.2).

Table 2.2 Reductions in independent risk factors can lead to reduction in cardiovascular disease risk

Risk factor	Reduction	Outcome
Blood cholesterol[1]	10% decrease	30% decreased risk of cardiovascular disease (CVD)
High blood pressure (>140mm/Hg systolic or 90mm/Hg diastolic)[1]	6mm/Hg reduction in diastolic blood pressure	16% reduction in risk of CVD; 42% reduction in risk of stroke
Cigarette smoking[1]	Cessation	50% reduction in risk of CVD
Obesity[2]	4-10kg weight reduction	27% reduction in risk of CVD
	Decrease in body mass index of one unit	8% reduction in risk of CVD
[1]Hennekens (1998), [2]Li *et al* (2006)		

2.5 The physical health check

A Cochrane Effective Practice and Organisation Care (EPOC) Group Review (Tosh *et al.* 2010) did not identify any randomised trials which assessed the effectiveness of physical health monitoring in people with SMI. They concluded that guidance is based on expert consensus, clinical experience and good intentions. These experts have advocated the need to improve CVD monitoring and the provision of risk-factor guidance in people with SMI (Osborn *et al.* 2011, De Hert *et al.* 2009b, Kilbourne *et al.* 2007, Barnett *et al.* 2007). Authors of national guidance in the UK suggest that patients with SMI should receive a physical health check at least once a year, but recognize that research is needed (NICE 2010a, 2006). An annual review offers the opportunity to:

- Screen for diabetes, hypertension, raised cholesterol levels and other risk factors, and then offer prompt treatment to reduce the associated risk (Hardy and Gray 2010).

- Provide ongoing education to reduce the risks associated with poor diet, inactivity and smoking (Gray *et al.* 2009).

- Carry out a medication review (White and Hardy 2010).

2.6 The role of healthcare professional in the prevention of CVD in SMI

The authors of a qualitative study (including patients with SMI and staff from primary care and community mental health teams) suggest that neither primary nor secondary care services on their own can provide a comprehensive service to prevent CHD in patients with SMI (Wright *et al.* 2006). This view is shared by the charity Rethink; they have developed a tool to help primary and secondary care services to work together to monitor and address the physical health needs of people affected by mental illness (Rethink 2012).

Having written guidance on the prevention of CVD in people with SMI should aid healthcare professionals to deliver the appropriate intervention at the appropriate time. Eighteen specific sets of guidelines for the medical care of patients with severe mental illness or schizophrenia have been published since the year 2000 (De Hert *et al*. 2011). However, it is not clear whether these have influenced clinical practice (Mitchell *et al.* 2012a). What the guidelines have generally not stated is who should take responsibility for monitoring, the minimal frequency of monitoring, or how monitoring should be audited. In the United States of America, the key guideline was the American Diabetes Association (ADA) / American Psychiatric Association (APA) consensus document (2004). In the United Kingdom, three key guidelines are in place, namely National Institute for Health and Clinical Excellence (NICE) guidelines for bi-polar disorder (2006), the revised NICE schizophrenia guidelines (2010a) and the GP contract for primary care (BMA and NHS Employers 2011). The European Psychiatric Association (De Hert *et al.* 2009b) have developed recommended actions to prevent CVD in people with SMI by clearly defining what needs to be

done when the patient is newly diagnosed, at initiation of treatment and at an annual health check.

2.6.1 Primary care

Primary Care in England is made up of practices which provide comprehensive acute and continuing medical care. They are considered to be the usual place for people with long term conditions that have an increased risk of CVD (such as diabetes) to attend for preventative care (NICE 2006, 2009, 2010a, Osborn *et al.* 2007). Authors of national guidance in England recommend that patients with SMI should receive a physical health check at least once a year (NICE 2006, 2010a). General Practitioners (GPs) in primary care are paid to provide CVD screening for this group every fifteen months through the Quality and Outcomes Framework (BMA and NHS Employers 2012). (In April 2013 the timeframe changed to the last 12 months). Between April 2004 and March 2011, payment was received if primary care practitioners documented that they had completed a review in people with SMI. There should have been evidence that the patient was offered screening, routine health promotion and prevention advice appropriate to their age, gender and health status, but these were not mandatory. This changed in April 2011, payment is now given for recording patients' alcohol consumption, body mass index (BMI), blood pressure, glucose and HDL cholesterol level (if over 40 years), and cervical screening within the last five years (if within national screening age). Waiting until patients are 40 years old to check their glucose and cholesterol may mitigate against good care as many risk factors can be identified earlier than this age in this patient group (De Hert *et al.* 2011).

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Providing health checks for people with SMI in primary care affords the opportunity to enhance care integration, coordination, clinician accountability, and a sustained partnership in care (Galon and Graor 2012). This may be key to assisting individuals to meet their health needs and limit risk factors, thus preventing the development and progression of comorbid conditions (Galon and Graor 2012).

2.6.2 Secondary care

Current evidence suggests that mental health nurses do not consider the physical health care of their patients as being central to their role, or perceive themselves as inadequately trained to provide this aspect of care (Bradshaw and Pedley 2012). One study examining the attitudes of mental health nurses towards the physical health care of people with SMI (Robson *et al.* 2012) found that they were more positive if they had attended post-registration physical health training. However, an integrative literature review found that they are not routinely supported by physical health-care education and training (Blythe and White 2012). As many patients with SMI have no contact with secondary care services (Lester *et al.* 2004), they would be missed if mental health nurses had the responsibility of carrying out all health checks. However, mental health nurses are in a strong position to liaise between primary and secondary care services (DH 2006a); they should be encouraged to attain the skills required to assess and respond to the whole range of health needs in order to improve the physical wellbeing of their patients (Royal College of General Practitioners and the Royal College of Psychiatrists 2009, Royal College of Psychiatrists 2012, DH 2006a). This should include encouraging patients to attend their GP practice

for a physical health check or carrying out the health check themselves opportunistically. (NICE 2010a) Additionally mental health nurses should where indicated, support patients to attend established lifestyle groups (for example, a dieting group meeting or a smoking cessation support group), as well as providing ongoing lifestyle advice. For patients unwilling or unable to attend primary care, the mental health nurse should carry out the CVD risk screening (Royal College of Psychiatrists 2012). It could be worthwhile for secondary care services to set up their own lifestyle intervention groups for patients unable to participate in those open to the general population. There is some evidence to show this would be of benefit for smoking cessation (Evins *et al.* 2001), weight loss (Umbricht *et al.* 2001) and improved physical fitness (Marzaloni *et al.* 2009).

2.7 Barriers to the recognition and management of physical health in patients with severe mental illness

There are a number of barriers to the management of physical health in patients with SMI. These can be divided in to patient-related barriers and physician-related barriers (Figure 2.3) but often they are combination.

Figure 2.1 Barriers to management of cardiovascular disease in patients with severe mental illness

Patient related barriers

- Difficulty understanding healthcare advice and/or carrying out the required lifestyle changes because of psychiatric symptoms and the adverse consequences of mental illness (SMI)

- Low health literacy

- Severity of mental illness

- Less compliant with treatment

- Unawareness of physical problems as a result of cognitive deficits or reduced pain sensitivity associated with antipsychotic drugs

- Migrant status and/or cultural and ethnic diversity

- Lack of social skills and difficulties communicating physical needs

- Missed appointment letters due to disrupted residential status (then seen as non-attenders)

- Frequent changes of address may prevent the formation of relationships with clinicians

Primary care physician-related barriers

- Stigmatisation of people with mental disorders

- Physical complaints regarded as psychosomatic symptoms

- Suboptimal quality of care offered by clinicians to patients with SMI: lack of assessment, monitoring and continuity of care of the physical health status of people with SMI

- Teams unequipped or underfunded to handle the behavioural and emotional problems of patients with SMI

- See patients with SMI as non-attenders

Adapted from De Hert *et al.* (2011a)

Buhagiar *et al.* (2011) found that despite increased physical disease compared with people with non-psychotic mental illness and the general

population, people with SMI are likely to devote little attention to their lifestyle and physical health needs. The authors concluded this may be because of an impaired awareness of the implications of their high risk behaviour rather than a lack of motivation. If people with SMI do not consider themselves at risk of physical health problems then they may not attend for screening (Campion *et al*. 2005). However, if patients attend who are experiencing an acute phase of illness or their symptoms are not well controlled, taking this advice on board may not be on their agenda (De Hert *et al.* 2011a). This does make the consultation complex, but other research has shown that a lack of support and negative staff attitudes are possible barriers to their participation in lifestyle interventions (Roberts and Bailey 2011, Brunero and Lamont 2010).

Physician related barriers are not exclusive to primary care professionals; an Australian study of mental health workers revealed a sense of pessimism about improving physical health in people with chronic mental illness (Hyland *et al.* 2003). In addition, a survey carried out in the UK (Wright *et al.* 2006) found that some mental health staff felt that physical health was the remit of primary care and that management of disease risk/modifiable risk factors would be an inappropriate use of their skills and time. They also felt that responsibility for screening for CVD would blur their professional roles and that they lacked the expertise and resources to provide an adequate primary prevention service for CHD.

Healthcare professionals need to consider possible patient barriers for each individual (Roberts and Bailey 2011) and should actively promote health and offer suitable therapeutic interventions that reduce modifiable risk factors

for CVD. They should also consider the barriers that they themselves or their organisation may have created in this respect.

2.8 Summary of chapter

In this chapter I have provided a brief overview of why people with SMI die earlier than the rest of the population and the increased prevelance of physical illness in this group. I have then focused on the issues pertinent to the aims and objectives of the research: CVD in people with SMI; the roles and responsibilities of healthcare professionals; and the barriers in relation to this. Part of this chapter has been published as:

Hardy S and Gray R. (2012) Learning Zone: Reducing cardiovascular disease risk in patients with severe mental illness. *Nursing Standard*. **26** (45) 41-48.

Chapter three: Considerations of research in primary care

In this chapter I discuss how taking part in research is relatively new to many practice nurses and how this could affect the level of recruitment.

3.1 Background

Ninety per cent of people's contact with the NHS is through primary care (DH 2012). Since the new GP contract was established in 2004 (DH 2003) the management of many long-term conditions, such as diabetes, depression and hypertension has shifted from secondary to primary care and become part of the practice nurse role (Macdonald *et al.* 2008). This shift has led to a corresponding increase in primary healthcare research (DH 2006b) and the establishment of Primary Care Research Networks. Practice teams are vital in this research for both recruitment and intervention purposes (Cooke *et al.* 2007). Current policy supports increasing involvement of nurses in this work (DH 2006b, UKCRC 2007).

The number of patients participating in research supported by the National Institute for Health Research (NIHR) Primary Care Research Network has almost doubled over the last four years; reaching nearly 150,000 in 2010/11 (NIHR 2012a). There was considerable reinvestment in research in Northampton in 2010 which has led to the increase in research activity. In 2012, there were 20 research studies being carried out in primary care in Northamptonshire compared to 16 in 2011 (NIHR 2012b). At the start of this study in 2009 only three practices in Northamptonshire were engaged in any sort of research (NHS Northamptonshire 2010). This meant that being

approached to carry out research at this time was not usual practice for most healthcare professionals in primary care in Northampton.

3.2 Primary care view of research

Currently, knowledge of the perceptions and attitudes of practice nurses towards undertaking research as part of their clinical work is poor (Davies *et al.* 2002, Boase *et al.* 2012). McCabe and Timmins (2006) suggest that the focus of nursing is on getting the work done and is often task orientated; as a result, research might not be given high priority in a clinical role such as practice nursing. Additionally, the value of primary care nurses' commitment to the success of externally funded research studies is seldom acknowledged (Bateman *et al.* 2006).

Boase *et al.* (2012) found that practice nurses considered it unfair that they received no remuneration for absorbing the research work into their normal clinical time, despite their employers receiving funding. They reported a feeling of isolation in regard to their research role within the practice. What's more, in the same study, nurses experienced resentment or concern from other nurses in their team where it was perceived that clinical time was being taken up by research resulting in increased work pressure overall. On a more encouraging note, most of the nurses felt that the experience of taking part in the research had positively changed their practice.

A low level of enthusiasm by nurses to take part in research can be caused if they are not consulted when the decision was made for them to be involved (Lock *et al.* 2006).

3.3 Practical issues for research in primary care

As practice nurses are employed directly by GPs and isolated from their peers, this may limit their independence in respect of carrying out any research activity (Kajermo *et al.* 2000). Their autonomy to run clinics varies, as does the time that they can allocate to each patient (Noakes and Johnson 2000). In a recent study, practice nurses reported that time influenced their engagement with the various aspects of the research including the trial process and the delivery of the complex intervention (Boase *et al.* 2012). Lack of work time was the also the barrier most frequently mentioned for research in a study by Griffiths *et al.* (2001). This may be exacerbated if GPs employ practice nurses to undertake specific tasks and do not support them as researchers (Davies *et al.* 2002).

3.4 Being an insider researcher

As I am working in primary care delivering physical health checks to people with SMI, I share the characteristics, role, and experience under study. This is described as being an insider (Corbin Dwyer and Buckle 2009). For other areas of my research I am an outsider to the commonality shared by participants. Being an insider researcher could enhance my understanding of the population that may not be accessible to someone outside the field (Kanuha 2000) and allow me rapid and more complete acceptance by the practice nurses (Corbin Dwyer and Buckle 2009). However, the objectivity, reflexivity and authenticity of my research could be questioned because it may be viewed that I am too close to the project and too similar to those being studied (Kanuha 2000). Role confusion can occur in any research study but there is a higher risk when the researcher is familiar with the research setting or participants through a role

other than that of researcher (Asselin 2003). Good supervision from Professor Richard Gray and Dr Katherine Deane will be required to keep my research objective.

3.5 Summary of chapter

In this chapter I have briefly explained how taking part in research is a relatively new role for many practice nurses. I have also given details of some of the barriers that researchers may find when engaging practice nurses in their research and how my being an insider may affect my research. These factors have been given consideration when developing the programme of research explained in the next chapter.

Chapter four: Developing the programme of research

The aim of this programme of research is to address the physical health needs of people with SMI by improving the practice of healthcare professionals in primary care. This will be achieved by providing appropriate training. The programme of research is called the Northampton Physical Health and Wellbeing Project and is also known by the anacronym PhyHWell.

4.1 Research methods

Before developing the PhyHWell project I studied a number of methods which can be used in research.

4.1.1 Design strategies

Hennekens and Buring (1987) explain that analytical studies can be divided into those which are observational or experimental.

Observational studies

There are three types of observational investigation, the case control study, the cohort study and the cross sectional study. In a case control study, a group of patients who have a disease and another group of patients are selected. They are usually retrospective. A retrospective study looks backwards and examines exposures to suspected risk or protection factors in relation to an outcome that is established at the start of the study. Retrospective investigations are often criticised because error due to confounding and bias are more common than in prospective studies. However, there are benefits which include: being relatively inexpensive, smaller numbers are required, and they are quick to complete.

Cohort studies are usually prospective. Patients are selected on the basis of the presence or absence of exposure to a particular factor and then followed for a given period of time to observe for outcomes. The outcome of interest must be common or the number of outcomes observed will be too small to be statistically significant. Cross-sectional studies can be used to describe characteristics that exist in a population, but not to determine cause-and-effect relationships between different variables. This method is often used to make inferences about possible relationships or to gather preliminary data to support further research and experimentation.

Experimental studies

Experimental studies are also referred to as intervention studies or clinical trials. The intention is to improve the condition of a patient or a group of patients; for example, by evaluating the impact of a programme. They include RCTs, controlled non-randomised trials, controlled before-and-after and interrupted time series.

4.1.2 Hierachies of evidence

There are a number of hierarchies of evidence which have been developed to rank research methodologies according to their validity (Evans 2002). The Scottish Intercollegiate Guidelines Network (SIGN) have developed a hierarchy which ranks the evidence for the efficacy of an intervention (figure 4.1). This hierachy is used by NICE when reviewing the evidence for their guidelines (NICE 2004). After high quality meta-analyses and systematic reviews (of randomised control trials RCTs), RCTs with a very low risk of bias are

considered to be the highest standard of research evidence to determine the efficacy or effectiveness of a healthcare intervention or service (SIGN 2001). However, basing care in mental health solely on evidence from trials has been criticized as being unrealistic (Cooper 2003).

Figure 4.1 Evidence of the efficacy of an intervention – did it work?

Type of evidence
High quality meta-analyses, systematic reviews of RCTs (including cluster RCTs), or RCTs with a very low risk of bias
Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias
Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
High quality systematic reviews of, or individual high quality non-randomised intervention studies (controlled non-randomised trial, controlled before-and-after, interrupted time series), comparative cohort and correlation studies with a very low risk of confounding, bias or chance
Well conducted, non-randomised intervention studies (controlled non-randomised trial, controlled before-and-after, interrupted time series), comparative cohort and correlation studies with a low risk of confounding, bias or chance
Non-randomised intervention studies (controlled non-randomised trial, controlled before-and-after, interrupted time series), comparative cohort and correlation studies with a high risk of confounding, bias or chance
Non-analytical studies (eg case reports, case series)
Expert opinion, formal consensus

Adapted from SIGN (2001)

4.2 Designing the programme

When designing this programme of studies I considered the different design strategies and came to the decision that a programme of research which included a service evaluation would be the most informative. Using service evaluation as an approach can have a major impact on future health delivery and education and involves an intervention already in use (National Research Ethics Service 2009). There has been a plethora of service developments in primary care (e.g. DH 2008a) in response to policy drivers in the United Kingdom (e.g. DH 2008b, 2006c, Disability Rights Commission 2006).

To look at the effect of the training on nurses and patients, I have used the Interdisciplinary Chronic Disease Collaboration (ICDC) framework (Interdisciplinary Chronic Disease Collaboration 2012) and followed guidance from the Medical Research Council's (MRC) framework for complex interventions (Craig *et al.* 2008). Within these frameworks I have designed the programme of research.

4.2.1 Research questions

From the literature it appeared that people with SMI are not being offered health checks in primary care (Roberts *et al.* 2007). Therefore the design needed to answer a number of questions:

1) Will patients attend for a health check if they are invited?

2) Are lifestyle interventions used for people with physical illnesses as effective when used with the SMI population?

3) What evidence is there for the efficacy of healthcare professional educational outcomes in studies of physical health in SMI?

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4) Are as many people with SMI being screened for cardiovascular disease as people with physical conditions?

5) What effect will training have on the practice nurses' motivation to carry out physical health checks for people with SMI?

6) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk?

7) What do patients think about physical health checks?

4.3 Using the Interdisciplinary Chronic Disease Collaboration framework to provide earlier detection and management of CVD in people with SMI

The Interdisciplinary Chronic Disease Collaboration (ICDC) is a motivated team of researchers whose overall objective is to improve the health of patients living with or at risk of a long term condition. The ICDC team is a novel collaboration between health care decision-makers, scientists and educators from 14 key disciplines that was formed to examine the issues related to treating patients with or at high risk of developing CVD. They have created a framework for researchers working with these patients (figure 4.2). SMI is a long term condition which carries a high risk of CVD; therefore the framework is appropriate with some adaptation for my research (figure 4.3). However, as there is little evidence and literature to support this framework I have also taken guidance from the Medical Research Council's (MRC) framework for complex interventions (Craig *et al.* 2008).

Figure 4.2 Optimizing health outcomes for people with known chronic disease and earlier detection and management of undiagnosed chronic disease or its risk factors in patients at high risk of chronic disease.
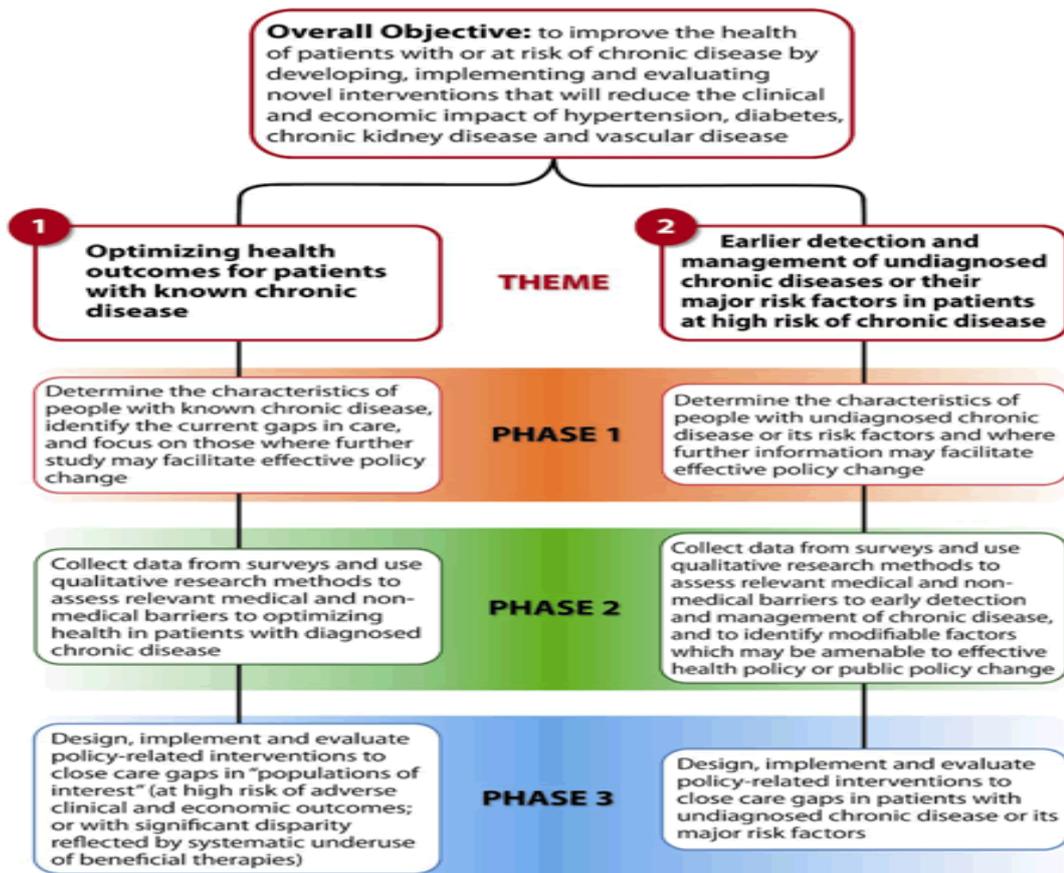
Interdisciplinary Chronic Disease Collaboration (2012)

Figure 4.3 Optimizing health outcomes for people with SMI

THEME: to prevent or provide earlier detection of CVD in people with SMI by increasing the screening and lifestyle advice given to this group.

PHASE ONE: Establish whether this group will attend and use standard interventions; review current evidence; focus on research which may affect change in clinical practice; develop training

PHASE TWO: Collect data from audits, questionnaires and interviews to assess both medical and non medical barriers to optimizing the health outcomes for people with SMI.

PHASE THREE: Evaluate the data and make recommendations for future training, research and policy.

Adapted from the Interdisciplinary Chronic Disease Collaboration (2012)

4.4 The Medical Research Council – complex interventions framework

Complex interventions are usually described as interventions that contain several interacting components. The MRC has updated and extended the 2000 Framework for complex interventions. The intension of the revised guidance is not to be prescriptive but to help researchers, funders, and other decision makers to make appropriate methodological and practical choices (Craig *et al.* 2008). It has re-emphasised some of the key messages, but also tried to address the limitations by providing a more flexible and less linear model of the process. Craig *et al.* suggest that identifying a single primary outcome may not make best use of the data; therefore a range of measures will be needed.

Figure 4.4 summarises the main stages and the key functions and activities at each stage and figure 4.5 shows the adaptations for this research. The arrows indicate the main interactions between the phases. The stages need not follow

a linear or even a cyclical sequence. Reporting is not shown as a separate activity, because the authors suggest it should be seen as an important element of each stage in the process.

Figure 4.4 MRC key elements of the development and evaluation process
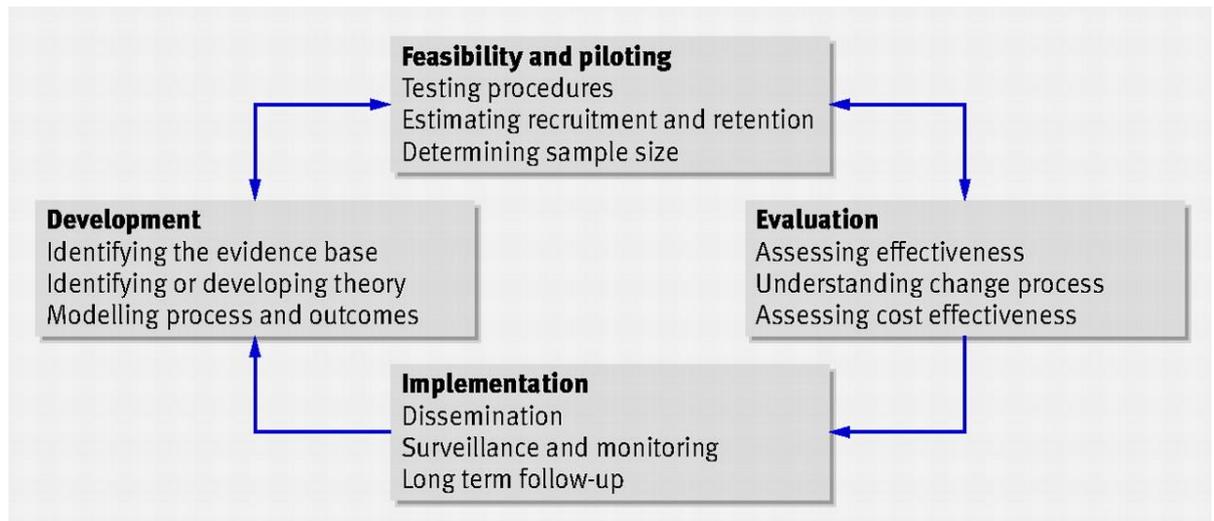
Craig *et al.* (2008)

Fig 4.5 PhyHWell key elements of the development and evaluation process
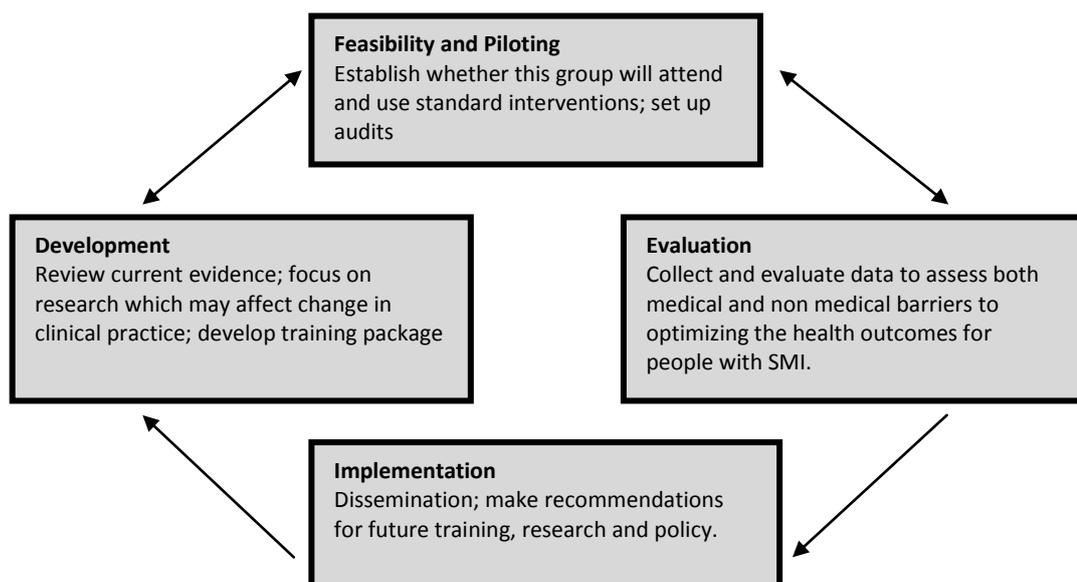
Adapted from Craig *et al.* (2008)

4.5 A programme of studies

A programme of studies involves projects that are complete on their own and may be both qualitative and quantitative (Morse 2003). They are then used together to form essential components of one research programme (Morse 2003). This brings together understanding of meaning and context to provide fuller discernment and greater transportability of the phenomenon under study (Strange and Miller 2006). Each of my studies has been designed and conducted to answer a specific question; this provides a more detailed and balanced picture of the situation than using one method alone (Altrichter *et al*. 2008). A further advantage is that each study maintains its own world view (Morse 2003). The separate studies are reported in concurrent chapters to show a logical sequence.

Each individual study has been published in a different journal. I intend to write a critique that reports the findings of all the studies so that the results of the whole programme are published together (Strange and Miller 2006).

The programme is divided into three phases using the ICDC framework.

4.5.1 Phase one

1. Identify whether patients with SMI will attend for a health check if they are invited.

2. Find out if lifestyle interventions used for people with physical illnesses are as effective when used with the SMI population.

3. Search for the evidence for the efficacy of healthcare professional educational outcomes in studies of physical health in SMI.

4. Develop training for practice nurses to deliver health checks for people with SMI (PhyHWell).

4.5.2 Phase two

1. Find out whether as many people with SMI are being screened for CVD as people with diabetes in Northampton.

2. Find out whether as many people with SMI are being screened for CVD as people with diabetes in England.

3. Determine the effect of the PhyHWell training on the practice nurses' motivation to carry out physical health checks for people with SMI.

4. Establish whether training practice nurses increases CVD screening and lifestyle intervention in people with SMI.

5. Ascertain the patients' views about physical health checks.

4.5.3 Phase three

1. Evaluate the data.

2. Publish and disseminate.

3. Make recommendations for future training, research and policy.

4.6 Ethical and research governance issues

Nurses have a duty to ensure that they provide their patients with safe and competent care (Nursing and Midwifery Council, 2008). As all research has the potential to be harmful to participants and researchers (Long & Johnson 2007), nurses should also make certain that their studies are safe, robust and ethical (Royal College of Nursing 2009). Audit studies do not have to be formally

reviewed by a research ethics committee; but as the distinction between audit and research is often a grey area, external ethical consideration will ensure that the potential moral issues are addressed fully (Wade, 2005). Therefore I took the programme of research to the Regional Ethical Committee. They suggested that most parts of the project were a service evaluation and did not need their approval, but the qualitative interviews with patients did, so I should resubmit this part separately (appendix 1). The whole programme of research was approved by the Research and Development department, NHS Northampton (appendix 2). Additionally as Community Mental Health Nurses were to be involved in the training I sought and was granted approval from Northamptonshire NHS Healthcare Trust Clinical Governance Support team (appendix 3).

4.6.1 Declaration of Helsinki

I ensured that this study was conducted in full conformity with the current revision of the Declaration of Helsinki (last amended October 2000, with additional footnotes added 2002 and 2004).

4.6.2 ICH Guidelines for Good Clinical Practice

I ensured that this study was conducted in full conformity with relevant regulations and with the ICH Guidelines for Good Clinical Practice (CPMP/ICH/135/95) July 1996.

4.6.3 Data Handling and Record Keeping

I complied with the requirements of the Data Protection Act 1998 with regard to the collection, storage and processing of information and upheld the Act's core principles. The participants were identified by a study specific participant number. The name and any other identifying detail were not included in any study data electronic file. All study data were entered onto a secure computer system with user names and passwords. Written notes were transferred to this computer then shredded.

4.7 Preparing practices

Prior to training the practice nurses, I met with the Practice Manager of each participating surgery. I suggested that it would be helpful to give the practice nurses more time to carry out the heath checks for patients with SMI than they would have for other patients (e.g. diabetes). This is recommended in the GP's contract guidance (BMA and NHS Employers 2012). However, I was unable to offer any remuneration for this.

Many of the nurses participating in the PhyHWell project had not been consulted by their employers when they made the decision to take part. Therefore I needed to show an understanding of the nurses' position in order to motivate them to engage in the research.

4.8 Summary of chapter

In this chapter I have explained how I have developed my programme of research. I have also described the ICDC and MRC frameworks which were used to structure the programme and explained ethical and governance issues.

Chapter five: Will patients with severe mental illness attend primary care for a health check?

This chapter explains how an invitation appointment letter is effective in prompting patients with SMI to attend a physical health check in primary care by comparing it to those with diabetes.

5.1 Background

Many clinicians believe that patients with SMI will not attend primary care for a health check (Lester *et al.* 2005), yet there is little evidence to demonstrate that they are actually poor at attending in response to an invitation. Consequently there is limited guidance on how best to promote attendance. Most primary care practices invite their patients to long term condition clinics by way of an invitation letter which asks the patient to make an appointment at their convenience (Brown *et al.* 1992, NICE 2010a). A study carried out in a primary care centre in England showed that letters offering patients (without a particular diagnosis) an appointment (with a specific date and time) for a health check produced a much higher attendance rate (70%) than letters containing an open invitation (37%) (Norman and Connor 1993). To date only one study by Harvey *et al.* (2005) has tested whether an invitation letter (requesting the patient makes an appointment to attend the practice) is an effective method of increasing the level of attendance of patients with schizophrenia for a primary care physical health check. Carried out in an inner city setting, fewer than one in five patients, half the number who responded in the general population, made an appointment and actually saw a Practice Nurse.

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5.2 Method

My aim was to explore whether a letter offering an appointment with a predetermined date and time would be effective in prompting patients with SMI to attend for a primary care health check. If patients will not attend for a health check then it would not be a good use of resources to set up a clinic for this purpose.

This is a retrospective comparison of the response rate of patients with SMI and diabetes to an invitational appointment letter to attend for a primary care health check in my own practice.

Patients with SMI were sent an appointment at a pre-determined time and date to have their physical health reviewed. A letter was sent out 10 days prior to the appointment (figure 5.1); a copy of the letter was placed in the patients' notes. For patients with diabetes, letters were sent out two to three weeks ahead of the fixed appointment. The gap between the letter being sent out and the appointment was shorter for the SMI group because of the cognitive problems (e.g. poor memory and planning) associated with their condition. The letter gave the patient an option to contact the surgery if they had any questions or concerns, or wanted to change the date or time of the appointment.

Figure 5.1 The invitational appointment letter for people with SMI

~[Title/Initial/Surname]
~[Patient Address Block]
~[Post Code]

Dear ~[Title] ~[Surname]

You are invited to …………..Medical Centre, on…………….at………….for a health check.
The purpose of the appointment is to check that you are physically well and review the medications that you are taking. You will be offered a blood test and may be offered an ECG (examination of your heart). You can refuse any of the examinations offered to you if you so wish. Please bring a specimen of urine.
If you have any medical problems these can be dealt with during this appointment.
If you have any questions or concerns, please contact the surgery by ringing…………
Yours sincerely

Name of Practitioner

I carried out an audit of all patients with SMI or diabetes who were offered an appointment by letter between the first of January 2010 and the 31st of December 2010. I examined:

- The lists of patients who had been invited over the last year (I keep monthly lists in order to monitor cancellations).

- The computer records of each patient on the on the invitation lists to see if an invite letter was recorded.

- The SMI clinic and diabetes clinic lists recorded on the GP practice computer system to identify the invited attendees of over the last year.

- The individual records of patients who had been offered a health check by written invitation and had not attended in an attempt to discover why they had not come, e.g. were they in hospital, incorrect address, regularly did not attend appointments.

Demographic information was extracted by electronic audit from the SMI and diabetes disease registers. Individual patient records were examined to determine whether or not they attended for a health check at the date and time stated in the invitational letter.

Data Analysis

I sought advice from Allan Clarke, statistician at the University of East Anglia. He suggested that I calculate crude odds ratio to explore whether the patient's diagnosis (SMI or diabetes) made a difference to the numbers responding to an invitation for a health check. This is the standard test used when you want to compare the odds of something occurring in two different groups (Plitcha and Garzon 2009). The odds of an event occurring is the probability of the event divided by the probability of an event not occurring. It is the ratio of the odds for the first group and the odds for the second group.

Ethical approval

I submitted the protocol to the GP practice Caldicott guardian and it was given written approval.

5.2.1 Other possible methods

I considered carrying this audit out prospectively in my own practice but this would have taken more time. Additionally, the method of inviting patients would not have changed. I could have carried out the audit prospectively in another practice to reduce the possibility of bias, but I was unaware of any Northampton practice carrying out regular clinics for people with SMI at that time.

Other methods of invitation other than letter such as phone calls, opportunistic invitation with an appointment at the time, contact via carers or invites by other healthcare professionals such as the Community Mental Health Worker are all helpful methods for inviting patients with SMI to an appointment. They were not included in this study as I wanted to find out whether the use of an invitational letter alone was successful in getting patients to attend.

5.3 Results

There were approximately 10,000 patients registered at the practice. One hundred and twelve patients were listed on the SMI register (1.11% prevalence); 64 (57%) were male. Of the 534 patients on the diabetes register (5.3% prevalence), 289 (54%) were males (there was no significant difference in the gender ratio of patients). A small number (n=11) of patients were on both registers. Patients with SMI were significantly younger than those with diabetes (p<.01; see table 5.1).

Table 5.1 Age groups of participants in the audit

Age range	Patients with SMI (n=112)	Patients with diabetes (n=534)
17-44	42 (37%)	57 (10.5%)
45+	70 (63%)	477 (89.5%)

Letters were not sent to the 138 patients (from both groups) who were currently inpatient, in residential care or prison. In total, invitation letters offering an appointment were sent to 508 patients, 92 with SMI and 416 with diabetes. The majority of patients from both groups attended at the date and time specified in

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the letter (see table 5.2). Patients with diabetes were more likely to attend for a health check compared with those with SMI (OR=2.20 95% CI=1.13-3.62). Patients with SMI that did not attend were followed up where possible by a telephone call either to themselves and/or their carer or community mental health worker. A letter was also sent offering another appointment. An additional four (4%) SMI patients attended a health check in response to the follow up increasing the total number that attended to 65 (70%). Fifty-three percent of patients with SMI had no contact with secondary care.

Table 5.2 Attendance for health checks

Attendance for health checks	Diabetes (n=416)	SMI (n=92)
Attended for a health check	338 (81%)	61 (66%)
At the offered time and date	321 (77%)	59 (64%)
After changing time and date	17 (4%)	2 (2%)
Did not attend for health check	78 (19%)	31 (34%)
Cancelled the appointment	22 (5%)	7 (8%)
Did not attend (no reason)	56 (13%)	24 (26%)

5.4 Discussion

The prevalence rate for SMI in this practice was slightly higher than the United Kingdom national average of 0.5-1% (National Audit Office 2007); the diabetes incidence equates to that of England (Diabetes UK 2011). Fifty-seven percent of

patients with SMI were male, but this small majority may not reflect a statistical significant increase in the prevalence of SMI in men.

The aim of this audit was to examine whether an invitation letter with a predetermined appointment is effective in ensuring patients with SMI attend a physical health check in primary care. Although I have demonstrated patients with SMI are less likely to attend than patients with diabetes, it is striking that the proportion of the SMI patients who attended in my audit was much higher than those in a similar study by Harvey *et al*. (2005). It could be that patients in a suburban area (as in this study) are more likely to attend than those in an urban one (as in Harvey *et al*.'s study). Alternatively, Harvey *et al*. required patients to make an appointment, I sent them one. Given that people with schizophrenia can have cognitive problems (Andreasen 1995) and people with bipolar disorder may have impairment regarding daily functioning, even during remission (Martínez-Arán *et al*. 2004), the complexity of the task might have been a barrier. Offering a set time and date removes steps in the process and may explain my enhanced response rate. It is also possible that my response rate was higher because our letter gave details about who would be doing the health check rather than asking them to make an appointment with an unnamed person.

The results revealed that patients with SMI also responded to an additional invitation after non-attendance. As this group experience fluctuating symptoms there is a need to develop an alternative strategy when they are in an acute phase of illness (Iyer *et al*. 2005). This could be inviting them again in a few months rather than a few weeks.

The difference in attendance rates between the two groups may have been affected by age rather than diagnosis; patients with diabetes were older and it is possible they may be more likely to adhere to a letter from their doctor asking them to attend a clinic. To make this clearer I should have made an adjustment for the difference in age between the two groups in the statistical analysis using logistic regression methods. (The information for this study was extracted straight from the computer records using the current population and not stored on an excel or SPSS spreadsheet. It is therefore not possible to make this analysis now as the population may have changed). An Australian health survey (Deeks *et al.* 2009) ascertained that younger participants are less likely to have annual health checks, seek advice or attend education sessions. However, another study has shown that age is not a factor affecting response to an invitation to attend for a health check (Thorogood *et al.* 1993). It is perhaps also worth noting that patients with diabetes generally seem to be much better at attending for health checks compared to those with other long term conditions. This may be because as a population, patients with diabetes have been educated to recognise the importance of health checks from diagnosis through courses such as DESMOND (Davies *et al.* 2008). (DESMOND is a programme of patient education modules and related educator training, which have been developed by a collaborative of NHS organisations). My sample of SMI patients in fact compares very favourably with the attendance rates observed in other long term conditions.

It is difficult to assess whether my audit reflects the wider population. As health checks for people with SMI have been offered for the past six years (since this was part of the GPs' payment contract in 2004) in this practice by the

same practitioner (at the time of the audit), the response rate to invitation letters is likely to be higher than that of a practice offering a new service (as in the study by Harvey *et al.*). It does, however, highlight what can be achieved over time.

5.5 Limitations

As this is a retrospective audit there is more risk of error due to confounding and bias. This risk is increased as I have carried out an audit of my own practice.

5.6 Summary of chapter

I have described in this chapter how sending patients with SMI in primary care an invitation appointment letter with a predetermined time and date for a health check may be effective in getting them to attend. This study has been published as: Hardy S and Gray R. (2012) Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check? *Primary Health Care Research & Development.* **13** 347-352.

Chapter six: Are food diaries a useful clinical tool for people with Severe Mental Illness?

In the last chapter I explained how patients with SMI will attend for a health check if they are invited. However, there is some concern from healthcare professionals that if these patients do attend, the tools employed to improve lifestyle for the general population in primary care will not be effective (Lester *et al.* 2005). As there are many approaches and different tools to help patients improve their lifestyle I decided to choose one as an example. In this chapter I explain how food diaries which are used for patients with physical conditions can be just as helpful in the SMI population.

6.1 Background

Lifestyle factors such as low levels of physical activity and unhealthy food choices are prevalent in people with SMI (Henderson *et al.* 2006, McCreadie 2003, Allison & Casey 2001). Poor diet can cause a range of other physical and emotional effects due to inadequate nutrition (Peet 2004). For example a lack of essential fatty acids can lead to a number of problems such as infertility, poor wound healing and liver degeneration and a reduced intake of calcium can cause depression and tooth decay (Stewart 2010).

Studies have demonstrated that people with schizophrenia are able to benefit from education about nutrition and a healthy lifestyle (Bushe *et al.* 2005, Wirshing *et al.* 2006) and this should be a routine part of the patient's annual physical review (Hardy and Gray 2010). However, there is a perception amongst health care workers that making lifestyle changes amongst people with

SMI, even if risk CHD factors are identified, would be difficult (Wright *et al.* 2006). I wanted to illustrate that a tool used in the general population can be just as effective in people with SMI.

Food diaries are often used in primary care as a tool to provide tailored feedback to patients on the quality of their diet; there is evidence to show that food diaries help people to lose weight by making overt the calories they are actually consuming (Hollis *et al.* 2008). Food diaries have been suggested as a helpful tool for people with schizophrenia (Rethink 2010); yet, I found little research using food diaries as a method to give us an in-depth insight into the quality of the diets of people with schizophrenia, or that illustrate their benefit to these patients. For example, a study by McDougall (1992) employed food diaries, but their use was only a small part of a larger package of education to eleven patients with schizophrenia and their contents were not explored; Henderson *et al.* (2006) used food diaries in their study of 88 patients with schizophrenia, but they used them as a data collection tool to measure the quantity of nutrients. The lack of employment of food diaries in this group maybe because clinicians and researchers perhaps have the belief that patients with schizophrenia do not have the cognitive ability to complete the task.

There is not a good understanding of the quality of the diet chosen by people with schizophrenia. I offer physical health checks to people with SMI and have observed the heterogeneity of dietary preferences and diet literacy. I wanted to explore whether using a food diary as a process would allow both a quantitative and qualitative assessment of the diet.

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6.2 Method

This was a prospective audit of eight patients attending for a physical health check with myself. I asked the first eight patients with schizophrenia who attended from a predetermined date: (1) to complete food diaries; and (2) for permission to record their opinion about their own diet during the health check. The food diary I used was one side of A4 paper with a column for each day of the week divided into hourly time slots (appendix 4).

When introducing the use of food diaries in the primary care setting to any patient, they are given specific instructions to record everything that they eat and drink over the period of one week in the relevant day and time slot. No changes were made to these instructions for the purpose of this audit.

I chose a sample size of eight patients as this is an ample quantity to achieve enough information and small enough to permit examination of each food diary. This was a convenience sample and as such did not allow me to have any control over the representativeness (gender, age, race, education, etc.) of the sample to the whole population of people with schizophrenia (Lunneborg 2007).

Open questions were used as part of the patient's usual consultation to ask their opinion about completing the diary. These were recorded in the the patients records following the consultation. This is usual practice when using diaries with any patient in primary care. The information was then transferred in an anonymised form to my secure computer.

Data analysis

A full thematic analysis could not be carried out from simple food intake recordings as I did not question beyond what the patients had written. This was in order for the consultation to remain usual practice. I was able to identify seven themes from the food diaries. I followed guidance from Howitt and Cramer (2010). I applied brief verbal descriptions to small chunks of data. I then adjusted these descriptions to become codings in the light of the full picture of the data. On the basis of these codings I was able to identify themes which I clarified with my supervisor (Richard Gray). An example of one theme was mealtime routines which emerged through the food diaries being divided into hourly slots for each day.

Ethical approval

I submitted the protocol to the GP practice's Caldicott guardian and it was given written approval. Patients were informed that the information would be used in a professional journal publication and would remain anonymous. Before asking them I made an assessment of their mental capacity. All patients who attended were capable of giving consent and they all agreed to carry out the task and gave permission to record the diary contents and their responses. This verbal informed consent was recorded in their computer records. Written consent was not sought as this study was viewed as an evaluation of usual practice. However, if I was to carry out a study like this again I would seek approval from the regional ethics committee and would obtain written consent from each patient.

6.2.1 Other possible methods

I considered carrying out the audit retrospectively but the food diaries are usually kept by the patients so this would not have been possible. Additionally I would not have had a record of their opinions about their diet. I could have carried out the audit in one of the participating practices. This would have reduced bias because I would have been evaluating an intervention delivered by a third party and not myself. However, as using food diaries to help people with SMI improve their diet may not have been usual practice in other surgeries, this would have involved them providing additional care. Getting practices to recruit to the study for training had already been an issue.

6.3 Demographic information

Demographic information (age, gender, housing status and occupational status), body mass index (BMI), smoking status, exercise level, contact with secondary care, information about who shops and cooks, and prescribed antipsychotic medication were obtained from the patients' computer records. This group were aged between 33 years and 83 years, with a mean age of 53 years (s.d. 15.60). There were five women and three men. Five patients lived alone, one in a nursing home and two with relatives. Five patients were unemployed, one was retired and two were working (part-time low paid employment). The mean body mass index was 27 kg/m2 (s.d. 4.64 - two obese, four overweight and two within normal range). Three patients reported that they were currently smoking cigarettes. The patients' preferred form of exercise was walking. They all claimed that they did this regularly, though the level of walking and frequency varied enormously from a short walk to the shops twice a week

to an hour of walking daily. All the patients were managed in primary care apart from one who received a monthly visit from a community mental health nurse. Six of the patients bought and prepared their own food, one had food prepared by a relative and one by nursing home staff. All patients were currently prescribed antipsychotic medication: five were taking an atypical only [quetiapine. risperidone, olanzapine, aripiprazole (two patients)] one was taking an atypical and a typical (olanzapine, chlorpromazine), one was taking two atypicals (amisulpride, olanzapine) and one was taking a typical only (trifluoperazine).

6.4 Results

Seven themes were identified: fruit and vegetables, lack of variety, meal time routines, a ready meal diet, fluid intake, treat eating and diet literacy. Responses tended to be brief which may be characteristic of the cognitive problems of schizophrenia.

Fruit and vegetables

Eating fruit and vegetables was largely absent, even the patient with the highest intake of fruit and vegetables was eating well below the recommended daily intake (five portions a day recommended in the United Kingdom by the Food Standards Agency). By viewing the type and counting the numbers of portions of fruit and vegetables consumed each day, I observed a considerable degree of variation. For example, over the week, the patient with the highest intake reported eating bananas, grapes, oranges, an apple, cherry tomatoes, carrots, roasted parsnips, broccoli, salad and drinking daily fruit juice compared to the

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patient with the lowest intake who reported eating some salad in a sandwich once that week. Overall patients repeatedly turned their noses up and reported that they did not like or could not afford vegetables.

'No…I don't like them.'
Patient 2 (33 year old female)

'I only like apples but I can't bite them now…' (Rotten teeth)
Patient 3 (60 year old female)

'*I don't really like vegetables, fruit's ok, I suppose…I know it's good for you but I don't really have enough money to buy them anyway.'*
Patient 4 (51 year old male)

'The only fruit I like costs too much.' (grapes, berries)
Patient 6 (39 year old female)

Lack of variety

There was very little variety in most of the patients' diets with little apparent insight that this may not be healthy. Patient 1 had two eggs for breakfast everyday, Patient 2 had a ready meal of 'chicken dinner' on five out of seven days, Patient 3 had a scone for tea and egg sandwiches for breakfast everyday and Patient 5 had a cheese and tomato sandwich four out of seven days.

'I eat them (eggs) *every day because they are good for you.'*

Patient 1 (44 year old female)

'I like chicken dinner…'

Patient 2 (33 year old female)

I like them (scones)*…?'*

Patient 3 (60 year old female)

'They (café) *make nice cheese sandwiches.'*

Patient 5 (61 year old male)

Mealtime routine

As the food diaries are divided into hourly slots for each day, I was able to get a sense of when meals were being eaten. Breakfast was rarely missed and usually eaten between 7 am and 9 am. Most of the diaries illustrated a regular meal time pattern. The meal most likely to be missed seemed to be the evening meal.

'I usually don't bother to eat in the evening. Sometimes I just go to bed.'

Patient 2 (33 year old female)

'I always have my dinner at 12.'

Patient 3 (60 year old female)

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> *'Breakfast is the best meal of the day!'*
>
> Patient 8 (83 year old female)

Ready meal diet

Some meals were home cooked but most patients relied on ready meals (examples: cottage pie, roast dinner, Chinese rice dinner) and convenience food and café bought snacks such as pizza, pies, sausage rolls, burgers, fish and chips or sandwiches.

> *'I just go out to the caff when I get up…'*
>
> Patient 4 (51 year old male)

> *' I really don't feel like going shopping, then having to spend time cooking and washing up…it's easier just to get a sandwich or a pork pie.'*
>
> Patient 5 (61 year old male)

> *'I get what I fancy from Morrison's…'*
>
> Patient 8 (83 year old female)

Fluid intake

Generally patients were drinking very little fluid, some recording as little as one or two cups of tea a day. There was a perception that they only needed to drink if they felt thirsty. There was one exception (Patient 7) whose food diary showed he was drinking about five litres a day.

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'I usually have a drink with my meals and before I go to bed.'

Patient 1 (44 year old female)

'I don't get thirsty, so I don't need to drink much.'

Patient 2 (33 year old female)

'Should I drink more…? I'm never thirsty.'

Patient 3 (60 year old female)

'If I drank anymore I would always be running to the toilet!'

Patient 8 (83 year old female)

Treat Eating

Looking through the food diaries, I noted the foods eaten outside the routine meal times, typically were chocolate bars, biscuits, crisps or cake. A few patients had pudding after some meals. Patient 5 ate four Kit Kats during this week. However, most of the patients were only eating treats once or twice a week.

'I like pudding…but you don't really need it, do you?'

Patient 1 (44 year old female)

'I always have my biscuits in the morning…they keep me going.'

Patient 3 (60 year old female)

'I really like Kit Kats!'

Patient 5 (61 year old male)

Diet Literacy

It was notable that the general perception was that the food they ate was healthy, yet on the whole, the diaries portrayed a picture of unhealthy diets (high fat and salt, low nutritional content). Patient 4 only ate once a day at a café. Only Patient 6 recorded drinking any alcohol (5 units during this week). The participants gave very little detail on what they were eating but they all managed to complete this task.

'*I enjoy my food and think I eat all the right things'*

Patient 1 (44 year old female)

'I don't need to worry about it (his diet) *because I go to the caff.'*

Patient 4 (51 year old male)

'I don't drink…it doesn't mix with my medication.'

Patient 5 (61 year old male)

'Yes, my diet's good.'

Patient 8 (83 year old female):

6.5 Discussion

My sample size of patients with schizophrenia is too small to accurately compare with that of other larger studies; yet I have made some interesting observations. The mean BMI of my group was similar to larger studies (Thakore *et al*. 2002, Allison *et al.* 1999). Most of the group did not smoke which is not consistent with the patients observed in other studies (Goff *et al.* 2005). As four of the patients I observed had never smoked, I cannot argue that this divergence is due to them receiving an annual physical health check which included smoking cessation advice over the last six years. It is recognized that people with SMI are more physically inactive than the general population (McCreadie 2003), yet, all patients in this audit reported walking regularly. As I have no accurate measure of the quantity or frequency of their walking, it maybe that their level of activity is actually quite low. Because physical activity can have a positive effect on psychological well-being in people with schizophrenia (Bradshaw *et al.* 2005) as well as a physical benefit; we need to consider what may be effective strategies for promoting physical activity in this population, as standard interventions are not always effective.

The patients in this audit are eating well below the recommended (in the United Kingdom) five portions (400g) of fruit and vegetables a day (Food Standards Agency 2010b). Surveys have shown that a large proportion of the general population of the United Kingdom are also eating less (in England in 2006, the daily fruit and vegetables purchased was 350g, and in Scotland it was 295g - Office for National Statistics 2008), but it is still notably more than the people with SMI in this audit. This reduced intake of fruit and vegetables is perturbing, as apart from the well known benefits of fruit and vegetables, a

study (Joshipura *et al.* 2001) has shown that people who eat many fruits and vegetables, independent of any other health factors, have fewer heart attacks. With the population of people with SMI being at a higher risk of heart disease, increasing their fruit and vegetable intake could be a preventative strategy to reduce cardiovascular risk.

One reason for the low consumption of fruit and vegetables given by the participants in my audit was that they are too expensive and they could not afford to buy them (all of our participants are in receipt of benefits or in low paid work). This is consistent with the findings of a study in carried out in Scotland (McCreadie *et al.* 2005), which showed that the diet of people with schizophrenia can improve when they are given free fruit and vegetables. However, six months after the free supply had stopped; consumption fell back to pre-intervention levels. McCreadie *et al.* believe that this was because after the intervention stopped, patients had to buy their own fruit and vegetables. Providing diet advice will not make fruit and vegetables affordable either and one could argue that the provision of advice without the means to achieve the outcomes may only serve to cause frustration and resentment.

Variety in diet is important, not only to relieve boredom of eating the same foods but to ensure the adequate intake of vitamins, minerals, proteins, fibre carbohydrates and fats. Some of the food the diaries recorded in this audit did show a level of variety, but most were very routinised and repetitive. The lack of adequate nourishing ingredients is consistent with the findings of Henderson's study (Henderson *et al.* 2006) which did not look at the variety in the diet, but measured the intake of the above nutrients by people with schizophrenia and found them to be lower than the general population. The

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patients in this audit did not appear to be bored with what they are eating and showed little awareness of the importance of variety in their diet. Working with each patient using their diary as a starting point, would provide a guide for the healthcare professional to explain individual improvements. Only guidance appropriate to that particular patient would need to be offered, taking into account their obvious preferences, rather than giving them general diet advice. This negates the need for the patients, who may by the nature of their condition have some cognitive impairment, to filter out less important messages.

The patients in this group relied on ready meals and convenience foods for most of their dinners. These foods tend to be high in saturated fats and salt which can contribute to high blood pressure and cholesterol and low in nutrients such as vitamins and minerals needed to promote good health. Most of the patients in my audit bought and prepared their own food, but that does not inform us of the reasons that they maybe reliant on these foods. In order to provide useful education and helpful advice about eating a healthier diet, the healthcare professional needs to find out what these reasons are in each individual case. Some patients may lack the skills of food preparation, in which case, practical help will be needed in order to assist them to gain these skills if they so wish. Given the nature of the condition and the fact they are preparing food for themselves and eating alone, some patients may lack the motivation to prepare a proper meal. In this instance, it maybe beneficial to review whether it is the patient's medication is causing increased tiredness and considering a possible alternative. As eating is a social activity, exploring with the patient how their social network could be widened may improve the quality of their diet.

The food diaries showed that, even though the majority of patients are not working, they are still getting up to eat breakfast and appear to follow an ordered routine. This contrasts with the chaotic lifestyle or spending the day in bed, which is often described in this population. Perhaps their rigid routine is due to a lack of flexibility and is another indication of poor cognitive function (MacGabe 2008). Considering this more positively, people with schizophrenia seem to do best in well-organized home environments with regular routines that include meals, sleep, work and recreation (Minato & Zemke 2006). It could be the case that the patients in this group have been taught that maintaining a routine can be helpful, or perhaps they have found this out for themselves. Often when we offer general diet advice we advocate developing a routine; this is an example of where promoting this message may be unnecessary and only result in clouding the important ones.

The diaries revealed that not all the patients were eating the same things in the same amounts and at the same times. This confirms my view that interventions offered by healthcare professionals need to be considered on an individual basis in order to be effective (Hardy 2009).

My audit revealed a lower fluid intake than recommended for healthy hydration (1200mls for people in the United Kingdom, Food Standards Agency 2010c). Drinking too little is in common with the rest of the population, yet my group drank substantially less and reported that they did not feel thirsty. As this is a very small study, a much larger population is needed to explore whether my results are representative of the population of SMI. An American study (Farley *et al.* 1986) concluded that psychosis can severely impair the thirst mechanism directly. This is an old study and included only one patient; however it may go

some way to explain why the patients in this audit did not feel thirsty. Most people do not wait until they are thirsty to drink as social and cultural factors, e.g. work breaks, meeting up with friends prompt them; thirst offers a backup to these behavioural factors. We need to advise patients with schizophrenia who may not have these prompts to increase their fluid intake, explaining that they should not wait until they are thirsty to drink. Conversely, we should be mindful of polydipsia. A person suffering from polydipsia drinks too much fluid; this can cause hyponatraemia which can lead to coma and even death. It has been estimated that between six and 17% of psychiatric inpatients suffer from polydipsia (Brooks & Ahmed 2007). The food diaries also highlighted that the patient living in the nursing home was suffering from this condition. The patient in this study has spent his life in institutional care and no one had recognised this overconsumption of fluid. I have discussed this finding with his care staff.

A study showed that a higher national dietary intake of refined sugar and dairy products predicted a worse two year outcome of schizophrenia (Peet 2004). A high sugar intake in a person with schizophrenia can be seen as a critical indicator of poor general health and well-being (Houghton 1982). Fortunately, the patients in this audit are not eating too many sugary or fatty snacks, which as well as giving them a better outcome of schizophrenia, it has benefits for their dental health and reduces their risk of developing cardiovascular disease and diabetes. I don't know whether these patients recognise this benefit or whether they are unable to afford to buy themselves treats.

It is perceived that people with schizophrenia drink more alcohol than the general population. In the United Kingdom, at the time of study, this factor was

viewed as important enough to consider payment to GPs to monitor patients with schizophrenia for alcohol use (NICE 2010a). This has since been implemented through the GPs' payment contract (BMA and NHS Employers 2012). However, the patients in this audit did not drink alcohol. This may be because they are all taking antipsychotic medication, they have taken on board the advice that their medication can cause sedation and impair coordination (as described by Patient 5), and that using alcohol can further increase any impairment (Rethink 2008). Other reasons may be lack of money to buy alcohol, the fact they are not socialising or maybe they merely chose not to record their alcohol intake. Whatever the reasons, my results are consistent with the findings of Henderson *et al.* (2006), who also found that patients with schizophrenia had a lower alcohol intake than the general population.

McCreadie (2005) argues that many patients with schizophrenia come into the category of population subgroups that are not fully able to make wise, informed choices about dietary health. My findings certainly substantiate this view, as most of this group considered themselves to have a good diet despite recording the opposite. It could be argued that this would change if the people with schizophrenia were offered pertinent education about nutrition and a healthy lifestyle (Bushe *et al.* 2006, Wirshing *et al.* 2006).

It is a concern that these patients may think their diet is adequate, and when in a consultation with a busy healthcare professional may report that their diet is good. Because most of the literature regarding the physical health of people with schizophrenia focuses on obesity, if their body mass index (BMI) is within normal range, some healthcare professionals may assume diet advice is unnecessary. What I found alarming was that the patient with the lowest BMI

had the unhealthiest diet and without the use of the food diary I may not have discovered this.

Patients with schizophrenia who have poor dietary literacy need ongoing education about a healthy diet and how to prepare simple healthy meals in order to facilitate making a positive change. There is no one size fits all way to help patients with schizophrenia to improve their diet. The results show that a personalised approach is necessary. Education and interventions for the schizophrenia population should focus on overall lifestyle factors such as physical activity, their social situation as well as advising healthy food choices. Consideration should be given to how patients in financial difficulty can afford to buy the necessary quantity of fruit and vegetables to maintain their physical health.

6.6 Limitations

There is a risk of potential bias as I carried out the audit in my own practice. Patients may not have recorded everything that they ate or drank. I did not ask patients whether they had difficulty in completing the diaries.

6.7 Summary of chapter

I have observed from this audit that the food diary is a useful clinical tool. It has helped determine on an individual level the importance of diet to the patient's physical and emotional wellbeing. I also learnt that contrary to public belief, some patients with schizophrenia are capable of completing homework tasks. This study was published as:

Hardy S and Gray R. (2011) The secret food diary of a person diagnosed with schizophrenia. *Journal of Psychiatric and Mental Health Nursing.* **19** (7) 603-609.

Chapter seven: What is the best evidence for training nurses about physical health in severe mental illness?

In the previous chapters I have discussed how to invite patients to a health check and the utility of food diaries in primary care. In this chapter I discuss how I carried out a systematic search for evidence regarding the efficacy of healthcare professional educational outcomes in studies of physical health in SMI. The intention was to review this evidence to inform the development of my own training package, but no relevant studies were found. Carrying out a systematic review is recommended by Craig *et al.* (2008) for researchers evaluating a complex intervention.

7.1 Background

A recent study has found that the strongest predictors of quality of clinical care given by practice nurses for long term conditions in England are organisational factors which include education and training (Griffiths *et al.* 2011). SMI is categorized as a long term condition (BMA and NHS Employers 2012). Yet in the most recent analysis of practice nursing, training about SMI was not identified as a need (Crossman 2008). In this study, 1,161 nurses were asked to identify both their responsibilities and training needs. Mental health was not given as a responsibility of any of the respondents. Six hundred and ninety-nine nurses (65%) said they required more training but only 668 identified what this was. From this group only six nurses cited mental health as a training need. This mirrored my own observations in 2009. Discussions with practice nurses in Northampton at that time, showed they were keen to be involved with improving

the health of people with SMI but did not see it as their role, a number even quoting '*I don't do mental illness*'. In a qualitative study of six primary care trusts in the West Midlands, GPs and practice nurses largely believed that the care of people with SMI was too specialised for their service (Lester *et al*. 2005). More recently I have observed a positive shift in the attitudes of some practice nurses in Northampton and the East Midlands regarding mental health. This appears to have coincided with screening for depression in patients with diabetes and heart disease becoming part of the payment contract (BMA and NHS Employers 2012). A study of GPs and practice nurses regarding the impact of this payment contract reported that there was substantial improvements in teamwork and in the organization, consistency and recording of care for conditions incentivized in the scheme, but not for non-incentivized conditions (Maisey 2008). In 2012, as part of a local study in Northampton, I carried out a survey with practice nurses to examine their previous education and attitudes about screening for depression and anxiety in long term conditions. The majority of nurses agreed that everyone with a long term condition should be screened for depression and anxiety symptoms and that they as the healthcare professional providing the annual review should be the person to do it. They reported that a lack of relevant training and time during the consultation may prevent them from doing this effectively. Access to relevant training is one of the regulations in the Care Quality Commission workforce outcomes document (Care Quality Commission 2012). These observations suggest that practice nurses need suitable support and training to increase knowledge and skill.

I needed to educate practice nurses to equip them with the skills to carry out these health checks and in doing this provide evidence that offering a

physical health check will be beneficial to the patients. I wanted the education to be evidence based so I set out to perform a systematic review with my fellow student Jacquie White (Jacquie is also studying for a PhD at the University of East Anglia. She is co-ordinating a RCT examining the effect of mental health nurses providing health checks for people with SMI). The aim was to identify the evidence of efficacy of the education of qualified health care professionals to deliver interventions aimed at improving the physical health of adults with SMI.

7.2 Method

We undertook a systematic search of the literature in June 2010 using the terms Severe Mental Illness, Physical Health and Education utilising the component databases: MEDLINE (Ovid) (1950-June 2010) (55 results), CINAHL (EBSCO) (1981 – June 2010) (24), AMED (Ovid) (1985 – June 2010) (0), Psychinfo (EBSCO) (1806 – June 2010) (21), Cochrane (June 2010) (0), WHO (June 2010) (4), OpenSIGLE (June 2010) (216), EMBASE (Ovid) (1980 – week 23 2010) (94) and Health Technology Assessments (June 2010) (O).

MEDLINE search terms

(exp "schizophrenia and disorders with psychotic features"/ OR chronic mental illness.mp. OR chronically mentally ill.mp. OR chronic mentally ill.mp. OR severe mental illness.mp. OR severely mentally ill.mp. OR exp Bipolar Disorder/ OR (bipolar$ adj3 disorder$).ti,ab. OR (bipolar$ adj3 depress$).ti,ab. OR (bipolar$ adj3 illness$).ti,ab. OR (bipolar$ adj3 disease$).ti,ab. OR (bipolar$ adj3 episod$).ti,ab. OR mania.ti,ab. OR manic.ti,ab. OR (hypomanic or hypo-manic or hypomania or hypo-mania).ti,ab. OR cyclothym$.ti,ab. OR

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(schizophren* or hebephreni* or oligophreni* or psychotic or psychosis).ab,ti.)
AND (Health Status/ OR physical health.mp. OR Physical Fitness/ or Health/)
AND (exp *education, continuing/ OR (education$ adj2 (program$ or
intervention? or meeting? or session? or strateg$ or workshop? or visit?)).tw.
OR (behavio?r$ adj2 intervention?).tw. OR (education$ adj1 (method? or
material?)).tw. OR ((opinion or education$ or influential) adj1 leader?).tw. OR
facilitator?.tw. OR *guideline adherence/ OR (guideline? adj2 (introduc$ or
issu$ or impact or effect? or disseminat$ or distribut$)).tw. OR ((effect? or
impact or evaluat$ or introduc$ or compar$) adj2 training program$).tw. OR
(prompter? or prompting).tw. OR compliance.tw.)

No limitations on year of publication or language were applied. We
inspected the references of all identified studies and relevant reviews for other
appropriate studies to determine if any material may have been overlooked.

Inclusion criteria

- Education to deliver interventions to improve the physical health of
  people with SMI
- Assessment of the impact of the education package on the healthcare
  professionals
- Patient specific outcomes

Justification for inclusion criteria

At first, we planned to only include RCTs as they are considered to be
the highest standard of research evidence to determine the efficacy or

effectiveness of a healthcare intervention or service. We searched for RCTs that evaluated the efficacy of the education of qualified health care professionals to deliver interventions aimed at improving the physical health of adults with SMI. As this criteria did not uncover any relevant papers, and the 'most appropriate' (or highest level of) evidence is not necessarily the RCT (Sanson-Fisher *et al.* 2007), we expanded our criteria to include service evaluations. However, searching for service evaluations did not prove fruitful either, so we removed the study design from the search criteria completely. The outcomes had to include some assessment of the impact of the education package on the healthcare professionals as well as patient specific outcomes.

We anticipated that the education packages would involve some face-to-face education (of any duration) backed up by the provision of written materials and potentially prompting processes when the trainees returned to practice. We intended to note the character of education delivery (group, one-to-one, experiential, didactic, duration, location etc), the character of the trainer (profession, level of education etc), the character of the group (multi or uniprofessional, level of qualifications and area expertise etc) and the provision of support subsequent to the education event (written resources, access to trainers, web groups etc).

7.3 Results of systematic search

We identified 414 references from the databases: MEDLINE (55), CINAHL (24), AMED (0), Psychinfo (21), Cochrane (0), WHO (4), OpenSIGLE (216), EMBASE (94), HTA (0) and none from other sources. We screened the results of this electronic search. Through screening and discussion 147 papers were

excluded as they did not meet the criteria for this review. There were no difficulties or disputes during this process.

A number of studies (Smith *et al.* 2007a,b) were excluded from this review as although there was an implicit education package provided to healthcare professionals, no information was reported on the outcomes of this education with regard to healthcare professionals' knowledge, attitudes and behaviours. The only information that these studies provided was patient specific outcomes. Therefore no studies were identified as suitable for a systematic review. See flow diagram (figure 7.1).

Figure 7.1 Results of systematic search

References from databases (414): MEDLINE (55), CINAHL (24), AMED (0), Psychinfo (21), Cochrane (0), WHO (4), OpenSIGLE (216), EMBASE (94), HTA (0)

References from other sources 0

References (without duplicates) 147

147 references screened

145 references excluded

2 full text articles assessed for eligibility

2 full text references excluded

0 studies included in review
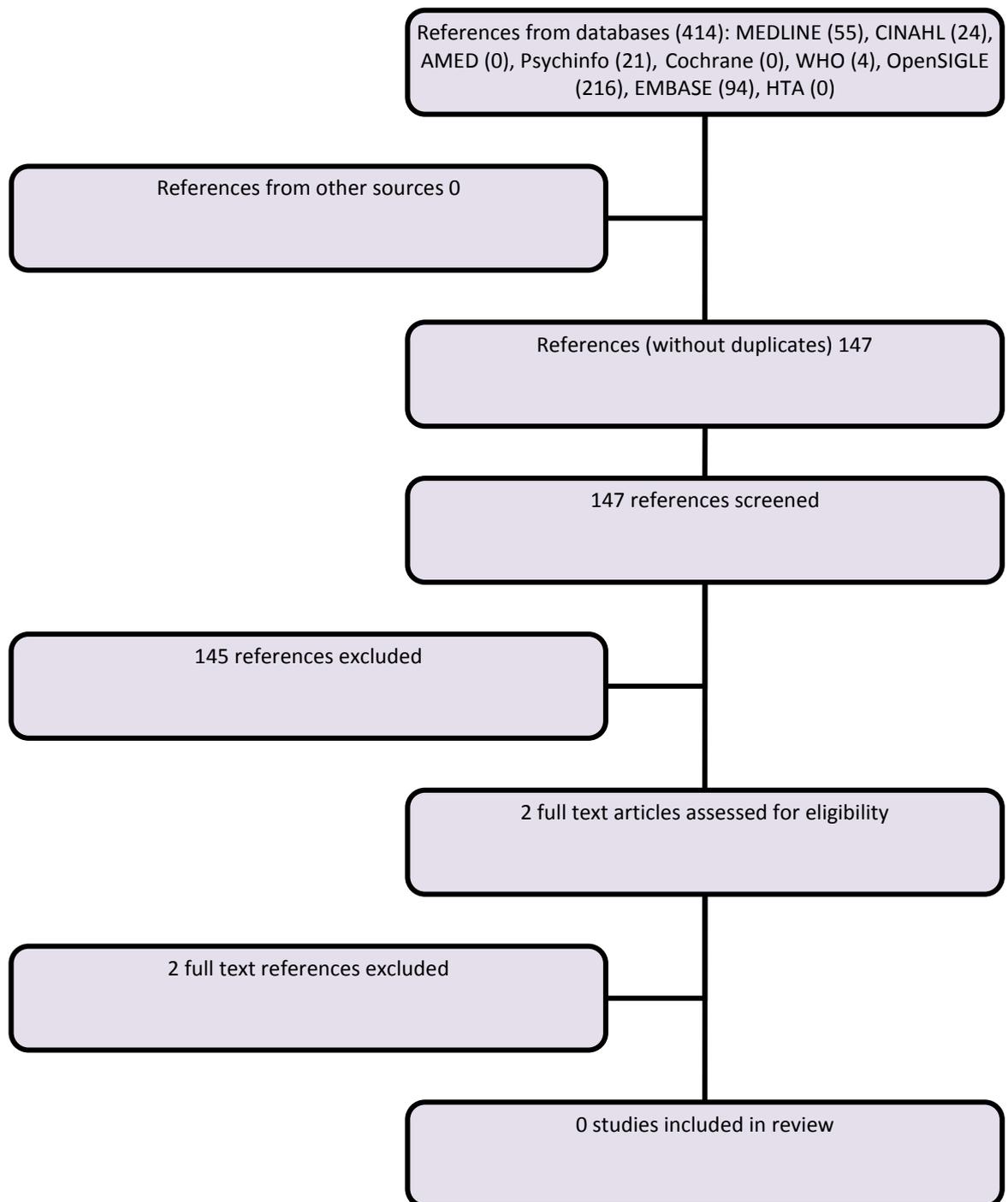
7.4 Discussion

It is significant that we were unable to identify any studies. There appears to be a lack of understanding regarding the importance of disseminating evidence based interventions in order to make them effective in practice. Specifically, it is important to understand the impact of an education package aimed at healthcare professionals on their knowledge, attitudes and behaviours. If this is not understood, then the reasons for any change in patient outcomes are impossible to determine. The lack of this information may be one of the reasons for the insufficiency of long term impact for such programmes as the Well-being Support Programme (Smith *et al*. 2007a,b), as critical information needed to apply such an intervention in practice is missing from the reports.

Providing health checks for people with SMI in the United Kingdom has become a requirement of the Quality and Outcomes Framework; along with providing health checks for people with other conditions such as diabetes that carry a high risk of developing CVD (BMA and NHS Employers 2012). The difference is however, there is an acceptance by the nurses that providing health checks for people with diabetes should be part of their role (Hall 2008). Additionally there are many courses about diabetes available to nurses from universities, local provisers and pharmaceutical companies. The lack of evidence based education available for qualified nurses to monitor the physical health of people with SMI (Blythe and White 2012, Robson *et al.* 2012) adds to the view that this is not their responsibility. The lack of specific evidence to demonstrate that education of the nurses will improve patients' health makes advocating any education (should it be available) a difficult task.

Practitioners worry, quite rightly, about patients with SMI committing suicide (Gray *et al.* 2009) and maybe this is why there is an abundance of research regarding interventions to prevent suicide in this group of patients. Leitner *et al.* (2008) carried out a systematic review and uncovered no less than 24 studies in this area. This contrasts with a systematic search for the effectiveness of physical health monitoring in SMI which did not identify any studies (Tosh *et al.* 2010) Given the plethora of papers advocating the importance of monitoring the physical health check of people with SMI, it is striking that both my attempt and that of Tosh *et al.* (2010) to evaluate the evidence in this area by carrying out a systematic review, unearthed absolutely no studies. As more patients with SMI die from CVD than suicide (Gray *et al.* 2009); it is vital that researchers start to publish details of healthcare professional education and their outcomes in physical health and SMI research.

7.5 Limitations

Although our search criteria should have been robust enough to detect relevant studies or service evaluations, it is possible, however, that we have failed to identify small studies and evaluations or studies and evaluations in progress.

7.6 Summary of chapter

There is a need not only to develop education for qualified nurses and other relevant healthcare professionals to provide physical health checks and appropriate interventions for people with SMI, it is also necessary to demonstrate that offering this education will improve patient outcomes.

This study was published as:

Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.

Chapter eight: Developing a physical health in severe mental illness training package for practice nurses

In this chapter I have written an account of the development of the intervention, the physical health in SMI training package for practice nurses. This is recommended by Craig *et al*. (2008) as part of the evaluation.

8.1 Background

I have been carrying out physical health checks for people with severe mental illness in primary care since 2005. At that time there were no guidelines from the National Institute for Health and Clinical Excellence (NICE) in this area. The only documents available for primary care clinicians other than the Quality and Outcomes Framework guidance were a briefing guide about the new GP contract (Sainsbury Centre for Mental Health 2003) and some brief tables in medication books such as the BNF and the London and Maudsley NHS Foundation Trust, and Oxleas NHS Foundation Trust prescribing guidelines. An extensive search of literature by Roberts *et al*. (2000) to review whether offering routine or opportunistic health assessment in primary care to people with schizophrenia was effective in improving the mental and physical health found only three studies met their inclusion criteria. They concluded that there were insufficient data to suggest that health assessments of people with schizophrenia are effective in improving their mental and physical health. However, one study showed that use of a tool designed for mental health nurses to monitor the physical health of people with SMI was effective in achieving improved recording of physical illness and lifestyle needs (Phelan *et*

al. 2004). In addition, another study employing a nurse advisor to carry out health checks for this group accomplished improvements in the weight and diets of participants (Ohlsen 2005). This encouraged me to create my own best practice guide. Through providing these health checks I have observed improved health in these patients (figure 8.1). When creating the training, I wanted to equip practice nurses to provide patients with the same level of care. To assist in this process I developed two tools, a best practice manual and website.

Figure 8.1: Example of a patient with SMI invited for a health check.

The patient is a 57 years old gentleman who had not had any contact with his GP for three years, and only sporadic contact with staff in secondary care. I do not know the reasons why he had not chosen to come in; but before the introduction of the payment contract in 2004, patients with long term conditions were not routinely invited to attend for a health check. This patient was diagnosed with schizophrenia 35 years ago for which he was taking olanzapine. He also had epilepsy which was controlled with phenytoin; he was unable to tell us whether he was experiencing any fits. The patient lived with his elderly parents and did not go out. He was invited by letter for a health check and attended. Blood test results revealed that his phenytoin levels were low and his cholesterol and glucose levels were raised. His blood pressure was raised and the electrocardiogram showed his QT interval was lengthened. The patient had neglected his hygiene, leading to fungal infections on his feet, axillae and groin. Lifestyle advice and tactful hygiene advice was offered to the patient and he seemed to take this on board. Clotrimazole cream was prescribed, which along with his improved hygiene alleviated his fungal infections. He was subsequently diagnosed with diabetes, hypertension and AV heart block. The patient's phenytoin dose was increased to ensure a therapeutic dose. Simvastatin, metformin, ramipril and aspirin were initiated to reduce cholesterol, blood sugar, blood pressure and lessen his risk of a heart attack or stroke. His olanzapine was stopped and replaced with quetiapine as olanzapine can increase the QT interval and increase blood glucose.

8.2 Developing a best practice manual

When developing a complex intervention, Craig *et al.* (2008) suggest making the recommendations as specific as possible. I therefore developed the Health Improvement Profile for Primary Care or HIP-PC (in collaboration with Professor Gray) from the original tool, the HIP (developed for secondary care), by adapting it for use in primary care (Hardy and Gray 2010). The HIP was chosen as a suitable tool as there is positive qualitative evidence that using it results in improved health (Schuel *et. al* 2009).

When designing this intervention, the main focus was to enable the practice nurse to provide a health check as part of their usual role, rather than as an adjunct service. This is a practical approach to the problem, yet it remains complex in terms of its evaluation and dissemination. Complex interventions contain several interacting components (Medical Research Council 2009); the HIP-PC targets the practitioner, the patient and the organisation and requires them all to interact.

8.2.1 The Health Improvement Profile (HIP)

The Health Improvement Profile (HIP) is an evidence based physical health risk assessment for mental health nurses. The developers of the HIP (White *et al.* 2009) identified the need to address these inequalities of physical health care experienced by people with SMI. They predicted that developing a specific tool could help mental health nurses in secondary care outline the physical health of the patients with severe mental illness that they work with and direct them towards the evidence base interventions available to address identified health problems. They agreed that this tool needed to address the major health

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priorities, behaviours and problems where there is evidence of increased morbidity/mortality in people with SMI.

The HIP has 27 items and the male and female versions are slightly different. The HIP is undertaken annually and takes approximately 30 minutes to complete; drawing information from multiple sources. Basic demographic information, age, gender, ethnicity, weight and height are recorded at the top of the form. Each item is marked either 'green', if the observation or behaviour is within a healthy range or 'red' if it is unhealthy. A list of recommended actions based on best current evidence is provided to guide practice and the nurse should check the box indicating the intervention they have taken. The form is carbonated in triplicate; copies can be placed in the multi-disciplinary notes, sent to primary care and given to the patient (Schuel *et. al* 2009). The HIP is also available in an electronic format (eHIP).

8.2.2 The Health Improvement Profile for Primary Care

The HIP-PC is a manual which provides healthcare professionals with clear guidance and a rationale to help them make decisions about individual patients (appendix 5). I wanted to make sure there was local agreement regarding this manual so I discussed its proposed contents with the director of mental health services. He was very supportive and made some helpful comments.

In the United Kingdom, each GP practice uses a computerised system to record patient consultations, not all practices have the same system. The advantages of using one of these systems are that elements of the consultation can be coded and therefore data collection is very straightforward. Unfortunately, at present not all these individual systems are compatible with

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other computer programmes. Using the HIP as it stands would mean that the nurse would have to record the information twice. Apart from this being an unpopular proposition, duplicate data entry opens the door to additional error and data conflicts. Therefore adapting the HIP to fit into each individual system as a template with the manual as accompanying guidance seemed a logical solution.

The HIP addresses all the physical elements that need to be considered when carrying out a health check. However, guidelines produced by NICE (2010a) recommend that patients managed in primary care should also have an assessment of their social needs. It is recognized that deprivation can impact on people's physical health through cholesterol levels, blood pressure and heart disease (Mental Health Foundation 2009). The assessment should include monitoring of mental state, medication use, medication adherence, side-effects, social isolation, access to services, and occupational status (NICE 2010a). This was also acknowledged at the time by the General Medical Services Contract (British Medical Association 2008). The contract required that a care plan is documented in the records and that the patient is followed up by the practice team within 14 days of non-attendance. It also suggests that the accuracy of medication prescribed by the General Practitioner can also be checked at the time of the health check (British Medical Association 2008). Therefore added to the HIP-PC with a rationale and recommendations for each, are a medication review, care plan and follow up plan for non-attenders.

Despite the fact that each practice receives no payment in protecting patients with SMI from flu with a vaccination, this has been added to the HIP-PC. This group has not been recognized as being at risk by the creators of the

GMS contract. However, the Sainsbury Centre for Mental Health (2003) advocates protection against influenza by offering annual immunisation in view of increased occurrence of cardiac, respiratory disorders and diabetes in patients with SMI. Each practice receives payments as an incentive for vaccinating patients with conditions such as diabetes, stroke and heart disease. Although no other organisations have made the recommendation for people with SMI to have the flu vaccination; I argue that in view of their increased mortality, this group are just as susceptible to the serious effects of seasonal flu as the other groups of patients with the conditions that receive payment. This is concurred by Cohen (2001) who argues that this is an under-researched area and that people with SMI need extra protection during the winter months by receiving an influenza vaccination.

The HIP recommends blood tests for liver function, lipids, glucose and prolactin when there are symptoms. In some circumstances further blood tests are recommended (Hardy and Gray 2009). These have been added to the HIP-PC with a rationale and recommendations for each.

The HIP recommends checking prolactin levels if symptoms occur (breast swelling and milk production, disturbance of menstrual cycle); this is in line with the South London and Maudsley NHS Foundation Trust, and Oxleas NHS Foundation Trust prescribing guidelines (Taylor *et al.* 2009), NICE (2006) guidelines for bipolar disorder and Northampton's local guidance (Northampton Healthcare 2007). However, consensus guidelines for managing prolactinaemia (Peveler *et al.* 2008) recommend that health care professionals should monitor proactively for hyperprolactinaemia as it maybe asymptomatic. A study has shown that 5% of people taking antipsychotic medication such as aripiprazole

and clozapine (which are not associated with elevated prolactin) had raised levels (Bushe *et al.* 2008). For this reason, the HIP-PC recommends checking prolactin levels on all patients taking any antipsychotic medication. This also makes choosing relevant blood tests, less complicated for the clinician carrying out the health check.

The HIP suggests performing an ECG if the pulse rate is increased. There is evidence that many typical antipsychotics increase the risk of ventricular arrhythmias and cardiac arrest (Ray *et al.*2001, Liperoti *et al.* 2005) and an association between many atypical antipsychotic drugs and the occurrence of unexplained sudden death (Abdelmawla and Mitchell 2006). Abdelmawla and Mitchell (2006) advocate that cardiac safety should be a routine part of clinical care in patients taking antipsychotic medication; therefore a preventive strategy is valuable even if the absolute risk of serious cardiac events is low. As it is quite simple to carry out an ECG in primary care (the equipment is available and most nurses in primary care will be proficient in carrying out this procedure) the HIP-PC suggests it is performed on all patients unless they are taking no medication. Carrying out an ECG also allows the opportunity to look for other possible problems such as gynaecomastia, hygiene neglect and rashes.

Because the HIP was designed for use by nurses in secondary care, some of the actions suggested by the HIP are referral to the GP or Practice Nurse. In these cases, the actions specified in the HIP-PC are those that the GP or Practice Nurse should carry out.

Originally a large number of manuals were printed. This proved invaluable at the beginning when trying to promote the project as people were

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keen to take something away with them. The manual has since been updated twice to keep abreast of the latest evidence. The latest version has been printed for two new projects described in chapter 14.

The HIP-PC manual is being used by Nottingham Mental Health Trust, Northamptonshire Healthcare Foundation Trust, Leicestershire Partnership Trust and NHS London. It has been adapted for use in Norwich, Lincolnshire and Australia. It has been translated into German for use in Switzerland. At the time of writing, a request had just been received from London South Bank University to use it for a new training programme.

8.3 The website

A website (http://physicalsmi.webeden.co.uk/ - appendix 6) for practice nurses has been constructed as a repository for useful tools (e.g. letters, care-plans, scales, HIP-PC), relevant information about SMI (e.g. medication, mental capacity act, schizophrenia, bipolar disorder) and helpful links (e.g. leaflets, further information for healthcare professional, charities). It is easy to use as there are no requirements to log in or register. Housing information on a website means I can update and add to it as appropriate. The website can be used both as a training tool and a resource for practitioners. There are links to further information and e-learning programmes. The best practice manual and useful tools such as letters, scales, leaflets, forms (which can be adapted to suit each organisation) are available to download. Practice nurses can save the address to their favourites and use it during consultations with patients.

8.4 Summary

The HIP is a comprehensive evidence based tool which identifies and addresses the physical needs of patients with severe mental illness. Adapting it for use in primary care and providing training for its use, will ensure that primary care healthcare professionals have access to best practice guidance.

This chapter has been published as:

Hardy S and Gray R. (2010) Adapting the severe mental illness physical Health Improvement Profile for use in Primary Care. *International Journal of Mental Health Nursing.* **19** (5) 350 -355.

Chapter nine: Are people with Severe Mental Illness in Northampton receiving health checks in primary care?

I wanted to find out if as many people with SMI were being given the same level of care as people with physical conditions. In this chapter I discuss my study carried out in five primary care practices in Northampton. I aimed to determine the proportion of patients with SMI being screened for CVD risk factors in their GP practice compared to those with diabetes, and find out whether people with SMI receive lifestyle advice.

9.1 Background

Healthcare professionals in primary care in England have evidence-based recommendations to follow for patients with diabetes regarding physical health interventions (Diabetes UK 2005) but not for people with SMI (De Hert *et al.* 2011a). Guidelines from the National Institute for Health and Clinical Excellence (NICE) were not available for bipolar disorder until 2006 and do not specify who is responsible for carrying out physical health checks. The NICE guidelines for schizophrenia (2010a) provide more clarity in that some responsibility falls to primary care. There is some evidence that people with SMI are not receiving CVD risk screening from primary care clinicians in the way they would if they had diabetes. For example, Roberts *et al.* (2007) found patients with schizophrenia were significantly less likely than the general population to have either blood pressure or cholesterol recorded. A possible explanation could be the method of remuneration to GPs. Since 2004, each primary care centre in England has received payment through a contract (the Quality and Outcomes

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Framework or QOF - BMA and NHS Employers 2011) to provide care for people with long term conditions. Before April 2011, to receive this payment practices were required to offer a review to people who had a diagnosis of SMI every 15 months. The particular contents of this review were not specified in the contract. The indicators simply stated that age-appropriate health promotion and prevention advice should be given (this changed in April 2011 with the introduction of specific indicators). Consequently, although best practice should include cardiovascular risk assessment, this was not part of the national contract at that time. In patients with diabetes there were specific payment indicators for recording blood pressure, body mass index (BMI), cholesterol and HbA1c.

9.2 Method

Craig *et al.* (2008) suggest using audit as one method of evaluating a complex intervention. I used a retrospective audit. Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change (Copeland 2005). A recent Cochrane review found that the effect of audit on professional behaviour is enhanced if the health professionals are not performing well to start out with (Ivers *et al.* 2012).

Audit Standards

The standards for CVD screening and lifestyle advice were derived from published guidelines (NICE 2006, 2009, 2010a, De Hert *et al.* 2009b). These were that all patients with SMI and diabetes should, as a minimum, have their

blood pressure, BMI (or waist circumference), blood glucose (or HbA1c) and cholesterol measured at least once a year. They should also be given advice about diet, exercise and smoking cessation annually.

Data Collection

This was a retrospective audit that took place between September 2009 and August 2010. Patients were identified from the SMI register of each of the participating practices. The SMI register is a list of people who have a diagnosis of schizophrenia, bipolar disorder or other psychosis. Each GP practice is required to hold a register for a range of long term conditions of which SMI is one (DH 2002). I instructed the member of administrative staff from each practice who was identified to help in this study, to check the SMI registers. This was to make sure that if people without an appropriate diagnosis were included they could remove them. To ensure that everybody with SMI was included, the staff carried out a search on antipsychotic medications from the computer records. The diagnosis and history of identified patients were then checked by clinicians from each practice to determine whether they met the criteria for inclusion. However, as I was unable to access the registers myself, I do not know how accurate they were. I needed to extract demographic information (age, gender) and evidence of whether screening and lifestyle advice had been given in the last year from the electronic patient records. This information was not collected routinely for the purposes of QOF at the time of the audit, so I helped each practice to set up individual audits for each measurement. All data were anonymised and I had no access to patient specific information.

As CVD screening for patients with diabetes is a requirement under the GP contract, the information collected at source is also stored in a national database system called the Quality Management Analysis System (QMAS). This system determines practices' contract payments (NHS Information Centre 2012a). All information from QMAS from the previous contract year (1st of April to the 31st March) is displayed on the NHS Information centre public website (NHS Information Service 2012b). I compared the percentage of patients with diabetes from the same five practices who had BP, BMI and blood glucose and cholesterol recorded from April 2010 to March 2011 on this website with those in the SMI patients from my audit. I could not make a comparison of diet, exercise or smoking advice. Offering diet and exercise information are not a contract requirement for diabetes, and are therefore were not recorded on this database (BMA and NHS Employers 2011). Though smoking advice is a contract requirement, the data is measured as a practice population of combined disease groups and not for each individual long term condition. Additionally, from this website, I was able to obtain the percentage of people with SMI in each practice that had a record of a review within the last 15 months.

Data Analysis

I took advice from Allan Clarke, statistician from the University of East Anglia. I calculated crude odds ratio to explore whether the patient's diagnosis (SMI or diabetes) made a difference to the level of screening given (odds ratio has been described in chapter five). For patients with SMI, descriptive statistics have been used to determine whether certain elements of screening and lifestyle

advice were given more often than others. To find out the number of interventions received by each patient I calculated the mean. The advantage of using the mean (rather than the median and mode) is that all the data is used to find the answer. The disadvantage using the mean can be that very large or very small numbers can distort the answer so I used standard deviation to show how much variation exists from the mean. To test whether age was associated with the rate of screening in SMI patients, I used standard tests for association (chi-square). Chi-square is a test commonly used to compare observed data with data we would expect to obtain according to a specific hypothesis. This fitted my data as it was random, raw, mutually exclusive, drawn from independent variables and from a large enough sample (Plitcha and Garzon 2009). Analyses were done with SPSS, version18.

Ethical Approval

The local regional ethical committee confirmed that this project was a service evaluation and it did not require their approval. The manager from the participating practices gave written consent to take part in the audit.

9.2.1 Other possible methods

The method used in this study is recommended by Hennekens and Buring (1987) to compare two groups of patients. I could have asked the participants to set up separate audits for the diabetes patients as they did for patients with SMI. This would have ensured that the data was collected at the same time as that for the patients with SMI. However, this would have been a very burdensome task for the participants who were not receiving any remuneration.

9.3 Results

In the participating practices, fewer than one percent of patients had SMI and around four percent had diabetes. Fifty-three percent of the patients with SMI were men.I was unable to extract demographic data for patients with diabetes as this was not recorded on the NHS information database.

Virtually all the patients with SMI (96%) in the five practices had a record of a review on the NHS database within the last fifteen months.

Table 9.1 shows that patients with SMI had lower odds of receiving CVD screening (blood glucose and cholesterol, BP, BMI) than those with diabetes.

Table 9.2 shows which elements of CVD screening and lifestyle advice were given to patients with SMI in the last year. Smoking cessation advice was given more often than diet and exercise information. Comprehensive lifestyle advice (smoking, diet, exercise) was given to around one in ten patients. Only one in twelve were given both complete CVD screening and comprehensive lifestyle advice. Each patient with SMI was given fewer than two of the four screening measures and less than one of the three components of lifestyle advice.

I sought statistical advice about whether age should be used as a continuous or categorical variable. It was considered most conservative to use three age group 16-35, 36-55, and 56 and above, Table 9.3 shows that patients with SMI over the age of 36 years were more likely to be given complete CVD screening but there was no significant difference in the level of lifestyle advice given.

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Table 9.1 The proportion of patients with SMI and diabetes given CVD screening

Intervention	Patients with diabetes (n=1875)	Patients with SMI (n=386)	Unadjusted odds ratio
BMI	n=1800 (96%)	n=185 (48%)	OR=26.08; 95% CI=19.21 to 35.39: p<.01
Blood pressure	n=1866 (99.5%)	n=243 (63%)	OR=99.83; 95% CI=53.29 to 187.00: p<.01
Serum cholesterol	n=1818 (97%)	n=143 (37%)	OR=54.20; 95% CI=38.77 to 75.76: p<.01
Blood glucose (or HbA1c)	n=1856 (99%)	n=135 (35%)	OR=181.62; 95% CI=110.38 to 298.85: p<.01
Full CVD screen	n=1800 (96%)	n=81 (21%)	OR=90.37; 95% CI=64.53 to 126.55: p<.01

Table 9.2 Elements of screening and lifestyle advice given to patients with SMI

Proportion of patients receiving elements of screening and lifestyle advice	n	%
Smoking advice	n=220	(57%)
Exercise advice	n=54	(14%)
Diet advice	n=50	(13%)
Full lifestyle advice (smoking, diet, exercise)	n=42	(11%)
Full CVD screening and lifestyle advice (blood pressure, blood glucose and cholesterol, BMI, smoking, diet, exercise)	n=31	(8%)
Elements of screening and lifestyle advice given to individual patients	Mean	sd
Number of CVD screening interventions given to each individual (from a possible four)	1.84	(sd=1.53)
Number of lifestyle components given to each individual (from a possible three)	0.85	(sd=0.95)
Number of screening and lifestyle interventions given to each individual (from a possible seven)	2.69	(sd=2.22)

Table 9.3 CVD screening and lifestyle advice given to patients with SMI by age category (n=386)

Age categories	16-35	36-55	56+	Significance
Number of patients in each age category	n=94 (24%)	n=169 (44%)	n=123 (32%)	
All four CVD screen (blood pressure, blood glucose and cholesterol, BMI)	n=10 (11%)	n=38 (22%)	n=39 (31%)	χ^2=13.55, p=<.01
All three lifestyle advice (smoking, diet, exercise)	n=5 (5%)	n=22 (13%)	n=16 (13%)	χ^2=4.25, p=.12
All CVD screen & lifestyle advice (blood pressure, blood glucose and cholesterol, BMI, smoking, diet, exercise)	n=2 (2%)	n=18 (11%)	n=13 (11%)	χ^2=6.56, p=.04

9.4 Discussion

The aim of this study was to determine the proportion of patients with SMI being screened for CVD risk factors in their GP practice compared to those with diabetes. A secondary aim was to ascertain whether people with SMI receive lifestyle advice in primary care.

An important observation is that the NHS Information database had a high percentage of patients with SMI from the participating practices recorded as having a review compared to the actual level of screening and advice given. This suggests a lack of awareness of the screening, health promotion and prevention advice that is appropriate for this group of patients.

My findings show a considerable variation in CVD screening rates in SMI patients compared to those with diabetes in the same centres. The higher level of screening in the diabetes population is likely to have been achieved because clinics for these patients to receive their annual review have become part of routine clinical practice in primary care centres (Hall 2008). They are usually run by a nurse who has undertaken advanced education in diabetes and who will be offered free regular educational updates by a variety of sources (e.g. Primary Care Diabetes Society). The provision of these diabetes clinics may have been encouraged by the contract's financial incentive. Conversely, meeting the physical needs of people with SMI does not appear to be common place (Shuel *et al.* 2009) and there is at present no evidence based education to address this discrepancy (Hardy *et al.* 2011). Teaching healthcare professionals in primary care about the increased risk of somatic co-morbidity in patients with SMI could develop the provision of health care for this group (Oud and Meyboom-de Jong 2009, Leucht *et al.* 2007). The introduction of specific contract indicators for

CVD screening in people with SMI in April 2011 may further promote this improvement.

My results were comparable with Roberts *et al.* (2007). In both studies blood pressure was the most frequently recorded CVD risk factor and the pattern of CVD risk screening was the same. However, the levels of screening for CVD risk in my audit were higher overall. Perhaps one of the reasons for this is that the audit by Roberts *et al.* was carried out before the contract was introduced (i.e. no payment was offered to primary care for providing this service) and therefore this screening was not considered by primary care clinicians to be their responsibility at that time.

It is possible that CVD screening of patients with SMI is not being done in primary care because it is happening in secondary care. However, an audit of patients (n=1966) under the care of community outreach teams across the UK carried out in 2005 showed this not to be the case, with recordings of blood pressure in just over a quarter of the records, obesity in less than a fifth, blood glucose in less than a third and cholesterol in less than a quarter (Barnes *et al.* 2007). A later study carried out at the psychiatric in-patient and out-patient units in Southampton and Winchester found that this had not improved with time (Holt *et al.* 2010). The following cardiovascular risk factors had been measured in the previous year: blood pressure (32%), glucose (16%), lipids (9%) and weight (2%).

It may be argued that the different rates of screening for each measure suggest that these are being carried out opportunistically rather than at a designated appointment. One explanation for this may be that, as Lester *et al.* (2005) found, primary care clinicians believe that patients with SMI will not

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attend for a health check. In contrast, my audit in one primary care practice confirmed if patients with SMI are invited by letter giving them a specific appointment time with a named person, the attendance compares very favourably with rates observed in other long term conditions (Hardy and Gray 2012b).

My audit showed that just over half the patients with SMI were offered smoking advice in comparison to the other lifestyle factors. This could be because it was a requirement under the contract (BMA and NHS Employers 2011). However, Roberts *et al.* (2007) found a similar number of participants in their study had smoking status recorded and this was before the contract. I cannot tell from this audit about the quality of the smoking cessation intervention, or whether the advice had been tailored to suit the specific needs of this population.

It could be argued that practitioners (despite annual screening being part of government guidelines) are only targeting patients with SMI who they perceive to be at risk and not those for example who have a normal BMI, are asymptomatic and their blood glucose was normal two to three years previously. However, based upon the increased risk in metabolic syndrome in these patients, baseline and periodic medical evaluations should become a standard component in ongoing clinical assessment (Toalson *et al.* 2004).

The low level of diet and exercise information received by this group in my audit suggests that the importance of these interventions have not been considered by the healthcare professionals. This finding is disappointing as people with SMI appear to give low priority to their physical requirements (Buhagiar *et al.* 2011) and would benefit from education that is focused on

changing health behaviours (Brar *et al.* 2005, Graves and Miller 2003). In fact, brief lifestyle guidance delivered by a non-specialist worker has been shown to deliver useful health gains in this population (Brown and Chan 2006).

The older the patients with SMI in my audit, the more likely they were to receive screening. This is inconsistent with a study by Osborn *et al.* (2011), which established that people with SMI over 60 years of age were less likely to be screened. Osborn *et al.* explain this may be because in the United Kingdom, there are no specific schemes to remunerate general practitioners for assessing or managing elderly people. The system of payment is targeted at a number of long term conditions rather than specific age groups. It may be that the practitioners in my study were taking heed of guidelines to assess people over 40 years of age in primary care for CVD risk (Joint British Societies 2005).

The low rate of screening in the 16-55 year groups of people with SMI is concerning. Even the presence of a single major risk factor at age 50 substantially raises the lifetime risk for CVD and markedly shortens survival. Prevention efforts need to begin decades before the age 50 years (Lloyd-Jones *et al.* 2006).

The provision of diet and exercise advice was extremely low in all SMI age groups. This is another unwelcome observation as the excess morbidity and mortality in this population is largely due to modifiable lifestyle risk factors (de Hert *et al.* 2011b). Providing this education at an early age (particularly before the presence of metabolic syndrome) will have a greater effect (Brown *et al.* 2009).

Training nurses in primary care may increase screening for CVD risk factors and the level of lifestyle advice given. My before and after study to

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establish the effectiveness of a training package for practice nurses about the physical health of people with SMI has recently been published (Hardy 2012) and is described in chapter 11. This showed that those who completed the training might be more likely to accept carrying out these health checks as part of their role.

9.5 Limitations

The study was retrospective, not prospective. It was reliant on secondary data. The observations were made at different time points as the secondary data could only be collected from April to March. I was not able to adjust for any potential confounders.

9.6 Summary of chapter

In this chapter I have examined the results of my study that aimed to find out if people with SMI were receiving screening for CVD risk factors and lifestyle advice. In the five Northampton practices, the proportion of patients with SMI being screened for CVD risk factors was much lower compared to those with diabetes. The number of people with SMI receiving lifestyle advice was also very low. I have discussed the possible reasons for this disparity.

This study has been published as:

Hardy S, Hinks P and Gray R. (2013) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health*. 22 (1) 42-50.

Chapter ten: Are people with Severe Mental Illness in England receiving health checks in primary care?

In the last chapter I explained how people with SMI were receiving less screening for CVD risk then people with diabetes in five practices in Northampton. Since then the GP's payment contract has changed, meaning that some of this data can now be collected nationally. This chapter describes the levels of screening received by people with SMI compared to those with diabetes in England.

10.1 Background

As described in the last chapter, since 2004, each primary care centre in England has received payment through this contract to provide care for people with long term conditions including the provision of medical screening of patients with SMI and diabetes (BMA and NHS Employers 2011). In order to receive payment practices are required to offer a review every 15 months. Even when treatment or diagnosis takes place in secondary care, responsibility for monitoring is often delegated to primary care (Bobes *et al.* 2010). Since April 2011, screening for CVD risk in patients with SMI and diabetes has become equal in the respect of payment received (figure 10.1 and 10.2 - BMA and NHS Employers 2011). The standards for cardiometabolic screening for diabetes and SMI share several similarities but are not identical. Nevertheless all patients with SMI and diabetes should, as a minimum, have their BP, body mass index (BMI), blood glucose (or HbA1c) and cholesterol (or cholesterol:HDL ratio).

Ideally information should be exchanged about the benefits of diet, exercise and smoking cessation.

In the last chapter I explained my study which compared the level of screening for CVD in five practices in Northamptonshire, England (Hardy *et al*. 2013a). I used two samples, patients with diabetes and patients with SMI. There was significantly less screening in patients with SMI. This study is an attempt to replicate this finding using a national sample.

Figure 10.1 Mental Health Indicators 2011/12

MH8. The practice can produce a register of people with schizophrenia, bipolar disorder and other psychoses
MH11. The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a record of alcohol consumption in the preceding 15 months
MH12. The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a record of BMI in the preceding 15 months
MH13. The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a record of blood pressure in the preceding 15 months
MH19. The percentage of patients aged 40 years and over with schizophrenia, bipolar affective disorder and other psychoses who have a record of total cholesterol:hdl ratio in the preceding 15 months
MH20. The percentage of patients aged 40 years and over with schizophrenia, bipolar affective disorder and other psychoses who have a record of blood glucose or HbA1c in the preceding15 months
MH16. The percentage of patients (aged from 25 to 64 in England and Northern Ireland, from 20 to 60 in Scotland and from 20 to 64 in Wales) with schizophrenia, bipolar affective disorder and other psychoses whose notes record that a cervical screening test has been performed in the preceding five years
MH17. The percentage of patients on lithium therapy with a record of serum creatinine and TSH in the preceding nine months
MH18. The percentage of patients on lithium therapy with a record of lithium levels in the therapeutic range in the preceding four months
MH10. The percentage of patients on the register who have a comprehensive care plan documented in the records agreed between individuals, their family and/or carers as appropriate

British Medical Association and NHS Employers (2011)

Figure 10.2 Diabetes Indicators 2010/11

DM 19. The practice can produce a register of all patients aged 17 years and over with diabetes mellitus, which specifies whether the patient has Type 1 or Type 2 diabetes
DM 2. The percentage of patients with diabetes whose 3 notes record BMI in the previous 15 months
DM 5. The percentage of patients with diabetes who have a record of HbA1c or equivalent in the previous 15 months
DM 23. The percentage of patients with diabetes in whom the last HbA1c is 7 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months
DM 24. The percentage of patients with diabetes in 40-70% whom the last HbA1c is 8 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months
DM 25. The percentage of patients with diabetes in whom the last HbA1c is 9 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months
DM 21. The percentage of patients with diabetes who have a record of retinal screening in the previous 15 months
DM 9. The percentage of patients with diabetes with a record of the presence or absence of peripheral pulses in the previous 15 months
DM 10. The percentage of patients with diabetes with a record of neuropathy testing in the previous 15 months
DM 11. The percentage of patients with diabetes who have a record of the blood pressure in the previous15 months
DM 12. The percentage of patients with diabetes in whom the last blood pressure is 145/85 or less
DM 13. The percentage of patients with diabetes who have a record of micro-albuminuria testing in the previous 15 months (exception reporting for patients with proteinuria)
DM 22. The percentage of patients with diabetes who have a record of estimated glomerular filtration rate (eGFR) or serum creatinine testing in the previous 15 months
DM 15. The percentage of patients with diabetes with a diagnosis of proteinuria or micro-albuminuria who are treated with ACE inhibitors (or A2 antagonists)
DM 16. The percentage of patients with diabetes who have a record of total cholesterol in the previous15 months
DM 17. The percentage of patients with diabetes whose last measured total cholesterol within the previous 15 months is 5mmol/l or less
DM 18. The percentage of patients with diabetes who have had influenza immunisation in the preceding 1 September to 31 March

British Medical Association and NHS Employers (2011)

10.2 Methods

Guideline Standards

Since April 2011 in order to receive payment under the terms of the Quality and Outcomes Framework, primary care practitioners are required to offer a review to people with a diagnosis of SMI every 15 months. This review should include measuring BP and BMI; and testing for blood glucose levels (or HBA1c) and cholesterol: HDL ratio in patients over 40 years of age. Prior to 2012, to receive payment for diabetes, primary care practices were required to offer a review to people who had a diagnosis of diabetes every 15 months for BP, glucose, BMI and cholesterol. Thus the standards for mental health and diabetes are almost identical (apart from the age requirement for blood tests in SMI patients) and run in consecutive years (2011 and 2012).

Data Collection

National data regarding Quality and Outcomes Framework standards for 2010/2011 and 2011/2012 was collected from the NHS database Health and Social Care Information Centre (HSCIC). This data is in the public domain.

As CVD screening for patients with diabetes and SMI is a requirement under the GP contract, the information collected at source is also stored in a national database system called the Quality Management Analysis System (QMAS). This system determines practices' contract payments. All information from QMAS from the previous contract year (1st of April to the 31st March) is displayed on the NHS Information centre public website (http://www.ic.nhs.uk/searchcatalogue). The percentage of patients with diabetes who had BP, BMI, HBA1c and cholesterol recorded from April 2010 to

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March 2011 was compared with the percentage of people with SMI with a recording of BP, BMI, cholesterol:HDL ratio and blood glucose (fasting or random or HBA1c) in 2011/2012. A comparison of patient demographics, diet, exercise, smoking advice and waist circumference could not be made. Measuring waist circumference and offering diet and exercise information are not a contract requirement for diabetes or SMI, and are therefore not recorded on this database. As described in the previous chapter, although smoking advice is a contract requirement, the data is measured as a practice population of combined disease groups and not for each individual long term condition.

Data Analysis

Chi squared statistic was calculated to explore whether the patient's diagnosis (SMI or diabetes) made a difference to the level of screening given. Analyses were done with Statsdirect 2.77.

10.2.1 Other possible methods

It would not have been possible to gain this information from any other source.

10.3 Results

The total sample included 2,488,948 patients with diabetes seen in 2010/2011 and 422,966 patients with SMI in 2011/2012. In 2011/2012 there were 8123 reporting primary care practices

For those with diabetes in the previous 15 months, nearly all patients received BMI measure, total cholesterol test, blood pressure assessment and HBA1c test. For those with SMI, in the previous 15 months four-fifths received

a BMI measure and almost nine out of 10 patients received blood pressure assessment. In the patients with SMI over 40 years of age, just over seven out of 10 received cholesterol test (cholesterol:HDL ratio) and just over two thirds received a glucose test. Comparing each category of test revealed that all differences were very highly significant between the two groups of patients (see table 10.1). However, it has been highlighted that attendance and compliance is a significant issue with those who have a diagnosis of SMI; possibly more than in diabetes (Shrivastava *et al.* 2012). Practices are allowed to make exclusions of patients who are too unwell or unwilling to attend over the period concerned. These exclusions can be removed from the analysis and re-analysis is shown in table 10.2. After exclusions, nearly nine out of ten patients with SMI received a BMI measure and just over nine out of 10 patients received a blood pressure assessment. Over four-fifths of patients over 40 years of age received a cholesterol test (cholesterol:HDL ratio) and a glucose test. Comparing each category of test between the patients with SMI and diabetes revealed that all differences remained very highly significant (see table 10.2).

Table 10.1

Adherence of QoF measures of metabolic testing in diabetes vs SMI before SMI exclusions

	Diabetes Tested	Diabetes % tested	Severe mental illness Tested	Severe mental illness %Tested	Chi 2 Statistic	P value
Blood Pressure	2,298,767	96.1%	355,834	84.1%	Chi² = 205712	p <.001
BMI	2,329,552	97.5%	335,652	79.4%	Chi² = 691072	p<.001
Cholesterol	2,378,115	98.4%	218,539	71.7%	Chi² = 262020	p <.001
HBA1c or glucose	2,363,485	94.9%	197,494	64.8%	Chi² = 495257	p <.001

Table 10.2

Adherence of QoF measures of metabolic testing in diabetes vs SMI after SMI exclusions

	Diabetes tested	Diabetes % tested	Severe mental illness tested	Severe mental illness% tested	Chi 2 Statistic	P value
Blood Pressure	2,298,767	96.1%	218,539	91.7%	Chi² = 97549	p <.001
BMI	2,329,552	97.5%	335,652	88.7%	Chi² = 96465	p <.001
Cholesterol	2,378,115	98.4%	355,834	81.9%	Chi² = 61743	p <.001
HBA1c or glucose	2,363,485	94.9%	335,652	84.8%	Chi² = 313117	p <.001

10.4 Discussion

This research demonstrates that in a very large UK sample, testing for CVD risk factors is much less common in patients with SMI than in those with diabetes.

Both conditions are similarly remunerated by a points system through the payment contract. The non-invasive clinical monitoring, for example of blood pressure and BMI was more thorough than those requiring a blood test (cholesterol, cholesterol:HDL ratio, glucose and HBA1c) in both SMI and diabetes patients, though fewer patients with SMI than diabetes had these checked. In patients with SMI only 64.8% of those over 40 years old received a glucose test for diabetes in the preceding 15 months, but about 95% of all those with diabetes received HBA1c over a similar period. It can be argued that these tests are not directly comparable as one test is for case-finding (glucose) and one is for monitoring treatment adherence (HBA1c). However the purpose of monitoring cholesterol, BMI and BP is the same in both groups, that is to monitor background metabolic risk. In patients with SMI only 71.7% of those over 40 years of age received a cholesterol check as compared to 96.1% of all patients with diabetes. If we were able to measure the record of glucose and cholesterol:HDL in all patients with SMI regardless of age, the level of monitoring is likely to be even lower.

These findings are consistent with other research examining routine monitoring prior to explicit guidelines (Mitchell *et al.* 2012), in that more patients with SMI had their BP and weight checked than their cholesterol and glucose. However, they differ in that the level of screening of patients wIth SMI is higher across all the four screening elements. Several explanations are possible. Financial incentives given to primary care practices might have improved

monitoring in line with the observation that most targets are achieved. My study described in the previous chapter (Hardy *et al.* 2013a) was carried out before specific payment indicators were imposed. The results showed lower rates of screening for all CVD risk in patients with SMI (21%) than found in this national study (74.7%). However, as patients under 40 years of age were not required to have two of the elements tested (cholesterol and glucose) in the second study; this higher level of achievement is not comparable. Another explanation is that monitoring has improved in the last one to two years. A study examining the monitoring of patients with SMI in UK primary care settings over 2000–2007 found rates were very low (Osbourn *et al.* 2011); but there was a trend for improvement in both patients with and without SMI. This concurs with the results in the study described in the last chapter and this one. Though the change is small, screening for patients with diabetes has increased from 96% to 97.3%.

The findings of this study show that patients with diabetes receive considerably more thorough CVD screening than patients with SMI. However in terms of years lost through mortality, SMI is probably more serious than diabetes with an age gap of 15-22.5 years in several studies (Wahlbeck et *al.* 2011, Chang *et al.* 2011, Saha *et al.* 2007). Patients with SMI should be considered a vulnerable group at least equivalent to diabetes. Barriers to medical care include lack of resources or time, low organizational support, clinicians' reluctance to change, concerns over the quality of the guidelines and lack of ownership (Osbourn *et al.* 2007).

The relatively low achievement of SMI targets are in fact an outlier in the targets. Given these findings of disproportionately low surveillance of patients

with SMI, even in an incentivised system, what can be done to improve physical healthcare? At present there is no systematic education on physical comordidity and no culture of routine physical testing in many mental health or primary care organizations. In psychiatric settings physical health/metabolic clinics have been suggested. To date there are no RCTs of physical health monitoring clinics but one RCT of note has examined a package of medical care in the PCARE study (Druss *et al.* 2010). Four hundred and seven subjects with SMI were randomly assigned to either the medical care management intervention or usual care. At a 12-month follow-up evaluation, the intervention group received more than twice the level of preventive services compared to the usual care group (they also received a significantly higher proportion of evidence-based services for cardiometabolic conditions). However, many patients with SMI have no contact with secondary care services (Lester *et al.* 2004) and payment is received by GPs through their contract for screening this group for CVD risk. Therefore in order to reach all patients there needs to be systems for monitoring people with SMI in primary care too.

It is important to note that effective monitoring of CVD risk factors is not sufficient on its own, as appropriate treatment is also mandatory. Data from National Ambulatory Medical Care Survey from 1992 and 1996 found that in 1,600 office visits of patients with mental illness who were documented smokers, psychiatrists offered smoking-cessation counselling at 12% of the visits, and diet and exercise counselling at 6% and 4% of visits, respectively (Himelhoch and Daumit 2003). In my audit of five primary care practices in Northampton described in chapter nine (Hardy *et al.* 2013a), 57% of people with SMI received advice about smoking, 14% were given information about

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exercise and only 13% were offered diet guidance. In short, there is a question over the ability of health professionals to respond if a problem is found. Physical comorbidity is often unrecognized and inadequately treated in those with mental ill health (Bernardo *et al.* 2009).

10.5 Limitations

The study was retrospective, not prospective. It was reliant on secondary data. The observations were made at different time points as there was a change in the data collection requirements for each condition. It was not possible to adjust for any potential confounders.

10.6 Summary of chapter

In this chapter I have described how the introduction of specific contract incentives for people with SMI since April 2011 may be partly successful in increasing the level of screening in this group, but how inequalities remain compared with diabetes.

This study has been published as:

Mitchell A and Hardy S. (2013) Surveillance for metabolic risk factors in patients with severe mental illness vs diabetes: National Comparison of Screening Practices. *Psychiatric Services.* (in press)

Chapter eleven: Does training practice nurses about the physical health of patients with severe mental illness motivate them to provide screening for this group?

In the last two chapters I have described how people with SMI receive less screening for CVD than those with diabetes. The overall aim of this thesis is to increase this level of screening by training practice nurses how to provide health checks for this group of patients. This chapter describes the effectiveness of the PhyHWell training package in modifying practice nurses' attitudes and misconceptions about the physical health of people with SMI.

11.1 Background

I have described in chapter two that Government guidelines recommend that patients with SMI have an annual physical health check in order to identify risk factors for CVD (NICE 2010a, 2006) and that people generally attend primary care for routine health monitoring (Osborn *et al.* 2007). Despite this, my studies (explained in chapters nine and ten) show that there is little evidence these health checks are routinely taking place (Hardy *et al.* 2013a, Mitchell and Hardy 2013).

Practice nurses are already competent in carrying out physical health checks (Osborn *et al.* 2010). However, as explained in chapter seven, they lack training in mental illness and the most recent analysis of their perceived responsibilities did not include SMI (Crossman 2008). Even if practice nurses are not inviting patients with SMI to attend for a physical health check, this group may still present themselves for other reasons (Harvey *et al.* 2005). Up to

50% of patients with SMI in England receive help from a mental health professional in secondary care (BMA & NHS Employers 2011) who could have a role in ensuring a health check has taken place in primary care (Osborn *et al.* 2010). As practice nurses are not used to working specifically with people with SMI, they may not have a system for informing community mental health workers (CMHWs) about patients that they have invited for a health check. A survey of practice nurses revealed that only 7% have regular contact with a Community Psychiatric Nurse (Gray *et al.* 1999). It is possible that if CMHWs attend practice nurse training, collaborative working maybe promoted between primary and secondary care. Kelley *et al.* (2009) argue that the benefit of interprofessional learning is that students will have a better working knowledge of other professionals, enabling them to make appropriate referrals to other professions and work more closely with them. In my view, a focussed training delivered in the practice setting may be effective in breaking down practice nurses' misconceptions.

11.2 The training package

When describing the intervention to participants, Craig *et al.* (2008) suggest using a multifaceted approach involving a mixture of interactive rather than didactic educational meetings, including feedback, reminders and local consensus processes.

11.2.1 Developing the Package

I developed the Health Improvement Profile for Primary Care or HIP-PC in collaboration with Professor Gray from the original tool developed for secondary

care (Hardy & Gray 2010) and constructed a website for practice nurses. This has been described in more detail in chapter eight.

11.2.2 Intended Learning Outcomes

Intended learning outcomes for practice nurses were:

- Understand the definition of SMI.

- Know the signs and symptoms of SMI.

- Be familiar with the epidemiology of SMI.

- Be aware of the impact of SMI on physical health particularly the increased risk of CVD.

- Be confident in navigating and using the website.

- Be confident in carrying out a health check using the HIP-PC manual.

- Be competent in entering data onto the computer template.

- Feel confident in providing this role within their practice.

- Liaise with relevant healthcare professionals and agencies.

11.2.3 Training

A two hour foundation block of training was delivered at the practice nurses' usual place of work. In order to ensure the learning outcomes were achieved the training consisted of group discussion and demonstration (carrying out a simulated health check using the template added to their computer system). This fits with the recommendations given by the authors of a qualitative systematic review on educational interventions in primary mental health care Howe *et al.* 2006). These are that the impact of educational interventions which support constructive learning from personal data are likely to be more effective

than courses working with theory alone or 'imaginary' patients, even when these are well designed and carried out.

The link CMHW was invited to attend the training to increase the practice nurse's motivation to work with them. It was my belief that learning together would help them to communicate with each other.

11.3 Method

This is a before and after study. Practice nurses participating in the study were asked to complete two questionnaires immediately before and directly after training (misconceptions and attitudes – appendices 7 and 8). Their motivation to work with CMHWs was assessed immediately after training (appendix 9). Post examination was carried out instantaneously due to the difficulty in gaining access to practice nurses.

Preparing primary care practices for training

Prior to inviting GPs to participate in training, I attended one of their regular meetings where a representative from all 31 practices in Northampton is usually present. I carried out a presentation describing the project and what they would need to do in order to participate. A letter was sent (with accompanying detailed information – appendices 10 and 11) to each GP practice representative. A practice nurse was identified from each practice to be the project lead for their organisation. Before the training a meeting was held with the Practice Manager to discuss giving the practice nurse(s) adequate time and support to carry out the physical health checks once they had received the training.

To support the delivery of the health checks by the practice nurse, the following additional preparatory work was undertaken with a member of the administrative team:

- Checking that the SMI register was accurate to ensure every patient is invited.

- Adjusting the physical health check computer template to ensure it contained all the necessary parameters.

- Discussing possible systems of inviting appropriate patients.

Developing the questionnaires

I searched the literature to see if there were any validated measures of attitudes to the physical health of people with SMI. It is recommended to employ previously used validated questionnaires that have been administered in similar settings and capture variables that are of interest according to the study hypothesis as they do not need to be tested for reliability. Additionally, if the mode of administration is similar to the original questionnaire, results can be compared for different studies and also combined for meta- analysis (Edwards 2010). As I did not discover any (there has since been a tool developed – Robson and Haddad 2012) I decided to develop my own evaluation. If a new questionnaire is to be developed, it should be pilot tested and validated in order to evaluate if it is measuring what it supposed to measure and is it doing it reliably (Streiner and Norman 2004). Consultations were carried out with practice nurses to develop the content of the questionnaires using an item pool created by me. This item pool was created from genuine statements by practice nurses in discussions with me over the previous year. In order to check the face

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validity of the questionnaires, they were reviewed by six practice nurses, four mental health nurses and two academics who gave feedback e.g. one academic suggested including a question about the side effects of antipsychotic medication. Questions pertaining to basic demographic data (sex, ethnicity and years of experience as a registered nurse) were included. This feedback was carried out via email. Much of the feedback was positive without comment. In retrospect, this may have reflected that the participants had not fully analysed the questionnaires. A formal meeting would have assured that the professionals were studying the questionnaires and would have encouraged further ideas through discussion.

- Misconception questionnaire. This measures the nurses' misconceptions of the physical health risks factors associated with people with SMI. Ten misconceptions were presented for which participants indicated whether they agreed or disagreed.

- Attitudes Questionnaire. This measures the nurses' attitudes towards providing physical health checks for people with SMI. Participants had the option to either agree or disagree with these beliefs.

- Motivation to work with CMHW Questionnaire. This aims to determine the practice nurses' motivation to engage with their secondary care colleagues regarding patients with SMI and any service developments.

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Data Analysis

I have used descriptive statistics to measure the nurses' misconceptions, attitudes and motivation. Each question carried a score of which I calculated the mean and standard deviation reached by all the nurses. Following advice from

Allan Clarke, I used the unpaired t-test to measure the difference in the scores before and after training. The t-test assesses whether the means of two groups are statistically different from each other (Plitcha and Garzon 2009).

Ethical approval

As this project is a service evaluation it did not require ethical approval. Each participating practice gave written consent (appendix 12). The nurses were not required to sign a consent form. They were given an information sheet (appendix 13) making clear that consent is implied by filling out the questionnaire which is the usual practice for surveys undertaken in the UK.

11.3.1 Other possible methods

The method I used is recommended by Hennekens and Burning (1987) to measure the effect of an intervention. The risk of bias would have been reduced if I had been in the position to ask someone else to deliver the training or to carry out the evaluation.

11.4 Results

Six GP practices agreed to take part. There was considerable variation in the number of people with SMI registered with each one. The mean number of patients was 80 (range 13 to 123 – sd 45). The average percentage of SMI patients as a proportion of each practice population was just under one percent (range: 0.3% to 1.89% - sd 0.56).

Practices identified a mean of 1.3 nurses (range: 1 to 2); a total of eight nurses agreed to take part. They were all white British females who on average

had been working as a registered nurse for 23 years (range: 3 to 42). None of the nurses had any prior training in providing physical health checks for people with SMI but one had previously taken on the role.

The mean number of nurses answering correctly on the misconception questions was 2 (sd=3.17) pre-training and 6 (sd=0.92) post training [p=<.01, CI 0.41 (0.63 to 0.19), t=3.93] (see Table 11.1). This suggests that training had been effective in modifying nurses' misconceptions of SMI and physical health; for example, they virtually all agreed that people with SMI tended to die earlier and knew how to deal with sedation caused by antipsychotics.

The mean number of nurses answering correctly on the attitude questions was 5 (sd=1.55) pre-training and 6 (sd=1.49) post training [p=0.50, CI 5.50 (-0.85 to 11.85), t=11.00] (see Table 11.2). Following training, the practice nurses' attitudes towards a number of parameters were only slightly shifted in a positive direction; for example, they nearly all believed that when they are delivering a health check they can help patients with SMI identify triggers that cause worsening symptoms and that they can assist them to maintain meaningful activities.

The results from the motivation to work with CMHW questionnaire revealed that practice nurses would be much more likely to be motivated to work with CMHWs regarding patients and service developments (see table 11.3)

Table 11.1 The number of participants who disagreed with common misconceptions about physical health and SMI (n=8)

Items	Before n (%)	After n (%)
People with mental illness die five years earlier than the general population (F)	0 (0)	7 (87.5)
Antipsychotic medication should be increased if the patient stops smoking (F)	0 (0)	6 (75)
Psychotic symptoms can be improved in schizophrenic patients by using caffeine (F)	7 (87.5)	6 (75)
If the patient is not under the care of the Community Mental Health team, then they do not need a care plan (F)	7 (87.5)	8 (100)
Patients who take lithium need their lithium levels monitored every six months and their creatinine and thyroid levels measured every year (F)	0 (0)	5 (62.5)
If the elevation of a patient's prolactin levels is <2000 mIU/L, then it is reasonable to continue to monitor the level without any further action (F)	1 (12.5)	6 (75)
It is important to encourage all patients with severe mental illness to drink lots of fluid (F)	0 (50)	6 (75)
As a much smaller proportion of people with SMI are sexually active compared to the general population, they are at less risk of acquiring a sexually transmitted infection (F)	6 (75)	6 (75)
Cannabis use is a contributing factor in 50% of schizophrenia cases (F)	0 (0)	5 (62.5)
The side effect of sedation from taking an antipsychotic, cannot be dealt with by the patient taking their medication just before they go to bed (F)	1 (12.5)	7 (87.5)
Mean total score	(n=2, 25%, sd 3.17)	(n=6, 75%, sd 0.92)

Table 11.2 Trainee attitudes to the physical health of SMI patients (n=8)

Items	Before n (%)	After n (%)
The diagnosis of a patient with severe mental illness affects whether recovery is possible	7 (87.5)	7 (87.5)
You do not need to know the views of your patients with severe mental illness regarding their psychiatric medications (F)	6 (75)	8 (100)
You are not in a position to help your patients with severe mental illness identify people who can assist them during a crisis (F)	6 (75)	7 (87.5)
You are not in a position to identify triggers that cause symptoms of your patients with severe mental illness to get worse and identify warning signs that come before they get symptoms (F)	6 (75)	8 (100)
It is sometimes necessary to disregard the patients' preferences regarding their physical health in order to provide the best treatment (F)	2 (25)	5 (62.5)
Many patients with severe mental illness cannot learn how to make well-informed choices about their physical care (F)	4 (50)	5 (62.5)
When providing patients with SMI a health check, you should keep focused on their physical health (F)	4 (50)	5 (62.5)
You should invalidate the patient's goal when it is unrealistic (F)	3 (37.5)	6 (75)
A physical health check appointment does not need to include assisting patients with severe mental illness in maintaining activities that are meaningful to them (F)	5 (62.5)	8 (100)
The physical health goals of "normal" people are often too stressful for patients with severe mental illness to reach (F)	5 (62.5)	4 (50)
Mean total score	(n=5, 62.5%, sd 1.55)	(n=6, 75%, sd 1.49)

Table 11.3 Practice nurse response to motivation to work with CMHW questionnaire

Practice nurse motivation to work with CMHW questionnaire	Number of nurses responding to each answer:					
Question: Would you:	Much more likely (score 5)	More likely (score 4)	Likely (score 3)	Less likely (score 2)	Don't know (score 1)	Mean response (sd)
Contact your own CMHW to inform them about changes in health or circumstances of a particular patient?	5	3	0	0	0	4.62 (0.52)
Contact your own CMHW to ask them about a particular patient?	5	3	0	0	0	4.62 (0.52)
Contact your own CMHW to inform them about new or changes in service developments?	4	3	0	0	1	4.12 (1.36)
Contact your own CMHW to ask them about new or changes in service developments?	4	3	0	0	1	4.12 (1.36)
Develop an individual system of communication between your own CMHW	5	3	0	0	0	4.62 (0.52)
Overall mean response (sd)						4.42 (0.27)

11.5 Discussion

It was disappointing that only six practices agreed to take part. I tried to find out the reasons by asking 120 GPs (from the 31 practices invited) at a local training event to complete a questionnaire. Only one person completed it, stating they had not heard of the project. Therefore I can only hypothesize as to reasons why they chose not to participate: e.g. too busy; no extra funding provided; no interest in SMI; feel proficient in providing care for this group already; think their practice nurses should not be dealing with this group; unaware of the project; lack of faith in the trainer.

The proportion of patients with SMI registered in each practice is slightly higher than the national average of 0.8% (NHS Information Centre 2011). The variation in the proportion of people with SMI registered with the participating practices may be explained by their location. As would be expected the practices with a high population of people with SMI are located in the town centre and those with the lower population are located in either a village or quiet suburb (McManus *et al.* 2009).

The aim of this study was to establish whether a training package to address common misconceptions about the physical health of people with SMI was effective in modifying practice nurses' attitudes and increasing motivation to work with CMHWs. This is the first time that anyone has considered whether the misconceptions of practice nurses could be a barrier to providing physical health checks to people with SMI. Because training was effective in correcting misconceptions, these practice nurses might be more motivated to carry out health checks for this group of people in their place of work. This study has not

illustrated whether training had altered the nurses' more general perceptions of the value of health checks

Practice nurses were not aware of the reduced life expectancy of people with SMI. This is a possible explanation of why they have not seen screening these patients for CVD as part of their role. There are a number of studies that have been carried out in primary care in the United Kingdom that are consistent with my observation that health checks are not being carried out routinely (Roberts *et al.* 2007, Reilly *et al.* 2012). In addition, a systematic review of primary care studies relating to somatic diseases in patients with schizophrenia revealed that healthcare professionals are not proactive in screening these patients (Oud & Meyboom-de Jong 2009).

A study in the United Kingdom determined that serious and enduring disorders such as schizophrenia made up 1.5% of the patients seen by practice nurses and an estimated 2% were taking antipsychotic medication (Gray *et al.* 1999). This is without proactively inviting patients for a health check. Before any change in their motivation to work with patients with SMI can take place, practice nurses need to have an understanding of the problem. This is highlighted in two models of behaviour change (Prochaska & Di Clemente 1992, Rogers 1983). As a result, following training, practice nurses may be more likely to offer screening and appropriate interventions; either during a planned health check or if the patient presents themselves for another reason, e.g. helping them manage the side effects of their medication, such as sedation.

I do not know if the attitudes of the participants reflect those of other practice nurses. The fact they were asked by their employers to be involved in the study may have had some influence. A study to determine the abilities of 24

practice nurses to detect psychiatric morbidity concluded that one reason for the variation in their skills may be their interest in the subject (Plummer *et al.* 2000). The attitudes of the nurses in this study were fairly positive before training; though there appeared to be a small improvement after participation, I cannot claim this was due to my intervention.

The results show that practice nurses in my study already had an awareness of the high chance of contracting a sexually transmitted infection in a proportion of this group. This contrasts with mental health nurses who appear to underestimate this risk (Hughes & Gray 2008). My results highlight that the subject of sexual health may be less of a priority than some of the other issues when providing this programme to other practice nurses.

I established that following training more practice nurses agreed that finding out the views of their patients with SMI regarding their psychiatric medications was important. This means they could be more likely to actively promote adherence (Gray *et al.* 2006). The results also indicated, that despite the score relating to the recovery of people with SMI remaining unchanged, they showed a possibility that they may seek to develop a therapeutic relationship with this group of patients. The scores were higher post training for the questions relating to discovering the patients' views and preferences and recognizing their own role in providing assistance with emotional or social issues. This demonstrates an acceptance to be supportive of the wellbeing of the client (Diorio 2001) and not exclusively follow a checklist of physical screening. This holistic approach embraces the process of recovery (Smith 2000).

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After completing training, practice nurses displayed that they would be much more likely to communicate with their CMHW. This corresponds with a study to validate the readiness for interprofessional learning scale in the postgraduate context (Reid *et al.* 2006) which revealed that most participants agreed that learning with other healthcare workers would help them to communicate better with other professionals. In addition, because the whole concept of caring holistically for a patient with SMI is new to practice nurses, they may feel that they are supported by having contact with CMHWs. As very few Community Mental Health Teams have a clear strategy for communication with primary care (England and Lester 2005, Bindman *et al.* 1997) keeping up this contact maybe a challenge.

The design of the questionnaires was poor (see limitations). This reflects my lack of knowledge and experience when they were designed at the beginning of this PhD. I have since been successful in obtaining a bid to develop further training (see chapter 14). I wanted to measure how the practice nurses perceived their ability and role in carrying out physical health checks for people with SMI. I therefore used a likert rating scale which is a technique for measuring attitudes (Likert 1932). The questions are written with a positive statement.

11.6 Limitations

There are limitations to this study. It was designed for a much larger group of participants and therefore the results cannot be generalisable. Given the small numbers participating, a qualitative approach to data collection could have provided more meaningful results.

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The correct answers for both the "misconception" and "attitudes" questionnaires are all false. This could have had an influence on the results if participants realized this after the training and answered the questions as false accordingly.

Some of the statements in the misconception questionnaire could have been confusing. In particular, question one, I have stated that people with SMI die five years earlier as a false statement when in fact they do die earlier but by 12-20 years.

The questionnaires were repeated directly after training therefore it is possible that participants would remember the questions that were asked pre-training and through strategic learning remembered the answers by rote. In order to discover the durability of any improvements a longer follow-up is needed. In retrospect, this could have been carried out electronically without the need to meet with the nurses physically.

There is potential bias as I delivered and evaluated the intervention. I do not know whether the participants were typical or atypical practice nurses.

11.7 Summary of chapter

In this chapter I have described how practice nurses who complete the physical health check for severe mental illness training package have fewer misconceptions about SMI and may be more likely to accept carrying out these health checks as part of their role; their motivation to work with the CMHW is enhanced.

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Chapter twelve: Does training practice nurses increase CVD screening and lifestyle intervention?

In this chapter I describe how training practice nurses increased the level of CVD screening and lifestyle intervention given to people with SMI in the five participating practices. As the practices varied in the number of patients that they serve (the smallest serving approximately 5,000 and the largest 13,000) and in their location (urban, surbuban and rural) they provided a reasonable national representation.

12.1 Background

As described previously in my thesis, experts have advocated the need to improve CVD monitoring and the provision of lifestyle advice in people with SMI (Osborn *et al.* 2011, De Hert *et al.* 2009a, Kilbourne *et al.* 2007, Barnett *et al.* 2007). An EPOC (Cochrane Effective Practice and Organisation Care) review did not identify any randomised trials which assessed the effectiveness of physical health monitoring in this group (Tosh *et al.* 2010). In the general population, authors of a systematic review have concluded that general health checks did not reduce morbidity or mortality (Krogsbøll *et al.* 2012). All the fourteen studies included were carried out before 1999; therefore it is possible that recent advances in the prevention of CVD may have improved the benefits of these checks (Thompson and Tonelli 2012). In contrast to Krogsbøll *et al.*'s observations, a meta-analysis of nurse-provided or nurse-coordinated care management programmes for secondary prevention, shows that they are highly effective in reducing CVD morbidity and mortality in patients with coronary artery disease (Clark *et al.* 2005). Running nurse led secondary prevention

clinics in primary care incurs the cost of nurses' time (Campbell *et al.* 1998). Consequently GPs may view them as expensive and be reluctant to resource them (Raftery *et al.* 2005). In a randomised controlled trial of 1343 patients with coronary heart disease, the results showed that these costs were relatively low and were linked to health gains that were considerable in terms of deaths, life years, and QALYs (Raftery et al. 2005).

There is some literature from the 1990s which supports designated practice nurse clinics for people with SMI. Kendrick *et al.* (1994, 1995) tested the teaching to GPs of structured assessments of their long-term mentally ill patients. They concluded that this can increase their involvement in psychiatric care, but as regular structured assessments were not feasible in routine surgeries, special appointments with input from practice nurses might be more reliable. Burns *et al.* (1998) carried out a randomised controlled trial in which they provided training to practice nurses to carry out structured assessment of people with schizophrenia. They concluded that structured assessments by practice nurses are feasible with this patient group, but training, targeted at both nurses and GPs, is needed if this intervention is to translate into health gain.

Since the introduction of a new payment contract in 2004 in England, the emphasis of practice nurse clinics has been focussed on long term conditions rather than general health checks. Annual clinics to review patients with diabetes for example, have become routine (Hall 2008). A recent randomised control trial of these clinics run by practice nurses showed equivalent results to GPs in respect of lipids, glucose and blood pressure levels and increased patient satisfaction (Houweling *et al.* 2011).

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I have explained in previous chapters that the authors of national guidance in England recommend that patients with SMI should receive a physical health check at least once a year (NICE 2006, 2010a) and how GPs in primary care are paid to provide CVD screening for this group every fifteen months (BMA and NHS Employers 2012). It is important to repeat these details as the change in the way this imbursement is given took place during the period of this study. Between April 2004 and March 2011, payment was received if primary care practitioners documented that they had completed a review in people with SMI. There should have been evidence that the patient was offered screening, routine health promotion and prevention advice appropriate to their age, gender and health status, but these were not measured. Since April 2011, payment is given for recording patients' alcohol consumption, body mass index (BMI), blood pressure, glucose and HDL cholesterol level (if over 40 years), and cervical screening within the last five years (if within national screening age).

Many GPs in primary care choose to screen people with SMI opportunistically for CVD risk when these patients attend the clinic for another reason, rather than inviting them for an annual health check by a practice nurse (Reilly *et al*. 2012, Hardy 2011). As the GPs' usual consultation times are short, it is difficult for them to provide adequate lifestyle advice (Phelan *et al*. 2001). For example, a recent study revealed that health education was not a common feature of consultations with the SMI group of patients in primary care (Reilly *et al*. 2012). When in a busy clinic, professionals may make assumptions, such as a patient with a normal BMI is eating well. These do not necessarily hold true, my study examining the food diaries completed by people with schizophrenia found that the patient with the lowest BMI had the unhealthiest diet (Hardy and

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Gray 2011). It is important to have discussions with patients about their lifestyle to either encourage a change in unhealthy routines or to motivate them to maintain a healthy way of life (Miller 2005, NICE 2012). I argue that creating a nurse led clinic for people with SMI would provide sufficient time to achieve this effectively, but there is presently no evidence to support this view (Hardy and Gray 2010).

The aim of this study is to establish whether training practice nurses increases the proportion of patients with SMI screened for CVD risk factors and given lifestyle advice in primary care

12.2 Method

Sample and procedures

Audits are suggested as one method of evaluating a complex intervention (Craig *et al.* 2008). This is a repeat audit monitoring how well primary care practitioners are meeting their duty to screen people with SMI for CVD risk factors and give them lifestyle advice. This audit will provide information to decide how this might be improved. Practice nurses will take part in training to deliver health checks for people with SMI. The audit will be carried out pre and post training as described below.

Audit Standards

The standards for CVD screening and lifestyle advice were derived from published guidelines (NICE 2006, 2010a, De Hert *et al.* 2009a). These were that all patients with SMI should, as a minimum, have their blood pressure, BMI (or waist circumference), blood glucose (or HbA1c) and cholesterol measured at

least once a year. They should also be given advice about diet, exercise and smoking cessation annually.

Data Collection

This was an audit that took place between September 2009 and August 2010 and was then repeated following the training of practice nurses between September 2010 and August 2011. Patients were identified from the SMI register of each of the five participating practices. Demographic information (age, gender) and evidence of whether screening and lifestyle advice had been given in the last year was extracted manually from the electronic patient records.

Data Analysis

Following advice from Allan Clarke, I used relative risk to calculate whether training made a difference to the level of screening and lifestyle advice given to people with SMI as a group. The t-test was employed to determine the difference between the mean number of interventions received by each individual patient with SMI before and after training. This analysis was done with SPSS, version18.

12.2.1 Other possible methods

An RCT would have provided a comparison and reduced confounders. Due to the difficulty in recruiting practices and the fact I was conducting the project alone, this was not possible.

12.3 Results

I invited 31 primary care centres in Northampton to take part in this project, five agreed. From the computer records I identified 400 patients from the SMI register. The number of patients (n=400) in the first and second audit remained unchanged. However, I cannot assume that they were all the same patients as I did not record how many of them left or joined the practice during this time. That said, the turnover of patients in primary care in GP practices is generally very modest and therefore it is only likely to be a few patients who were different (Stokes *et al.* 2004). Table 12.1 shows that the demographic profile (age and gender) of the sample remained broadly similar between the two audits. Most of the participants were male and the majority of them were middle-aged.

Table 12.2 shows the proportion of patients that had each element of a health check completed in the year before and after Practice Nurse training. In terms of CVD screening factors, in the first audit the most commonly assessed element was blood pressure, more than half the patients that participated had this checked. BMI was recorded in the records of a little under half of patients. Around a third of patients had had a blood test for cholesterol and glucose levels. One in five patients had all four risk factors checked. Table 12.3 shows the elements of the health check delivered to each patient before and after training. The mean number of interventions received by each patient for screening was fewer than two from a possible four in the first audit. In the second audit following training, there was a significant increase in the proportion of patients receiving each health check element. Three quarters of the patients had their blood pressure checked and over half had their BMI recorded. Just under half were given blood tests for glucose and cholesterol levels. There was

no significant increase in the number of patients receiving all elements of CVD screening. The mean number of interventions received by each patient for screening was nearly two and a half from a possible four which was a significant increase.

Turning to lifestyle counselling, in the first audit just over one in ten patients with SMI received diet and exercise advice and over half received smoking advice. Around one in ten patients received all three elements of lifestyle guidance. From a possible three lifestyle interventions, patients received less than one. Following training there was a significant increase in the three elements of lifestyle advice giving. Just over a third of patients received diet and exercise advice and around two thirds were given information about smoking. From a possible three lifestyle interventions, patients received nearly one and a half.

In the first audit around one in twelve patients received a complete health check (all seven elements), this increased significantly following the training to more than one in seven. This is in fact, almost a doubling of patients receiving a comprehensive health check. The mean number of both screening and lifestyle advice elements from a possible seven received by each patient increased from just over two and a half to nearly four.

TABLE 12.1, age distribution of participants

Age category	16-35		36-55		56+	
	n	%	n	%	n	%
First audit (n=400)	96,	24	176,	44	128,	32
Second audit (n=400)	94,	23	179,	45	127,	32

TABLE 12.2, proportion of patients that had each element of a health check completed in the year before and after Practice Nurse training

Component of health check	Completed at health check		Relative risk (95% CI)
	Pre-training year (n=400)	Post-training year (n=400)	
	n, % (95% CI)	n, % (95% CI)	
CVD risk factors			
Glucose	125, 31 (27,36)	179, 45 (40-50)	1.43 (1.19, 1.72, p<.01)
Blood pressure	245, 61 (56, 66)	300, 75 (70-79)	1.22 (1.11, 1.35, p<.01)
Cholesterol	144, 36 (31, 41)	177, 44 (39, 49)	1.23 (1.04, 1.46, p=.02)
Body mass index (BMI)	186, 47 (42, 51)	219, 55 (50, 60)	1.18 (1.03, 1.36, p=.02)
All risk factors	**79, 20 (16-24)**	**91, 23 (19-27)**	**1.15 (0.88, 1.51, ns)**
Lifestyle advice			
Diet	50, 13 (10, 16)	136, 34 (30, 39)	3.06 (2.03, 3.65, p<.01)
Exercise	56, 14 (11, 18)	138, 35 (30, 39)	2.46 (1.87, 3.25, p<.01)
Smoking	219, 55 (50, 60)	279, 70 (65, 74)	1.27 (1.14, 1.42, p<.01)
All three elements	**43, 11 (8, 14)**	**112, 28 (24, 33)**	**2.60 (1.89, 3.60, p<.01)**
All elements of health check	**33, 8 (6, 11)**	**60, 15 (12-19)**	**1.82 (1.22, 2.72, p=.01)**

TABLE 12.3, elements of the health check delivered to each patient with SMI

Elements	Before	After	Significance
	Mean (sd 95% CI)	Mean (sd 95% CI)	
CVD screening (out of 4)	1.83 (1.53, 1.68 to 1.98)	2.41 (0.47, 2.36 to 2.46)	t=-6.99, p<.05
Lifestyle (out of 3)	0.85 (0.95, 0.76 to 0.94)	1.41 (1.41, 1.27 to 1.55)	t=-6.98, p<.05
Screening and lifestyle (out of 7)	2.69 (2.22, 2.47 to 2.91)	3.85 (1.37, 3.72 to 3.98)	t=-8.22, p<.05

12.4 Discussion

The aim of this study was to establish whether training practice nurses increases the proportion of the patients in their practice with SMI being screened for CVD risk factors and given lifestyle advice. Following training, all elements of CVD screening and lifestyle advice increased. Importantly, there was no decrease in any of the interventions.

The proportion of patients receiving cholesterol and glucose measurements increased from a third in the first audit to just under half in the second. Though this is a large increase, the actual numbers are low in comparison to the blood pressure and BMI measures. This is consistent with other studies (Eldridge *et al.* 2011, Smith *et al.* 2007a, b). Only a quarter of patients had glucose and cholesterol tested in the study by Eldridge *et al.* despite a hundred percent having BMI and blood pressure recorded. Smith *et al.* measured glucose in approximately 75% of participants but only recorded HDL cholesterol in 22%. They report obtaining fasting samples was not possible easily in an outpatient SMI cohort with the various limitations including timing of appointments and laboratory schedules. The nurses in my study may have experienced similar difficulties, as although unnecessary to fast for total cholesterol and HDL (Lab Tests Online 2012, Birtcher and Ballantyne 2004), the laboratory in Northampton requires it for HDL. My training suggested recording blood pressure and BMI, and testing random glucose or HbA1c and total cholesterol in everyone. However six months later there were changes to the targets for people with SMI in the GPs' payment contract; these included measuring blood pressure and BMI to all but only offering blood tests to patients over forty years old and measuring HDL, rather than total cholesterol (BMA and

NHS Employers 2012). This may explain the fact that fewer patients had blood tests done than the other screening measures.

More patients were given diet and exercise advice following training and these interventions were not targets of the payment contract. The level of smoking advice increased significantly despite this being a payment target when the first audit took place. These findings are consistent with those of Bernard *et al.* (2009) who reported that the training and education of nurses in primary care centres promotes the use of prevention practices. This is important as the high prevalence of obesity and dyslipidemia in patients with SMI suggests that these patients may benefit from interventions that are focused more specifically on changing health behaviours (Graves and Miller 2003, Brar *et al.* 2005). As only half of the patients taking long-term primary prevention medications following screening adhere to their treatment (Morisky *et al.* 2008, Vrijens 2008), promoting a healthy lifestyle is essential.

It is encouraging to observe that in the second audit there was a significant increase in the mean number of elements of the health check received by each individual patient, both for screening and lifestyle advice. However, more research is required to examine whether this has an effect on patient outcomes. Unfortunately it was not possible to ascertain whether the effect was sustainable with time by examining records after 2011. This was due to the project only having two years of funding. It had been hoped at the start of the study that a further year may be funded and a third audit could have been carried out. However organisational change at the primary care trust level prevented this.

Although the training in my study incorporated the suggestion of developing a specific nurse led clinic, I had no control of whether the five practices participating developed this as a service. As described in the previous chapter, practice nurses who have completed training have fewer misconceptions about SMI and might be more likely to accept carrying out these health checks as part of their role (Hardy 2012), but the organization of their overall workload is usually controlled by the GPs (McGregor *et al.* 2008).

12.5 Limitations

The research activity around the training may have increased the awareness of the increased CVD risk in people with SMI and encouraged healthcare professionals in the practices to offer patients screening, rather than it being the effect of the training itself (the Hawthorne effect – Mayo 1933).

Due to the change in the GP contract, I cannot claim the increases in blood pressure and BMI in the second audit were fully due to my intervention.

12.6 Summary of chapter

Training practice nurses to deliver health checks for people with SMI increases the level of screening and lifestyle advice given to this group of patients. More research is needed to assess whether the organization of the practice nurse workload to include annual health checks for patients with SMI in addition to training, will enhance this progress.

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of screening for cardiovascular risk? *International Journal of Social Psychiatry*. (in press)

Chapter thirteen: What are the views of patients regarding their physical health check?

Craig *et al.* (2008) recommend that appropriate 'users' should be involved at all stages of the development, process and outcome analysis of a complex intervention, as this is likely to result in better, more relevant science and a higher chance of producing implementable data. The purpose of this chapter is to portray the views of patients with SMI regarding the physical health check that was delivered to them by a practice nurse who had received the PhyHWell training. These observations will be employed to refine and enhance the intervention

13.1 Background

As described in previous chapters, there is little evidence to show that health checks are for people with SMI are routinely taking place (Roberts *et al.* 2007) or that health education is a common feature of consultations with this group of patients in primary care (Reilly *et al.* 2012). This may be because people with SMI do not consider themselves at risk of physical health problems and therefore do not attend for screening (Campion *et al.* 2005). However, my audit described in chapter 5 demonstrated that they will attend for a physical health check when invited to an appointment at a specific time and date with a named person (Hardy and Gray 2012). Additionally, a qualitative study from the perspectives of individuals with a mental illness, established that this group of patients thought it would be advantageous if primary health care providers

focused on preventative health and early detection of physical health problems (McCabe and Leas 2008).

Two studies concluded that people with SMI give less attention to their lifestyle and physical health needs due lack of knowledge rather than poor motivation (Buhagiar *et al.* 2011, Campion *et al.* 2005). In fact, other research has shown that people with SMI possessed a high positive attitude towards their physical health care but it is the lack of support and negative staff attitudes that are possible barriers to their participation in lifestyle interventions (Roberts and Bailey 2011, Brunero and Lamont 2010). People with schizophrenia consider it important that the healthcare professionals have the ability to inspire their confidence and that they are kind and patient (Lester *et al.* 2003). They also want to know what services are available to assist them to make informed decisions and adopt proactive health choices (McCabe and Leas 2008). Additionally, peer and staff support, knowledge, personal attributes and participation of staff have been identified as possible incentives for improving the health of this group (Roberts and Bailey 2011). For example, Campion *et al.* (2005) reported that one third of patients with SMI in their study said they would increase their physical activity following advice from a doctor.

A qualitative study examining personal (or holistic) care of all patients in general practice reported that patients regardless of diagnosis wanted to be treated as a "whole person" rather than just treating the presenting illness (Tarrant *et al.* 2003). The patients referred to the importance of professionals knowing about them and their family history. The nurses in this study described themselves as specialists in this respect. A mental health service user with a diagnosis of schizophrenia responded to this study (Antoniou 2003). She

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emphasized that personal care is very important to mental health service users who are trying to survive in the community. Understanding the relationship from the perspective of persons with SMI may provide insight into how this relationship can be formed into a long-term working partnership with positive health outcomes (Galon and Graor 2012).

In this study my primary objective was to examine the patients' view of the physical health check that was delivered to them by a practice nurse who had received PhyHWell training. I hoped to employ these observations to refine and enhance the intervention.

13.2 Method

I have used a qualitative method of research for this study. I chose to interview patients as this allowed for some flexibility in administration, clarification of questions and the use of follow up questions (Adler and Clark 2011). The advantage of interviewing is the use of open-ended questions and probing. This gives participants the opportunity to respond in their own words, rather than forcing them to choose from fixed responses. Open-ended questions can evoke responses that are meaningful to the participant, explanatory in nature and unanticipated by the researcher. Probing allows the researcher to ask why or how after the initial participant responses (encouraging them to elaborate on their answers) and engage with them according to their individual personalities and styles,

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Recruitment

I intended to interview twelve patients from three of the participating practices who had had a health check by a nurse trained in the PhyHWell project. I aimed to to build a sample representative of the population who have had a health check. It was planned that this would be achieved by using purposive non-random sampling by selecting a distribution of gender and diagnosis (three men and three women with bipolar disorder and three men and three women with schizophrenia), age (three patients from each age group 18-28 years, 29-39 years, 39-49 years and over 50 years) and ethnicity (one patient who belongs to the black minority ethnic sector diagnosed with bipolar and one with the diagnosis of schizophrenia). These characteristics would reflect the diversity and breadth of the sample population.

Each practice was asked to identify one male and one female patient with schizophrenia and the same for bipolar disorder. They were asked to include one patient from each age group. The practice that had the highest percentage of patients belonging to the black minority ethnic sector was requested to include a patient of either sex from this group. A member of the administrative team from each participating practice generated a list of eligible patients using these criteria. The first patient listed in each category was then selected. The names of the identified patients were checked by one of the healthcare professionals to ensure they had mental capacity to consent. As I recognized that it was unlikely that everyone invited would attend, I aimed to invite eight people from each of the three identified practices.

Conduct of Interviews

I followed this topic guide:

- How do you think you look after your physical health?

- How would you describe your physical health (e.g. good, poor)?

- Have you got any concerns about your physical health?

- Where would you go if you had a physical illness?

- How often do you visit your GP?

- What did you think about the health check you had (interventions, nurse delivering health check)?

- Has the health check encouraged you to make any lifestyle changes? If so, what are they?

Open ended questions were asked in order not to lead the patient. A tape recorder was not used. After consultation with people with schizophrenia, I determined that this could be unacceptable to some participants because of paranoid symptoms and therefore may restrict involvement. An assistant was used to take notes. This afforded a lack of distraction for me by having to write. I was able to keep eye contact with the patient and maintain the flow of conversation. However, the patient may have felt uncomfortable talking in front of another person or have been distracted by their presence.

Data Analysis

Thematic analysis was conducted on the notes from the interviews. I followed guidance from Howitt and Cramer (2010) as described in chapter six. I have driven some of the themes by using a topic guide. An example of one theme was the patients' concerns about their physical health which emerged from

asking them about this directly. I discussed these with my supervisor Dr Katherine Deane.

Ethical approval

The Regional Ethics Committee (through proportionate review) gave approval on the condition there was an assistant to take notes (appendix 14 and 15). Additionally, I made my own notes immediately following the interviews in order to record some of my observations about the patients.

13.2.1 Other possible methods

The use of questionnaires rather than interviews may have provided me with the views of more patients.

13.3 Results

From a total of 29 invited patients, five attended. The first practice identified eight patients using the criteria and one turned up. As they had many eligible patients they were able to invite a further eight and again one attended. The second practice was very small and only had five eligible patients. They were all invited and one came to the interview. The third practice invited eight patients and two of them attended.

Table 13.1 illustrates the demographic information of the participants. None of them were working and the majority had no regular support from secondary care services.

13.3.1 Observations

Though all the patients were willing to take part in the interviews, their answers were in the main, very brief. It was difficult to get them to elaborate on the points they had made.

All the patients arrived on time for their interview without exception. Most appeared clean and well kempt. The majority of patients were initially a little guarded until they listened to the verbal explanation of the study. Finding out that the interviewer (me) was a nurse seemed to be a reassuring factor.

One patient lived with her husband who was present during the interview. She responded to all her questions but looked to her husband for confirmation of her answers. This patient stated that she was very happy with all the care received now and in the past. Only one patient declared the opposite.

The other four patients who all lived alone indicated that life could often be rather difficult.

Table 13. 1 Demographic information of participants

Patient number	Ethnicity	Gender	Age	Diagnosis	Year of diagnosis	Living arrangements	Occupational status	Social support
1	White British	Female	52	Bipolar disorder	2005	Lives alone	Unemployed	None
2	White British	Male	48	Schizophrenia	2002	Lives alone	Unemployed	CPN for injection
3	White British	Female	47	Psychotic episode	2002	Lives alone	Unemployed (carer for son)	None
4	White British	Female	76	Bipolar disorder	2010	Lives with husband	Retired	CPN annually
5	White British	Male	25	Paranoid schizophrenia	2002	Lives alone	Unemployed	Weekly visit from support agency

13.3.2 Patients' understanding of physical health

All of the patients appeared to have a good understanding of the importance of a healthy diet and taking regular exercise. Some were managing to do regular activity and eat well but others reported that it was not so easy. Two patients reported that their lifestyle had improved now that their mental state was better. Only one patient smoked but he was trying to give up. None of the patients were currently drinking alcohol or taking illicit drugs, though one reported a past habit.

Patients gave very little detail regarding whether they thought they were healthy or not. Two patients described joint problems or stiffness caused by the medication they were taking. One said the medication had made her gain weight. Another was unaware that his medication may increase weight or cause problems.

'Sometimes I comfort eat though it doesn't help me feel better.'

Patient 1 (52 year old female)

'I try to exercise (cycle), sometimes I'm a bit lazy'

Patient 2 (48 year old male)

'Look after health better now – didn't give a t**s before when ill as didn't care whether I lived or died'

Patient 3 (47 year old female)

'My health is better since I started to look after myself'

Patient 4 (76 year old female)

'My health is bad. I'm not a healthy eater, I smoke…'

Patient 5 (25 year old male)

13.3.3 Patients' concerns about their physical health

The patients voiced some concern regarding their physical health though they did not display an awareness of the risk of CVD. One patient felt that everything that could be done in regard to keeping her healthy was in place. Another said they were not worried at the moment but probably would need to consider their health in the future. Two patients mentioned side effects of medication.

'My health could be better. I haven't looked after myself so well since my mental illness. I would rather have side effects (from the medication) than symptoms of bipolar disorder.'

Patient 1 (52 year old female)

'I worry about the stiffness.'

Patient 2 (48 year old male)

Seeking help with a physical illness

The majority of patients said they would attempt to sort out minor ailments themselves and only attend the surgery because they have to, e.g. reviews for medication and diabetes or more severe illness. One said this was because she

was brought up not go but when her mental health was poor it was because she didn't trust anyone. She thought seeing the same person each time she came to surgery would help. Two other patients said they had no confidence in doctors. One said he found it easier to talk to the community mental health nurse but she didn't know about physical health and another said she might be happier seeing a nurse. A different patient said seeing a nurse would be ok if they were not too young and had some understanding of the patient's situation.

'System at this doctor means you see different doctor or

nurse each time. Not good when you have mental illness

and cannot trust people.'

Patient 3 (47 year old female)

'I stopped coming (to GP surgery) because doctors would just read notes

and say will write to CPN. My physical illness is overlooked because I

have a mental health problem. They treat me like a child. I would be

more willing to come if this changed.'

Patient 5 (25 year old male)

13.3.4 Patients' thoughts about the health check

Most of the patients expressed that they were pleased to be invited and thought the health check was worthwhile. They were glad to be offered advice about diet and exercise. Only one said he thought it didn't matter but he was unaware that he had had a health check. The majority of patients said that they had not been told what the blood tests were for and would have liked an explanation.

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Four patients wished that they could have discussed medication and its effects on their health. Generally patients wanted more information, both verbal and written.

> *'I don't know what to ask for, so would like to be offered more information about services available to me.'*
> Patient 3 (47 year old female)

13.3.5 Patients' thoughts on the effect of the health check

All of the patients reported since the health check they had started to make changes to their lifestyle, three reporting an increase in regular exercise and making changes to their diet. The fourth patient was improving her eating and the fifth (who thought he had not had a health check) was working with the nurse to decrease his smoking.

> *'It made me focus on my weight problem. I would like to see nurse weekly but they can only do once a month so my parents are paying for a diet class.'*
> Patient 1 (52 year old female)

> *'I'm seeing the nurse every six weeks for my diet. I've lost 2 stone!'*
> Patient 4 (76 year old female)

13.4 Discussion

The purpose of this study was to examine the patients' views regarding the physical health check delivered by a nurse trained in the PhyHWell project.

It was disappointing that I only managed to recruit five patients to the study. It is recognized that recruitment can be the most challenging part of a clinical research study and our potential participants shared most of the characteristics often associated with poor response (Patel *et al*. 2003, Armstrong *et al*. 1992). Given this, and the fact that patients with SMI are often not forthcoming in presenting themselves with physical ailments, the response rate is not surprising (Saha *et al*. 2007, Andreasen 1995). However, despite the small number of participants, I still managed to get a cross section of gender, age and diagnosis. I may have recruited more patients had I been in a position to invite more. I was limited by the need for room space in the practices and the goodwill of the staff to carry out the administration needed.

All the patients arrived on time for their interview without exception. It could be argued that this exhibits a picture of good organization which is a characteristic often described as lacking in people with SMI (Martinez-Arán *et al*. 2004, Andreasen 1995). However we should take into account that of the people who did not attend, only a small number telephoned to say they were not coming. We do not know if those who did not inform us of their non-attendance made a conscious choice not to participate, or if they were too disorganised to come.

Most of the participants appeared clean and well kempt. This could demonstrate that they want to look after themselves and were therefore

responsive to advice given by the nurse during the health check. These participants may not be typical of the SMI group as a whole.

The majority of patients were initially a little guarded until they listened to the verbal explanation of the study. This may have been due to concerns about confidentiality which any person being interviewed may be worried about (Lavin and Maynard 2001). These anxieties are usually allayed following assurance that their privacy will be respected (Sekaran 2003). Additionally, some people with SMI have an element of suspicion related to their diagnosis which could increase their apprehension in this situation (Freeman and Garety 2000). They could have been reassured by the knowledge of the interviewer (SH) being a nurse because they expected to be approached from a perspective of understanding (Freeman and Garety 2006).

The majority of patients who attended had no regular support from secondary care. This may be because they are well and so were able to make the decision to participate. Perhaps the people who were receiving support were less well and this is one reason why they did not attend.

Most participants answered the questions during the interviews very succinctly. This may be characteristic of the cognitive problems of SMI rather than indifference (Martinez-Arán *et al.* 2004, Andreasen 1995).

The patients did not display an awareness of CVD risk. I cannot be sure whether they were told about this during the health check and did not remember or were not given this education. Providing relevant written information could be helpful and was suggested by some of the participants.

A number of the patients said they would delay seeking help with a physical illness due to their lack of confidence in their doctors and having to see

a different person each visit. One of them illustrated his reluctance to attend due to the negative attitude of his GP. This concurs with the findings of Roberts and Bailey (2011) regarding possible barriers. However, the patients were willing to see a nurse. The reason may be because generally nurses have more time than doctors and therefore appear more patient; a trait considered important by people with schizophrenia (Lester *et al.* 2003). Having one nurse in the practice responsible for providing these health checks offers the opportunity to build ongoing relationships. However, as expressed by one of the participants, this nurse would need to have a positive manner and relevant skills. Training nurses will assist in this outcome (Hardy 2012).

Most of the patients expressed that they were pleased to be invited for a health check and thought it was worthwhile. Their views coincide with the participants of the study by McCabe and Leas (2008) who thought that it would be beneficial if primary health care providers focused on preventative health. The patients in our sample wanted to know more about what blood tests they were having and the effects of their medication. This demonstrates a high positive attitude towards their physical health care which concurs with the results of the study by Brunero and Lamont (2010). People with SMI may give more attention to their lifestyle and physical health needs if they have this knowledge (Buhagiar *et al.* 2011, Campion *et al.* 2005).

Despite the apparent lack of knowledge of CVD risk factors, the patients were making lifestyle changes. In fact, one patient was unaware that he had a health check. It could be argued that this is not important if the consequences are achieved i.e. he was tackling the toughest lifestyle change (smoking). It appears from the interviews that lifestyle changes were implemented following

the health check. This is synonymous with the findings of Campion *et al.* (2005). However, as I do not have an awareness of the participants' previous behaviour, I cannot claim this to be the case.

The Kings Fund report for long term conditions and mental health (Kings Fund and Centre for Mental Health 2012) suggests that developing more integrated support for people with mental and physical health problems could improve outcomes. Providing education based on the views of the patients with SMI is only one but very important step to meeting this challenge and improving the service received by this group with regard to their physical health needs.

Training for practices nurses to provide physical health checks for people with SMI should emphasize the patients' views of what will make them effective.

13.6 Limitations

There is a risk of potential bias as I carried out the interviews and analysis. There were only five patients in the study.

13.6 Summary of chapter

In this chapter I have described the views of five patients with SMI regarding their physical health check. These include: the importance of explaining why the health check has been offered; describing what each blood test is for; relating the potential side effects of antipsychotic medication; providing relevant verbal and written information; and the opportunity to see the same healthcare professional where possible. This study was published as:

Hardy S, Deane K and Gray R. (2013) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press).

Chapter fourteen: Impact case study

Craig *et al.* (2008) explain that publication in the research literature is essential but it is only part of an effective implementation strategy. In this chapter I have described how I have disseminated my research in order to make an impact.

14.1 Background

Nurses are taught to practice evidence based nursing (EBN) which is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients or groups (DiCenso *et al.* 2005). It requires integration of individual clinical expertise and patient preferences with the best available external clinical evidence from systematic research, and consideration of available resources (DiCenso *et al.* 2005). The purpose of this research was to create an evidence based pathway as there have been no previous studies regarding practice nurses and the physical health of people with SMI in primary care. However, evidence suggests that research findings may take one to two decades to be translated into standard health care practice (Sussman *et al.* 2006). The Promoting Action on Research Implementation in Health Services or PARIHS framework (Rycroft-Malone 2004) suggests that successful use of implementation of evidence into clinical practice is a function of three elements: the evidence to be put into practice, the environment where the research is going to be implemented and the type and extent of facilitation used to help the implementation process. Scott (2008) explains that there are many different strategies to get research into clinical practice, such as financial incentives, written information, educational materials, conferences and workshops. However, as there are differences in the way the doctors and

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nurses work this may affect the way that research is introduced into their practice (Scott 2008) (in the case of this research, practice nurses work as salaried employees and GPs are usually the employers). Additionally, there is often a cultural divide between researchers, practitioners, and administrators which can prevent research becoming standard clinical practice (Eccles *et al.* 2005). Communicating the findings and practice implications of research occurs most effectively between people who share important attributes such as educational level, beliefs, social status, and networks (Haines and Jones 1994). My being a practicing clinician in primary care may therefore aid in this process.

14.2 Financial incentives

Funders and policy makers worldwide have experimented with initiatives to change physicians' behaviour and improve the quality and efficiency of medical care (Tsai *et al.* 2005). Financial incentive schemes in healthcare can lead to improvements in the quality of care for rewarded activities but they could also lead to neglect of the non-incentivised aspects of patient care (Doran *et al.* 2011).

14.2.1 Commissioning for Quality and Innovation (CQUIN) payment framework

The Commissioning for Quality and Innovation (CQUIN) payment framework was developed in 2009 to enable commissioners to reward excellence by linking a proportion of English healthcare providers' income to the achievement of local quality improvement goals (NHS Institute for Innovation and Improvement 2012). This is a developmental process and participants are

encouraged to share their schemes to meet the requirement for transparency and support improvement in schemes over time.

The Northamptonshire CQUIN

Following the completion of the PhyHWell project I was asked to participate in the development of a CQUIN for physical health in SMI and work as a consultant on this project for Northamptonshire Healthcare Foundation Trust (NHFT) (see appendix 16). The commissioner for mental health reported that the GPs in primary care wish to improve their confidence, skills and practice when working with people with SMI. Her opinion was that the most effective source of this support would be from the specialist mental health clinicians.

The goal of the Northamptonshire CQUIN is to improve implementation of NICE Guidance regarding health checks for people with SMI in Primary Care (NICE 2006, 2010). The key outcome of undertaking this work will be:

1. NHFT supporting the development of Primary Care Clinicians to enable their undertaking of appropriate annual physical health checks of patients with SMI in line with Mental Health QOF indicators.

2. Clinicians in NHFT will provide CVD screening and lifestyle advice at baseline, six weeks and 12 weeks when prescribing a new or increased dose of antipsychotic medication.

To help meet the first outcome I have developed training for practice nurses through a Health Innovation Education Cluster (described in 14.4.1). Present at each training session are mental health nurses whose time is backfilled with payment from the CQUIN. The participating practice nurses are given the name and contact details of the community mental health worker

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linked with their particular practice. They are advised to contact them for help and advice.

In order to meet the second outcome the clinical managers of NHfT have set up clinics to carry out the baseline, six and twelve week screening and lifestyle advice. Workers have been trained to perform electrocardiograms. I have written the protocol and guidelines for these checks (see appendices 17 and 18). I have also advised managers during this process and talked to various clinical teams to answer their queries.

14.2.2 Quality and Outcomes Framework

The Quality and Outcomes Framework (QOF) was introduced in 2004 in the UK. This is a mechanism intended to improve quality by linking up to 25% of general practitioners' income to achievement of publicly reported quality targets for a number of long term conditions (Roland 2004). It contains groups of indicators, against which practices score points according to their level of achievement (British Medical Association and NHS Employers, 2011). This payment system has been criticised as the primary care doctors can decide to exclude patients they consider as unsuitable for a particular target, and the quality of the consultation is not measured (Ashworth and Jones, 2008). Since 2009, NICE has been responsible for managing the development of the QOF clinical and health improvement indicators. Evidence for changes to the QOF is provided by an expert committee, which includes representatives from the Universities of Birmingham and Manchester, NHS Employers and the General Practitioners Committee. The last indicator changes for severe mental illness (at the time of writing) were made by this panel in June 2010 for the QOF 2011/12

(NICE 2010b). The authors of the new guidance make the point that the indicators in the QOF are not intended to cover all the process outcomes or disease issues for each category and in some areas the indicators cover only a small part of the care for those conditions. This makes the assumption that primary care staff will be carrying out the care not included in the QOF.

The changes to the mental health QOF 2011/12 could mean that people with SMI will not be offered an annual review, which allows time for them to be given diet and exercise advice and adequate smoking counselling. When training the practice nurses, I advocate providing care using the best practice manual but also include the QOF requirements and how they have been developed. Additionally I encourage discussion about overcoming some of the difficulties they may have in practice when carrying out these health checks, such as time constraints and employers' expectations.

When presenting this research to GPs and commissioners I have used the QOF requirements as one incentive to persuade them that training practice nurses to carry out health checks for people with SMI is a good idea.

14.3 Written information

Written information regarding research and good practice can take the form of journal publications written by the researchers, guidelines, website content (newly created or hosted by another party) and reports by journalists following interviews.

14.3.1 Publications

A study of 768 nursing journal papers documented that they disseminated not only information about clinical practice, but also informed readers about research of potential value to the nurse's practice (Oermann *et al*. 2008). Therefore I have submitted my research to two different types of publication: the reports of each study and the development of the intervention to relevant academic journals that report health outcomes-related research and/or with an impact factor or h-index (the impact factor reflects the frequency with which the journal's articles are cited in the scientific literature - Saha *et al*. 2003; the h-index attempts to measure both the productivity and impact of the published work – Hirsch 2005); and best practice articles to clinical journals.

Deciding on which academic journal to submit each study paper was dependant on the readership and relevance of the topic. For example, the paper: *'Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check?'* is of interest to nurses, GPs, primary care researchers and commissioners, so a journal solely focused on nursing was not selected; instead this article was published in the Primary Health Care Research and Development journal which has a relevant multidisciplinary audience.

Research only published in academic journals is not seen by the nurses who could use it (Shuttleworth 2011) because they confine their reading to a narrower set of journals within their clinical field (McKibbon *et al.* 2007). With this in mind, to ensure that the information reaches the clinicians whose practice needs to change, I have published educational and best practice articles in clinical journals which are regularly accessed by practice nurses (Practice

Nursing, Nursing Standard and Independent Nurse) and mental health workers

(Mental Health Nursing, British Journal of Wellbeing and Nursing Standard).

This action meets with the recommendations of Goldsack *et al.* (2011).

Following their study examining the distribution of health outcomes research of

12 clinical specialties in 535 journals, they suggest communicating the results to

healthcare professionals as well as publishing in health outcomes-related

research journals.

Reports of studies and development of the intervention:

1. Hardy S and Gray R. (2012) Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check? *Primary Health Care Research & Development.* doi:10.1017/S1463423612000023 (appendix 19)
Cited by 1

2. Hardy S and Gray R. (2011) The secret food diary of a person diagnosed with schizophrenia. *Journal of Psychiatric and Mental Health Nursing.* doi: 10.1111/j.1365-2850.2011.01826.x
Impact factor – 0.799 (appendix 20)
Cited by 2

3. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.
Impact factor – 0.799 (appendix 21)
Cited by 10

4. Hardy S and Gray R. (2010) Adapting the severe mental illness physical Health Improvement Profile for use in Primary Care. *International Journal of Mental Health Nursing.* **19** 350–355. doi: 10.1111/j.1447-0349.2010.00686.x
Impact factor – 1.071 (appendix 22)
Cited by 12

5. Hardy S, Hinks P and Gray R. (2013a) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health.* **22** (1) 42-50.
Impact factor – 1.101 (appendix 23)

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6. Mitchell A and Hardy S. (2013) Surveillance for metabolic risk factors in patients with severe mental illness vs diabetes: National Comparison of Screening Practices. *Psychiatric Services*. (in press)
Impact factor – 2.388

7. Hardy S. (2012) Training practices nurses to improve the health of patients with severe mental illness: the effect on beliefs and attitudes. *International Journal of Mental Health Nursing*. **21** (3) 259-265.
Impact factor – 1.071 (appendix 24)
Cited by 2

8. Hardy S, Hinks P and Gray R. (2013b) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? International Journal of Social Psychiatry. (in press)
Impact factor – 1.147

9. Hardy S, Deane K and Gray R. (2013c) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press)
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Clinical articles:

1. Hardy S and White J. (2013) Why are people with serious mental illness still not getting their physical health checked? *Mental Health Nursing*. **33** (1) 14-18. (appendix 25)

2. Hardy S and Gray R. (2012) Learning Zone: Reducing cardiovascular disease risk in patients with severe mental illness. *Nursing Standard*. **26** (45) 41-48. (appendix 26)

3. Hardy S. (2012) The increased risk of diabetes in people with severe mental illness. *Practice Nursing*. **23** (9) 430-433.(appendix 27)

4. Hardy S. (2011) Will the changes to the QOF mental health indicators improve care for people with severe mental illness? *British Journal of Wellbeing.* **2** (5) 18-21. (appendix 28)
Cited by 1

5. Hardy S. (2011) Improving the physical health of people with severe mental illness. *The British Journal of Wellbeing.* **2** (1) 32-35. (appendix 29)

6. White J and Hardy S. (2010) Managing medications in schizophrenia. *Practice Nursing.* **21** (8) 393 -396.(appendix 30)
Cited by 1

14.3.2 The Health Improvement Profile for Primary Care (HIP-PC) Manual

Clinical guidelines are recommendations based on the best available evidence regarding the appropriate treatment and care of people with specific diseases and conditions (NICE 2012). They help health professionals in their work, but do not replace their knowledge and skills. Citrome and Yeomans (2005) recommend clear and consistent recommendations for people with SMI, on how and when to monitor weight, cardiovascular function, and metabolic parameters and, importantly, what to do with the results. This, they say, would support clinicians wishing to integrate physical and mental healthcare. A systematic search and meta-analysis identified seven studies which examined any change in the screening of people with SMI before and after guideline implementation (Mitchell *et al.* 2012a). From these studies, only glucose data were sufficient for analysis and showed a small but significant increase in monitoring post guidance. Despite the presence of eighteen sets of guidelines for physical healthcare in people with SMI, implementation is incomplete (Mitchell *et al.* 2012b). This may be because guidelines are not matched with resources (Mitchell *et al.* 2012b) and there is no evidence to suggest that the healthcare providers are given any training to use them. The Health Improvement Profile for Primary Care (HIP-PC) is an evidence based physical health manual specifically written for practice nurses. It is easily accessible by downloading from the website http://physicalsmi.webeden.co.uk/. Additionally, the practice nurses are offered training with regard to its use and it is updated according to any changes in recommended practice. As stated in chapter eight, the manual is being used in many areas and therefore may have improved the care of thousands of patients.

14.3.3 Website

I decided to create a website (http://physicalsmi.webeden.co.uk/) in order to make information regarding carrying out a health check for people with SMI in primary care accessible to any interested party. This is described in chapter eight. The website is listed on the Royal College of Psychiatrists' National Audit of Schizophrenia (NAS) website as a useful resource for primary care (http://www.rcpsych.ac.uk/quality/nationalclinicalaudits/schizophrenia/nationalschizophreniaaudit/nasresources.aspx - see appendix 31). The author (Professor Mike Crawford) of the NAS is including it in his presentations about the audit.

14.3.4 Rethink

After presenting my research at the *Improving Physical Health for people with Mental Health Conditions* held in London on 4th July 2012 I was approached by Paula Reid from the charity, Rethink Mental Illness. She and her colleagues were due to hold a workshop to discuss some of the key challenges to better physical health outcomes for people affected by mental illness later that month. They were hoping to design a resource that might support professionals in addressing these challenges and invited me to attend to share my research as a best practice example. During this meeting I took an active role in the roundtable discussions and offered expertise from a primary care perspective.

Following the workshop, Rethink Mental Illness worked with a range of stakeholders to develop a document that outlined where physical health monitoring should be taking place along the care pathway. This document also clarifies whether this monitoring should be overseen by primary or secondary care. I offered constructive feedback on a number of iterations of this document,

particularly regarding the SMI register and the annual physical health check (see appendix 32).

Rethink have shared my resources as an example of best practice on the web pages they have designed for health professionals:

http://www.rethink.org/how_we_can_help/physical_health/physical_health_resources/annual_health_checks.html

14.3.5 Reports by journalists following interviews

Health and medical research is one of the most widely reported sources of news (PHCRIS 2012). I was invited to take part in a telephone interview on three occasions which was then reported in each journal. I saw this as an opportunity to publicize my research and encourage best practice in this area.

1. Stephen Robinson a journalist from General Practice magazine contacted me following the publication of my paper regarding inviting patients for a health check. He asked me a few very short quick questions. Though his article was not inaccurate, he focused mainly on the increase in payment GPs could receive if they followed my recommendations (Robinson 2012 – appendix 33).

2. Following an interview lasting nearly and hour and a half in which we discussed my research at length, the journalist Alison Moore from the Health Service Journal wrote a very short paragraph about the practice nurse training I have developed for people with SMI. Her report was not accurate and she did not provide links to my website or training even though she discussed them (Moore 2012 – appendix 34).

3. Ian Hullatt, the mental health advisor for the Royal College of Nursing (RCN) arranged for me to have an interview with one of the writers of their Bulletin. As this is sent out free to all RCN members I considered this to be a good opportunity. The article was accurate and sensitive (Palfrey 2012 – appendix 35). Following its publication I received a number of emails and have provided one example (permission given from author to publish his name and details):

date: 2012-12-09 time: 22:19:48 UTC

Your email address: andrew.lane@leicspart.nhs.uk

Subject: SMI

Message:

Our team of Mental Health Facilitators commence working in primary care tomorrow working to enhance people with SMI holistic needs. How fortunate that I read the recent RCN article that led to your website which will aid our service delivery.

Many thanks Andrew Lane Mental Health Facilitator.

14.4 Educational materials and workshops

I have adapted the educational materials originally developed for the Northampton Physical Health and Wellbeing project for two new projects, the East Midlands Health Innovation Education Cluster (EM HIEC) and the NHS London project.

14.4.1 East Midlands Health Innovation Education Cluster (EM HIEC)

The aim of the East Midlands Health Innovation and Education Cluster is to enable high quality patient care and services. They strengthen the co-ordination of education and training so that the benefits of research and innovation directly reach patients. Presently the EM HIEC is a formal cross sector partnership between NHS/Social Care organizations, higher education, and private and third sector organizations. It is anticipated that these collaborations will assure the creation of high quality education, a well equipped workforce, measurable service improvements and enhanced patient outcomes. The EM HIEC focuses on an 'engine room' approach to bring together partners for the rapid adoption and diffusion of ideas from education to service.

I completed an 'expression of interests' application to deliver a Physical Health in Severe Mental Illness for practice nurses, and was one of the five successful applicants from the original thirty-five. I was given a grant of £24,101.75. The project is explained in detail on the EM HIEC website http://emhiec.co.uk/projects-2012-2013/em22-physical-health-in-severe-mental-illness/. There is also a short video presentation.

The course has been accredited by the Royal College of Nursing (see appendix 36). Nine four hour sessions have been arranged for up to sixteen practice nurses each, over a period of six months. In an attempt to improve links between both disciplines, four mental health nurses can also attend each session. I teach the course myself. The practice nurses complete a pre and post self evaluation and all nurses give feedback about the course. The practice nurses will also be asked to complete a survey six months after their attendance

to see if there is any change in practice. The evaluation will be carried out by Professor Huber, the University of Northampton.

14.4.2 NHS London project

Under the Mental Health Payment by Results tariff patients assessed as having a history of psychotic symptoms (SMI) that are currently controlled and causing minor problems are eligible for discharge to primary care. However, one study has indicated that GPs and practice nurses feel that the care of such people is beyond their remit (Lester *et al.* 2005). The medical directors of NHS London were aware that the Clinical Commissioning Groups (CCGs) in London recognise that the safe discharge of some patients with SMI from secondary to primary care is a clinical and financial priority. They were also aware of the need for training primary care staff to promote this safe discharge and increase the opportunities to address the physical health needs of this group. At their request, I developed a one-off training package in mental health (including physical health in SMI) for practice nurses in London to be delivered by mental health nurses. The project was facilitated by Dr Fiona Nolan of Camden and Islington NHS foundation trust.

Twenty mental health nurses attended one of two train the trainer sessions delivered by myself. One hundred and ninety-four practice nurses attended one of 22 three hour training sessions throughout London. Using a questionnaire developed specifically for the study, the attendees rated their levels of confidence and knowledge significantly more positively in all of the ten areas identified (CI -1.10 to -0.96, t = 27.98 p<.0001).

This project provided good initial evidence that brief training in mental health can effectively be delivered by mental health professionals to practice nurses with a positive impact on their confidence and knowledge. A more extensive programme of training using this method is planned, alongside evaluation of the impact on practice and patient outcomes. At the time of writing 294 practice nurses have booked for the second round. A third round is planned. We intend to publish our findings when these have been completed.

14.4.3 Royal College of General Practitioners' (RCGP) workshop

I was asked to talk about my research at a RCGP workshop to describe the role of practice nurses in the care of people with severe and enduring mental illness. At this seminal workshop, I presented to an audience of 40 GPs. The feedback was that the GPs found my presentation to be excellent and my ideas on the role of the practice nurse very useful for their own practices and care offering (see appendix 37).

14.4.4 NHS London Primary Care Mental Health Leadership Development Programme

I am a member of the expert reference group for the NHS London Primary Care Mental Health Leadership Development Programme. The programme has been designed specifically for those working in primary care (in particular GPs) who would like to develop their leadership potential in the delivery of mental health services, or planning and commissioning of mental health services, through CCGs. As part of this programme I presented some of my research to 21 of the GP participants and explained how practice nurses can deliver health checks

for people with SMI. The session was evaluated as good/excellent. The GPs recorded how they would apply their learning and future needs:

- o Practice nurses are the way forward in General Practice.

- o Get practice nurse to start doing physical health checks.

- o Get templates up to date and care plans to focus on recovery.

- o Engage with practice nurses and do health checks differently.

- o Awareness of HIP-PC.

- o Consider using the GASS in our SMI LES check, changing the template.

- o Ensure Bexley will have trained practice nurses for this.

- o Speak to my practice about having a template for physical health checks. Better education of colleagues about why we are doing this.

- o Speak to our own practice nurse and get onto local course at end of February. Look at website physical SMI – http://physicalsmi.webeden.co.uk/

- o Talk to practice nurse in my practice. Eventually audit SMI cares in my practice.

- o Use resources for physical health reviews (HIP-PC and website) in our practice and include within plans for primary care MH LES.

- o Health checks in supported housing in Islington. Train our practice nurses re: SMI check.

- o Encourage local GP nurses to do the training to still them and inspire them. Think about how we extend local LES to use nurses more in this.

14.5 Conferences

Presenting at conferences has provided me with an opportunity to engage in academic dialogue and share, discuss and disseminate my research (Williams 2009). I have attained some recognition in my field which has led to future collaborations. Facing challenging questions and remarks has helped me to identify the strengths and weaknesses of my research.

Conference presentations

- Physical and Mental Health Conference. 7.11.12. Northampton.

- Commissioning Mental Health Conference. 6.11.12. London.

- Physical and Mental Heath Conference. 16.10.12. Northampton.

- Research and Development Conference (keynote speaker). 27.9.12. Northampton.

- Improving Physical Health for people with Long Term Conditions Conference. 4.7.12. London.

- Bipolar Disorder Conference. 12.7.12. London.

- Bipolar Disorder Conference. 28.6.12. Manchester

- Advancing Psychiatry in a changing NHS. 14.6.12. Waltham Abbey.

- Bipolar Disorder Conference. 20.2.12. Norwich.

- Physical Health/Mental Health Interface for SMI Conference. 16.1.12. Northampton.

- Health Service Journal Mental Health Congress. 1.12.11. London.

- Physical health and SMI: Medic away day. 8.9.11. Northampton.

- Physical health and SMI. 29.8.11. Universitäre Psychiatrische Dienste. Bern, Switzerland.

- University of East Anglia PGR Conference. 22.6.11. Norwich.

- RCN 16th International Network for Psychiatric Nursing Research Conference. 22.9.10. Oxford.

- RCN Mental Health Conference. 5.3.10. Liverpool.

Planned conference presentations

- Commissioning Mental Health Services 18.6.13 London.

- International Network for Psychiatric Nursing Research Conference 5-6.09.13 Warwick (awaiting notification of acceptance of abstract).

- Breaking Barriers 11-13.09.13 Reykjavik (awaiting notification of acceptance of abstract).

- RCN Safer Mental Health Services 5.10.13 London.

14.6 Awards

Winning an award highlights the quality and innovation of a person's work. I have won two awards for the PhyHWell project. The first was for best practice in primary care, the Nursing in Practice Award for Mental Health 2010 (appendix 38). More recently I was runner up in the RCN Marjorie Simpson New Researcher Award 2013 where my research was highly commended (appendix 39).

14.7 Summary of Chapter

In this chapter I have described how I have attempted to increase the impact of my research by using various methods. These include: financial incentives (CQUIN and Quality and Outcomes Framework); written information

(publications, HIP-PC Manual, website, Rethink, reports by journalists following interviews); educational materials and workshops (Health Innovation Education Cluster, NHS London project, Royal College of General Practitioners' workshops, London Primary Care Mental Health Leadership Development Programme); conferences and awards. Using these methods I have become recognised as an expert in the field of physical health in patients with SMI, particularly in regard to nursing and primary care.

Chapter fifteen: Conclusions

In this chapter I provide a summary of the thesis including a table (15.1) and offer my views on implications for policy and the service context, workforce competencies and training and further research.

15.1 Summary of thesis

A number of recent studies show that life expectancy in patients with SMI is reduced (Chang *et al.* 2011, Laursen 2011, Wahlbeck *et al.* 2011). Research has established that people in this group have a higher risk than the rest of the population of developing physical conditions including CVD (Leucht *et al.* 2007). People with long term physical conditions such as diabetes are screened for CVD by practice nurses in primary care (Hall 2008). However, despite GPs also receiving payment to screen patients with SMI (BMA and NHS Employers 2012), practice nurse contact with this group is low (Reilly *et al.* 2012). This may be explained by a number of factors. Healthcare professionals believe that patients with SMI will not attend for a health check if they are invited (Lester *et al.* 2005), despite there being only one study to demonstrate that they are poor at attending in response to an invitation (Harvey *et al.* 2005). They are also concerned that if they do attend, the tools used to help people improve lifestyle will be less effective than in the general population (Wright *et al.* 2006). Additionally, there is no appropriate training regarding the physical health of people with SMI universally available for primary care healthcare professionals (Hardy *et al.* 2011).

To address the physical health needs of people with SMI, healthcare professionals in primary care need access to training to improve their knowledge. In this thesis I have described how I have developed a training package and a programme of research. This was designed in an attempt to provide evidence that training practice nurses to deliver health checks for people with SMI will increase the quality of care in this group.

I carried out a retrospective audit to find out whether patients will attend for a health check if they are invited (Hardy and Gray 2012). I found that sending patients with SMI in primary care an invitation appointment letter with a predetermined time and date for a health check was effective in getting the to attend.

In order to find out whether a tool used for people with physical illnesses to improve their lifestyle is effective when used with the SMI population, I completed a prospective audit. This demonstrated that food diaries are one example of a tool being employed successfully in patients with SMI (Hardy and Gray 2011).

A systematic search to find out what evidence there is for the efficacy of healthcare professional educational outcomes in studies of physical health in SMI identified no studies (Hardy *et al.* 2011).

I developed a training package for practice nurses to teach them how to carry out physical health checks for people with SMI. This included a best practice

manual and a website (Hardy and Gray 2010). The learning outcomes were for the participants to:

- Understand the definition of SMI.

- Know the signs and symptoms of SMI.

- Be familiar with the epidemiology of SMI.

- Be aware of the impact of SMI on physical health particularly the increased risk of CVD.

- Be confident in navigating and using the website.

- Be confident in carrying out a health check using the HIP-PC manual as a guide.

- Be competent in entering data onto the computer template.

- Feel confident in providing this role within their practice.

- Liaise with relevant healthcare professionals and agencies.

To establish whether as many people with SMI are being screened for cardiovascular disease as people with physical conditions in Northampton, I carried out a retrospective audit (Hardy *et al.* 2013a). In the five Northampton practices, the proportion of patients with SMI being screened for CVD risk factors was much lower compared to those with diabetes. The number of people with SMI receiving lifestyle advice was also very low.

The GP's payment contract changed in 2011, meaning that data regarding screening in SMI could be collected nationally. I completed a retrospective audit to establish whether as many people with SMI are being screened for CVD as people with physical conditions in England (Mitchell and Hardy 2013). Patients

with diabetes received higher levels of screening across all four parameters (body mass index, blood pressure, blood glucose and cholesterol) in the previous 15 months than those with SMI.

A before and after study to measure the effect of the physical health and SMI training on the practice nurses' motivation to carry out physical health checks for people with SMI showed a positive effect (Hardy 2012).

I carried out a before and after study to establish whether training practice nurses to carry out physical health checks for people with SMI increases the level of screening for cardiovascular risk in this group (Hardy *et al.* 2013b). This confirmed that training practice nurses improves the quality of the health checks but still not to the levels received by other patient groups.

I interviewed patients with SMI to find out what they think about the physical health checks (Hardy *et al.* 2013c). They wanted: an explanation of why the health check had been offered; a description of what each blood test was for and the potential side effects of antipsychotic medication; relevant verbal and written information; and the opportunity to see the same healthcare professional where possible

15.2 Discussion

Following an invitation letter for a health check, attendance rates were lower than in patients with diabetes (Hardy and Gray 2012). However, they were higher than expected from the SMI group and comparable with the general

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population (Norman and Connor 1993). My audit may not reflect the wider population as health checks for people with SMI had been offered for the past six years in this practice by the same practitioner. Therefore the response rate to invitation letters is likely to be higher than that of a practice offering a new service. This study highlights what can be achieved over time at a practice level. Clinicians should consider other ways in addition to an invitation letter for those patients who have not attended. This may include reminders by telephone or text directly to the patient or carer. For patients who are under the care of the mental health team, it would be pertinent to contact their Community Mental Health Worker (CMHW). The CMHW can provide the patient with information about the importance of the health check and may even accompany the patient to the appointment.

My study did not address how to engage with patients who are homeless or not registered with a GP practice. At least one in five homeless people suffer from a severe mental health problem (Crisis 1999). In a survey by Crisis in 2002, the homeless people that were interviewed were almost 40 times more likely not to be registered with a GP than members of the general public. CCGs and local authorities should work closely together to ensure they tackle the health needs of homeless people with SMI in an integrated way. There is a need to develop competent outreach workers who work differently and build up trusting relationships. This could be provided through a Local or Direct Enhanced Service. Homeless people with SMI can then be gently encouraged to attend GP surgeries but those who won't attend should be offered tests and advice in the street. Staff in primary care practices should be trained how to provide a welcoming environment for this group. Communicating across sectors

and creating clear points of access for the agencies working with the homeless is also a priority.

The patients with schizophrenia who were asked to complete food diaries all managed to complete the task (Hardy and Gray 2011). This may be evidence of motivation to improve their health and demonstrates the utility of food diaries in educating this population. There is a need to educate practice nurses in how to help patients with all long term conditions (including SMI) to become effect managers of their disease. This education should include using a motivational approach, empowerment and problem solving.

A systematic search for evidence based education available for qualified nurses to monitor the physical health of people with SMI yielded no studies (Hardy *et al*. 2011). This lack of evidence adds to the view that carrying out physical health checks for people with SMI is not the responsibility of nurses (Blythe and White 2012, Robson *et al*. 2012). The lack of specific evidence to demonstrate that education of the nurses will improve patients' health makes advocating any education (should it be available) a difficult task. I hope that this thesis and the outcomes of the training that I have delivered through the NHS London project and the HIEC project will have some influence in shaping the provision of education for practice nurses by providing specific evidence.

In the audit of the five practices in Northampton before training, the NHS information database had a much higher percentage of patients with SMI recorded as having a review compared with the actual level of screening and advice given Hardy *et al.* 2013a). This suggests that there was a lack of awareness of the screening, health promotion and prevention advice that is appropriate for this group of patients, but it was carried out before specific

payment indicators were imposed. The findings of the audit of England practices (Mitchell and Hardy 2013) show that the financial incentives given to primary care practices might have improved monitoring in line with the observation that most targets are achieved. In the repeat audit of the five Northampton practices following training all screening measures and lifestyle advice increased (Hardy *et al.* 2013b). These findings are consistent with those of Bernard *et al.* (2009) who reported that the training and education of nurses in primary care centres promotes the use of prevention practices. However the increases in screening following training were not as remarkable as those following the introduction of financial incentives. This suggests a need for payment to motivate the organisation to provide the service. As an example, payments through QOF could be made to provide lifestyle advice to people with SMI until it becomes usual practice. There is a need for good quality research and evidence based education to ensure that these interventions are effective. I am involved in developing and delivering the training for one such study (PRIMROSE - University College London).

I do not know whether the nurses in the study delivered their screening in designated clinics for people with SMI. The concern about patients not attending and leaving the practice nurse without patients to see could be addressed by having one such appointment at the end of the morning clinic. Offering a later appointment could increase attendance by patients with SMI who may have difficulty in getting up due to their illness. Additionally, the nurse would then be able to use the time if patients did not attend to follow them up and then carry on with non clinical duties. Practice nurses work for GPs who provide general care, yet most practices now offer specialised clinics for

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different specific conditions such as COPD, asthma and diabetes. These clinics are cost effective at a practice level as there is a payment provided through QOF. At a population level they are also likely to be cost effective as much of the work is around self management and prevention of complictions and/or exacerbation. It can therefore be argued that providing a specialised clinic for people with SMI would have the same benefits, However as many people have more than one long term condition, perhaps providing generic clinics encompassing all conditions may be be more cost effective and holistic. The RCGP (2012) promote medical generalism which they define as an approach to the delivery of health care that routinely applies a broad and holistic perspective to the patient's problems. They advocate that these principles will be needed wherever and whenever people receive care and advice about their health and wellbeing, and all healthcare professionals need to value and be able to draw on this approach when appropriate. This suggests that the medical generalist approach can, and should be used by a practice nurse during any type of clinic. However, the RCGP do acknowledge that the ability to practise as a generalist depends on one's training, and on the routine use of skills that helps people to understand and live with their illnesses and disabilities, as well as helping them to get the best out of the healthcare options that are available and appropriate for their needs. Many practice nurses do not have the skills and competencies to help patients manage a range of long term conditions. This may result in the patient attending the practice on a number of occasions to see different practitioners. There are pros and cons for this approach. On the positive side, messages can be reinforced by the practitioners at each visit and the emphasis of the consultation can focus on one specific area allowing the patient to

concentrate on one issue at a time. This is particularly useful for someone with schizophrenia where concentration and planning may be a problem. Additionally if the nurse is providing a clinic in just one field, she is more likely to be an expert in that area. Patients who are isolated and lonely may welcome additional visits. Conversely, busy patients may resent numerous visits and tests and advice may be duplicated. Most education is expensive and offered as disease specific. Therefore practice nurses (and/or their GP employers) may choose to access only those that they see as relevant to their role. Presently, for practice nurses to provide generic clinics that allow them to work according to their professional code of conduct, they would need to access a range of courses. A generic course encompassing all long term conditions could include the disease specific information as well as the psychological issues relevant to them all. This approach would meet with the recommendations of the Royal College of Psychiatrists' mission statement (2010), '*no health without public mental health'*.

It appeared from the interviews with patients that they were making lifestyle changes following their health check, despite the apparent lack of knowledge of CVD risk factors (Hardy et al. 2013c). This is consistent with the findings of Campion *et al.* (2005). However, as we do not have knowledge of the participants' previous behaviour, we cannot claim conclusively that this was the case. The patients' views of what will make physical health checks for people with SMI effective were considered when modifying the HIEC training for practice nurses (explained in chapter 14).

In order to encourage a change in clinical practice, I have used a number of methods to promote my research. These include: financial incentives; written information; educational materials and workshops; and conferences and awards. All of these methods (described in chapter 14) could be employed on a wider scale by other organisations.

In summary, I have shown that patients with SMI will attend for a health check in primary care when invited by letter providing the date and time of appointment and the name of the practitioner. Training practice nurses to deliver these checks increases the level of screening and lifestyle advice given to this group of patients.

Table 15.1 Objectives, samples, design, analysis and outcomes of the studies

	Objectives	Study	Sample	Design	Analysis	Outcomes
Phase one	To explore whether an invitation appointment letter is effective in prompting patients with SMI to attend a physical health check in primary care compared with those with diabetes.	Study 1	92 patients with SMI and 416 with diabetes	Retrospective audit	Descriptive statistics: Odds ratio to explore whether the patient's diagnosis made a difference to the numbers responding to an invitation for a health check.	An invitation appointment letter is an effective way of ensuring that patients with SMI have a physical health check.
	To consider the feasibility of food diaries as a method of understanding the dietary behaviour of people with schizophrenia.	Study 2	8 patients with schizophrenia	Prospective audit	Identification of themes	The food diary is a useful clinical tool for patients with schizophrenia. Contrary to public belief, patients with schizophrenia are capable of completing homework tasks.
	To identify the evidence of efficacy of the education of qualified health care professionals to deliver interventions aimed at improving the physical health of adults with SMI.	Study 3	147 papers	Systematic search	Summary of characteristics of studies, their methodological quality, a summary of the results, synthesis of results in light of risk of bias.	No studies were identified as suitable for a systematic review
Phase two	To establish the proportion of patients with SMI being screened for CVD risk factors in their GP practice compared to those with diabetes and determine whether people with SMI receive lifestyle advice.	Study 4	386 people with SMI and 1875 people with diabetes	Retrospective audit	Descriptive statistics: Odds ratio to see whether diagnosis made a difference to level of screening. Mean number of interventions And standard deviation Chi-square test to see if age was associated with the number of interventions received.	Just over a fifth of patients with SMI received a full CVD screen compared to the 96% of those with diabetes (OR=90.37; 95% CI=64.53 to 126.55: p<.01). Fifty-seven per cent of the SMI patients were given smoking advice but only thirteen and fourteen percent received guidance regarding diet and exercise respectively.
	To establish the proportion of patients with SMI being screened for CVD risk factors in England compared to those with diabetes	Study 5	2,488,948 people with diabetes and 422,966 with SMI	Retrospective audit	Chi-square test to see whether diagnosis made a difference to level of screening	Patients with diabetes received higher levels of screening across all four parameters in the previous 15 months than those with SMI (97.3% vs 74.7%; p<0.0001).
	To address common misconceptions about the physical health of people with SMI.	Study 6	8 practice nurses	Before and after study	Descriptive statistics: Mean of nurses' scores. Unpaired t-test to measure the difference in the scores before and after training.	The training was effective in modifying practice nurses' misconceptions about physical health in people with SMI.
	To establish whether training practice nurses increases the proportion of patients with SMI being screened for CVD risk factors and given lifestyle advice in their GP practice.	Study 7	400 patients with SMI	A before and after audit.	Relative risk to calculate whether training made a difference to the level of screening and lifestyle advice given to people with SMI as a group. T -test to determine the difference between the mean number of interventions received by each individual patient with SMI before and after training.	Training practice nurses about CVD prevention in people with SMI may be effective in increasing the proportion of patients in this group who receive a comprehensive health check.
	To examine the patients' views regarding the physical health check delivered by a nurse trained to deliver the intervention.	Study 8	5 patients with SMI	Interviews using a topic guide.	Thematic analysis.	Patients' views include: explaining why the health check has been offered; describing blood tests and side effects of antipsychotic medication; providing verbal and written information; seeing the same healthcare professional where possible.

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References

Abdelmawla M and Mitchell A. (2006) Sudden cardiac death and antipsychotics. *Advances in psychiatric treatment.* 12 100-109.

Abraham G, Paing W, Kaminski J, Joseph A, Kohegyi E and Josiassen R. (2003) Effects of elevated serum prolactin on bone mineral density and bone metabolism in female patients with schizophrenia: a prospective study. *Am J Psychiatry.* **160** 1618‑1620.

Adler S and Clark R. (2011) *An Invitation to Social Research: How it's Done.* Belmont: Cengage Learning.

Aizenberg D, Zemishlany Z, Dorfman-Etrog P and Weizman A. (1995) Sexual dysfunction in male schizophrenic patients. *J Clin Psychiatry.* **56** 137–141.

Allebeck P, Adamsson C and Engström A. (2007) Cannabis and schizophrenia: a longitudinal study of cases treated in Stockholm County. *Acta Psychiatrica Scandinavica.* **88** 21–24.

Allison D & Casey D. (2001) Antipsychotic-induced weight gain. A review of the literature. *Journal of Clinical Psychiatry.* **62** (suppl. 7) 22-31.

Allison D, Fontaine K, Heo M, Mentore J, Cappelleri J, Chandler L, Weiden P and Cheskin L. (1999) The distribution of body mass index among individuals with and without schizophrenia. *J Clin Psychiatry.* **60** 215–220.

Altrichter H, Feldman A, Posch P and Somekh B. (2008) *Teachers investigate their work; An introduction to action research across the professions.* (2nd edition). London: Routledge.

American Diabetes Association; American Psychiatric Association; American Association of Clinical Endocrinologists; North American Association for the Study of Obesity. (2004). Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes. *Diabetes Care.* **27** (2) 596-601.

American Psychiatric Association. (APA). (2000). *Diagnostic and statistical manual of mental disorders (DSM).* 4th ed. Arlington (VA): APA.

Andreasen N. (1995) Symptoms, signs and diagnosis of schizophrenia. *The Lancet.* **346** (8973) 453-516.

Antoniou J. (2003) Patient's response to research. *BMJ.* **326** 1313.1.

Armstrong B, White E. and Saracci R. (1992*) Principles of Exposure Measurement in Epidemiology.* Oxford: Oxford University Press.

Ashworth M and Jones R. (2008) Pay for performance systems in general practice: experience in the United Kingdom. *MJA* **189** (2): 60–1.

Asselin, M. E. (2003). Insider research: Issues to consider when doing qualitative research in your own setting. *Journal for Nurses in Staff Development.* **19** (2) 99-103.

Ataya K, Mercado A, Kartaginer J, Abbasi A and Moghissi K. (1988) Bone density and reproductive hormones in patients with neuroleptic-induced hyperprolactinemia. *Fertil Steril.* **50** 876‑881.

Atkin K, Kendall F, Gould D, Freeman H, Liberman J and O'Sullivan D. (1996) Neutropenia and agranulocytosis in patients receiving clozapine in the UK and Ireland. *The British Journal of Psychiatry.***169** 483-488.

Baastrup P, Christiansen C and Transbol I. (1980) Calcium metabolism in schizophrenic patients on long-term neuroleptic therapy. *Neuropsychobiology.* **6** 56‑59.

Babigian H and Odoroff O. (1969) The mortality experience of a population with psychiatric illness. American Journal of Psychiatry. **126** 470-480.

Bairey Merz C, Dwyer J, Nordstrom C, Walton K, Salerno J and Schneider R. (2002) Psychosocial stress and cardiovascular disease: Pathophysiological links. *Behavioral Medicine.* **27** 141–146.

Baker R, Brown E, Akiskal H. *et al* (2004) Efficacy of olanzapine combined with valproate or lithium in the treatment of dysphoric mania. *British Journal of Psychiatry.* **185** 472-478.

Baldwin J. (1979). Schizophrenia and physical disease. *Psychological Medicine.* **9** (4) 611-618.

Barak Y, Achiron A, Mandel M, Mirecki I and Aizenberg D. (2005) Reduced cancer incidence among patients with schizophrenia. *Cancer.* **104** 2817‑2821.

Barnes T, Paton C, Cavanagh M, Hancock E and Taylor D. on behalf of the UK Prescribing Observatory for Mental Health. (2007) A UK Audit of Screening for the Metabolic Side Effects of Antipsychotics in Community Patients. *Schizophrenia Bulletin.* 33 (6) 1397–1403. doi:10.1093/schbul/sbm038.

Barnett A, Mackin P, Chaudhry I, Farooqi A, Gadsby R, Heald A, Hill J, Millar H, Peveler R, Rees A, Singh V, Taylor D, Vora J and Jones PB. (2007) Minimising metabolic and cardiovascular risk in schizophrenia: diabetes, obesity and dyslipidaemia. *Jornal of Psychopharmacology.* **21** (4) 357-73.

Bateman H, Boase S, Trivedi D, Williams K and Gorham B. (2006) Acknowledging the contribution of nurses who support quality through involvement in research studies. *Quality in Primary Care.* **14** (2) 71–76.

Batki S, Meszaros Z and Strutynski K *et al.* (2009) Medical comorbidity in patients with schizophrenia and alcohol dependence. *Schizophr Res.* **107** 139-46.

Bennedsen B. (1998) Adverse pregnancy outcome in schizophrenic women: occurrence and risk factors. *Schizoph Res.* **33** 1‑26.
Bergemann N, Auler B, Parzer P *et al.* (2001) High bone turnover but normal bone mineral density in women with schizophrenia. *Bone.* **28** 248.

Bernard S, Lux L and Lohr K. (2009) *Healthcare delivery models for prevention of cardiovascular disease (CVD).* London: The Health Foundation.

Bernardo M, Cañas F, Banegas J *et al.* for the RICAVA Study Group. (2009) Prevalence and awareness of cardiovascular risk factors in patients with schizophrenia: A cross-sectional study in a low cardiovascular disease risk geographical area. *European Psychiatry.* **24** 431–441.

Bilici M, Cakirbay H, Guler M, Tosun M, Ulgen M and Tan U. (2002) Classical and atypical neuroleptics, and bone mineral density, in patients with schizophrenia. *Int J Neurosci.* **112** 817‑828.

Bindman, J., Johnson, S., Wright, S., Szmukler, G., Bebbington, P., Kuipers, E. *et al.* (1997). Integration between primary and secondary services in the care of the severely mentally ill: patients' and general practitioners' views. *British Journal of Psychiatry,* **171**, 169–74.

Birtcher, K. & Ballantyne, C. (2004) Measurement of cholesterol. *Circulation.* **110** 296-297.

Bishop J, Alexander B, Lund B and Klepser T. (2004) Osteoporosis screening and treatment in women with schizophrenia: a controlled study. *Pharmacotherapy.* **24** 515‑521.

Blythe J and White J. (2012) Role of the mental health nurse towards physical health care in serious mental illness: An integrative review of 10 years of UK Literature. International Journal of Mental Health Nursing. **21** (3) 193-201.

Boase S, Youngsuk K, Craven A and Cohn S. (2012) Involving practice nurses in primary care research: the experience of multiple and competing demands. *Journal of Advanced Nursing.* **68** (3) 590–599.

Bobes J, Alegría A, Saiz-Gonzalez M, Barber I, Pérez J and Saiz-Ruiz J. (2010) Change in psychiatrists' attitudes towards the physical health care of patients with schizophrenia coinciding with the dissemination of the consensus on physical health in patients with schizophrenia. *Eur Psychiatry.* [Epub ahead of print]

Bradshaw T, Lovell K and Harris N. (2005) Healthy living interventions and schizophrenia: a systematic review. *Journal of Advanced Nursing.* **49** (6), 634-654.

Bradshaw T and Pedley R. (2012) Evolving role of mental health nurses in the physical health care of people with serious mental health illness. International

Journal of Mental Health Nursing. **21** (3) 266-273.

Brar J, Ganguli R, Pandina G, *et al.* (2005) Effects of behavioral therapy on weight loss in overweight and obese patients with schizophrenia or schizoaffective disorder. *Journal of Clinical Psychiatry.* **66** 205–212.

British Medical Association, Royal Pharmaceutical Society of Great Britain. (2012a) *Lamotrigine. British National Formulary* (BNF). http://www.medicinescomplete.com/mc/bnf/current/PHP2939-lamotrigine.htm

British Medical Association, Royal Pharmaceutical Society of Great Britain. (2012b) *Carbemazepine. British National Formulary* (BNF). http://www.medicinescomplete.com/mc/bnf/current/PHP2909-carbamazepine.htm

British Medical Association, Royal Pharmaceutical Society of Great Britain. *Selective serotonin reuptake inhibitors.* (2012c) *British National Formulary* (BNF). http://www.medicinescomplete.com/mc/bnf/current/PHP2413-selective-serotonin-re-uptake-inhibitors.htm

British Medical Association, Royal Pharmaceutical Society of Great Britain. *Benzodiazepines.* (2012d) *British National Formulary* (BNF). http://www.medicinescomplete.com/mc/ahfs/2010/a382910.htm#id10000001

British Medical Association (BMA). (2008) Quality and outcomes framework guidance: http://www.bma.org.uk/images/QoF%20Guidance%20-%20April%202008_tcm41-182872.pdf

British Medical Association & NHS Employers. (2012) *Quality and Outcomes Framework Guidance for GMS Contract 2012/13* http://bma.org.uk/practical-support-at-work/contracts/independent-contractors/qof-guidance

British Medical Association and NHS Employers. (2011) *Quality and Outcomes Framework Guidance for GMS Contract 2011/12* http://www.nhsemployers.org/Aboutus/Publications/Documents/QOF_guidance_GMS_contract_2011_12.pdf

Brooks, G. and Ahmed, A. (2007). Pharmacological treatments for psychosis-related polydipsia. *The Cochrane Library.* **3** 1–15

Brown K, Williams E and Groom L. (1992) Health checks on patients 75 years and older in Nottinghamshire after the new GP contract. *British Medical Journal* 305, 619-21.

Brown S and Chan K. (2006) A randomized controlled trial of a brief health promotion intervention in a population with serious mental illness. *Journal of Mental Health.* 15 (5) 543-549.

Brown S, Inskip H, Barraclough B. *Causes of the excess mortality of schizophrenia. British Journal of Psychiatry 2000;***177***:212–17.*

245

Brown S. (1997) Excess mortality of schizophrenia. A meta-analysis. *British Journal of Psychiatry.* **171** 502–508.

Brown T, Avenell A, Edmunds L, Moore, H, Whittaker V, Avery L and Summerbell C. (2009) Systematic review of long-term lifestyle interventions to prevent weight gain and morbidity in adults. *Obesity Reviews.* 6 627-638.

Brunero S and Lamont S. (2010) Health behaviour beliefs and physical health risk factors for cardiovascular disease in an outpatient sample of consumers with a severe mental illness: a cross-sectional survey. *International Journal of Nursing Studies.* **47** (6) 753-60.

Buhagiar K, Parsonage L and Osborn D. (2011) Physical Health behaviours and health locus of control in people with schizophrenia-spectrum disorder and bipolar disorder: a cross sectional comparative study with people with non-psychotic mental illness. *BMC Psychiatry.* 11 104.

Burns M. (2001) The pharmacology and toxicology of atypical antipsychotic agents. *J Toxicol Clin Toxicol .* **39** 1.

Burns T, Millar E, Garland C, Kendrick T, Chisholm B and Ross F. (1998) Randomized controlled trial of teaching practice nurses to carry out structured assessments of patients receiving depot antipsychotic injections. *Br J Gen Pract.* **48** (437) 1845–1848.

Bushe C, Shaw M and Peveler R. (2008) A review of the association between antipsychotic use and hyperprolactinaemia. *Journal of Psychopharmacology.* **22** (2) Supplement 46–55.

Bushe C, Haddad P, Peveler R and Pendlebury J. (2005) The role of lifestyle interventions and weight management in schizophrenia. *J Psychopharmacol.* **19** (6) (suppl) 28-35.

Bushe B.and Holt R. (2004) Prevalence of diabetes and impaired glucose tolerance in patients with schizophrenia. *British Journal of Psychiatry.* **184** S67–S71.

Calabrese J, Keck P Jr, Macfadden W, Minkwitz M, Ketter T, Weisler R, Cutler A, McCoy R, Wilson E and Mullen J. (2005) A randomized, double-blind, placebo-controlled trial of quetiapine in the treatment of bipolar I or II depression. *American Journal of Psychiatry.* **162** (7) 1351-60.

Campbell N, Thain J, Deans H, Ritchie L, Rawles J and Squair J. (1998) Secondary prevention clinics for coronary heart disease: randomised trial of effect on health. *BMJ.* 316 1434–1437.

Campion G, Francis V, Preston A and Wallis A. (2005) Health behaviour and motivation to change. *Mental Health Nursing.* **25** (6) 12-5.

Cardno A and Gottesman I. (2000) Twin studies of schizophrenia: from bow-and-arrow concordances to star wars Mx and functional genomics. *American Journal of Medical Genetics.* **97** (1) 12-17.

Care Quality Commission. (2012) *The Essential Standards.* http://www.cqc.org.uk/organisations-we-regulate/registering-first-time/essential-standards

Carney C, Jones L and Woolson R. (2006) Medical comorbidity in women and men with schizophrenia: a population-based controlled study. *J Gen Intern Med.* **21** 1133-7.

Carney C and Jones L. (2006) The influence of type and severity of mental illness on receipt of screening mammography. *J Gen Intern Med.* **21** (10) 1097-104.

Cavanaugh J, Powell K, Renwick O *et al.* (2012) An outbreak of tuberculosis among adults with mental illness. *American Journal of Psychiatry.* **169** 569-575.

Chafetz L, White M, Collins-Bride G and Nickens J. (2005) The poor general health of the severely mentally ill: impact of schizophrenic diagnosis. *Community Ment Health J.* **41** 169‑184.

Chang C-K, Hayes R, Perera G, Broadbent M, Fernandes A *et al.* (2011) Life Expectancy at Birth for People with Serious Mental Illness and Other Major Disorders from a Secondary Mental Health Care Case Register in London. PLoS ONE **6** (5) e19590.

Chaturvedi N, McKeigue P, Marmot M. (1994) Relationship of glucose intolerance to coronary risk in Afro-Caribbeans compared with Europeans. *Diabetologia.* **37** 765–72.

Chaudhury S, Chandra S and Augustine M. (1994) Prevalence of Australia-Antigen (Hbsag) in institutionalized patients with psychosis. *Br J Psychiatry.* **164** 542‑543.

Chengappa K, Levine J, Gershon S, Kupfer D. (2000) Lifetime prevalence of substance or alcohol abuse and dependence among subjects with bipolar I and II disorders in a voluntary registry. *Bipolar Disorder.* **2** 191-195.

Chochinov H, Martens PJ, Prior HJ, Fransoo R, Burland E. (2009) The Need To Know Team. Does a diagnosis of schizophrenia reduce rates of mammography screening? A Manitoba population-based study. *Schizophrenia Research.* **113** (1) 95-100.

Chiu C, Chen C, Chen B *et al.* (2010))The time-dependent change of insulin secretion in schizophrenic patients treated with olanzapine. *Progress in Neuro-Psychopharmacology and Biological Psychiatry.* **34** (2010) 866–870.

Cipriani A, Pretty H, Hawton K *et al.* (2005) Lithium in the prevention of suicidal behavior and all-cause mortality in patients with mood disorders: a systematic review of randomized trials. *American Journal of Psychiatry.* **162** (10)1805-19.

Citrome L. and Yeomans D. (2005) Do guidelines for severe mental illness promote physical health and well-being? *J Psychopharmacol.* 19 (6 Suppl) 102-9.

Cividini A, Pistorio A, Regazzetti A *et al.* (1997) Hepatitis C virus infection among institutionalised psychiatric patients: a regression analysis of indicators of risk. *J Hepatol.* **27** 455‑463.

Clark A, Hartling L, Vandermeer B and McAlister F. (2005) Meta-analysis: secondary prevention programs for patients with coronary artery disease. *Ann Intern Med.***143** (9) 659-672.

Cohen A. (2001) Physical health of people with severe mental illness. *BMJ.* **332** 443.

Cohen H, Loewenthal U, Matar M, Kotler M. (2001) Heart rate variability in schizophrenic patients treated with antipsychotic agents. *Harefuah.* **140** 1142‑1147 1231.

Colton C and Manderscheid R. (2006) Congruencies in Increased Mortality Rates, Years of Potential Life Lost, and Causes of Death Among Public Mental Health Clients in Eight States. *Preventing Chronic Disease.* **3** (2). http://www.cdc.gov/pcd/issues/2006/apr/05_0180.htm

Cookson J. (2001) Use of antipsychotic drugs and lithium in mania. *British Journal of Psychiatry.* **178** (Suppl 41) S148-56.

Cooke J, Mathers N and Mitchell C. (2007) Reciprocity and paying attention to process: an important issue for the UK Clinical Research Network in primary care? Primary Health Care Research and Development **8** 292–296.

Cooper B. (2003). Evidence-based mental health policy: a critical appraisal. British Journal of Psychiatry. 183:105–13. Department of Health. (2006). Choosing Health: Supporting the physical health needs of people with severe mental illness. London: DH.

Copeland G. (2005) A Practical Handbook for Clinical Audit. Leicester: NHS Clinical Governance Support Team.

Copeland L, Mortensen E, Zeber J *et al.* (2007) Pulmonary disease among inpatient decedents: impact of schizophrenia. *Prog Neuropsychopharmacol Biol Psychiatry.* **31** 720-726.

Corbin Dwyer S and Buckle J. (2009) The space between: on being an insider-outsider in qualitative research. *Internation Journal of Qualitative Methods.* **8** (1) 54-63.

Cournos F, Guido J, Coomaraswamy S, Meyer-Bahlburg H, Sugden R and Horwath E. (1994) Sexual activity and risk of HIV infection among patients with schizophrenia. *American Journal of Psychiatry*. **151** 228–232.

Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I and Pettigrew M. (2008) Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ*. **337** 1655.

Crisis. (2002) Critical Condition: Homeless peoples' access to GPs. London:Crisis.

Crisis. (1999) *Pressure Points.* London:Crisis.

Crossman S. (2008) The WiPP 'SNAPshot Survey'. http://www.rcn.org.uk/__data/assets/pdf_file/0006/182562/Final_SNAPshot_Survey_Report_SC.pdf

Cullinane E, Siconolfi S, Saritelli A and Thompson P. (1982) Acute decrease in serum triglycerides with exercise: is there a threshold for an exercise effect? *Metabolism.* **31** 844–847.

Dalton S, Mellemkjaer L, Thomassen L, Mortensen P and Johansen C. (2005) Risk for cancer in a cohort of patients hospitalized for schizophrenia in Denmark, 1969-1993. *Schizophrenia Research*. **75** 315‑324.

Dalton SO, Laursen TM, Mellemkjaer L, Johansen C, Mortensen PB. (2004) Risk for cancer in parents of patients with schizophrenia. *American Journal of Psychiatry*. **161** 903‑908.

Dalton S, Munk L, Mellemkjaer L, Johansen C and Mortensen P. (2003) Schizophrenia and the risk for breast cancer. *Schizophrenia Research*. **62** 89‑92.

Darbàa J, Minovesb A, Rojoc E, Jimenezc F and Rejasd J. (2011) Efficacy of second-generation-antipsychotics in the treatment of negative symptoms of schizophrenia: A meta-analysis of randomized clinical trials. *Revista de Psiquiatría y Salud Mental*. **4** (3) 126-143.

Das A. Olfson M, Gameroff M *et al.* (2005) Screening for bipolar disorder in a primary care practice. *Journal of the American Medical Association*. **293** 956–963.

Davies J, Heyman B, Bryar R, Graffy J, Gunnell C, Lamb B and Morris L. (2002) The research potential of practice nurses. *Health Soc Care Community.* **10** (5) 370-81.

Davies M, Heller S, Skinner T *et al.* (2008) Effectiveness of the diabetes education and self management for ongoing and newly diagnosed (DESMOND)

249

programme for people with newly diagnosed type 2 diabetes: cluster randomised controlled trial. *BMJ.* **336** (7642) 491.

Deeks A, Lombard C, Michelmore J and Teede H. (2009) The effects of gender and age on health related behaviors. *BMC Public Health.* **9:**213.

De Hert M, Cohen D, Bobes J. *et al.* (2011a) Physical illness in patients with severe mental disorders. II. Barriers to care, monitoring and treatment guidelines, plus recommendations at the system and individual level. *World Psychiatry.* **10** (2), 138–151.

De Hert M, Vancampfort D, Correll C, Mercken V, Peuskens J, Sweers K. *et al.* (2011b) Guidelines for screening and monitoring of cardiometabolic risk in schizophrenia: Systematic evaluation. *British Journal of Psychiatry.* **199** (2) 99–105.

de Hert, Schreurs V, Vancampfort and Van Winkel R. (2009a) Metabolic syndrome in people with schizophrenia: a review. *World Psychiatry.* **8** (1) 15–22.

de Hert M, Dekker J, Wood D *et al.* (2009b) Cardiovascular disease and diabetes in people with severe mental illness position statement from the European Psychiatric Association (EPA), supported by the European Association for the Study of Diabetes (EASD) and the European Society of Cardiology (ESA). *European Psychiatry.* **24** 412–424.

Delva N, Crammer J, Jarzylo S *et al.* (1989) Osteopenia, pathological fractures, and increased urinary calcium excretion in schizophrenic patients with polydipsia. *Biol Psychiatry.* **26** 781‑793.

Di Censo A, Guyatt G and Ciliska D. (2005) *Evidence-based nursing: a guide to clinical practice.* St. Louis: Mosby.
Department of Health. (2012) Primary Care.
http://www.dh.gov.uk/health/category/policy-areas/nhs/primary-care/

Department of Health. (2011a) *Stay Active, Stay Active.* London: Department of Health.

Department of Health. (2011b) *The Eatwell plate.* London: Department of Health.

Department of Health. (2011c) *Stop smoking service delivery and monitoring guidance 2011/12.* London: Department of Health.

Department of Health. (2009) *Free NHS Healthcheck.* London: Department of Health.

Department of Health (2008a) Health Trainers – Review to Date. The Stationery Office: London.

Department of Health. (2008b). Health inequalities: Progress and next steps. London: DoH.

Department of Health. (2006a) The Chief nursing officer's review of mental health nursing, *From Values to Action*. London: Department of Health.

Department of Health (2006b) Best Research for Best Health: A New National Health Research Strategy: Consultation Document. The Stationery Office, London.

Department of Health. (DoH). (2006c). *Choosing Health: Supporting the physical health needs of people with severe mental illness.* London: DoH.

Department of Health. (2003a) *Delivering Investment in General Practice – Implementing the New GMS Contract.* Department of Health, London.

Department of Health. (2003) *Fast-forwarding Primary Care Mental Health: Graduate Primary Care Mental Health Workers – Best Practice Guidance.* DH: London.
Department of Health. (2002). *Disease Registers in England.* Oxford: Institute of Health Sciences.

Diabetes UK. (2011) Diabetes prevalence 2011 (Oct 2011). http://www.diabetes.org.uk/Professionals/Publications-reports-and-resources/Reports-statistics-and-case-studies/Reports/Diabetes-prevalence-2011-Oct-2011

Diabetes UK. (2005) Recommendations for the provision of services in primary care for people with diabetes. http://www.diabetes.org.uk/Documents/Professionals/primary_recs.pdf

Disability Rights Commission. (DRC). (2006). *Equal Treatment: Closing the Gap.* Stratford Upon Avon: DRC.

Diorio, W. (2001). From treatment to partnership: A qualitative study of service planning for recovery from severe mental illness. *New Research in Mental Health, Ohio Department of Mental Health, 15*, 77-84.

Doran T, Kontopantelis E, Valderas J, Campbell S, Roland M, Salisbury C and Reeves D. (2011) Effect of financial incentives on incentivised and non-incentivised clinical activities: longitudinal analysis of data from the UK Quality and Outcomes Framework. *BMJ.* 342:d3590.

Drinkaware. (2011) *Alcohol Units: your guide to alcohol units and measures*. Drinkaware.co.uk.

Driscoli J, Melnick N, Quinn F *et al.* (1978) Psychotropic drugs as potential antitumor agents: a selective screening study. *Cancer Treat Rep.* **62** 45‑74.

Druss B, von Esenwein S, Compton M *et al.* (2010) A Randomized Trial of Medical Care Management for Community Mental Health Settings: The Primary Care Access, Referral, and Evaluation (PCARE) Study. *American Journal of Psychiatry.* **167** (2) 151-159.

Druss B, Rosenheck R, Desai M and Perlin J. (2002) Quality of Preventive Medical Care for Patients With Mental Disorders. *Medical Care.* **40** (2)129–136.

Duerden M. (2009) What are hazard ratios? www.whatisseries.co.uk

Dupont A, Jensen O, Stro¨mgren E and Jablensky A. (1986) Incidence of cancer in patients diagnosed as schizophrenic in Denmark. In: Ten Horn GH, Giel R, Gulbinat WH, eds. *Psychiatric Case Registers in public health.* Amsterdam: Elsevier.

Dutta R, Murray R, Hotopf M, Allardyce J, Jones P, and Boydell J. (2010) Reassessing the Long-term Risk of Suicide After a First Episode of Psychosis. *Arch Gen Psychiatry.* **67** (12) 1230-1237.

Eccles M, Grimshaw J, Walker A, Johnston M and Pitts N. (2005) Changing the behavior of healthcare professionals: the use of theory in promoting the uptake of research findings. *Journal of Clinical Epidemioly.* **58** 107-112.

Edwards P. (2010) Questionnaires in clinical trials: guidelines for optimal design and administration. *Trials.* **11** 2.

Einarson A and Boskovic R. (2009) Use and safety of antipsychotic drugs during pregnancy. *J Psychiatr Pract.* **15** 183-92.

Eldridge D, Dawber N and Gray R. (2011) A well-being support program for patients with severe mental illness: a service evaluation. *BMC Psychiatry.* **11** 46. doi:10.1186/1471-244X-11-46.

England, E. & Lester, H. (2005). Integrated mental health services in England: a policy paradox. *Int J Integr Care,* **5**: e24: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1475728/

Evans D. (2003) Hierarchy of evidence: a framework for ranking evidence evaluating healthcare interventions. *Journal of Clinical Nursing.* **12** (1) 77-84.

Evins E, Mays V, Rigotti N, Tisdale T, Carther C and Goff D. (2001) A pilot study of bupropion added to cognitive behavioural therapy for smoking cessation in schizophrenia. *Nicotine and Tobacco Research.* **3** 397–403.

Fagard R. (1999) Physical activity in the prevention and rehabilitation of hypertension in the obese. *Medicine and Science in Sports Exercise.* 31, Suppl 11, S624-630.

Faravelli C, Guerrini Degl'Innocenti B, Aiazzi L *et al.* (1990) Epidemiology of

mood disorders: a community survey in Florence. *Journal of Affective Disorders.*
20 135–141.

Farley, P., Lau, K. and Suba, S. (1986). Severe hypernatremia in a patient with psychiatric illness. *Archives of Internal Medicine.* **146** (6)1214-5.

Farr W. (1841**)** Report upon the mortality of lunatics. *Journal of the Statistical Society.* **4** 17-33

Feinman J and Dunner D. (1996) The effect of alcohol and substance abuse on the course of bipolar affective disorder. *Journal of Affective Disorder.* **37** 43-49.

Filik R, Sipos A, Kehoe P *et al.* (2006) The cardiovascular and respiratory health of people with schizophrenia. *Acta Psychiatr Scand.* **113** 298–305.

Fisher C and Broderick W. (2003) Sodium valproate or valproate semisodium: is there a difference in the treatment of bipolar disorder? *The Psychiatrist.* **27** 446-448.

Fisher I, Bienskii A, Fedorova I. (1996) Experience in using serological tests in detecting tuberculosis in patients with severe mental pathology. *Probl Tuberk.* **1** 19‑20.

Food Standards Agency (FSA). (2010b) *Fruit and Veg.* [Online]. Available from: http://www.eatwell.gov.uk/healthydiet/nutritionessentials/fruitandveg/#elem2250 11
Food Standards Agency (FSA). (2010c) *Drinking enough?* [Online]. Available from:
www.eatwell.gov.uk/eatwell/healthydiet/nutritionessentials/drinks/drinkingenoug h

Freeman D. and Garety P. (2006) Helping patients with paranoid and suspicious thoughts: a cognitive-behavioural approach. *Advances in Psychiatric Treatment.* **12** 404-415*.*

Freeman D. and Garety P. (2000) Comments on the content of persecutory delusions. Does the definition need clarification? *British Journal of Clinical Psychology.* **39** 407–414.

Friedlander A and Marder S. (2002) The psychopathology, medical management and dental implications of schizophrenia. *J Am Dent Assoc.* **133** 603‑610.

Frye M, Altshuler L, McElroy S, Suppes T, Keck P, Denicoff K *et al.* (2003) Gender differences in prevalence, risk, and clinical correlates of alcoholism comorbidity in bipolar disorder. *Am J Psychiatry.* **160** 883-889.

Galon P and Graor C. (2012) Engagement in Primary Care Treatment by

Persons With Severe and Persistent Mental Illness. *Archives of Psychiatric Nursing.* **26** (4) 272–284.

Geddes J, Burgess S, Hawton K et al. (2004) Long-term lithium therapy for bipolar disorder: systematic review and meta-analysis of randomized controlled trials. *American Journal of Psychiatry.* **161** (2) 217-22.

Goff D, Cather C, Evins A, Henderson D, Freudenreich O, Copeland P, Bierer M, Duckworth K and Sacks F. (2005) Medical morbidity and mortality in schizophrenia: guidelines for psychiatrists. *Journal of Clinical Psychiatry.* **66** 183-94.

Goldney R, Fisher L, Grande E *et al.* (2005) Bipolar I and II disorders in a random and representative Australian population. *Australia and New Zealand Journal of Psychiatry.* **39** 726–729.

Goldney R, Phillips P, Fisher L and Wilson D. (2004) Diabetes, depression, and quality of life: a population study. *Diabetes Care* **27**: 1066–70.

Goldsack J, McLaughlin C, Bristol M, Loeb A, Bergey M and Sonnad S. (2011). The Distribution of Outcomes Research Papers Across Clinical Journals. *Evaluation & the Health Professions.* **34** (2) 239-249.

Goodwin G. (2009) Evidence-based guidelines for treating bipolar disorder: revised second edition – recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology.* **23** (4) 346–388.

Goodwin F, Fireman B, Simon G *et al.* (2003) Suicide risk in bipolar disorder during treatment with lithium and divalproex. *JAMA.* **290** 1467-1473.

Gough, S and Peveler, R. (2004). Diabetes and its prevention: pragmatic solutions for people with schizophrenia. *British Journal of Psychiatry.* **184** (Suppl. 47) s106–s111.

Grant B, Stinson F, Hasin D, Dawson D, Chou S, Ruan W *et al.* (2005) Prevalence, correlates, and comorbidity of bipolar I disorder and axis I and II disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry.* **66** 1205-1215.

Graves K and Miller P. (2003) Behavioral medicine in the prevention and treatment of cardiovascular disease. *Behavioural Modification.* **27** 3–25.

Gray R, Brewin E, Noak J, Wyke-Joseph J and Sonik B. (2002) A review of the literature on HIV infection and schizophrenia: implications for research, policy and clinical practice. *Journal of Psychiatric and Mental Health Nursing.* **9** 405–409.

Gray R. Hardy S. Anderson K. (2009) Physical health and severe mental illness: If we don't do something about it, who will? International Journal of Mental Health Nursing. 18 (5) 299-300.

Gray R, Leese M, Bindman J. *et al.* (2006) Adherence therapy for people with schizophrenia. *The British Journal of Psychiatry,* **189**, 508-514. doi: 10.1192/bjp.bp.105.019489

Gray R, Parr A, Plummer S. *et al.* (1999) A national survey of practice nurse involvement in mental health interventions. *Journal of Advanced Nursing*, **30** (4), 901-906.

Griffiths P, Maben J and Murrells T. (2011) Organisational quality, nurse staffing and the quality of chronic disease management in primary care: Observational study using routinely collected data. *International Journal of Nursing Studies.* **48** (10) 1199-210.

Griffiths J, Bryar R, Closs S, Cooke J, Hostick T, Kelly S and Marshall K. (2001) Barriers to research implementation identified by community nurses. *British Journal of Community Nursing.* **6** 501–510.

Grigsby A, Anderson R, Freedland K et al (2002) Prevalence of anxiety in adults with diabetes: a systematic review. *J Psychosom Res* **53**: 1053–60.

Grinshpoon A, Barchana M, Ponizovsky A *et al.* (2005) Cancer inschizophrenia: is the risk higher or lower? *Schizophrenia Research.* **73** 333‑341.

Goldacre M, Kurina L, Wotton C, Yeates D and Seagroat V. (2005) Schizophrenia and cancer: an epidemiological study. *British Journal of Psychiatry.* **187** 334‑338.
Guggar J. (2011) Antipsychotic pharmacotherapy and orthostatic hypotension: identification and management. *CNS Drugs.* **25** (8) 659-671.

Gulbinat W, Dupont A, Jablensky A *et al.* (1992) Cancer incidence of schizophrenic patients. Results of record linkage studies in three countries. *Br J Psychiatry.* Suppl **18** 75‑83.

Haines A and Jones R. (1994) Implementing findings of research. BMJ. **308** (6942)1488–1492.

Halbreich U and Palter S. (1996) Accelerated osteoporosis in psychiatric patients: possible pathophysiological processes. *Schizophr Bull.* **22** 447‑454.

Halbreich U, Rojansky N, Palter S *et al.* (1995) Decreased bone mineral density in medicated psychiatric patients. *Psychosom Med.* **57** 485‑491.

Hall G. (2008) Access to specialist nurses in diabetes care: A postcode lottery? *Diabetes & Primary Care.* 10 (1) 8.

Hardy S. (2012) Training practice nurses to improve the physical health of patients with severe mental illness: effects on beliefs and attitudes. *International Journal of Mental Health Nursing.* **21** 259-265.

Hardy S. (2011) Will the changes to the QOF mental health indicators improve care for people with severe mental illness? *British Journal of Wellbeing.* **2** (5) 18-21.

Hardy S. (2009) Maintaining physical health in severe mental illness. Independent Nurse. 2 Feb 26.

Hardy S and Gray R. (2012a) *The Primary Care Guide to Mental Health.* London: M & K Publishing.

Hardy S and Gray R. (2012b) Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check? *Primary Health Care Research & Development.* doi:10.1017/S1463423612000023

Hardy S and Gray R. (2011) The secret food diary of a person diagnosed with schizophrenia. *Journal of Psychiatric and Mental Health Nursing* doi: 10.1111/j.1365-2850.2011.01826.x

Hardy S and Gray R. (2010) Adapting the severe mental illness physical Health Improvement Profile for use in Primary Care. International Journal of Mental Health Nursing. 19, 350–355. doi: 10.1111/j.1447-0349.2010.00686.x

Hardy S, Hinks P and Gray R. (2013a) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health.* **22** (1) 42-50.

Hardy S, Hinks P and Gray R. (2013b) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? International Journal of Social Psychiatry. (in press)

Hardy S, Deane K and Gray R. (2013c) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press)

Hardy S, White J, Deane K and Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* 18 (8) 721-727.

Harris E and Barraclough B. (1998) Excess mortality of mental disorder. *British Journal of Psychiatry.* **173** 11-53.

Harrison P and Weinberger D. (2005) Schizophrenia genes, gene expression, and neuropathology: on the matter of their convergence. *Molecular Psychiatry.* **10** (1) 40-68.

Harvey, S., Newton, A. & Moye, G. (2005). Physical health monitoring in schizophrenia: the use of an invitational letter in a primary care setting. *Primary Care & Community Psychiatry,* **10** (2), 71-4.

Healy D, Noury J, Harris M *et al.* (2012) Mortality in schizophrenia and related psychoses: data from two cohorts, 1875–1924 and 1994–2010. *BMJ Open.* 2:e001810.

Henderson D, Borba C, Daley T, Boxill R, Nguyen D, Culhane M, Louie P, Cather C, Eden Evins A, Freudenreich O, Taber S & Goff D. (2006) Dietary intake profile of patients with schizophrenia. *Annals of Clinical Psychiatry.* **18** (2) 99-105.

Hennekens C. (1998) Increasing burden of cardiovascular disease: current knowledge and future directions for research on risk factors. *Circulation.* 97, 1095-1102.

Hennekens, C., Hennekens, A., Hollar, D. *et al.* (2005) Schizophrenia and increased risks of cardiovascular disease. *American Heart Journal,* **150**, 1115–1121.

Himelhoch S and Daumit G. (2003) To whom do psychiatrists offer smoking-cessation counseling? *American Journal of Psychiatry.* **160** 2228–2230.

Himelhoch S, Lehman A, Kreyenbuhl J *et al.* (2004) Prevalence of chronic obstructive pulmonary disease among those with serious mental illness. *Am J Psychiatry.* **161** 2317-9.

Hippisley-Cox J, Vinogradova Y, Coupland C *et al.* (2007) Risk of malignancy in patients with schizophrenia or bipolar disorder: nested case-control study. *Arch Gen Psychiatry.* **64** 1368-76.

Hirsch J. (2005). An index to quantify an individual's scientific research output. *PNAS* **102** (46) 16569–16572.

Hoang U, Stewart R and Goldacre M. (2011) Mortality after hospital discharge for people with schizophrenia or bipolar disorder: retrospective study of linked English hospital episode statistics, 1999–2006. *BMJ.* **343** d5422.

Hollis J, Gullion C. Stevens V *et al.* (2008) Weight Loss During the Intensive Intervention Phase of the Weight-Loss Maintenance Trial. *American Journal of Preventive Medicine* **35** (2) 118-126.

Holt R and Peveler R. (2011) Antipsychotic and hyperprolactinaemia: mechanisms, consequences and management. *Clinical Endocrinology.* **74** 141-147.

Holt R, Abdelrahman T, Hirsch M, Dhesi Z, George T, Blincoe T, Peveler R. (2010) The prevalence of undiagnosed metabolic abnormalities in people with serious mental illness. *J Psychopharmacol.* **24** (6) 867-73.

Holt R and Peveler RC. (2010) Diabetes and cardiovascular risk in severe mental illness: a missed opportunity and challenge for the future. *Practical Diabetes International.* **27** 79–84.

Holt R. and Peveler R. (2009) Obesity, serious mental illness and antipsychotic drugs. *Diabetes, Obesity and Metabolism.* **11** (7) 665-679.

Holt, R. and Peveler, R. (2005). Association between antipsychotic drugs and diabetes. *Diabetes, Obesity and Metabolism.* **8** 125–135.

Holt R, Bushe C and Citrome L. (2005) Diabetes and schizophrenia: are we any closer to understanding the link? *Journal of Psychopharmacology.* **19** 56–65.

Houghton J. (1982) A first person account: maintaining mental health in a turbulent world. *Schizophrenia Bulletin.* **8** (3).

Houweling, S., Kleefstra. N., van Hateren, K., Groenier, K., Meyboom-de Jong, B. & Bilo, H. (2011) Can diabetes management be safely transferred to practice nurses in a primary care setting? A randomised controlled trial. *Journal of Clinical Nursing.* **20** (9-10) 1264-1272.

Howitt D and Cramer D. (2010) Introduction to Research Methods in Psychology. 3rd Edition. New Jersey: Prentice Hall.

Howe A, Ashton K and Hooper L. (2007) Effectiveness of educational interventions in improving primary care mental health: a qualitative systematic review. *Primary Care and Psychiatry.* **11** (4)167-177.

Huang H, Matevossian A, Whittle C, Kim S, Schumacher A, Baker S and Akbarian S. (2007) Prefrontal dysfunction in schizophrenia involves missed-lineage leukemia 1-regulated histone methylation at GABAergic gene promoters. *Journal of Neuroscience.* **27** (42) 11254-11262.

Hughes E. and Gray R. (2008) HIV prevention for people with serious mental illness: a survey of mental health workers' attitudes, knowledge and practice. *Journal of Clinical Nursing,* **18**, 591-600.

Hummer M, Malik P, Gasser R et al. (2005) Osteoporosis in patients with schizophrenia. *Am J Psychiatry.* **162** 162‑167.

Hyland B, Judd F, Davidson S, Jolley D and Hocking B. (2003) Case managers' attitudes to the physical health of their patients. *Australian and New Zealand Journal of Psychiatry.* **37** (6) 710-714.

Interdisciplinary Chronic Disease Collaboration. (2012) Three-phase research framework for optimizing health outcomes for patients with known chronic disease and earlier detection and management of undiagnosed chronic disease. http://www.icdc.ca/

Institute of Medicine (2001) Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academy Press.

Ivers N, Jamtvedt G, Flottorp S, Young J, Odgaard-Jensen J, French S, O'Brien M, Johansen M, Grimshaw J and Oxman A. (2012) Audit and feedback: effects on professional practice and patient outcomes. http://summaries.cochrane.org/CD000259/audit-and-feedback-effects-on-professional-practice-and-patient-outcomes

Iyer S, Rothmann T, Vogler J and Spaulding W. (2005) Evaluating Outcomes of Rehabilitation for Severe Mental Illness. *Rehabilitation Psychology*. **50** (1) 43-55.

Jeste D, Dgladsjo J, Lindamer L *et al.* (1996) Medical co-morbidity in schizophrenia. *Schizophrenia Bulletin*. **22** 413–420.

Johnson J, Ratner P, Malchy L *et al.* (2010) Gender-specific profiles of tobacco use among non-institutionalised people with serious mental illness. *BMC Psychiatry*. **10** 101.

Joint British Society. (2005) Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice. *Heart.* Suppl 5 v1-52.

Joshipura K, Hu F, Manson J, Stampfer M, Rimm E, Speizer F, Colditz G, Ascherio A, Rosner B, Spiegelman D and Willett W. (2001) The Effect of Fruit and Vegetable Intake on Risk for Coronary Heart Disease**.** *Ann Intern Med*. **134** 1106-1114.

Joukamaa M, Heliövaara M, Knekt P *et al.* **(**2001**)** Mental disorders and cause-specific mortality. *British Journal of Psychiatry*. **179** 498 -502.

Kajermo K, Nordstrom G, Krusebrant A and Bjorvell H. (2000) Perceptions of research utilization: comparisons between health care professionals, nursing students and a reference group of nurse clinicians. *Journal of Advanced Nursing.* **31** 99–109.

Kalkan A, Ozdarendeli A, Bulut Y *et al.* (2005) Prevalence and genotypic distribution of hepatitis GB-C ∕HG and TT viruses in blood donors, mentally retarded children and four groups of patients in eastern Anatolia, Turkey. Jpn J Infect Dis. **58** 222‑227.

Kantor M, Cullinane E, Sady S, Herbert P and Thompson P. (1987) Exercise acutely increases HDL-cholesterol and lipoprotein lipase activity in trained and untrained men. *Metabolism.* **36** 188–192.

Kanuha V. (2000) "Being" native versus "going native": Conducting social work research as an insider. *Social Work*. **45** (5) 439-447.

Kapur S, Agid O, Mizrahi R and Li M. (2006) How antipsychotics work-from receptors to reality. *NeuroRx.* **3** (1) 10-21.

Kasperek-Zimowska B, Brodniak WA, Sarol-Kulka A. (2008) Sexual disorders in schizophrenia – overview of research literature. *Psychiatr Pol.* **42** 97-104.

Keely E, Reiss J, Drinkwater D and Faiman C. (1997) Bone mineral density, sex hormones, and long-term use of neuroleptic agents in men. Endocr Pract. **3** 209–213.

Kelley A, Aston L, Sharman A. *et al*. (2009) Using interprofessional learning in practice to improve multidisciplinary working, *Nursing Times*. http://www.nursingtimes.net/nursing-practice/clinical-zones/management/using-interprofessional-learning-in-practice-to-improve-multidisciplinary-working-/5008024.article

Kendrick T, Burns T, Freeling P. (1995) Randomised controlled trial of teaching general practitioners to carry out structured assessments of their long term mentally ill patients. *BMJ.* **311** 93-98.

Kendrick T, Burns T, Freeling P, Sibbald B. (1994) Provision of care to general practice patients with disabling long-term medical illness: a survey in 16 practices. *Br J Gen Pract.* **44** 301-305.

Kenkre A and Spadigam A. (2000) Oral health and treatment needs in institutionalized psychiatric inpatients in India. *Indian J Dent Res.* **11** 5–11.

Kesaniemi Y, Danforth E, Jensen M, Kopelman P, Lefebvre P, Reeder B. (2001) Consensus statement. Dose response issues concerning physical activity and health: an evidence-based symposium. *Med Sci Sports Exerc.* **33** (Suppl 6) S351-8.

Kessler R, Crum R, Warner L, Nelson C, Schulenberg J and Anthony J. (1997) Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Arch Gen Psychiatry*. **54** 313-321.

Kessler R, Rubinow D, Holmes C *et al*. (1997) The epidemiology of DSM-III-R bipolar I disorder in a general population survey. Psychological Medicine 27: 1079–89.

Kilbourne A, Brar J, Drayer R, Xu X and Post E. (2007) Cardiovascular Disease and Metabolic Risk Factors in Male Patients With Schizophrenia, Schizoaffective Disorder, and Bipolar Disorder. *Psychosomatics.* **48** (5) 412-417.

King's Fund and Centre for Mental Health. (2012) *Long-term conditions and mental health. The cost of co-morbidities.* London: King's Fund.

Kishimoto T, Watanabe K, Takeuchi H *et al*. (2005) Bone mineral density measurement in female inpatients with schizophrenia. *Schizophr Res*. **77** 113–115.

Knox K, Conwell Y and Caine E. (2004). If suicide is a public health problem, what are we doing to prevent it? *American Journal of Public Health.* **94** (1) 37-46.

Krogsbøll, L., Jørgensen, K., Grønhøj Larsen, C. & Gøtzsche, P. (2012) *General health checks in adults for reducing morbidity and mortality from disease (Review).* The Cochrane Collaboration. JohnWiley & Sons, Ltd.

Kudoh A, Ishihara H, Matsuki A. (1999) Pituitary-adrenal and parasympathetic function in chronic schizophrenic patients with postoperative ileus or hypotension. *Neuropsychobiology.* 39:125–130.

Lab Tests Online UK. (2012) HDL Cholesterol test. http://www.labtestsonline.org.uk/understanding/analytes/hdl/tab/test
Laursen T. (2011) Life expectancy among persons with schizophrenia or bipolar affective disorder. *Schizophrenia Reaearch.* **131** (1-3) 101-104.

Lavin D and Maynard D. (2001) Standardization vs. Rapport: Respondent Laughter and Interviewer Reaction during Telephone Surveys. *American Sociological Review*. **66** (3) 453-479.

Lavin M, Siris S and Mason S. (1996) What is the clinical importance of cigarette smoking in schizophrenia? *American Journal of Addictions.* **5** 189–208.

Lawrence D, Holman C, Jablensky A, Threlfall T and Fuller S. (2000) Excess cancer mortality in Western Australian psychiatric patients due to higher case fatality rates. *Acta Psychiatr Scand.* **101** 382‑388.

Leitner M. Barr W. Hobby L. (2008) Effectiveness of Interventions to Prevent Suicide and Suicidal Behaviour: A Systematic Review. [Online]. Available from: http://www.scotland.gov.uk/Publications/2008/01/15102257/0

Lester H, Tritter J and Sorohan H. (2005) Patients' and health professionals' views on primary care for people with serious mental illness: focus group study. *BMJ* 330, 1122-28.

Lester H, Tritter J and England E. (2003) Satisfaction with primary care: The perspective of people with schizophrenia. *Family Practice.* **20** (5) 508-513.

Leucht S, Burkard T, Henderson J, Maj M and Sartorius N. (2007) Physical illness and schizophrenia: a review of the literature. *Acta Psychiatrica Scandinavica.* **116** (5) 317–333.

Lewis S, Jagger R and Treasure E. (2001) The oral health of psychiatric in-patients in South Wales. *Spec Care Dentist.* **21** 182‑186.

Li T, Rana J, Manson J *et al.* (2006) Obesity as compared with physical activity in predicting risk of coronary heart disease in women. *Circulation.* **113** (4) 499-506.

Lichtermann D, Ekelund J, Pukkala E, Tanskanen A and Lonnqvist J. (2001) Incidence of cancer among persons with schizophrenia and their relatives. *Arch Gen Psychiatry.* **58** 573‑578.

Liddell F. (1984) Simple exact analysis of the standardised mortality ratio. *Journal of Epidemiology and Community Health.* **38** 85-88.

Likert R. (1932) A technique for the measurement of attitudes. *Archives of Psychology.* **22** (140) 55.

Lip G, Barnett A, Bradbury A, Cappuccio F, Gill P, Hughes E, Imray C, Jolly K and Patel K. (2007) Ethnicity and cardiovascular disease prevention in the United Kingdom: a practical approach to management. *Journal of Human Hypertension.* **21** (3) 183-211.

Liperoti R, Gambassi G, Lapane K. *et al.* (2005) Conventional and atypical antipsychotics and the risk of hospitalization for ventricular arrhythmias or cardiac
arrest. *Archives of Internal Medicine*, **165** 696–701.

Litts D, Radke A, Silverman M, Ruter T, Davis M. (2008) *Suicide prevention efforts for individuals with serious mental illness: Roles for the State Mental Health Authority.* Alexandria: National Association of State Mental Health Program Directors (NASMHPD) and Suicide Prevention Resource Center (SPRC).

Liu-Seifert H, Kinon B, Ahl J and Lamberson S. (2004) Osteopenia associated with increased prolactin and aging in psychiatric patients treated with prolactin-elevating antipsychotics. *Ann N Y Acad Sci.* **1032** 297‑298.

Lloyd-Jones D, Leip E, Larson M, *et al.* (2006) Prediction of lifetime risk for cardiovascular disease by risk factor burden at 50 years of age. *Circulation* 113 791-798.

Lock C, Kaner E, Heather N, Doughty J, Crawshaw A, McNamee P, Purdy S and Pearson P. (2006) Effectiveness of nurse led brief alcohol intervention: a cluster randomised controlled trial. *Journal of Advanced Nursing.* **54** (4) 426–439.

Long term conditions Quality Innovation and Productivy Workstream. (2012) A Guide to the Implementation of the Long Term Conditions Model of Care
http://www.networks.nhs.uk/nhs-networks/commissioning-for-long-term-conditions/resources-from-the-ignition-phase/legacy-documents/Handbook.pdf
.

Long T and Johnson M. (editors) (2006). *Research ethics in the real world: issues and solutions for health and social care,* London: Churchill Livingstone, Elsevier.

Lunneborg C. (2007) Convenience sampling. In Ritzer, G (ed). *Blackwell Encyclopedia of Sociology*. Blackwell Publishing, (2007). Blackwell Reference Online.
http://www.blackwellreference.com/public/book.html?id=g9781405124331_9781405124331

Macdonald W, Rogers A, Blakeman T and Bower P. (2008) Practice nurses and the facilitation of self-management in primary care. *Journal of Advanced Nursing.* **62** (2) 191–199.

Maisey S, Steel N, Marsh R, Gillam S, Fleetcroft R and Howe A. (2008) Effects of payment for performance in primary care: qualitative interview study. Journal of Health services research and policy. **13** (3) 133-9.

Mantere O, Suominen K., Leppamaki S *et al.* (2004) The clinical characteristics of DSM-IV bipolar I and II disorders: baseline findings from the Jorvi Bipolar Study (JoBS). *Bipolar Disorders.* **6** 395–405.

Manu P, Correll CU, van Winkel R, et al. (2012) Prediabetes in patients treated with antipsychotic drugs. *Journal of Clinical Psychiatry.* **73** (4) 460-466.

Marmota M. (1983) Alcohol and Coronary Heart Disease. *International Journal of Epidemiology.* **30** (4) 724-729.

Martínez-Arán A, Vieta E, Reinares, M. *et al.* (2004) Cognitive Function Across Manic or Hypomanic, Depressed, and Euthymic States in Bipolar Disorder. *Am J Psychiatry.* **161** 262-270.

Marzaloni S, Jensen B and Melville P. (2009) Feasibility and effects of a group-based resistance and aerobic exercise program for individuals with schizophrenia: a multidisciplinary approach. *Mental Health and Physical Activity.* **2** (1) 29-36.

Matsui-Sakata A, Ohtani H, Sawad Y. (2005) Receptor occupancy-based analysis of the contributions of various receptors to antipsychotics-induced weight gain and diabetes mellitus. *Drug Metabolism and Pharmacokinetics.* **20** (5) 368-78.

Mayo,E. (1933) *The human problems of an industrial civilization*. New York: MacMillan.

McCabe C and Timmins F. (2006) *Communication Skills for Nursing Practice*. Basingstoke: Palgrave Macmillan.

McCabe M and Leas L. (2008). A qualitative study of primary health care access, barriers and satisfaction among people with mental illness, *Psychology, Health & Medicine.* **13** (3) 303-312.

McCreadie R, Kelly C, Connolly M *et al.* (2005) Dietary improvement in people with schizophrenia. *The British Journal of Psychiatry.* **187** 346-351.

McCreadie R. (2003) Diet, smoking and cardiovascular disease risk in people with schizophrenia. Descriptive study. *British Journal of Psychiatry.* **183** 534-539.

McCreadie R, Stevens H, Henderson J *et al.* (2004) The dental health of people with schizophrenia. *Acta Psychiatr.* **110** 306‑310.

Macdonald S, Halliday J, Macewan T *et al.* (2003) Nithsdale schizophrenia surveys 24: sexual dysfunction. Case-control study. *Br J Psychiatry.***182** 50–56.

McGregor W, Jabareen, H, O'Donnell C, Mercer S and Watt G. (2008) Impact of the 2004 GMS contract on practice nurses: a qualitative study. *British Journal of General Practice.* **58** (555) 711–719.

McKeigue P, Shah B, Marmot M. (1991) Relation of central obesity and insulin resistance with high diabetes prevalence and cardiovascular risk in South Asians. *Lancet.* **337** 382–6.

McKibbon K, Haynes B, McKinlay R and Lokker C. (2007) Which journals do primary care physicians and specialists access from an online service? *Medical Library Association.* **95** 246-254.

Meaney A, Smith S, Howes O, O'Brien M, Murray R and O'Keane V. (2004) Effects of long-term prolactin-raising antipsychotic medication on bone mineral density in patients with schizophrenia. *Br J Psychiatry.* **184** 503‑508.

Medical Research Council. (2009) Developing and evaluating complex interventions: new guidance. London: Medical Research Council.

Melle I, Johannesen J, Friis S, Haahr U, Joa I, Larsen T, Opjordsmoen; Bjørn R. Rund B, Simonsen E, Vaglum P and McGlashan T. (2006) Early Detection of the First Episode of Schizophrenia and Suicidal Behavior. *Am J Psychiatry.* **163** 800-804.

Meltzer H, Gill B, Pettigrew M *et al.* (1996) OPCS Survey of Psychiatric Morbidity in Great Britain. Report 3: Economic activity and social functioning of adults with psychiatric disorders. London: HMSO.
Mental Health Foundation (2009). *Mental health, resilience and inequalities.* London: Mental Health Foundation.

Mercuro G, Deidda M, Piras A, Dessalvi C, Maffei S, Rosano G (2010) Gender determinants of cardiovascular risk factors and diseases. *Journal of Cardiovascular Medicine.* 11, 3, 207-220.

Miller WR. (2005) Enhancing Patient Motivation for Health Behavior Change. *Journal of Cardiopulmonary Rehabilitation.* **25** 207-209.

Minato M and Zemke R. (2006) Time use of people with schizophrenia living in the community. *Occupational Therapy International.* **11** (3) 177- 191.

Mitchell A, Delaffon V, Vancampfort D, Correll C and De Hert M. (2012a) Guideline concordant monitoring of metabolic risk in people treated with antipsychotic medication: systematic review and meta-analysis of screening practices. *Psychological Medicine.* **42** 125–47.

Mitchell A, Delaffon V and Lord O. (2012b) Let's get physical: improving the medical care of people with severe mental illness *Advances in Psychiatric Treatment.* **18** 216-225.

Mitchell A and Hardy S. (2013) Surveillance for metabolic risk factors in patients with severe mental illness vs diabetes: National Comparison of Screening Practices. *Psychiatric Services.* (in press)

Mitchell A, Vancampfort D, Sweers K *et al.* (2011) Prevalence of Metabolic Syndrome and Metabolic Abnormalities in Schizophrenia and Related Disorders - A Systematic Review and Meta-Analysis. *Schizophrenia Bulletin.* [Epub ahead of print]

Moore A. (2012) Fair Share. Giving primary care professionals a bigger part in holistic care of those with serious mental illness can deliver a better deal for patients. *Health Service Journal.* Suppl 9.
http://www.hsj.co.uk/Journals/2012/11/21/u/d/e/MHSUPP_121122.pdf

Morisky D, Ang A, Krousel-Wood M and Ward H. (2008) predictive validity of a medication adherence measure in an outpatient setting. *Clin Hypertension.* **10** 348–354.

Morrish N, Wang S, Stevens L, Fuller J and Keen H. (2001)Mortality and causes of death in the WHO Multinational Study of Vascular Disease in Diabetes. *Diabetologia.* **44** Suppl 2 S14-S21.

Morse J. (2003) Principles of mixed methods and multi-method research design. In Tashakkori A and Teddlie C (Eds), *Handbook of mixed methods in social and behavioural research* (pp. 189-208). Thousand Oaks, CA: Sage.

Mortensen P. (1994) The occurrence of cancer in first admitted schizophrenic patients. *Schizophrenia Research.* **12** 185‑194.

Mortensen P. (1992) Neuroleptic medication and reduced risk of prostate cancer in schizophrenic patients. *Acta Psychiatr Scand.* **85** 390‑393.

Mortensen P. (1989) The incidence of cancer in schizophrenic patients. *J Epidemiol Community Health.* **43** 43‑47.

Mortensen P and Juel N. (1993) *Mortality and causes of death in first admitted schizophrenic patients. Br J Psychiatry* **163** 183–9.

Mueser K and McGurk S. (2004) Schizophrenia. *Lancet*. **363** (9426):2063-2072.

Nakamura Y, Koh M, Miyoshi E *et al*. (2004) High prevalence of the hepatitis C virus infection among the inpatients of schizophrenia and psychoactive substance abuse in Japan. *Prog Neuropsychopharmacol Biol Psychiatry*. **28** 591‑597.

Nakane Y and Ohta Y. (1986) The example of linkage with a cancer register. In: Ten Horn GH, Giel R, Gulbinat WH, eds. *Psychiatric Case Registers in public health*. Amsterdam: Elsevier.

Nasrallah H. (2003) A review of the effect of atypical antipsychotics on weight. *Psychoneuroendocrinology*. **28** (Suppl. 1), 83–96.

National Audit Office. (2007) Helping people through mental health crisis: the role of the crisis resolution and home treatment services. HMSO. London. National Health Service Choices. (2009) *Knowing the symptoms of bipolar disorder*. [Online].
http://www.nhs.uk/Pathways/bipolardisorder/Pages/Symptoms.aspx

National Health Service Information Centre. (2012a). Introduction to QOF. http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/qof-information/introduction-to-qof

National Health Service Information Centre. (2012b) England level QOF tables 2010/1011. http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/qof-2010-11/qof-2010-11-data-tables/qof-practice-level-data-tables-2010-11

National Health Service Information Centre. (2011). Prevalence. Quality and Outcomes Framework (QOF) for April 2009 - March 2010, England: http://www.ic.nhs.uk/webfiles/QOF/2009-10/Prevalence%20tables/QOF0910_National_Prevalence.xls

National Health Service Information Centre for Health and Social Care (2009) *Health Survey for England 2008: Physical activity and fitness*. London: Information Centre for Health and Social Care.

National Health Service Institute for Innovation and Improvement. (2012) Commissioning for Quality and Innovation framework payment. http://www.institute.nhs.uk/world_class_commissioning/pct_portal/cquin.html

NHS Northamptonshire. (2010) *Research and Development Report 2010*. Northampton: NHS Northamptonshire.

National Institute for Health and Clinical Excellence. (2012) *About clinical guidelines.*
http://www.nice.org.uk/aboutnice/whatwedo/aboutclinicalguidelines/about_clinical_guidelines.jsp

National Institute for Health and Clinical Excellence. (2011) The clinical management of primary hypertension in adults.
http://www.nice.org.uk/nicemedia/live/13561/56007/56007.pdf

National Institute for Health and Clinical Excellence. (2010a) *Schizophrenia Update.* London: NICE.

National Institute for Health and Clinical Excellence. (2010b) *Minutes: Primary Care Quality and Outcomes Framework Indicator Advisory Committee.*
http://www.nice.org.uk/media/56F/AE/QOFAdvisoryCommitteeMinutes30Jul2010.pdf

National Institute for Health and Clinical Excellence. (2009) *The management of type 2 diabetes.* London: NICE.

National Institute of Health and Clinical Excellence. (2006) *The management of bipolar disorder in adults, children and adolescents, in primary and secondary care NICE clinical guideline 38.* London: NICE.

National Institute of Health and Clinical Excellence. (2004) 7 Reviewing and grading the evidence (updated 2005).
http://www.nice.org.uk/niceMedia/pdf/GDM_Chapter7_0305.pdf

National Institute for Health Research. (2012a) Major increase in number of patients taking part in research in primary care.
http://www.crncc.nihr.ac.uk/about_us/pcrn/pc_news/pc_news_archive/major_increas_e

National Institute for Health Research. (2012b). Trust research activity league table. http://www.guardian.co.uk/healthcare-network-nihr-clinical-research-zone/table/2012-trust-research-activity

National Research Ethics Service (2009). Defining Research. London: National Patient Safety Agency.
Noakes B. & Johnson N. (2000) *Don't Leave Me This Way.* EMAP Healthcare Ltd, Oxford.

Nordestgaard B, Benn M, Schnohr P and Tybjærg-Hansen A (2007) Nonfasting Triglycerides and Risk of Myocardial Infarction, Ischemic Heart Disease, and Death in Men and Women. *JAMA.* **298** (3) 299-308.

Norman P and Conner M. 1993: The role of social cognition models in predicting attendance at health checks. *Psychology & Health* 8, (6), 447 – 462.

Norris V. (1959) *Mental Illness in London.* Maudsley Monograph No 6. London:Oxford University Press.

Northampton Healthcare. (2007). *Guidelines for the Management of Antipsychotic-induced Hyperprolactinaemia.* Northampton: Northampton Healthcare.

Nursing and Midwifery Council. (2008) The code: Standards of conduct, performance and ethics for nurses and midwives. London: NMC.

Oermann M, Nordstrom C, Wilmes N, Denison D, Webb S, Featherston D, Bednarz H, Striz P, Blair D and Kowalewski K. (2008) Dissemination of research in clinical nursing journals. *Journal of Clinical Nursing.* **17** 149-156.

Office for National Statistics. (2008) *Family Food in 2006.* Newport: ONS.

Office of National Statistics (2000) *Psychiatric morbidity among adults living in private households.* London: ONS.

Ohlsen R, Peacock G and Smith S. (2005) Developing a service to monitor and improve physical health in people with serious mental illness. *Journal of Psychiatric and Mental Health Nursing.* **12** 614-619.

Ohta Y, Nakane Y, Mine M *et al.* (1988) The epidemiological study of physical morbidity in schizophrenics‑2. Association between schizophrenia and incidence of tuberculosis. *Jpn J Psychiatry Neurol.* **42** 41‑47.

O'Keane V and Meaney A. (2005) Antipsychotic drugs: a new risk factor for osteoporosis in young women with schizophrenia? *J Clin Psychopharmacol.* **25** 26‑31.

Osborn D, Limburg H, Walters K, Petersen I, King M, Green J, Watson J and Nazareth I. (2013) Relative incidence of common cancers in people with severe mental illness. Cohort study in the United Kingdom THIN primary care database. *Schizophrenia Research.* **43** (1) 44-49.

Osborn D, Baio G, Walters K, Petersen I, Limberg H, Raine R and Nazareth I. (2011) Inequalities in the provision of cardiovascular screening to people with severe mental illnesses in primary care. Cohort study in the United Kingdom. THIN Primary Care Database 2000–2007. *Schizophrenia Research.* 129 104–110.

Osborn, D., Nazareth, I., Wright, C. & King M. (2010). Impact of a nurse-led intervention to improve screening for cardiovascular risk factors in people with severe mental illnesses. Phase-two cluster randomised feasibility trial of community mental health teams. *BMC Health Serv Res*, **10** (61). doi: 10.1186/1472-6963-10-61.

Osborn D, Levy G, Nazareth I, Petersen I, Islam A and King M. (2007) Relative Risk of Cardiovascular and Cancer Mortality in People with Severe Mental

Illness From the United Kingdom's General Practice Research Database. *Arch Gen Psychiatry,* **64** (2) 242-249.

Osborn D, Nazareth I and King M. (2006) Risk for coronary heart disease in people with severe mental illness. *The British Journal of Psychiatry.* **188** 271-277.

Oud M and Meyboom-de Jong B. (2009) Somatic diseases in patients with schizophrenia in general practice: their prevalence and health care. *BMC Family Practice.*10 (32). doi:10.1186/1471-2296-10-32.

Palfrey S. (2012) Body and Soul. *RCN Bulletin.*
http://www.rcn.org.uk/__data/assets/pdf_file/0010/489115/Bulletin_-_Dec_2012_LO.pdf

Palmer B, McClure S and Jeste, D. (2001) Schizophrenia in late life: Findings challenge traditional concepts. *Harvard Review of Psychiatry.* **3** 51-58.

Pantelis C and Lambert T. (2003) Managing patients with "treatment-resistant" schizophrenia. *Medical Journal of Australia.* **178** (suppl.) S62–S66.

Parikh P, McDaniel M, Ashen D *et al.* (2005) Diets and Cardiovascular Disease: An Evidence-Based Assessment. *Am Coll Cardiol.* **45** (9) 1379-1387.

Patel M, Doku V and Tennakoon L. (2003) Challenges in recruitment of research participants. *Advances in Psychiatric Treatment.* **9** 229-238.

Peet M. (2004) International variations in the outcome of schizophrenia and the prevalence of depression in relation to national dietary practices: an ecological analysis. *The British Journal of Psychiatry.***184** 404-408.

Peveler R, Branford D, Citrome L. *et al.* (2008). Antipsychotics and hyperprolactinaemia: Clinical recommendations. *Journal of Psychopharmacology.* **22**(2) Supplement 98–103.

Phelan M, Stradins L, Amin D, Isadore R, Hitrov C, Doyle A and Inglis R. (2004) The
Physical Health Check: A tool for mental health workers. *Journal of Mental Health.* **13** 277-284.
Phelan M, Stradins L. and Morrison S. (2001) Physical health of people with severe mental illness. *British Medical Journal* **322**, 443–444.

Pilling S, Bebbington P, Kuipers E, *et al.* (2002) Psychological treatment in schizophrenia: I. Metaanalysis of family intervention and cognitive behaviour therapy. *Psychological Medicine.* **32** 763-782.

Pini S, de Queiroz V, Pagnin D *et al.* (2005) Prevalence and burden of bipolar disorders in European countries. *European Neuropsychopharmacology.* 425–434.

Plitcha S and Garzon L. (2009). Statistics for Nursing and Allied Health. USA: Wolters Kluwer Health.

Plummer S, Gournay K, Goldberg D, Ritter S, Mann A. and Blizard R. (2000) Detection of psychological distress by practice nurses in general practice. *Psychological Medicine*, **30**, 1233-1237.

Primary Health Care Research and Information Service. (2012) Engaging the media: being interviewed.
http://www.phcris.org.au/infobytes/media_interview.php

Prince D, Walkup J, Akincigil A *et al.* (2012) Serious Mental Illness and Risk of New HIV/AIDS Diagnoses: An Analysis of Medicaid Beneficiaries in Eight States. *Psychiatric Services.* **63** (10)

Prochaska J and Di Clemente C. (1992) Stages of Change and the modification of problem behaviours. In Hersen, M., Eisler, R. & Miller, P. (Eds), Progress in behaviour modification. **28**, 184-214. Sycamore: Sycamore Press.

Raftery J, Yao, G, Murchie P, Campbell N and Ritchie L. (2005) Cost effectiveness of nurse led secondary prevention clinics for coronary heart disease in primary care: follow up of a randomised controlled trial. *BMJ.* **330** 707.

Ray W, Meredith S, Thapa, P. *et al.* (2001) Antipsychotics and the risk of sudden cardiac death. *Archives of General Psychiatry*. **58** 1161–1167.

Regier D, Farmer M, Rae D, Locke B, Keith S, Judd L *et al.* (1990) Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) Study. *JAMA*. **264** 2511-2518.

Reid R, Bruce D, Allstaff K and McLernon D. (2006) Validating the Readiness for Interprofessional Learning Scale (RIPLS) in the postgraduate context: are health care professionals ready for IPL? *Medical Education*, **40**, 415–422.

Reilly S, Planner C, Hann M, Reeves D, Nazareth I, *et al.* (2012) The Role of Primary Care in Service Provision for People with Severe Mental Illness in the United Kingdom. PLoS ONE 7(5): e36468. doi:10.1371/journal.pone.0036468.

Rethink. (2012) Ingregrated Physical Health Pathway.
http://www.rethink.org/how_we_can_help/physical_health/physical_health_resources/integrated_physical.html

Rethink. (2010) *Healthy Eating.* [Online]. Available from:
http://www.rethink.org/living_with_mental_illness/everyday_living/make_a_fresh_start/keeping_in_good_physical_health/healthy_eating.html

Rethink. (2008) *A Physical Health Check for Mental Health Service Users.* Available [online] UK

http://www.rethink.org/how_we_can_help/research/service_evaluation_and_out comes/physical_health_check/physical_health_chec.html#top

Richards H and Donaldson M. (2009) *Life and work life expectancies*. 2ed. Tucson: Lawyers and Judges Publishing co.

Rimm E, Giovannucci E, Willett W. et al. (1991) Prospective study of alcohol consumption and risk of coronary disease in men. *The Lancet*. **338** (8765) 464-468.

Roberts S and Bailey J. (2011) Incentives and barriers to lifestyle interventions for people with severe mental illness: a narrative synthesis of quantitative, qualitative and mixed methods studies. *Journal of Advanced Nursing*. **67** (4) 690-708.

Roberts L, Roalfe A, Wilson S and Lester H. (2007) Physical health care of patients with schizophrenia in primary care: a comparative study. *Family Practice*. 24 (1) 34-40.

Roberts L, Gold L, Moore D and Elley K. (2000) The effectiveness of health assessments in primary care as a strategy for improving both physical and mental health in patients with schizophrenic illness. WMHTAC, Department of Public Health and Epidemiology, University of Birmingham, Birmingham, UK.

Robinson S. (2012) Practice health check invites boost mental illness visits and QOF income. *General Practice*. 01 March. http://www.gponline.com/News/article/1119946/Practice-health-check-invites-boost-mental-illness-visits-QOF-income/

Robson D and Haddad M. (2012) Mental health nurses' attitudes towards the physical health care of people with severe and enduring mental illness: the development of a measurement tool. *International Journal of Nursing* Studies. **49** (1) 72-83.

Robson D, Haddad M, Gray R and Gournay K. (2012). Mental health nursing and physical health care: A cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *International Journal of Mental Health Nursing*. doi: 10.1111/j.1447-0349.2012.00883.
Rogers E. (1983) *Diffusion of innovations*. New York: Free Press.

Roland M. Linking physician pay to quality of care: a major experiment in the UK. (2004) *New England Journal of Medicine*. 3**51** 1448-54.

Rose G. (1992) *The strategy of preventive medicine*. Oxford: Oxford University Press.

Rosenburg S, Drake R, Brunette M *et al.* (2005) Hepatitis C virus and HIV co-infection in people with severe mental illness and substance use disorders. *AIDS.* Suppl 3 S26-33.

Rosenberg S, Goodman L, Osher F *et al.* (2001) Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness. *Am J Public Health.* **91** 31‑37.

Rosenheck R, Leslie D, Keefe R, McEvoy J, Swartz M, Perkins D, Stroup S, Hsiao J and Lieberman J. CATIE Study Investigators Group (2006) Barriers to Employment for People With Schizophrenia. *Am J Psychiatry.* **163** 411-417.

The Royal College of General Practitioners. (2012) Medical Generalism. http://www.rcgp.org.uk/policy/rcgp-policy-areas/~/media/Files/Policy/A-Z%20policy/Medical-Generalism-Why_expertise_in_whole_person_medicine_matters.ashx

The Royal College of General Practitioners and the the Royal College of Psychiatrists. (2009) The management of patients with physical and psychological problems in primary care: a practical guide. http://www.rcgp.org.uk/policy/rcgp-policy-areas/~/media/Files/Policy/A-Z%20policy/Management_of_patients_with_physical_and_psychological_problems_in_primary_care.ashx

Royal College of Nursing. (2009) Research Ethics: RCN guidance for nurses 3rd ed. London: RCN.

Royal College of Psychiatrists. (2012) *Report of the National Audit of Schizophrenia (NAS) 2012.* London: Healthcare Quality Improvement Partnership.

Royal College of Psychiatrists. (2010) Position statement: No health without public mental health. http://www.rcpsych.ac.uk/pdf/Position%20Statement%204%20website.pdf

Rucci P, Frank E, Kostelnik B *et al.* (2002) Suicide attempts in patients with bipolar I disorder during acute and maintenance phases of intensive treatment with pharmacotherapy and adjunctive psychotherapy. *Am.J.Psychiatry.* **159** 1160-1164.

Rycroft-Malone J. (2004) The PARIHS Framework - A framework for guiding the implementation of evidence-based practice. *Journal of Nursing Care Quality.* **19** 297–304.

Saha S, Chant D, Mcgrath J. (2008) Meta-analyses of the incidence and prevalence of schizophrenia: conceptual and methodological issues. *International Journal of Methods in Psychiatric Research.* **17** 55–61.

Saha S, Chant D and McGrath J. (2007) A Systematic Review of Mortality in Schizophrenia: is the differential mortality gap worsening over time? *Archives of General Psychiatry.* **64** (10) 1123-1131.

Saha S, Chant D, Welham J, McGrath J (2005) A systematic review of the prevalence of schizophrenia. PLoS Med 2: e141.

Saha S, Saint S and Christakis D. (2003) Impact factor: a valid measure of journal quality? *Journal of the Medical Library Association.* **91**(1): 42–46.

Said W, Saleh R and Jumaian N. (2001) Prevalence of hepatitis B virus among chronic schizophrenia patients. *East Mediterr Health Journal.* **7** 526‑530.

Sainsbury Centre for Mental Health. (2003) Briefing 21: A summary of Investing in General Practice - The new General Medical Services contract for GPs. London: The Sainsbury Centre for Mental Health.

Sanson-Fisher R. Bonevski B. Green L. D'Este C (2007). Limitations of the randomized controlled trial in evaluating population-based health interventions. Am J Prev Med . 33 (2) 155–61.

Scott J, Paykel E, Morriss R, Bentall R, Kinderman P, Johnson T, Abbott R, Hayhurst H (2006). Cognitive behavioural therapy for severe and recurrent bipolar disorders : randomised controlled trial. *British Journal of Psychiatry.* **188** 313–320.

Scott S. (2008) Getting Research Into Practice: Which Strategies Work? *Nursing for Women's Health.* **12** (3) 204–207.

Sekaran U (2003) *Research Methods for Business: A skill-building approach.* New York: Chichester.

Shepherd M. **(**1957**)** *A Study of the Major Psychoses in an English County. Maudsley Monograph No. 3.* London: Oxford University Press*.*

Shrivastava A, Johnston M and Bureau Y. (2012) Stigma of Mental Illness-2: Non-compliance and Intervention. *Mena Sana Monographs* **1** 85-97.

Shuel F, White J, Jones M and Gray R. (2009). Using the serious mental illness Health Improvement Profile [HIP] to identify physical problems in a cohort of community patients: A pragmatic case series evaluation. *International Journal of Nursing Studies,* 47 (2), 136-145.

Shuttleworth A. (2011) 'A lot of research is barely seen by the nurses who could use it'. *Nursing Times.* **107** http://www.nursingtimes.net/nursing-practice/clinical-zones/educators/a-lot-of-research-is-barely-seen-by-the-nurses-who-could-use-it/5033548.blog

SIGN (2001) SIGN 50: *A guideline developer's handbook.* Edinburgh: Scottish Intercollegiate Guidelines Network.

Singer R (2001) The First Mortality Follow-up Study: The 1841 Report of William Farr (Physician) on the Mortality of Lunatics. *Journal of Insurance Medicine. 33* 298–309.

Smith J. (2003) *Qualitative Psychology; A Practical Guide to Research Methods*. Sage Publications: London.

Smith S, O'Keane V and Murray R. (2002) Sexual dysfunction in patients taking conventional antipsychotic medication. *Br J Psychiatry*. **181** 49–55.
Smith S, Yeomans D, Bushe C. *et al*. (2007a). A well-being programme in severe mental illness. Baseline findings in a UK cohort. Int J Clin Prac. 61 (12) 1971-1978.

Smith S. Yeomans D. Bushe C. *et al.* (2007b). A well-being programme in severe mental illness. Reducing risk for physical ill-health. A post programme service evaluation at two years. Eur Psychiatry. 22 413-418.

Smith M. (2000) Recovery from a severe psychiatric disability: Findings of a qualitative study. *Psychiatric Rehabilitation Journal,* **24** (2), 14-27.

Sokal J, Messias E, Dickerson F *et al*. (2004) Comorbidity of medical illnesses among adults with serious mental illness who are receiving community psychiatric services. *J Nerv Ment Dis*. **192** 421-427.

Stewart A. (2010) Deficiency symptoms and signs. Available at: http://www.stewartnutrition.co.uk/nutritional_assesment/deficiency_symptoms_and_signs.html

Stokes, T., Dixon-Woods, M. and McKinley, R. (2004) Ending the doctor–patient relationship in general practice: a proposed model. *Family Practice*. **21** 507–514.

Strachan D and Rose G. (1991) Strategies of prevention revisited: effects of imprecise measurement of risk factors on the evaluation of "high-risk" and "population-based" approaches to prevention of cardiovascular disease. *J. Clin. Epidemiol*. **44** 1187–1196.

Strange C and Miller W (2006). Publishing multi-method research. *Annals of Family Medicine.* **4** (4) 292-294.

Streiner D and Norman G (2004) *Health measurement scales: a practical guide to their development and use*. Oxford: Oxford University Press.

Sussman, S, Valente T, Rohrbach L, Skara S and Pentz M. (2006) Translation in the health professions: Converting science into action. *Evaluation & the Health Professions.* **29** 7–32.

Szadoczky E, Papp Z, Vitrai J, *et al.* (1998) The prevalence of major depressive and bipolar disorders in Hungary. Results from a national epidemiologic survey. *Journal of Affective Disorders*. **50** 153–162.

Tang W, Sun F, Ungvari G and O'Donnell D. (2004) Oral health of psychiatric in-patients in Hong Kong. *Int J Soc Psychiatry*. **50** 186–191.

Tarrant C, Windridge K, Boulton M, Baker R and Freeman G. (2003) Qualitative study of the meaning of personal care in general practice**.** *BMJ.* **326** 1310.

Taylor, D., Paton, C. and Kapur, S. (2009). South London and Maudsley NHS Foundation Trust Oxleas NHS Foundation Trust prescribing guidelines. 10th Edition. Informa Healthcare.

ten Have M, Vollebergh W, Bijl R *et al.* (2002) Bipolar disorder in the general population in the Netherlands (prevalence, consequences and care utilisation): results from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Journal of Affective Disorders.* **68** 203–213.

Thakore J. (2005) Metabolic syndrome and schizophrenia. *British Journal of Psychiatry*. **186** 435–436.

Thakore J, Mann J, Vlahos I, Martin A. and Reznek R. (2002) Increased visceral fat distribution in drug-naive and drug-free patients with schizophrenia. *Int J Obes Relat Metab Disord.* (1)137-41.

Thomas A, Lavrentzou E, Karouzos C and Kontis C. (1996) Factors which influence the oral condition of chronic schizophrenia patients. *Spec Care Dentist.* **16** 84‑86.

Thompson S and Tonelli M. (2012) General health checks in adults for reducing morbidity and mortality from disease [editorial]. *Cochrane Database of Systematic Reviews*. **10** ED000047 http://www.thecochranelibrary.com/details/editorial/2723031/General-health-checks-in-adults-for-reducing-morbidity-and-mortality-from-diseas.html

Thornicroft G. (2011) Physical health disparities and mental illness: the scandal of premature mortality. *Br J Psychiatry*. **199** 441-2.

Thorogood M, Coulter A, Jones L *et al.* (1993) Factors affecting response to an invitation to attend for a health check. *Journal of Epidemiology and Community Health.* **47** 224-228.

Tiihonen J, Lönnqvist J, Wahlbeck K *et al.* (2009) 11 year follow up of mortality in patients with schizophrenia: a population based cohort study. *Lancet.* **374** 620–7.

Toalson P, Ahmed S, Hardy T and Kabinoff G. (2004) The metabolic syndrome in patients with severe mental illnesses. Primary Care Companion Journal of Clinical Psychiatry. **6** (4) 152-158.

Tondo L, Baldessarini R, Hennen J *et al.* (1998) Lithium treatment and risk of suicidal behavior in bipolar disorder patients. *J.Clin.Psychiatry.* **59** 405-414.

Tosh G. Clifton A. Mala S. Bachner M. Physical health care monitoring for people with serious mental illness. Cochrane Database of Systematic Reviews 2010, Issue 3. Art. No.: CD008298. DOI: 10.1002/14651858.CD008298.pub2.

Trixler M, Gati A, Fekete S *et al.* (2005) Use of antipsychotics in the management of schizophrenia during pregnancy. *Drugs.* **65** 1193-206.

Tsai A, Morton S, Mangione C and Keeler E. (2005) A meta-analysis of interventions to improve care for chronic illnesses. *American Journal of Managed Care.* **11** 478-88.

Tsuang M, Stone W and Faraone S. (2001) Genes, environment and schizophrenia.*The British Journal of Psychiatry.* **178** s18-s24.

Umbricht D, Flury H and Brindler R. (2001) Cognitive Behaviour Therapy for weight gain. *American Journal of Psychiatry.* **158** (6) 971.

UK Clinical Research Collaboration. (2007) Developing the Best Research Professionals. Qualified Graduate Nurses: Recommendations for Preparing and Supporting Clinical Academic Nurses of the Future. Report of the UKCRC Sub Committee for Nurses in Clinical Research (Workforce) NHS.

United Nations. (1996) *Prevention of suicide. Guidelines for the formulation and implementation of national strategies.* New York: United Nations.

Vancampfort D, Vansteelandt K, Correll CU, et al. (2013) Prevalence of Metabolic Syndrome and Metabolic Abnormalities in bipolar disorders- A Systematic Review and Meta-Analysis. *American Journal of Psychiatry.* doi: 10.1176/appi.ajp.2012.12050620. [Epub ahead of print]

Van Rossum J. In: Neuropsychopharmacology, Proceedings Fifth Collegium Internationale Neuropsychopharmacologicum. Brill H, Cole J, Deniker P, Hippius H, Bradley P B, editors. Amsterdam: Excerpta Medica; 1967. pp. 321–329.

Velasco E, Machuca G, Martinez-Sahuquillo A, Rios V, Lacalle J and Bullon P. (1997) Dental health among institutionalized psychiatric patients in Spain. *Spec Care Dentist.* **17** 203‑206.

Velasco-Ortega E, Monsalve-Guil L, Velasco-Ponferrada C, Medel-Soteras R and Segura-Egea J. (2005) Temporomandibular disorders among schizophrenic patients. A case-control study. *Med Oral Patol Oral Cir Bucal.* **10** 315‑322.

Vogel R. (2002) Alcohol, Heart Disease, and Mortality: A Review. *Reviews in cardiovascular medicine.* **3** (1) 7-13.

Vrijens B, Vincze G, Kristanto P, Urquhart J and Burnier M. (2008) Adherence to prescribed antihypertensive drug treatments: longitudinal study of electronically compiled dosing histories. *BMJ.* 336 1114–1117.

Wade D (2005) Ethics, audit and research – all shades of grey. *British Medical Journal.* **330** (7489) 468.

Wahlbeck K, Westman J, Nordentoft M *et al.* (2011) Outcomes of Nordic mental health systems: life expectancy of patients with mental disorders. *British Journal of Psychiatry.* **199** 453–8.

Walsh T, McClellan J, McCarthy S *et al*. (2008) Rare structural variants disrupt multiple genes in neurodevelopmental pathways in schizophrenia. *Science.* **320** (5875) 539-543.

Wang H, Dwyer-Lindgren L, Lofgren K, Knoll Rajaratnam J, Marcus J, Levin-Rector A, Levitz C, Lopez A and Murray C. (2012) Age-specific and sex-specific mortality in 187 countries, 1970—2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet.* **380** (9859) 2071 – 2094.

Werneke U, Horn O, Maryon-Davis A *et al*. (2006) Uptake of screening for breast cancer in patients with mental health problems. *J Epidemiol Community Health.* **60** (7) 600–605.

White J, Gray R and Jones M. (2009) The development of the serious mental illness physical Health Improvement Profile. *Journal of Psychiatric and Mental Health Nursing.* **16** 493-498.

White J and Hardy S. (2010) Managing medications in schizophrenia. *Practice Nursing.* 21 (8) 393 -396.

William G. and Pickup J. (2004) *Handbook of Diabetes.* 3rd ed. London: Blackwell Publishing.

Williams L. (2009). Ask the professor about … Publishing in conference proceedings and journals. *MAI Review.* **1** Career Workshop 4.

Williams R, Hunt S, Heiss G *et al*. (2001) Usefulness of cardiovascular family history data for population-based preventive medicine and medical research (The Health Family Tree Study and the NHLBI Family Heart Study). *The American Journal of Cardiology.* **87** 2 129-135.

Wilson P, D'Agostino R, Sullivan L, Parise H, Kannel W. (2002) Overweight and obesity as determinants of cardiovascular risk: The Framingham experience. *Arch Intern Med.* 162 1867–1872. doi: 10.1001/archinte.162.16.1867.

Wirshing D, Smith M, Erickson Z, Mena S and Wirshing W. (2006) A Wellness Class for Inpatients with Psychotic Disorders. *Journal of Psychiatric Practice* **12** (1) 24-29.

Wood D, De Backer G, Faergeman O, Graham I, Mancia G, Pyörälä K. (1998) Prevention of coronary heart disease in clinical practice. Recommendations of the second Joint Task Force of European and other Societies on coronary prevention. *Journal of Hypertension.* **16** (10) 1407-1414.

World Health Organization. (2000) Preventing Suicide: A resource for General Physicians. http://www.who.int/mental_health/media/en/56.pdf

World Health Organization. (2011) Cardiovascular disease. http://www.who.int/mediacentre/factsheets/fs317/en/index.html

World Heart Federation. (2012) Cardiovascular disease risk factors. http://www.world-heart-federation.org/cardiovascular-health/cardiovascular-disease-risk-factors/

World Heart Federation (2012) *Cardiovascular Disease Risk Factors*. www.world-heart-federation.org/cardiovascular-health/cardiovascular-disease-risk-factors

Wright C, Osborn D, Nazareth I and King M. (2006) Prevention of coronary heart disease in people with severe mental illnesses: a qualitative study of patient and professionals' preferences for care. *BMC Psychiatry*. **6** 16.

Worrel J, Marken P, Beckman S and Ruehter V. (2000) Atypical antipsychotic agents: a critical review. *Am J Health-syst Pharm*. **57** 238-255.

Zhang-Wong J and Seeman M. (2002) Antipsychotic drugs, menstrual regularity and osteoporosis risk. *Arch Womens Ment Health*. **5** 93–98.

Zeenreich A, Gochstein B, Grinshpoon A, Miron M, Rosenman J, Ben Dov I. (1998) Recurrent tuberculosis in a psychiatric hospital, recurrent outbreaks during 1987-1996. *Harefuah*. **134** 168–172, 248, 247

Nottingham Research Ethics Committee 1

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Telephone: 0115 8839390 (Direct Line)
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25 May 2010

Mrs Sheila Hardy
22 Bridle Path
Brafield
Northampton
NN7 1BP

Dear Mrs Hardy

Study Title: **An evaluation of the Northampton Physical Health and Wellbeing (PhyHWell) program on the impact of cardiovascular risk in patients with Severe Mental Illness**

REC reference number: **10/H0403/38**

Protocol number:

The Research Ethics Committee reviewed the above application at the meeting held on 11 May 2010. Thank you for attending to discuss the study.

Ethical opinion

<u>Discussion</u>

- The Committee asked you how the methodology will answer the primary outcome measure for the study as outlined in section A57. of the Application Form. You outlined that the outcome measure was Patients (with Mental Health problems) rate of cardiovascular disease, and whether the health improvement profile helps to influence this by incorporating lifestyle changes etc.

- The Committee asked you to outline the Health Improvement Programme. You stated that you, the Chief Investigator (who has designed a Health Programme) has been commissioned to undertake this by the PCT. This programme requires Practice Nurses and Mental Health Nurses attending training in relation to the Health Improvement Profile (HIP). It then requires these Nurses to discuss the findings of the HIP with the patients, who are accessing the service throughout the year. The Health Improvement Profile is over and above what is current practice. This is a new service development but there is no randomisation.

- The Committee asked for clarification of the training. You stated that it is being imparted to Community Mental Health staff and Practice Nurses, and will consist of one days training. There is no requirement for these Nurses to then cascade this training to others. The Committee asked whether the Nurses are competent to deliver the profile and would there be any overlap with HONOS – Mental Health? You stated that there will be no overlap with HONOS, as you will be measuring an intervention on the health check.

- You were asked if relevant data is being collected, and referred to in the QRISK®2. The Committee questioned whether this is patient data and whether it is correlated to patient medication. You acknowledged that this was a limitation of the study as it was not being envisaged that influencing factors (such as medication interactions) would not be correlated with the outcomes. You felt that the HIP should take these interactions into account.

- You were asked if there is a Community Mental Health Nurse attached to each GP practice, and you confirmed that there is in the Northamptonshire area.

- The Committee mentioned that some patients will be needle phobic. You stated that you are aware that some may not have blood tests etc. and you hope that this will be identified in the interviews.

- The Committee relayed their concerns over the Focus Groups and the sample size of 10. They questioned whether 10 will be enough for the Focus Groups; whether there is potential for bias in the interviews being a purposive sample. You stated that you will make it clear to the Nurses that you are not evaluating the Nurses themselves, but the intervention.

The members of the Committee present decided that it was unable to give a favourable ethical opinion of the research, for the following reasons. The following should be considered if a further application for ethical review is made:

- The Application needs splitting to give greater clarity of the research component as currently it is lacking this. The audit/service evaluation that is not part of the research, should be removed from the application and the research element specifically outlined. It should however, state how the research fits in with the audit/evaluation. Attention should be made to the methodology as it is difficult to understand (as it is currently described).

- The Application should be clear what the Researchers role is within the study e.g. delivering the training, what the training is intended to do etc. At present details within the application are obscure.

- The methodology is somewhat limited and it is very unclear what the primary outcome measure is as detailed in section A57. of the Application Form. This requires attention.

- An application should state what relevant data is being collected, and referred to in the QRISK®2. It should be made clear whether this is patient data and whether it is correlated to patient medication.

- Section A31. of the Application Form states that Healthcare Professionals will have up to a year to decide to take part. Clarification is required, and as to how this fits in with the 5 – 13 month schedule.

- Greater clarity should be given as to how the 10 (out of the 31 practices) will be selected? It mentions 'appropriate' patients will be asked by the GP or Nurse whether they wish to take part in an interview. It is unclear what this means and there may be potential for bias.

- It should be clear throughout the application what kind of 'Nurse' the application refer to e.g. Community Mental Health Nurse etc.

- It should be made clear in the Participant Information Sheets what the mechanism is should any bad practice be identified whilst undertaking the research e.g. it should detail the bounderies of confidentiality etc.

- The baseline assessment does not address that Mental Health patients may be needle phobic and whether this is likely to affect the study?

I regret to inform you therefore that the application is not approved.

Options for further ethical review

You may submit a new application for ethical review, taking into account the Committee's concerns. You should enter details of this application on the application form and include a copy of this letter, together with a covering letter explaining what changes have been made from the previous application. We recommend that the application is submitted again to this Committee, but you may opt to submit to any another Research Ethics Committee within this domain.

Alternatively, you may appeal against the decision of the Committee by seeking a second opinion on this application from another Research Ethics Committee. The appeal would be based on the application form and supporting documentation reviewed by this Committee, without amendment. If you wish to appeal, you should notify the relevant Research Ethics Service manager (see below) in writing within 90 days of the date of this letter. If the appeal is allowed, another REC will be appointed to give a second opinion within 60 days and the second REC will be provided with a copy of the application, together with this letter and other relevant correspondence on the application. You will be notified of the arrangements for the meeting of the second REC and will be able to attend and/or make written representations if you wish to do so.

The contact point for appeals is:

Joan Kirkbride
Head of Operations
National Research Ethics Service
C/o Janet Kelly
Darlington Primary Care Trust
Dr. Piper House
King Street
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Tel: 01325 746167
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Documents reviewed

The documents reviewed at the meeting were:

Document	Version	Date
Covering Letter	1	01 April 2010
REC application	53425/114957/1/454	19 April 2010
Protocol	5	01 April 2010
Investigator CV	Chief Investigator x2	
Participant Information Sheet	3 Patient	01 April 2010
Participant Consent Form	1 Patient	01 January 2010
Letter of invitation to participant	3	01 April 2010
GP/Consultant Information Sheets	3	01 April 2010
GP Consent Form	1	01 January 2010
Letter to GP/Consultant	3	01 April 2010
Primary Care Nurse Information Sheet	1	01 April 2010
Secondary Care Nurse Information Sheet	1	01 April 2010
Primary Care Nurse Information Sheet	1	01 April 2010
Secondary Care Nurse Information Sheet	1	01 April 2010
Investigator CV	Academic Supervisor	01 January 2008
Evidence of insurance or indemnity		20 April 2010
Referees or other scientific critique report		15 April 2010
Interview Schedules/Topic Guides	2	01 April 2010
Questionnaire: Attitudes Quiz - Post Training	2	01 April 2010
Questionnaire: Attitudes Quiz - Pre Training	2	01 April 2010
Questionnaire: Knowledge Quiz - Pre Training	2	01 April 2010
Questionnaire: Knowledge Quiz - Post Training	2	01 April 2010
Unfavourable Opinion Letter		02 March 2010
Letter from CI of Amended Application		01 April 2010
Questionnaire: Communication Questionnaire	2	01 April 2010

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

Here you will find links to the following:

a)   *Providing feedback. You are invited to give your view of the service you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website*
b)   *Re-submission/Appeal.*

| ***10/H0403/38*** | ***Please quote this number on all correspondence*** |

Yours sincerely

Mr Robert Johnson
Vice-Chair

Email: trish.wheat@nottspct.nhs.uk

| *Enclosures:* | *List of names and professions of members who were present at the meeting and those who submitted written comments.* |

| *Copy to:* | *Mrs Tracey Moulton – University of East Anglia* |
| | *R&D Department for NHS care organisation at lead site – NHS Northamptonshire* |

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Nottingham Research Ethics Committee 1

Attendance at Committee meeting on 11 May 2010

Committee Members:

Name	Profession	Present	Notes
Mr Alastair Allen	Lay Member	Yes	
Dr Walter P Bouman	Consultant Psychiatrist	No	
Professor Cris S Constantinescu	Professor of Neurology	Yes	
Ms Helen Crow	Research Midwife	No	
Mr Robert Johnson	Research Co-ordinator	Yes	
Reverned Keith Lackenby	Lay member	Yes	
Mr Jon Merrills	Barrister / Pharmacist	Yes	
Mr Robert Oldroyd	Lay member	Yes	
Dr Noble Philips	General Practitioner	Yes	
Dr Kate Pointon	Consultant Radiologist	Yes	
Mr Ian Thompson	Lay member	Yes	
Mrs Shirley E White	Lay member	Yes	

Also in attendance:

Name	Position (or reason for attending)
Ms Trish Wheat	Committee Co-ordinator

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NHS
Northamptonshire

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Date: 19th July 2010

Mrs Sheila Hardy
Francis Crick House
Summerhouse Road
Moulton Park
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NN3 6BF

Dear Mrs Hardy

RE: An evaluation of the Northampton Physical Health and Wellbeing (PhyHWell) program on the impact of cardiovascular risk in patients with Severe Mental Illness.

Thank you for requesting permission to conduct the above referenced service evaluation within NHS Northamptonshire.

We acknowledge that we have received and reviewed the documents listed below:

Protocol – Version 1, June 2010
Invitation letter (practice) – Version 3, April 2010
Invitation letter - Version 4, June 2010
Information Sheet (Practice) – Version 4, June 2010
Information Sheet (Nurses) – Version 2, June 2010
Consent Form (GP) – Version 1, January 2010
Attitudes Quiz (pre-training) – Version 3, July 2010
Attitudes Quiz (post-training) – Version 3, July 2010
Knowledge Quiz (pre-training) - Version 3, July 2010
Knowledge Quiz (post-training) - Version 3, July 2010
Communication Questionnaire – Version 3, July 2010
Quiz Scoring – Version 1, March 2010

In addition we have received confirmation of the following:

- Research Sponsor – University of East Anglia
- Research Funder – NHS Northamptonshire

I am pleased to confirm that the trust had no outstanding issues and you have permission to undertake this service evaluation.

Your healthcare
partner

Northamptonshire Healthcare **NHS**

NHS Foundation Trust

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6th August 2010

Dear Sheila,

Re: An Evaluation of the Northampton Physical Health and Well-being Project (PhyHWell).

I am pleased to confirm that you now have full management approval for the above research project.

Please note that should you make any changes to the research in any respect, you will need to discuss this with our department and supply us with any copies of changed documentation.

We wish you every success with your research and look forward to discussing the final outcome with you.

In the meantime, please feel free to contact me should you require any information or assistance.

Yours sincerely

Emily Collins.
Clinical Effectiveness Support Assistant.

Food diary Patient number………………Date………………………

	Monday	Tuesday	Wednes	Thurs	Friday	Saturday	Sunday
7-8							
8-9							
9-10							
10-11							
11-12							
12-1							
1-2							
2-3							
3-4							
4-5							
5-6							
6-7							
7-bedtime							
Night-time							

Appendix 5

Primary Care Physical Health Checks for people with Severe Mental Illness (SMI) – Best Practice Guide
THIRD EDITION

The Health Improvement Profile for Primary Care (HIP-PC)

The Northampton Physical Health and Wellbeing Project (PhyHWell)
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Primary Care Physical Health Checks for people with Severe Mental Illness (SMI) – Best Practice Guide*The Health Improvement Profile for Primary Care (HIP-PC)*

Third Edition

Introduction

Severe mental illness such as schizophrenia and bipolar disorder is associated with high medical co-morbidity; mortality rates are approximately 50% higher than in the general population (Hennekens *et al.* 2005). The primary cause of death due to a physical cause is circulatory disease, diabetes and obesity. Evidence suggests excess weight gain can be 2-3 times more prevalent in people with schizophrenia than in the general population (Allison and Casey 2001). This may be due to high levels of smoking, unhealthy diets and lack of exercise which are common lifestyle choices of people with schizophrenia (McCreadie 2003), and that antipsychotic medication can also exacerbate weight gain (Allison and Casey 2001).

The National Institute for Clinical Excellence (Nice 2009, 2006a) recommends that physical health checks should normally be provided within primary care. However if the patient is not in contact with primary care then secondary services (the Mental Health Team) should monitor their physical health.

 The Sainsbury Centre for Mental Health (2003) advocates that a physical health review should include advice about diet, exercise, smoking and substance and alcohol abuse; protection against influenza, plus regular preventative care. Consequently, the General Medical Services contract requires that each primary care centre has a register of people with schizophrenia, bipolar disorder and other psychoses and that healthcare professionals achieve a number of clinical indicators in order to receive payment (NHS Employers 2011).

The HIP-PC has been adapted for primary care from the Health Improvement Profile (HIP) (White *et al.* 2009). This is a specific tool designed to help mental health nurses outline the physical health of the SMI patients they work with and direct them towards the evidence base interventions available to address identified health problems. A rationale and recommended action has been specified for each intervention. Unlike other tools such as the Physical Health Check (PHC) (Rethink 2008a), it is recommended that clinicians carrying out health checks using the HIP-PC have relevant training. The guidance also takes into account that healthcare professionals in primary care are experienced in giving lifestyle advice.

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Measurements

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Measurements

Body Mass Index (BMI)

Rationale

Evidence suggests excess weight gain can be 2-3 times more prevalent in people with schizophrenia than in the general population (Allison and Casey 2001).

The BMI is a simple index used to determine whether an individual is underweight, overweight or obese (WHO 2006).

The BMI is defined as the weight divided by the square of the height. For example, a person who weighs 70 kg and has a height of 1.75 will have a BMI of 22.9.

A BMI calculator can be found at:

www.eatwell.gov.uk/healthydiet/healthyweight/bmicalculator/

Although BMI values are the same for both sexes, they may not be accurate in people who are athletes or who weight-train, in pregnant or breastfeeding women, or those over the age of 60 years.

Ethnicity should be considered; particularly in patients of South Asian origin (overweight varies from BMI > 23, obesity from BMI > 25).

Recommended action

Diet advice should be offered to all patients to prevent weight gain. Guidance about weight loss should be offered to patients with:

- A BMI ≥ 28
- Any degree of overweight coinciding with diabetes or other serious diseases

Waist circumference

Rationale

People who carry their excess fat centrally (within the abdominal cavity) are more likely to suffer the consequences of being overweight.

Waist circumference correlates with visceral adipose tissue, plasma lipids, lipoproteins and insulin levels in adults (Taylor *et al. 1998*).

Recommended action

Measure waist circumference: ensure that a tape of adequate length is available. The correct position for measuring waist circumference is midway between the upper hip bone and the uppermost border of the right iliac crest. The tape should be placed around the abdomen at the level of this midway point and a reading taken when the tape is snug but does not compress the skin. In practice it may be difficult for very overweight patients to accurately palpate those bony landmarks in which case placing the tape at the level of the belly button is recommended (National Obesity Forum 2011).

For patients with waist circumference ≥ 80 cm (female) / ≥ 94 cm (male) (Barnett *et al.* 2007):

- Support and exchange information on diet (ie meal planning) and exercise
- Consider referral to a local weight/exercise management programme
- Consider medication review

Pulse rate

Rationale

Most antipsychotic medications have the potential for lengthening of the QT interval (prolonged: in males >450ms, in females >470ms - Committee for Proprietary Medicinal Products 1997). Therefore, cardiac safety should be a routine part of clinical care in patients taking antipsychotic medication; a preventive strategy is valuable even if the absolute risk of serious cardiac events is low (Abdelmawla and Mitchell 2006). There is evidence that many typical antipsychotics increase the risk of ventricular arrhythmias and cardiac arrest (Ray *et al.*2001, Liperoti *et al*. 2005) and an association between many atypical antipsychotic drugs and the occurrence of unexplained sudden death (Abdelmawla & Mitchell, 2006).

Carrying out an ECG also allows the opportunity to look for other possible problems such as gynaecomastia, hygiene neglect and rashes.

Recommended action

Check pulse annually. If raised perform an ECG.

Consider an ECG for all patients taking antipsychotics.

The BNF recommends that an ECG should be performed on patients:

- Taking pimozide, sertinol and clozapine or prescribed antipsychotics over the BNF limits
- Who have specific cardiovascular risk
- With a personal history of cardiovascular disease
- Being admitted as an inpatient

Patients with an abnormal ECG may be referred to a cardiologist or to the original prescriber for review of their treatment as appropriate.

Blood pressure

Rationale

People with severe mental illness are at a higher risk of developing high blood pressure than the general population. The British Hypertension Society Guideline cites evidence that suboptimal blood pressure control leaves patients at an unacceptably high risk of cardiovascular complications and death, particularly from coronary heart disease (CHD) but also from stroke (Williams *et al.* 2004). Interventions actively combining exercise and diet have demonstrated a reduction of both systolic and diastolic blood pressure by only 4–5 mmHg (NICE 2006b), therefore medication is often required.

Recommended action

Check CVD risk using QRISK®2 (Hippisley-Cox et al. 2008) for all eligible patients and exchange information on weight loss/exercise (if overweight), improved diet and reduction in alcohol and salt intake, assistance with stopping smoking.

For patients with blood pressure > 140/90 mmHg without a diagnosis of hypertension (NICE 2011):

- offer ambulatory blood pressure monitoring (ABPM) to confirm the diagnosis of hypertension
- if the patient is unable to tolerate ABPM, then offer home blood pressure monitoring (HBPM)

- test urine for the presence of protein by sending a sample for estimation of the albumin:creatinine ratio and test for haematuria using a reagent strip
- take blood sample to test for plasma glucose, electrolytes, creatinine, estimated glomerular filtration rate (eGFR), serum total cholesterol and HDL cholesterol
- perform an ECG
- prescribe medication following the stepped NICE guidance

Temperature

Rationale

A raised temperature maybe caused by infection, heat stroke, alcohol withdrawal, anticholinergic drugs, allergic drug reaction, and agonist drugs (Dougherty and Lister 2004).

Neuroleptic malignant syndrome is a rare but potentially life-threatening individual reaction to neuroleptic drugs. It causes fever, muscular rigidity, altered mental status and autonomic dysfunction. It is usually associated with potent neuroleptics such as haloperidol and fluphenazine. The underlying pathological abnormality is thought to be central D2 receptor blockade or dopamine depletion in the hypothalamus and nigrostriatal/spinal pathways. This leads to an elevated temperature set point, impairment of normal thermal homeostasis and extrapyramidally-induced muscle rigidity (Patient UK 2006a).

Recommended action

- Look for signs of infection and treat as appropriate
- Ask about alcohol withdrawal
- Check drug use
- For abnormally high temperatures with a fluctuating blood pressure and/or dystonia consider neuroleptic malignant syndrome and refer urgently to medics.

Blood tests

Liver Function Tests (LFTs)
Rationale
Antipsychotic medication can result in abnormal LFTs (Garcia-Unzueta *et al*. 2003). Hepatic disease should be detected early to prevent further serious complications.

Recommended action
Check LFTs every 12 months.

If tests are slightly abnormal:
- Repeat tests in 6 months
- Check alcohol intake and reduce if necessary
- Exchange information on diabetes control and weight loss if appropriate
- If remains abnormal for longer than six months then consider referral to a specialist
- If the patient is unwell despite slightly abnormal LFTs then they may need to be referred more urgently

Very abnormal liver function tests (i.e. more than twice upper limit of abnormal):
- Organise further blood tests and imaging.
- Refer to out-patients - if you suspect the cause may be malignancy then an urgent cancer referral should be made.

Consider urgent referral for hospital admission if patient unwell, for example:
- Severe jaundice
- Severe ascites
- Encephalopathy
- Septic

(Patient UK 2006b)

Lipid Levels
Rationale
Dyslipidaemia is a key component of the metabolic syndrome and a precursor for cardiovascular disease.

Recommended action
Check cholesterol levels annually – lipid profile if cholesterol is raised. Support and exchange information on diet (i.e. meal planning) and exercise.

Primary prevention
Consider for patients between 40-74 yrs with a high CVD risk (NICE 2008); offer simvastatin 40mg (or drug of similar efficacy and cost) for adults >40 years with 10-year CVD risk ≥20% (NICE 2008).

Abnormal levels (secondary prevention)
- Offer simvastatin 40mg (or drug of similar efficacy and cost) to all adults with clinical evidence of CVD

- o Consider increasing simvastatin dose to 80mg or drug of similar efficacy and cost if TC and LDL-C targets not reached
- o Offer higher intensity statin (eg simvastatin 80mg) to people with acute coronary syndrome. Do not delay until lipid levels available; measure fasting lipid levels after approximately 3 months
- o If potential drug interactions or simvastatin 40mg contraindicated, offer lower dose of simvastatin or pravastatin

(NICE 2008)

Glucose

Rationale

Diabetes occurs in 15% of people with schizophrenia (Holt and Peveler 2005), and only 5% of the general population (Bushe and Holt 2004).

Risk factors include: family history of diabetes, physical inactivity, poor diet, smoking and the metabolic effects of antipsychotic medication (Gough and Peveler 2004). Typical antipsychotics, in particular the low potency ones such as chlorpromazine may induce or make existing diabetes worse (Newcomer *et al*. 2002). The atypical antipsychotics clozapine and olanzapine are associated with new onset or exacerbating type 2 diabetes, not just through their propensity to cause greater weight gain than other newer agents, but because of their effects on glucose regulation (Newcomer *et al*. 2002). There are also case reports linking risperidone and quetiapine to impaired glucose intolerance, diabetes and ketoacidosis (Taylor *et al*. 2007).

Recommended action

Blood glucose should be checked at least annually. It may be more practical to do a random test though a fasting test will be more accurate. The World Health Organization (2011) recommends that HbA1c can also be used as a diagnostic test for diabetes providing that stringent quality assurance tests are in place and assays are standardised to criteria aligned to the international reference values, and there are no conditions present which preclude its accurate measurement.

- More frequent assessments are required for patients with significant risk factors for diabetes (overweight, Asian/African ethnicity etc) (Barnett *et al.* 2007). Consider checking every 6 months
- Support and exchange information on diet (ie meal planning) and exercise

- If diabetes is diagnosed, refer to practice diabetes nurse for further investigations, education and treatment

Prolactin

Rationale

Hyperprolactinaemia is a common side-effect of many antipsychotic drugs. Symptoms include gynaecomastia, galactorrhoea, amenorrhoea and sexual dysfunction. Switching to a prolactin sparing antipsychotic has been shown to lead to normalization of serum prolactin and resolution of the symptoms (Haddad *et al.* 2001).

Recommended action

Consensus guidelines for managing prolactinaemia (Peveler *et al.* 2008) recommend that healthcare professionals should monitor proactively for hyperprolactinaemia as it maybe asymptomatic.

- Patients prescribed prolactin elevating antipsychotics should, where possible, have this issue explained to them prior to commencing treatment and be screened for symptoms suggestive of hyperprolactinaemia before starting treatment (Haddad *et al.* 2001) and annually thereafter
- If the elevation of prolactin levels is mild (<1000 mIU/L (~50 ng/mL)) then it may be reasonable to continue to monitor the level. However, if even a mildly elevated level persists for more than 3 months, particularly if accompanied by amenorrhoea, bone mineral density may be compromised, and the possibility of reducing dose or switching to an antipsychotic with lower potential for prolactin elevation should be discussed with the patient
- When elevation is persistent and >1000 mIU/L (~50 ng/mL) then the clinician should consider switching to a drug with a lower potential to elevate prolactin if this can be achieved safely and is consistent with the clinical status of the patient as a whole
- For female patients switching to a drug with a lower potential to elevate prolactin may result in the return of fertility, and contraceptive advice should be given.
- If switching to a drug with a lower potential to elevate prolactin is not possible, it would be reasonable for clinicians to consider offering an oral contraceptive to female patients with amenorrhoea, if this is not contraindicated, to reduce the risk of subsequent osteoporosis.
- In any patient with a prolactin elevation greater than 3000 mIU/L (~150 ng/mL) then a prolactinoma should be considered.
- If the levels do not return to normal upon switching to a less prolactin-elevating antipsychotic, or if such switch is not possible for clinical reasons, then referral to a specialist in endocrinology is warranted to exclude a prolactinoma.

Peveler, R. *et al (*2008)

Urea and Electrolytes (U & Es) and calcium
Rationale
There is a risk of electrolyte imbalance when taking antipsychotic medication particularly at high doses. For patients taking lithium, there is a higher than normal incidence of hypercalcaemia and abnormal renal function (BMA 2009).

Recommended action
- Check U & Es and calcium annually or when presented with symptoms.
- For patients taking lithium six monthly checks are recommended (BNF 2011).

Thyroid Function Test
Rationale
Studies have indicated that the elevated serum levels of T4 may be specific for acutely ill schizophrenic patients and that neuroleptic medication may affect thyroid hormone metabolism (Baumgartnera *et al.* 2000) and that there is a spectrum of thyroid function test abnormalities in chronic schizophrenia (Othman *et al.* 1994).
For patients taking lithium, there is a higher than normal incidence of hypothyroidism (BMA 2009).

Recommended action
- Check thyroid function annually or in the presence of symptoms
- For patients taking lithium six monthly checks are recommended (BNF 2011).

Full Blood Count (FBC)
Rationale
A case-control study (Teixeira *et al.* 2009) in patients with schizophrenia showed a significantly higher number of patients with changes on leukocytes. Many patients presented low values of haemoglobin, erythrocytes and platelets. Leukopenia and neutropenia are recognised as side effects of antipsychotic medication (Taylor *et al.* 2007).

Recommended action
Check FBC annually or in the presence of symptoms.

B12 and Folate
Rationale
A case-control study (Teixeira *et al.* 2009) in patients with schizophrenia presented low values of vitamin B12.
Having a deficiency of vitamin B12 just because of eating a poor diet is rare in Western countries, but unhealthy diets are common lifestyle choices of people with schizophrenia (McCreadie 2003).

Recommended action
Check B12 and folate annually or in the presence of symptoms.

Plasma Levels
Lithium
Rationale
There is potential toxicity caused by lithium therapy when the serum levels are outside of the narrow therapeutic range (BMA 2009).

Recommended action
It is recommended that lithium levels are monitored every three months (BNF 2011).

Carbamazepine
Rationale

Most authorities agree that plasma drug level monitoring is mandatory when using carbamazepine for seizure disorders and helpful for bipolar disorder (Taylor *et al.* 2000).

Recommended action

Consider monitoring carbamazepine levels annually.

Valproate
Rationale

Most authorities agree that plasma drug level monitoring is helpful for valproate in seizure disorders and bipolar disorder (Taylor *et al.* 2000).

Recommended action

Consider monitoring valproate levels annually.

Screening

Cervical Cytology (Women only)

Rationale

Women with schizophrenia have a lower cervical cancer screening rate (63%) than those without severe mental health problems (73%-Disability Rights Commission 2006). However, the evidence shows that if a woman has never been sexually active, then her risk of developing cervical cancer is very low indeed (NHS Cervical Screening Programme 2009a).

Cervical screening saves approximately 4,500 lives per year in England (Peto *et al.* 2004) and prevents up to 3,900 cases of cervical cancer per year in the UK (Sasieni *et al.* 1996). Cervical cancer incidence fell by 42 % between 1988 and 1997 (England and Wales). This fall is directly related to the cervical screening programme (National Statistics 2000).

Recommended action

Determine patient history of cervical cytology. (Recommendation: under 25 years - no screening; 25-49 years - three yearly; 50-64 years - five yearly; 65+ years - those who have not been screened since age 50 or have had recent abnormal tests)

If no recent cervical cytology and has been sexually active, then offer appointment with the practice nurse.

Testicular examination (Men only)

Rationale

Cancer of the testicles accounts for only about 1% of all cancers in men. It is however, the most common type of cancer in males ages 16 to 35, and can occur anytime after age 15. Often, only one testicle is affected (Cancer Research 2002).

Recommended action

- Exchange information on testicular self-examination (Cancer Research UK 2002). How to do a testicular self examination (leaflet): www.cancerhelp.org.uk/help/default.asp?page=3570
- Advise if any abnormalities are found to make an appointment with their GP.

Teeth

Rationale

Antipsychotics, antidepressants and mood stabilisers can cause reduced saliva flow leading to caries, gingivitis and periodontal disease (Robson and Gray 2007).

Dental health may also be affected by poor diet and oral hygiene, and smoking (Robson and Gray 2007).

The extent of dental disease can be directly related to schizophrenia intensity, impact of negative symptoms and the length of hospitalisation (Thomas *et al.* 1996).

Recommended action

Enquire about oral hygiene and give the appropriate advice.

Dental check-ups should be every three months to two years depending on need (DOH 2009). Patients should be encouraged to take regular visits to the community dentist (NICE 2004a).

Eyes

Rationale

Antipsychotic medication may cause lens and cornea damage, and has been associated with cataract development (Robson and Gray 2007).

Recommended action

Patients with severe mental illness should be encouraged to routinely visit a local optician/optometrist every two years.

Feet

Rationale

Some patients with severe mental illness struggle to maintain their personal care. Lack of proper care, ill-fitting shoes and general foot neglect are responsible for the majority of foot problems. Feet are the foundation of the body, so if the foot is not functioning correctly, ankles, knees, hips and lower back are not aligned correctly and problems can develop throughout the entire body.

Recommended action

- Exchange information on keeping feet healthy, eg washing daily, trimming nails, treatment for burns, cuts and breaks in the skin (The Society of Chiropodists and Podiatrists 2005)
- Elderly patients or those with diabetes, osteoarthritis and/or rheumatoid arthritis should be a priority in NHS foot care, and should receive regular check-up from a registered chiropodist (The Society of Chiropodists and Podiatrists 2007)
- If the patient is presenting any signs/symptoms of foot problems refer to the chiropodist.

Breast Examination (Women)

Rationale

Breast cancer is the most common cancer in the UK (Breast Cancer Care 2000). Hyperprolactinaemia can be an adverse effect of antipsychotic therapy that leads to breast-related problems (Halbreich *et al.* 2003).

Recommended action

All patients should be advised on self examination (Breast Cancer Care 2010).

- Teach the breast awareness 5-point code:
    1. Know what is normal for you
    2. Know what changes to look and feel for
    3. Look and feel
    4. Report any changes to your GP without delay

5. Attend routine breast screening if you are aged 50 or over
- Check risk factors for breast cancer (eg previous history, family history, age) (Patient UK 2007)
- If there are any breast abnormalities, refer for further investigations (Patient UK 2007)
- Check for increased levels of serum prolactin (Halbreich *et al.* 2003)

Breast Examination (Men)

Rationale

The causes of breast cancer in men are not fully known. However, the most important risk factor is increasing age. Most men who get breast cancer are over 60 although younger men can be affected (Breast Cancer Care 2008).

Hyperprolactinaemia can be an adverse effect of antipsychotic therapy that leads to breast-related problems (Halbreich *et al.* 2003).

Recommended action

- Check risk factors for breast cancer (age > 60 years, previous radiotherapy to the chest, obesity, family history of breast cancer, high oestrogen levels, chromosomal syndromes) (Breast Cancer Care 2008)
- Check for any symptoms (painless lump, nipple discharge, ulceration or swelling) (Breast Cancer Care 2008)
- Refer to breast clinic for further investigations (Breast Cancer Care 2008)
- Check for increased levels of serum prolactin (Halbreich *et al.* 2003)

Menstrual Cycle

Rationale

Hyperprolactinaemia can cause amenorrhoea which is associated with anovulation (absence of ovulation), and infertility.

Recommended action

- Check for amenorrhoea - consider offering an oral contraceptive, if this is not contraindicated, to reduce the risk of subsequent osteoporosis
- Check for increased levels of serum prolactin, disturbed menstrual cycle and irregular menstrual cycle (Halbreich *et al.* 2003). See under Blood Tests – prolactin

Urine

Rationale

Many conditions and chronic urinary tract infection can be detected by using medical urine test strips, and the amount of urine produced can indicate certain conditions. Polyuria = the passing of excessive volumes of urine may be a sign of diabetes, renal failure, alcohol and drug misuse, metabolic abnormalities (Patient UK 2005) and polydipsia.

Oliguria = reduced urine volume. Cause maybe due to dehydration, vascular collapse or low cardiac output (Patient. UK 2008).

Recommended action

- Assess for signs of dehydration (NHS Direct 2007), encourage fluids and implement fluid balance chart to evaluate
- Assess for symptoms of polyuria (Patient. UK 2005), implement fluid balance chart to evaluate
- Check for any urine frequency/incontinence issues
- Dip test urine using eight parameter (as a minimum) diagnostic strips. Follow usual protocols for abnormalities

Bowels

Rationale

People with schizophrenia are almost twice as likely to have bowel cancer as the general population (DRC 2006).

Patients with schizophrenia seldom complain of gastrointestinal symptoms unless specifically asked (Gupta *et al.* 1997).

Eating a diet low in red or processed meat and high in fibre, fruit and vegetables can reduce the risk of bowel cancer. Being physically active helps to cut the risk, but being overweight or regularly drinking too much alcohol increases it (Cancer Research UK 2009).

Recommended action

- Exchange information on increasing physical activity, lowering alcohol and a healthy diet
- The NHS Bowel Cancer Screening Programme offers screening every two years to all men and women aged 60 to 69 (NHS Cancer Screening Programmes 2009b)
- Check for signs of irritable bowel symptoms, diarrhoea or constipation, excessive urgency, gastrointestinal symptoms, straining, bleeding, need for laxatives
- Check for any bowel frequency/incontinence issues
- Rapid referral for endoscopy if symptoms are suspicious (NICE 2004b)

Lifestyle

Sleep
Rationale
Most adults need around 7–8 hours of sleep each night (Benson 2006).

- In untreated schizophrenia, profound insomnia can result from psychotic symptoms (Benson 2006)
- Although antipsychotic treatment can reduce insomnia, the side effects of sedation and residual insomnia can occur (Benson 2006)
- Complaints of poor sleep quality are directly related to negative assessments of quality of life (Benson 2006)
- Improved sleep may lead to improved ability to cope with stress, and increased energy (Hofstetter *et al.* 2005)

Recommended action
- Clarify any patient sleep problems (Hofstetter *et al.* 2005)
- Provide education on good sleep hygiene and benefits of a sleep diary
- Consider medication review

Smoking
Rationale
Approximately 85% of people with schizophrenia smoke, compared with 23% of the general population (Goff *et al.* 2005). Smoking rates are higher in schizophrenia than in other severe mental illnesses (Goff *et al.* 2005).

Neurobiological, psychological, behavioural and social factors make it difficult for patients with mental illness to stop smoking (Robson and Gray 2007).

Smoking cessation medication and other non-pharmacological support can increase abstinence rates in those with mental health problems to as high as those in the general population (Foulds *et al.* 2006, Campion *et al.* 2008). However those with mental illness have previously been less likely to receive smoking cessation in primary care (Phelan *et al.* 2001).

Stopping smoking reduces the risk of (NHS Choices 2009a):
- Developing illness, disability or death caused by cancer, heart or lung disease
- Gangrene or amputation caused by circulatory problems
- Exposing others to secondhand smoke
- Children in the same household suffering from asthma or glue ear
- Infertility levels, and an unhealthy pregnancy and baby
- Breathing difficulties and decreased general fitness
- Less enjoyment of the taste of food

Recommended action

- Give advice about the possible health risks associated with smoking
- Ask about respiratory symptoms; chest examination if appropriate
- Refer any patients wishing to quit smoking to NHS Stop Smoking Services if appropriate (DH 2007a) or the primary care clinic's stop smoking service. They may need to be seen individually. Review medication regularly.
- Cigarette smoking lowers the levels of many antipsychotic medications (Vazquez *et al.* 2007). Therefore, if a patient stops or reduces their smoking, a medication review should be undertaken.
    - Blood levels of olanzapine and clozapine should be measured before smoking cessation followed by 25% dose reduction during first week of cessation and then further blood levels (Taylor *et al.* 2007).
    - Doses of fluphenazine and benzodiazepine should be reduced by up to 25% in first week of cessation.
    - Tricyclic antidepressants may need to be reduced by 10-25% in first week (Taylor *et al.* 2007).

Nicotine replacement is available in a variety of forms and strengths to encourage patient preference and acceptability. Combining patch and faster-acting oral NRT improves efficacy. Side effects include mild local irritation of mouth, throat or nose. **Bupropion** is associated with seizures and is contraindicated in bipolar affective disorder and epilepsy. It should not be prescribed with drugs which increase risk of seizures such as tricyclic antidepressants and some anti-psychotics. Bupropion can also alter blood levels of medication such as antipsychotics and antidepressants. **Varenicline** has been reported to be more effective and have fewer side effects than bupropion (Cahill *et al.* 2007). However, reports of exacerbation of depression and suicidal ideation are currently being reviewed.
(Royal College of Psychiatrists and Royal College of General Practitioners 2010).

Exercise
Rationale
People with severe mental illness are more physically inactive than the general population (Brown *et al*, 1999, McCreadie 2003).
Physical activity can have a positive effect on psychological well-being in people with schizophrenia (DH 2004).

Recommended action
Identify the patient's level of activity. The recommendation for exercise to be of benefit is 30 minutes five days a week (DH 2004). Help the patients make an exercise plan which fits in with their lifestyle and builds up activity gradually. For some individuals it may be appropriate to refer to an exercise scheme if there is one in your area.

Alcohol Intake

Rationale

Alcohol misuse is one of the most common and clinically significant co-morbidities among patients with severe mental illness (Brunette *et al*. 2004). There is considerable evidence to support the positive impact of reducing unsafe alcohol consumption on cardiovascular health (NHS Information Centre 2008).

Many antipsychotics can cause sedation and impair alertness, concentration and coordination. The use of alcohol can further increase any impairment (rethink 2008b).

Recommended action

Offer recommendations on sensible daily alcohol intake:

- Adult women should not regularly drink > 2–3 units of alcohol a day
- Adult men should not regularly drink > 3–4 units of alcohol a day
- Women who regularly drink > 6 units a day (or > 35 units a week) and men who regularly drink > 8 units a day (or 50 units a week) are at highest risk of alcohol-related harm

(Department of Health 2007b)

Refer to the local Alcohol Support Agency.

Diet

Rationale

In a survey of the dietary habits of 102 people with SMI by McCreadie (2003) the average fruit and vegetable intake for these people was 16 portions a week, compared with recommended intake of 35 per week (DH 2004). The physical health consequences of a poor diet include CVD, diabetes, obesity and some cancers.

Studies of people with SMI repeatedly show that saturated fats from dietary intake of meat and dairy products are associated with worse outcomes in schizophrenia (Peet 2004). There is a particularly strong association between sugar consumption and poorer outcome in schizophrenia whereas consumption of fish and sea food, particularly omega 3 fatty acids, has been associated with better outcomes (Peet 2004).

Recommended action

Agree and implement a diet plan with the patient (and any carers) – may include referral to other members of the multidisciplinary team.

- Explain that five portions of fruit/vegetables each day and reducing fat intake, reduces the risk of cancer, coronary heart disease, and other chronic illnesses (DH 2007c).
- Aim to address potential barriers (access and availability of fresh fruit/vegetables, awareness of health benefits and attitudes towards buying, preparing and eating fruit/vegetables) (DH 2007c).

Fluid Intake

Rationale

Many people with severe mental illness do not drink enough fluid leading to dehydration. The body works less efficiently, even with a relatively low level of fluid

loss (NHS Choices 2009b). Some of the early warning signs are feeling thirsty and light-headed, and having concentrated, strong-smelling urine.

Overconsumption of fluid can also arise from a condition called polydipsia which is a serious complication of some psychotic illnesses, including schizophrenia. The exact reason for any one person developing polydipsia is unclear, but if untreated, the high intake of fluids can lead to hyponatraemia, which in turn can lead to coma or even death. It has been estimated that between six and 17% of psychiatric inpatients suffer from polydipsia (Brooks and Ahmed 2007).

Recommended action

Determine patient's daily fluid intake:

If < one litre/day:
- Check for signs of dehydration
- Encourage the patient to drink 1-2 litres (6–8 glasses) of fluid every day (more during hot weather and physical exertion)
- Exchange information on increasing fluid intake (drinking semi-skimmed milk, diluted fruit juices, diluted fruit squash)

(NHS Choices 2010)

If > three litres/day check for signs of polydypsia, (Brooks and Ahmed 2007) such as increased urine output.
Implement a fluid balance chart if possible; enlist help of carers and family.
Electrolyte assessment if initial intervention is unsuccessful.

Caffeine intake

Rationale

Caffeine is a central stimulant, ie it stimulates the brain. Caffeine is present in drinks such as coffee, tea and cola (NWMHP 2008). Too much caffeine can cause feelings of anxiety and nervousness, sleep disruption (especially difficulty getting off to sleep), restlessness, irritability, diuresis (passing lots of water/urine), stomach complaints, tremulousness, palpitations and arrhythmias (changed heart rate, especially faster beating) (NWMHP 2008). A moderate daily caffeine intake of 250–500 mg is not associated with adverse events (NWMHP 2008).

Psychosis can be induced in normal individuals ingesting caffeine at toxic doses, and psychotic symptoms can also be worsened in schizophrenic patients using caffeine (Broderick and Benjamin 2004).

Food or drink item	Average caffeine content
1 cup of coffee	75–100 mg
1 cup of tea	50 mg
1 can of cola	40 mg
1 energy drink	90 mg
Bar of plain chocolate	50 mg
Bar of milk chocolate	25 mg
FSA (2004)	

Recommended action

- Exchange information on reducing caffeine intake (stopping gradually to avoid withdrawal effects) (NWMHP 2008)
- Check for symptoms of caffeinism or caffeine toxicity (> 1000 mg/day), which can make illnesses such as anxiety more resistant to drug treatment (NWMHP 2008)

Safe Sex

Rationale

Although a smaller proportion of people with SMI are sexually active compared to the general population, those that are sexually active are more likely to engage in high risk behaviours that may lead to HIV, such as sex without a condom and injecting drug use (Cournos et al. 2005). Reasons for this include lack of knowledge about how sexually transmitted diseases (STIs) and HIV are transmitted and prevented (Arrufo et al. 1990, Kalichman et al. 1994), a susceptibility to coercion into unwanted sexual activity, difficulties in establishing stable social and sexual relationships, and comorbid alcohol and substance use (Coverdale and Turbott 2000).

Recommended action

- Identify if the patient is engaging in behaviours that increase the risk of STIs
- Provide sexual health advice
- If STI is suspected, refer to the Genito-Urinary Medicine Clinic

Sexual Satisfaction

Rationale

Antipsychotic medication can have an adverse effect on sexual function, which impacts greatly on quality of life (Hanssens *et al.* 2006).
A study (Smith *et al.* 2002) showed that sexual dysfunction occurred in 45% of patients taking antipsychotic medication. The main cause of sexual dysfunction in both men and women was hyperprolactinaemia.

Recommended action

- Determine the patient's level of sexual activity – refer for gynaecological examination and laboratory assessments if required (EAU 2005)
- Use side effects scale for antipsychotic medication such as SESCAM (Bennett *et al.* 1994)
- Perform systemic assessment (eg Arizona Sexual Experience Scale- go to: www.psy-world.com/asex_print.htm) (McGahuey *et al.* 2000)
- Check for increased levels of serum prolactin = decreased libido and arousal, orgasmic dysfunction (Halbreich *et al.* 2003)

Cannabis

Rationale

Cannabis use is associated with poor outcomes in existing schizophrenia (Henquet *et al.* 2005).

Cannabis use is a contributing factor in 10% of schizophrenia cases and there are 1,500 expected new cases of cannabis-related schizophrenia each year (BBC 2007).

Recommended action

- Patients' cannabis use should be recorded during a physical health check
- Ask about other non-prescribed drug use (BMA 2009)
- Work with support of dual diagnosis worker/service - systemically evaluate using a drug use scale
- Implement health behaviour interventions

Medication review

People with an established diagnosis of schizophrenia or bipolar disorder who are managed in primary care require monitoring of medication use, medication adherence and side-effects (NICE 2006a, 2009). The accuracy of other medication can also be checked at the same time as reviewing the antipsychotics and/or mood stabilisers (BMA 2009).

Antipsychotics

Rationale

Antipsychotics have a wide range of side effects. The most widely researched include (Rethink 2006):

Sedation: The antipsychotics that cause the most sedation include chlorpromazine, promazine, thioridazine, clozapine and zotepine. Often this can be dealt with by the patient taking their medication at night just before they go to bed. The dose may need to be reduced or changed if this is a big problem.

Movement disorders: There are different types of movement disorder. These include:

- **Dystonia -** prolonged muscle spasms often involving the face, neck, shoulders and upper limbs. Drugs such as procyclidine and orphenadrine are given to treat dystonia
- **Akathisia -** fidgety movements of the legs which may be accompanied by a strong sense of inner restlessness and unease. This often means that a person cannot sit comfortably, and may be driven to walk up and down to try and gain relief. It is best treated with clonazepam or propranolol
- **Parkinsonian movement disorders -** involve stiffness and shakiness, and resembles the unrelated condition of Parkinson's disease. The limbs move slowly and muscles of the face may be quite immobile, producing an expressionless, staring face. Rhythmic shaking may occur but is not usually very severe, and is most obvious in the hands. Procyclidine and orphenadrine, amongst other drugs, are given to treat Parkinsonian movement disorders
- **Tardive dyskinesia -** major signs of the condition are excessive movement of the lips, tongue and jaw, (known as oro-facial dyskinesia). The term "tardive" means delayed or late-appearing and this reflects the fact that treatment may have gone on for some months or years before the movement disorder becomes apparent. Oro-facial dyskinesia is the most common form of tardive dyskinesia. Other abnormal movements are seen including jerky, abrupt movements of the limbs and body, but these are less common.

Recommended action

Side effects should be monitored in a systematic manner using a recognized tool such as SESCAM (Bennett *et al.* 1995). This is a two part scale, one for the observing health care professional and the other is self rated by the patient.

Blood tests should be taken as described previously.

Refer back to original prescriber (NICE 2009) in the case of:

- Observed side effects
- Return of symptoms

- Any physical problems which may be related to the drug
- Any issues flagged up by the patient

Mood stabilisers

Lithium

Rationale

In long-term use lithium has been associated with thyroid disorders and mild cognitive and memory impairment. Lithium salts have a narrow therapeutic/toxic ratio, therefore it is important to determine the optimum range for each individual patient. Lithium toxicity is made worse by sodium depletion (BNF 2011).

Recommended action

- Check thyroid function, U & Es, and calcium six monthly
- Check lithium levels three monthly. Refer back to prescriber if not in therapeutic range
- Patients should be maintained on lithium after three to five years only if benefit persists.

(BNF 2011)

Carbamazepine

Rationale

In order to be effective, carbamazepine has to reach a given level in the blood (NWMHFT 2005a). Side effects include dizziness, drowsiness, shaky movements and feeling sick. Carbamazepine can cause a chronic low white blood cell count which increases susceptibility to infection (NWMHFT 2005a). This can be monitored with regular blood tests.

Recommended action

- Consider monitoring carbamazepine levels annually
- Check full blood count annually
- If abnormal FBC (without any other cause) and/or carbemazepine not in therapeutic range, refer back to prescriber

Valproate

Rationale

Valproate causes an increase in appetite and therefore weight gain (NWMHFT 2005b). Side effects include dizziness, drowsiness, shaky movements, feeling sick, impaired liver function, thrombocytopenia and impaired platelet function (NWMHFT 2005b).

Recommended action

- Give advice regarding a diet high in vegetables and fibre, refer to dietician if appropriate (NWMHFT 2005b)
- Advise if bruises without reason or bleeds easily, to stop taking valproate and refer back to prescriber (NWMHFT 2005b)
- Consider monitoring valproate levels
- Check full blood count and LFT annually

- If abnormal FBC and/or LFT (without any other cause) and/or valproate not in therapeutic range, refer back to prescriber

Additional factors

Care plan

Rationale

The GMS contract (BMA 2009) requires the patient to have their care plan documented in the records; this is agreed between individuals, their family and/or carers as appropriate.
The Care Programme Approach (CPA) is the process which mental health service providers use to co-ordinate the care for people who have mental health problems (Care programme approach association 2011).

Recommended action

- If the patient is under the care of secondary care, Care Programme Approach (CPA), the care plan is scanned into the patient record
- If the patient is on the register but not under the care of secondary care, the healthcare professional should document an accurate and easily understood plan of care as part of the annual review by discussing this with the patient, family and/or carers. The discussion should include the patient's preferred course of action in the event of a clinical relapse; it should also contain a discussion around the following issues (NICE 2009):
    - Social support
    - Input from secondary and /or voluntary mental health
    - Early warning signs that may indicate possible relapse
    - Occupational status

Flu vaccination

Rationale

Patients with severe mental illness are at an increased risk of cardiac, respiratory disorders and diabetes (Sainsbury Centre for Mental Health 2003).

Recommended action

Offer annual immunisation (Sainsbury Centre for Mental Health 2003).

Follow up

Rationale

The patient may not attend for the health check due to his/her mental state. It is important to set up a robust system to allow further opportunities to attend.

Recommended action

- Try contacting the patient (or carer if known) by telephone
- Send a letter requesting that they contact the surgery to make a new appointment
- If unknown to secondary care, inform the GP of their non-attendance
- If known to secondary care, inform the secondary care link worker
- If patient does not make a further appointment they can be exception reported

References

Abdelmawla, M. and Mitchell , J. (2006) Sudden cardiac death and antipsychotics. *Advances in psychiatric treatment.* **12** 100-109.

Arrufo, J., Coverdale, J., Chako, R., et al. (1990) Knowledge about AIDS among women psychiatric outpatients. *Hospital and Community Psychiatry.* **41** 326–328.

Barnett, A., Mackin, P., Chaudhry, I. *et al.* (2007) Minimizing metabolic and cardiovascular risk in schizophrenia: diabetes, obesity and dyslipidaemia. *Journal of Psychopharmacology* **21** 357–373.

Baumgartnera, A., Pietzckerb, A. and Gaebelc, W. (2000) The hypothalamic–pituitary–thyroid axis in patients with schizophrenia. *Schizophrenia Research.* **44** (3) 233-243.

BBC News (2007) *Cannabis hospital admissions rise*.
news.bbc.co.uk/1/hi/health/6732005.stm

Broderick, P. and Benjamin, A. (2004). Caffeine and psychiatric symptoms: A Review; *J Okla State Medical Assoc*. **97** (12) 538-42

Benson, K. (2006) Sleep in schizophrenia: impairments, correlates, and treatment. *Psychiatr Clin North Am*. 29 1033–45.

Breast Cancer Care. (2008) *Men with breast cancer*.
www.breastcancercare.org.uk/upload/pdf/men_with_breast_cancer_08_web_0.pdf

Breast Cancer Care. (2010) *Breast awareness*.
http://www.breastcancercare.org.uk/breast-cancer-breast-health/breast-awareness/

British Medical Association. (2009) Quality and Outcomes Framework guidance for GMS contract 2009/10.
http://www.bma.org.uk/images/qof0309_tcm41-184025.pdf

British National Formulary. (BNF). (2011) *BNF 61. http://bnf.org/bnf/index.htm*

Brooks, G. and Ahmed, A. (2007). Pharmacological treatments for psychosis-related polydipsia. *The Cochrane Library*. **3** 1–15.

Brown, S., Birtwistle, J., Roe, L. and Thompson, C. (1999) The unhealthy lifestyle of people with schizophrenia. *Psychological Medicine.* **29** 697–701.

Brunette, M.F., Mueser, K.T., Drake, R.E. (2004) A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders. *Drug Alcohol Rev*. **23** 471-481.

Bushe, B.and Holt, R. (2004) Prevalence of diabetes and impaired glucose tolerance in patients with schizophrenia. *British Journal of Psychiatry*. **184** S67–S71.

Cahill, K., Stead, L. and Lancaster, T. (2007) *Nicotine receptor partial agonists for smoking cessation*. Cochrane Database of Systematic Reviews, issue 1, CD006103. Wiley Interscience.

Campion, J., Checinski, K. and Nurse, J. (2008) Review of smoking cessation treatments for people with mental illness. *Advances in Psychiatric Treatment*. 14: 208-216.

Cancer Research UK. (2009) *Bowel Cancer at a glance.* info.cancerresearchuk.org/cancerandresearch/cancers/bowel/

Cancer Research UK. (2002) *About Testicular Cancer.* www.cancerhelp.org.uk/help/default.asp?page=3570

Care programme approach association. (2011) *About the Care Programme Approach*. http://cpaa.co.uk/thecareprogrammeapproach

Committee for Proprietary Medicinal Products (CPMP) (1997) *Point to consider: the assessment of the potential for QT interval prolongation by non cardiovascular medicinal products.* www.webcitation.org/query.php?url=http://www.emea.eu.int/pdfs/human/swp/098696en.pdf&refdoi=10.1186/1744-859x-4-1

Cournos, F., McKinnon, M. and Sullivan, G. (2005) Schizophrenia and comorbid human Immunodeficiency Virus or Hepatitis C Virus. *Journal of Clinical Psychiatry.* **66** (Suppl. 6), 27–33.

Coverdale, J. and Turbott, S. (2000) Risk behaviours for sexually transmitted infections among men with mental disorders. *Psychiatric Services*. **51** (2) 234–238.

Department of Health, (2004) *At Least 5 a Week.* London: Department of Health.

Department of Health. (2007a) *NHS Stop Smoking Services & Nicotine Replacement Therapy*. London: DH

Department of Health. (2007b) Safe. *Sensible. Social. The next steps in the National Alcohol Strategy.* London: DH.

Department of Health. (2007c) *At least 5 a day*. London: DH.

Department of Health. (2009) *Guide to NHS dental services in England.* http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_097435.pdf

Disability Rights Commission. (2006) *Equal treatment: closing the gap.* www.library.nhs.uk/mentalhealth/ViewResource.aspx?resID=187303

315

Dougherty, L. and Lister, S. eds. (2004) *Temperature.* The Royal Marsden Hospital Manual of Clinical Nursing Procedures. 6th ed. Oxford: Blackwell Publishing.

European Association of Urology (EAU). (2005) *Guidelines on erectile dysfunction*. The Netherlands: EAU.

Food Standards Agency (FSA). (2004) *Survey of caffeine levels in hot beverages*. London: FSA .

Foulds, J., Steinberg, M., Richardson, D. *et al*. (2006) Factors associated with quitting smoking at a tobacco dependence treatment clinic. *American Journal of Health Behavior*. **30** 400-412.

Garcia-Unzueta, M., Herran A, Sierra-Biddle, D., Amado, J., Vazquez-Barquero, J. and Alvarez, C. (2003) Alterations of liver function test in patients treated with antipsychotics. *J Clin Lab Anal*. **17** 216-8.

Goff, D., Cather, C., Evins, A., Henderson, D., Freudenreich, O., Copeland, P., Bierer, M., Duckworth,K. and Sacks, F. (2005) Medical morbidity and mortality in schizophrenia: guidelines for psychiatrists. *J Clin Psychiatry*. **66** 183-94.

Gough, S. and Peveler, R. (2004) Diabetes and its prevention: pragmatic solutions for people with schizophrenia. *British Journal of Psychiatry.* **184** (Suppl. 47) s106–s111.

Gupta, S., Masand, P. *et al*. (1997) The relationship between schizophrenia and irritable bowel syndrome (IBS). *Schizophr Res* **23** (3) 265-8.

Haddad, P., Hellewell, J. and Wieck, A. (2001) Antipsychotic induced hyperprolactinaemia: a series of illustrative case reports. *Journal of Psychopharmacology*. 15 (4) 293-295.

Halbreich, U., Kinon, B., Gilmore, J. and Kahn, L. (2003) Elevated prolactin levels in patients with schizophrenia: mechanisms and related adverse effects. *Psychoneuroendocrinology*. **28** Suppl 1:53–67.

Hanssens, L *et al*. (2006) APA Annual Meeting. Poster NR361

Hennekens ,C.H., Hennekens ,A.R., Hollar, D., *et al.* (2005) Schizophrenia and increased risks of cardiovascular disease. *American Heart Journal*. **150** 1115–1121.

Henquet, C., Murray, R., Linszen, D and van Os, J. (2005) The environment and schizophrenia: the role of cannabis use. *Schizophr Bull* . **31** (3) 608-12.

Hippisley-Cox, J., Coupland, C., Vinogradova, Y., Robson, J., Minhas, R., Sheikh, A. and Brindle, P. (2008). Predicting cardiovascular risk in England and Wales: prospective derivation and validation of QRISK2. BMJ. 336:a332.

Hofstetter, J., Lysaker, P. and Mayeda, A. (2005) Quality of sleep in patients with schizophrenia is associated with quality of life and coping. *BMC Psychiatry*. **5** 13.

Holt, R. and Peveler, R. (2005) Association between antipsychotic drugs and diabetes. *Diabetes, Obesity and Metabolism*. **8** 125–135.

Liperoti, R., Gambassi, G., Lapane, K. L., *et al.* (2005) Conventional and atypical antipsychotics and the risk of hospitalization for ventricular arrhythmias or cardiac arrest. *Archives of Internal Medicine*, **165** 696–701.

McCreadie, R. (2003) Diet, smoking and cardiovascular risk in people with schizophrenia. *British Journal of Psychiatry.* **183** 534–539.

McGahuey, C., Gelenberg, A., Laukes, C., Moreno, F., Delgado, P., McKnight, K. and Manber, R. (2000) The Arizona Sexual Experience Scale (ASEX): reliability and validity. *J Sex Marital Ther*. **26** (1) 25–40.

National Statistics. (2000) *Health Quarterly Statistics 07*. www.statistics.gov.uk/downloads/theme_health/HSQ7Book.pdf

National Obesity Forum. (2011) Waist circumference. www.nationalobesityforum.org.uk/training-resource-for-healthcare-professionals-mainmenu-133/assessment-mainmenu-168/171-waist-circumference.html

National Institute for Clinical Excellence (NICE). (2011) GG127 Hyperrtension. http://www.nice.org.uk/nicemedia/live/13561/56015/56015.pdf

National Institute for Clinical Excellence (NICE). (2009) Schizophrenia Update. www.nursingtimes.net/Journals/1/Files/2009/5/21/Schizophrenia%20FullGuideline.pdf

National Institute for Clinical Excellence (NICE). (2008) *LipId Modification.* guidance.nice.org.uk/CG67/Guidance/pdf/English

National Institute for Clinical Excellence (NICE). (2006a) *Bipolar disorder.* www.nice.org.uk/nicemedia/pdf/CG38fullguideline.pdf

National Institute for Health and Clinical Excellence (NICE). (2006b) *Hypertension: Management of hypertension in adults in primary care.* London: National Institute for Health and Clinical Excellence.

National Institute for Health and Clinical Excellence (NICE). (2004a) *CG19 Dental Recall. Recall interval between routine dental examinations.* London: National Institute for Health and Clinical Excellence.

317

National Institute for Health and Clinical Excellence (NICE). (2004b). *Improving Outcomes in Colorectal Cancers.*
www.nice.org.uk/nicemedia/pdf/CSGCCfullguidance.pdf

National Obesity Forum. (2011) *Waist circumference.*
http://www.nationalobesityforum.org.uk/healthcare-professionals-mainmenu-155/assessment-mainmenu-168/171-waist-circumference.html

NHS Choices. (2010) *Drinking enough fluids.*
http://www.nhs.uk/conditions/diet/pages/fluids.aspx

Newcomer, J., Haupt, D., Fucetola, R., Melson, A., Schweiger, J., Cooper, B. and Selke, G. (2002) Abnormalities in glucose regulation during antipsychotic treatment of schizophrenia. *Archives of General Psychiatry.* **59** 337–345.

NHS Cancer Screening Programmes. (2009a) *NHS Cervical Screening Programme*.
www.cancerscreening.nhs.uk/cervical/index.html#eligible

NHS Cancer Screening Programmes. (2009b) NHS Bowel Cancer Screening Programme.
www.cancerscreening.nhs.uk/bowel/#gps-involved

NHS Choices. (2009a) *Benefits of going smokefree.*
smokefree.nhs.uk/why-go-smokefree/benefits-of-going-smokefree/

NHS Choices. (2009b) *Dehydration.*
www.nhs.uk/Conditions/Dehydration/Pages/Introduction.aspx

NHS Direct. (2007) Health encyclopaedia: dehydration.
www.nhs24.com/content/default.asp?page=s5_5&articleID=123

NHS Employers. (2011) Changes to QOF 2011/12.
http://www.nhsemployers.org/PayAndContracts/GeneralMedicalServicesContract/QOF/Pages/ChangestoQOF2011-12.aspx

NHS Information Centre. (2008) *Measuring for Quality Improvement*.
https://mqi.ic.nhs.uk/IndicatorDefaultView.aspx?ref=1.09.02.23

Norfolk and Waveney Mental Health Partnership NHS Trust (NWMHP). (2005) *Treatments for epilepsy and to help as a mood stabiliser.*
www.nmhct.nhs.uk/pharmacy/mood2.htm

Norfolk and Waveney Mental Health Partnership NHS Trust (NWMHP). (2008) NWMHP Pharmacy Medicine Information: caffeine.
www.nmhct.nhs.uk/Pharmacy/caffeine.htm

Othman, S., Kadir, K., Hassan, J., Hong, G., Singh, B. and Raman, N. (1994) High prevalence of thyroid function test abnormalities in chronic schizophrenia. *Australian and New Zealand Journal of Psychiatry.* **28** (4) 620-624.

Patient. UK. (2008) *Oliguria*. www.patient.co.uk/doctor/Oliguria.htm

Patient UK. (2007) Breast lumps and breast examination. www.patient.co.uk/showdoc/40000260

Patient UK. (2006a) Neuroleptic Malignant Syndrome. www.patient.co.uk/showdoc/40025090/

Patient UK. (2006b) Liver function tests. www.patient.co.uk/health/Blood-Test-Liver-Function-Tests.htm

Patient UK. (2005) Polyuria. www.patient.co.uk/doctor/Polyuria.htm

Peet, M. (2004) Diet, diabetes and schizophrenia: review and hypothesis. *British Journal of Psychiatry*. **184** (Suppl. 47) s102–s105.

Peto, J., Gilham, C., Fletcher, O. and Matthews, F. (2004) The cervical cancer epidemic that screening has prevented in the UK. *The Lancet* . **364** 249-56.

Peveler, R. *et. al.* (2008) Antipsychotics and hyperprolactinaemia: Clinical recommendations. *Journal of Psychopharmacology* **22** (2) Supplement 98–103.

Phelan, M., Stradins, L. and Morrison, S. (2001) Physical health of people with severe mental illness. *British Medical Journal*. **322** 433-444.

Ray, W. A., Meredith, S., Thapa, P. B., *et al.* (2001) Antipsychotics and the risk of sudden cardiac death. *Archives of General Psychiatry*, **58** 1161–1167.

Rethink. (2008a) *A Physical Health Check for Mental Health Service Users.* London: Rethink.

Rethink. (2008b) *Antipsychotic Medication*. www.rethink.org/how_we_can_help/research/research_themes/antipsychotic_medic a.html

Rethink. (2006) *Side Effects of Antipsychotics.* www.rethink.org/living_with_mental_illness/treatment_and_therapy/medication/anti psychotics/side_effects_of.html

Robson D. & Gray R. (2007) Serious mental illness and physical health problems: a discussion paper. *International Journal of Nursing Studies* **44**, 457–466.

Royal College of Psychiatrists and Royal College of General Practitioners (2010) *Parmacy Guidance on smoking and mental health.*
http://www.rcpsych.ac.uk/pdf/Pharmacy_%20guidance%20for%20smoking%20and%20mental%20health%20Feb%202010.pdf

Royal College of Psychiatrists (RCPSYCH). (2008) *Alcohol and depression: help is at hand*.
www.rcpsych.ac.uk/mentalhealthinfoforall/problems/alcoholanddrugs/alcoholourfavouritedrug.aspx

Sainsbury Centre for Mental Health (2003) *Investing in General Practice – the new General Medical Services Contract.*
www.scmh.org.uk/80256FBD004F3555/vWeb/flKHAL6FAFBM/$file/briefing+21.pdf

Sasieni, P., Cuzick, J. and Lynch-Farmery, E. (1996) Estimating the efficacy of screening by auditing smear histories of women with and without cervical cancer. The National Co-ordinating Network for Cervical Screening Working Group. British Journal of Cancer. 73 (8) 1001-5.

Schuel, F., White, J., Jones, M. and Gray, R. (2009) Using the serious mental illness Health Improvement Profile [HIP] to identify physical problems in a cohort of community patients: A pragmatic case series evaluation. *International Journal of Nursing Studies.* (in press).

Smith, S., O'Keane, V. and Murray, R. (2002) Sexual dysfunction in patients taking conventional antipsychotic medication*. The British Journal of Psychiatry*. **181** *49-55.*

Society of Chiropodists and Podiatrists. (2005) *The guide to good foot health.* London: Society of Chiropodists and Podiatrists.

Society of Chiropodists and Podiatrists. (2007) *Professional care.* London: Society of Chiropodists and Podiatrists.

Taylor D, Paton C, Kerwin R. (2007) Maudsley prescribing guidelines. 9th Edition. Informa Healthcare.

Taylor, D., Starkey, K. and Ginary, S. (2000) Prescribing and monitoring of carbamazepine and valproate — a case note review. *Psychiatric Bulletin.* **24** 174-177.

Taylor, R., Keil, D., Gold, E., Williams, S. and Goulding, A. (1998) Body mass index, waist girth, and regional adiposity in women: evaluation using receiver operating characteristic curves. *Am J Clin Nutr*. **67** 44-49.

Thomas, A., Lavrentzou, E. and Karouzos, C. *et al*. (1996) Factors which influence the oral condition of chronic schizophrenia patients. *Spec Care Dentist* **16** *84-6.*

Teixeira, J., Rebelo, D., Simões do Couto, F. and Figueira, M. (2009) Requisition of blood analysis for patients with schizophrenia upon acute admission. *European Psychiatry.* **24** (1) s1200.

Vázquez, M. and Beltrán, T. (2007) Neuroleptic malignant syndrome: Possible relationship between Neuroleptic Treatment And Smoking Cessation. *Eur. J. Psychiat*. **21** 4 .

White, J., Gray, R. and Jones, M. (2009) The development of the serious mental illness physical Health Improvement Profile *Journal of Psychiatric and Mental Health Nursing.* **16** 493-498.

Williams. B., Poulter, N., Brown. M., Davis. M., McInnes. G., Potter. J., Sever. P. and McG Thom. S. (2004) Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society,2004—BHS IV. *Journal of Human Hypertension.* **18** 139–185.

World Health Organization. (2011) Use of Glycated Haemoglobin (HbA1c) in the Diagnosis of Diabetes Mellitus. [Online]. Available from: http://www.diabetes.org.uk/Documents/Professionals/hba1c_diagnosis.1111.pdf

World Health Organization. (WHO). (2006) *BMI Classification*. Updated 2009. [Online]. Available from: apps.who.int/bmi/index.jsp?introPage=intro_3.html

Physical Health Checks for people with Severe Mental Illness: a primary care guide

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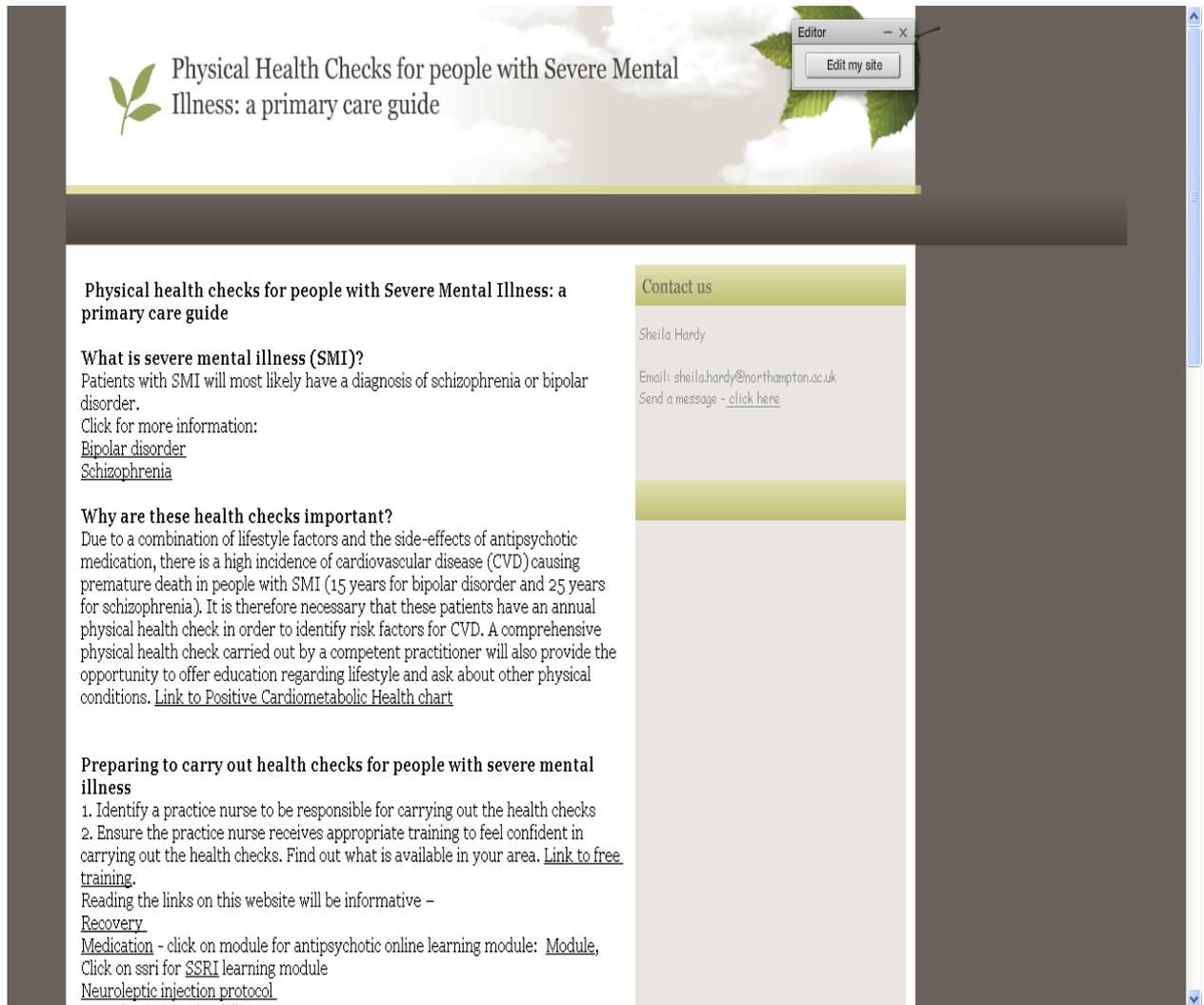
Physical health checks for people with Severe Mental Illness: a primary care guide

What is severe mental illness (SMI)?
Patients with SMI will most likely have a diagnosis of schizophrenia or bipolar disorder.
Click for more information:
Bipolar disorder
Schizophrenia

Why are these health checks important?
Due to a combination of lifestyle factors and the side-effects of antipsychotic medication, there is a high incidence of cardiovascular disease (CVD) causing premature death in people with SMI (15 years for bipolar disorder and 25 years for schizophrenia). It is therefore necessary that these patients have an annual physical health check in order to identify risk factors for CVD. A comprehensive physical health check carried out by a competent practitioner will also provide the opportunity to offer education regarding lifestyle and ask about other physical conditions. Link to Positive Cardiometabolic Health chart

Preparing to carry out health checks for people with severe mental illness
1. Identify a practice nurse to be responsible for carrying out the health checks
2. Ensure the practice nurse receives appropriate training to feel confident in carrying out the health checks. Find out what is available in your area. Link to free training.
Reading the links on this website will be informative –
Recovery
Medication - click on module for antipsychotic online learning module: Module,
Click on ssri for SSRI learning module
Neuroleptic injection protocol

Contact us
Sheila Hardy

Email: sheila.hardy@northampton.ac.uk
Send a message - click here

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Knowledge Quiz (Pre-training)

Please supply the following information

Gender:
Ethnicity:
Year of first registered nursing qualification:

Please circle your answer

1. People with mental illness die five years earlier than the general population.
   Agree   Disagree

2. Antipsychotic medication should be increased if the patient stops smoking
   Agree   Disagree

3. Psychotic symptoms can be improved in schizophrenic patients by using caffeine
   Agree   Disagree

4. If the patient is not under the care of the Community Mental Health team, then they do not need a care plan
   Agree   Disagree

5. Patients who take lithium need their lithium levels monitored every six months
   Agree   Disagree

6. If the elevation of a patient's prolactin levels is <2000 mIU/L, then it is reasonable to continue to monitor the level without any further action
   Agree   Disagree

7. It is important to encourage all patients with severe mental illness to drink lots of fluid
   Agree   Disagree

8. People with SMI are at less risk of acquiring a sexually transmitted infection compared to the general population
   Agree   Disagree

9. Cannabis use is a contributing factor in 50% of schizophrenia cases
   Agree   Disagree

10 The side effect of sedation from taking an antipsychotic, cannot be dealt with by the patient taking their medication just before they go to bed
   Agree   Disagree

Attitudes Quiz (Pre-training)

Please supply the following information

Gender:
Ethnicity:
Year of first registered nursing qualification:

Please circle your answer

1. Having a diagnosis of severe mental illness, means that recovery is not possible
    Agree   Disagree

2. I do not need to know the views of my patients with severe mental illness regarding their psychiatric medications
    Agree   Disagree

3. I am not in a position to help your patients with severe mental illness identify people who can assist them during a crisis
    Agree   Disagree

4. I am not in a position to identify triggers that cause symptoms of your patients with severe mental illness to get worse and identify warning signs that come before they get symptoms
    Agree   Disagree

5. It is sometimes necessary to disregard the patients' preferences regarding their physical health in order to provide the best treatment
    Agree   Disagree

6. Many patients with severe mental illness cannot make sensible choices about their physical care
    Agree   Disagree

7. When providing patients with severe mental illness a health check, I should keep focused on their physical health
    Agree   Disagree

8. I should invalidate the patient's goal when it is unrealistic
    Agree   Disagree

9. A physical health check appointment does not need to include assisting patients with severe mental illness in maintaining activities that are meaningful to them
    Agree   Disagree

10 The physical health goals of "normal" people are often too stressful for patients with severe mental illness to reach
    Agree   Disagree

Communication Questionnaire

Please supply the following information

Gender:
Ethnicity:
Year of first registered nursing qualification:
Working in primary care or secondary care:

After receiving training to improve the physical health for people with severe mental illness (PhyHWell) will you (Please circle your response):

Contact your own primary/secondary care colleague to inform them about changes in health or circumstances of a particular patient?

a) Much more likely b) More likely c) less likely d) will not e) don't know

Contact your own primary/secondary care colleague to ask them about a particular patient?

a) Much more likely b) More likely c) less likely d) will not e) don't know

Contact your own primary/secondary care colleague to inform them about new or changes in service developments?

a) Much more likely b) More likely c) less likely d) will not e) don't know

Contact your own primary/secondary care colleague to ask them about new or changes in service developments?

a) Much more likely b) More likely c) less likely d) will not e) don't know

Develop an individual system of communication between your own primary/secondary care colleagues?

a) Much more likely b) More likely c) less likely d) will not e) don't know

NHS
Northamptonshire

Strategy and System Management Directorate
NHS Northamptonshire
Francis Crick House
Summerhouse Road
Moulton Park
Northampton NN3 6BF

UEA
University of East Anglia

Evaluation of the Northampton Physical Health and Well-being Project (PhyHWell)

As you have accepted to take part in the Northampton Physical Health and Well-being project, we would like to invite you to take part in our research study. It is up to you whether you decide to join the study. The study is described in the enclosed information sheet. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason and will still be eligible for the training and support.

The overall aim of this study is to evaluate the Northampton Physical Health and Wellbeing Project (PhyHWell). Specifically we wish to determine:
The impact of the PhyHWell project on cardiovascular risk in patients with severe mental illness.
The impact of the PhyHWell project on patients' adherence with medicine
The acceptability of the PhyHWell project to the patients
The acceptability of the PhyHWell project to the nurses

The data will be evaluated and you will be provided with the results. The project has been reviewed by the local Research Ethics Committee and the part you will be involved in has been classified as a service evaluation which has been approved by the local R & D centre.
Should you wish to take part, I will come and explain the study to you and answer any questions you may have. Please contact me on telephone number 07825934800 or email Sheila.Hardy@uea.ac.uk to arrange a convenient time.

Yours faithfully

Sheila Hardy
Principal Investigator

NHS
Northamptonshire

Northamptonshire Teaching Primary Care Trust
Francis Crick House
Summerhouse Road
Moulton Park
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NN3 6BF
Tel: 01604 651201
Fax: 01604 651101

Web: www.northamptonshire.nhs.uk

University of East Anglia

Information about the research (GP Practice)

An evaluation of the Northampton Physical Health and Well-being Project (PhyHWell)

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. We will answer any questions you have. You may wish to discuss this with the GP partners and practice nurses before making a decision.

(Part 1 tells you the purpose of this study and what will happen to you if you take part. Part 2 gives you more detailed information about the conduct of the study). Ask us if there is anything that is not clear.

Part 1

What is the Purpose of the Study?
The overall aim of this study is to evaluate the Northampton Physical Health and Wellbeing Project (PhyHWell). Specifically we wish to determine:
The impact of the PhyHWell project on cardiovascular risk in patients with severe mental illness
The impact of the PhyHWell project on patients' adherence with medicine
The acceptability of the PhyHWell project to the patients
The acceptability of the PhyHWell project to the nurses

Why have I been invited?
You have been invited because you have accepted to undertake the PhyHWell project training.

Do I have to take part?
It is up to you to decide to join the study. The study is described in this information sheet. If you agree to take part, we will then ask you to sign a consent form. You are

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free to withdraw at any time, without giving a reason and will still be eligible for the training and support.

What are the benefits of taking part?
There is no direct benefit to you in taking part. You will be providing evidence to illustrate how training contributes to service delivery.

What are the possible disadvantages and risks of taking part?
It is anticipated that there are no disadvantages from participating in this research. All information will remain anonymous and you are free to withdraw at anytime.

What will we have to do?
- Sign a consent form to permit use of anonymised data for the research
- The clinical team member identified to undertake training and responsibility for SMI health checks to complete two questionnaires before and after training
- Release an admin team member for one hour to set up the audit with the principle investigator
- Release an admin team member for one hour per year to run the audit under the guidance of the principle investigator

What is the alternative?
There is no other training at present for providing physical health checks for people with severe mental illness in primary care. Therefore there is no alternative way to collect the evidence needed to distinguish its effect.

What happens if the research study stops?
This will not affect any training or support you have been offered.

What if there is a problem?
Any complaint about the way you have been dealt with during the study will be addressed. The detailed information on this is given in Part 2.

Will taking part in the study be confidential?
We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

If the information in Part 1 has interested you and you are considering participation, please read the additional information in Part 2 before making any decision.

Part 2

What if relevant new information becomes available?
Sometimes we get new information about the treatment being studied. If this happens, the researcher will tell you.

What will happen if we don't want to carry on with the study?
If you choose to take part and then decide you do not want your information used, providing it has not already been published or shared then your information will be withdrawn. If it has already been published, then it will be impossible to withdraw it.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions [Sheila Hardy 07825934800, Professor Richard Gray 01603 597132]. If you remain unhappy and wish to complain formally, you can do this, contact Sue Palmer-Hill, R&D Centre NHS Northamptonshire, email sue.palmer-Hill@northants.nhs or telephone 01604 651632 or write to the address above.

NHS based research
In the event that something does go wrong during the research and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of East Anglia, but you may have to pay your legal costs. The normal National Health Service complaints mechanisms will still be available to you.

Will taking part in this study be kept confidential?
All information which is collected from the practice during the course of the research will be kept strictly confidential, and any information about patients which leaves the surgery will have their name and address removed so that they cannot be recognised. Data will be collected by audit which will be carried out by your own member of staff with guidance from the researcher. No-one outside the practice will have access to patient identifiable data. Data will be stored securely and coded to ensure anonymity. No-one other than the researchers, sponsors, regulatory authorities and Research and Development department will have access to view data that identifies the practice. Data will be stored in a locked room at the University of East Anglia for 5 years. It will then be disposed of securely.

What will happen to the results of the research study?
The information you give will remain anonymous. You will not be identified in any report/publication. It is intended to publish the results in reports and relevant medical journals. Individual GP surgeries will be informed and a poster will be displayed in the surgery. The results will also be made available on the Northamptonshire teaching Primary Care Trust website and by conference presentation.

Who is organising and funding the research?
The Principle Investigator is Sheila Hardy who is undertaking this research as a PhD at the University of East Anglia. This is being funded by Northamptonshire teaching Primary Care Trust.

Who has reviewed this study?
All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study was reviewed by a Research Ethics Committee through the Integrated Research Application System (IRAS) and the part you will be involved in has been classified as a service evaluation which has been approved by the local R & D Centre.

Further information and contact details
1. General information about NHS research ethics. Go to the National Research Ethics Agency, National Patient Safety Agency website http://www.nres.npsa.nhs.uk/
2. Specific information about this research project. Contact Sheila Hardy Sheila.Hardy@uea.ac.uk
3. Advice about participating in the study. Contact Professor Richard Gray Richard.Gray@uea.ac.uk
4. Who you should approach if you are unhappy with the study. Contact Sue Palmer-Hill, R&D Centre NHS Northamptonshire, email sue.palmer-Hill@northants.nhs or telephone 01604 651632.

.

You will be given a copy of this information sheet and a signed consent form to keep.

Sheila Hardy
Chief Investigator
Email – Sheila.Hardy@uea.ac.uk
Telephone - 07825934800

NHS
Northamptonshire

Northamptonshire Teaching Primary Care Trust
Francis Crick House
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Tel: 01604 651201
Fax: 01604 651101

Web: www.northamptonshire.nhs.uk

UEA
University of East Anglia

Centre Number:

Identification Number for this trial:

CONSENT FORM (General Practice)

Title of Project: Northampton Physical Health and Wellbeing Project

Name of Researcher: Sheila Hardy

	Please initial box
1. I confirm that I have read and understand the information sheet dated.................... for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2. I understand that our participation is voluntary and that we are free to withdraw at any time without giving any reason, without our access to the training being affected.	
3. I understand that the data collected during the study will be looked at by the principal researcher, project leaders (Northamptonshire teaching Primary Care Trust) and research supervisors (University of East Anglia). I give permission for this information to be used anonymously.	
4. I agree to take part in the above study.	

Name of Participant   Date
(On behalf of Practice)

Signature

Name of Person taking consent   Date

Signature

When completed: 1 for participant (original); 1 f

NHS

Northamptonshire

Northamptonshire Teaching Primary Care Trust
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UEA

University of East Anglia

Information about the research (Primary Care Nurse)

An evaluation of the Northampton Physical Health and Well-being Project (PhyHWell)

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. We will answer any questions you have.
(Part 1 tells you the purpose of this study and what will happen to you if you take part. Part 2 gives you more detailed information about the conduct of the study). Ask us if there is anything that is not clear.

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The acceptability of the PhyHWell project to the patients
The acceptability of the PhyHWell project to the nurses

Why have I been invited?
You have been invited because you have accepted to undertake the PhyHWell project training.

Do I have to take part?
It is up to you to decide to join the study. The study is described in this information sheet. You are free to withdraw at any time, without giving a reason and will still be eligible for the training and support.

What are the benefits of taking part?

There is no direct benefit to you in taking part. You will be providing evidence to illustrate how training contributes to service delivery.

What are the possible disadvantages and risks of taking part?
It is anticipated that there are no disadvantages from participating in this research. All information will remain anonymous and you are free to withdraw at anytime.

What will we have to do?
Complete two questionnaires before training and three questionnaires after training. Each questionnaire will take about five minutes to complete.
As this is a survey design you will not be required to sign a consent form. However, consent is implied to participate in the survey by filling out the questionnaires.

What is the alternative?
There is no other training at present for providing physical health checks for people with severe mental illness in primary care. Therefore there is no alternative way to collect the evidence needed to distinguish its effect.

What happens if the research study stops?
This will not affect any training or support you have been offered.

What if there is a problem?
Any complaint about the way you have been dealt with during the study will be addressed. The detailed information on this is given in Part 2.

Will taking part in the study be confidential?
We will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in Part 2.

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What if there is a problem?
If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions [Sheila Hardy 07825934800, Professor Richard Gray 01603 597132]. If you remain unhappy and wish to complain formally, you can do this, contact Sue Palmer-Hill, R&D Centre NHS Northamptonshire, email sue.palmer-Hill@northants.nhs or telephone 01604 651632 or write to the address above.

NHS based research
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All information which is collected from the questionnaires you completed will be kept strictly confidential.
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The information you give will remain anonymous. You will not be identified in any report/publication. It is intended to publish the results in reports and relevant medical journals. Individual GP surgeries will be informed and a poster will be displayed in the surgery. The results will also be made available on the Northamptonshire teaching Primary Care Trust website and by conference presentation.

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You will be given a copy of this information sheet to keep.

Sheila Hardy
Chief Investigator
Email – Sheila.Hardy@uea.ac.uk
Telephone – 07825934800

Trent Research Ethics Committee

22 March 2011

Mrs Sheila Hardy
Project Lead
Northamptonshire teaching Primary Care Trust
Francis Crick House
Summerhouse Road
Northampton
NN3 6BF

Dear Mrs Hardy

Study title:	**The Northampton Physical Health and Wellbeing (PhyHWell) project - The patients' perspective**
REC reference:	**11/EM/0006**
Amendment date:	**08 March 2011**

The above amendment was reviewed at the meeting of the Sub-Committee held on 15 March 2011.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
GP/Consultant Information Sheets	1 - Focus Group	28 February 2011
Participant Consent Form: Focus Group	1	28 February 2011
Participant Information Sheet: Focus Group	1	28 February 2011
Notice of Substantial Amendment (non-CTIMPs)		08 March 2011

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

11/EM/0006:	Please quote this number on all correspondence

Yours sincerely

Miss Jennifer Lea

Assistant Committee Co-ordinator

E-mail: jennifer.lea@nottspct.nhs.uk

Enclosures: List of names and professions of members who took part in the review

Copy to: Tracey Moulton, University of East Anglia
                Norwich NR4 7TJ

Trent Research Ethics Committee

Attendance at Sub-Committee of the REC meeting on 15 March 2011

Name	Profession	Capacity
Mr Peter Korczak	Consultant Maxillo-facial Surgeon	Expert
Dr Helen Sammons	Senior Lecturer	Expert

NHS
Northamptonshire

PUBLIC HEALTH DIRECTORATE

Our ref: SPH/BP
Email: Sue.palmer-hill@northants.nhs.uk
Trust Reference: 11-005
REC reference number: 11/EM/0006

NHS Northamptonshire
Francis Crick House
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Tel: 01604 651100
Web: www.northamptonshire.nhs.uk

Date: 4th April 2011

Business Manager – Jean Smith
Tel: 01604 651600
Fax: 01604 745375

Sheila Hardy
Project Lead – Northampton Physical Health and Wellbeing Project
NHS Northamptonshire
Francis Crick House
Summerhouse Road
Northampton
NN3 6BF

Dear Sheila

RE: The Northampton Physical Health and Wellbeing (PhyHWell) Project – The patients perspective

Thank you for requesting permission to conduct the above referenced study within NHS Northamptonshire.

We acknowledge that we have received and reviewed the documents listed below:

NHS R&D From
NHS SSI Form
Interview Schedules/Topic Guides – Version 3, dated 31 December 2010
Letter of invitation to participants – Version 2, dated 30 November 2010
GP/Consultant Information Sheets – Version 1, dated 01 January 2011
Participant Information Sheet: Healthcare Professionals: Version 2, dated 31 December 2010
REC Application – dated 14 January 2011
CV for Richard Gray – dated 27 September 2010
Participant Information Sheet: Patients – Version 5, dated 31 December 2010
Protocol – Version 9, dated 31 December 2010
Evidence of Insurance – dated 16 June 2010
Scientific Critique Report – dated 01 January 2010
Letter from Sponsor – dated 17 January 2011
Sheila Hardy CV
Participant Consent Form: Patients – Version 1, dated 31 January 2011
GP/Consultant Information Sheets: Focus Groups - Version1, 28 February 2011
Participant Consent Form: Focus Group - Version1, 28 February 2011
Participant Information Sheet: Focus Group - Version1, 28 February 2011

Your healthcare
partner

Northamptonshire Healthcare **NHS**
NHS Foundation Trust

Gary Wainwright
Project Manager
St Marys Hospital
Carey Block
London Road
Kettering
NN15 7PW

20th December 2012

To whom it may concern

This letter is to confirm that Sheila Hardy is working as consultant for our Physical Health in Severe Mental Illness CQUIN. She was chosen for this role because of her research in this field and her work in clinical practice.

Yours faithfully,

Gary Wainwright
07827 929057
Gary.Wainwright@nhft.nhs.uk

Protocol for the management of Physical Health in SMI

All patients at first point of presentation/at point of initiation of treatment/change in treatment in secondary care (use the physical health guidance for prescriber's manual):

Step 1 –   Record family history and patient history of previous CVD, diabetes and other physical disease, smoking, exercise and dietary habits.

Step 2 –   Examine blood pressure and body mass index (and/or waist circumference), ECG.

Step 3 –   Blood tests – Fasting cholesterol and glucose (if possible – otherwise do random), Hba1c, FBC, TFT, full profile, prolactin, B12 and folate (once only unless abnormal), plasma levels (for lithium, carbemazepine, valproate if appropriate).

Step 4 –   Advice: smoking cessation; food choices; physical activity.

Step 5 –   When choosing medication, consider cardio metabolic risk profile of available SGA drugs.

Step 6 –   Week 6 and 12: repeat steps 2, 3 and 4. Check for weight gain – if > 7%, review choice of antipsychotic.

Step 7 –   If measurements are normal repeat annually in **primary care** as part of full health check (if patient has no contact with primary care or is an inpatient, then is the responsibility of secondary care – follow guidance from the Health Improvement Profile for Primary Care manual - HIP-PC*).

*The HIP-PC manual can be downloaded from: http://physicalsmi.webeden.co.uk

The guidance in this protocol has been adapted from:

De Hert M, Dekker J, Wood D *et al*. (2009) Cardiovascular disease and diabetes in people with severe mental illness position statement from the European Psychiatric Association (EPA), supported by the European Association for the Study of Diabetes (EASD) and the European Society of Cardiology (ESA). *European Psychiatry.* doi 10.1016/j.eurpsy.2009.01.005.

Initiating antipsychotic medication in people with Severe Mental Illness: Physical health guidance for prescribers

Initiating antipsychotic medication in people with Severe Mental Illness: Physical health guidance for prescribers

Introduction

The purpose of this guidance is to assist clinicians prescribing antipsychotic medication to look for side effects and prevent cardiovascular disease (CVD) in their patients. CVD is a term mainly used to describe disorders that can affect the heart (cardio) and/or the body's system of arteries and veins (vascular) that are associated with atherosclerosis (the build up of fatty deposits and debris in the inner walls of blood vessels). Most are long-term conditions such as coronary heart disease (CHD) or peripheral artery disease (PAD), but acute events such as myocardial infarction and stroke can occur suddenly when a vessel supplying blood to the heart or brain becomes blocked.

Severe mental illness such as schizophrenia and bipolar disorder is associated with high medical co-morbidity; mortality rates are approximately 50% higher than in the general population (Hennekens *et al.* 2005). The primary cause of death due to a physical cause is circulatory disease, diabetes and obesity. Evidence suggests excess weight gain can be 2-3 times more prevalent in people with schizophrenia than in the general population (Allison and Casey 2001). This may be due to high levels of smoking, unhealthy diets and lack of exercise which are common lifestyle choices of people with schizophrenia (McCreadie 2003).

Antipsychotic medication can exacerbate weight gain (Allison and Casey 2001). Additionally, several reports have raised concerns that some of the second-generation antipsychotics may further increase the risk of type II diabetes (Newcomer *et al*. 2002). Clozapine and olanzapine are the agents most commonly associated with diabetes.

Contents

Page

Family and personal History of Cardiovascular disease

Family History
Rationale
Individuals with a positive family history of CVD are at a greater risk of an early CVD event (Williams *et al.* 2001). A positive family history is seen as fathers who succumb earlier than 55 years of age, and mothers before 65 years (Wood *et al*. 1998).

Recommended action
Obtain family history as soon as practicably possible.

Personal History
Rationale
A patient's risk increases with age. They will be at a higher risk if they are male or South Asian. Modifiable risk factors are obesity, smoking, dyslipidaemia, physical inactivity, poor diet, raised blood pressure, high alcohol intake and diabetes.

Recommended action
Obtain personal history as soon as practicably possible. Provide advice on diet, exercise, alcohol and smoking as appropriate.

Measurements

Body Mass Index (BMI)
Rationale
The BMI is a simple index used to determine whether an individual is underweight, overweight or obese (WHO 2006).
The BMI is defined as the weight divided by the square of the height. For example, a person who weighs 70 kg and has a height of 1.75 will have a BMI of 22.9.
A BMI calculator can be found at:
www.eatwell.gov.uk/healthydiet/healthyweight/bmicalculator/
Although BMI values are the same for both sexes, they may not be accurate in people who are athletes or who weight-train, in pregnant or breastfeeding women, or those over the age of 60 years.
Ethnicity should be considered; particularly in patients of South Asian origin (overweight varies from BMI > 23, obesity from BMI > 25).

Recommended action
Calculate BMI before initiation of antipsychotic medication and at six and twelve weeks. Check for weight gain – if >7%, review choice of antipsychotic
Diet and exercise advice should be offered to all patients to prevent weight gain.

Waist circumference

Rationale

People who carry their excess fat centrally (within the abdominal cavity) are more likely to suffer the consequences of being overweight.

Waist circumference correlates with visceral adipose tissue, plasma lipids, lipoproteins and insulin levels in adults (Taylor *et al.* 1998).

Recommended action

Measure the patient's waist circumference before initiation of antipsychotic medication and at six and twelve weeks. Patients at risk are those with a waist circumference ≥ 80 cm (female) / ≥ 94 cm (male) (Barnett *et al.* 2007). If measurements are increasing, consider switching medication. Offer diet and exercise advice.

Electrocardiogram (ECG)

Rationale

Most antipsychotic medications have the potential for lengthening of the QT interval (prolonged: in males >450ms, in females >470ms - Committee for Proprietary Medicinal Products 1997). Therefore, cardiac safety should be a routine part of clinical care in patients taking antipsychotic medication; a preventive strategy is valuable even if the absolute risk of serious cardiac events is low (Abdelmawla and Mitchell 2006). There is evidence that many typical antipsychotics increase the risk of ventricular arrhythmias and cardiac arrest (Ray *et al.* 2001, Liperoti *et al*. 2005) and an association between many atypical antipsychotic drugs and the occurrence of unexplained sudden death (Abdelmawla & Mitchell, 2006).

Recommended action

Perform an ECG on all patients before prescribing antipsychotics if possible, or as soon as practicably achievable. Recheck at six and twelve weeks. If abnormal following initiation of medication then consider switching. You may refer to the GP or a cardiologist as appropriate.

Blood pressure

Rationale

People with severe mental illness are at a higher risk of developing high blood pressure than the general population. The British Hypertension Society Guideline cites evidence that suboptimal blood pressure control leaves patients at an unacceptably high risk of cardiovascular complications and death, particularly from coronary heart disease (CHD) but also from stroke (Williams *et al.* 2004). Interventions actively combining exercise and diet have demonstrated a reduction of both systolic and diastolic blood pressure by only 4–5 mmHg (NICE 2006), therefore medication is often required.

Recommended action

Check blood pressure before initiation of antipsychotic medication. Recheck at six and twelve weeks. Most antipsychotic medications have a hypotensive effect. For patients with blood pressure > 140/90 mmHg, refer to their GP

Blood tests

Liver Function Tests (LFTs)
Rationale

Antipsychotic medication can result in abnormal LFTs (Garcia-Unzueta *et al*. 2003). Hepatic disease should be detected early to prevent further serious complications.

Recommended action

Check LFTs before initiation of medication and at six and twelve weeks. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

Lipid Levels
Rationale

Dyslipidaemia is a key component of the metabolic syndrome and a precursor for cardiovascular disease.

Recommended action

Check fasting cholesterol level before initiation of medication and at six and twelve weeks. If there is difficulty in obtaining a fasting sample then do a random one. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

Glucose
Rationale

Diabetes occurs in 15% of people with schizophrenia (Holt and Peveler 2005), and only 5% of the general population (Bushe and Holt 2004). Risk factors include: family history of diabetes, physical inactivity, poor diet, smoking and the metabolic effects of antipsychotic medication (Gough and Peveler 2004). Typical antipsychotics, in particular the low potency ones such as chlorpromazine may induce or make existing diabetes worse (Newcomer *et al*. 2002). The atypical antipsychotics clozapine and olanzapine are associated with new onset or exacerbating type 2 diabetes, not just through their propensity to cause greater weight gain than other newer agents, but because of their effects on glucose regulation (Newcomer *et al*. 2002). There are also case reports linking risperidone and quetiapine to impaired glucose intolerance, diabetes and ketoacidosis (Taylor *et al*. 2007).

Recommended action

Check random or fasting glucose and HbA1c before initiation of medication and at six and twelve weeks. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

Prolactin
Rationale

Hyperprolactinaemia is a common side-effect of many antipsychotic drugs. Symptoms include gynaecomastia, galactorrhoea, amenorrhoea and sexual dysfunction. Switching

to a prolactin sparing antipsychotic has been shown to lead to normalization of serum prolactin and resolution of the symptoms (Haddad *et al.* 2001).

Recommended action

Consensus guidelines for managing prolactinaemia (Peveler *et al.* 2008) recommend that healthcare professionals should monitor proactively for hyperprolactinaemia as it maybe asymptomatic.

- Patients prescribed prolactin elevating antipsychotics should, where possible, have this issue explained to them prior to commencing treatment and be screened for symptoms suggestive of hyperprolactinaemia before starting treatment (Haddad *et al.* 2001) and at six and twelve weeks.
- If the elevation of prolactin levels is mild (<1000 mIU/L (~50 ng/mL)) then it may be reasonable to continue to monitor the level. However, if even a mildly elevated level persists for more than 3 months, particularly if accompanied by amenorrhoea, bone mineral density may be compromised, and the possibility of reducing dose or switching to an antipsychotic with lower potential for prolactin elevation should be discussed with the patient
- When elevation is persistent and >1000 mIU/L (~50 ng/mL) then the clinician should consider switching to a drug with a lower potential to elevate prolactin if this can be achieved safely and is consistent with the clinical status of the patient as a whole
- For female patients switching to a drug with a lower potential to elevate prolactin may result in the return of fertility, and contraceptive advice should be given.
- If switching to a drug with a lower potential to elevate prolactin is not possible, it would be reasonable for clinicians to consider offering an oral contraceptive to
female patients with amenorrhoea, if this is not contraindicated, to reduce the risk of subsequent osteoporosis.
- In any patient with a prolactin elevation greater than 3000 mIU/L (~150 ng/mL) then a prolactinoma should be considered. Refer to GP
- If the levels do not return to normal upon switching to a less prolactin-elevating antipsychotic, or if such switch is not possible for clinical reasons, then referral to a specialist in endocrinology via GP is warranted to exclude a prolactinoma.

Urea and Electrolytes (U & Es) and calcium

Rationale

There is a risk of electrolyte imbalance when taking antipsychotic medication particularly at high doses. For patients taking lithium, there is a higher than normal incidence of hypercalcaemia and abnormal renal function (BMA 2009).

Recommended action

Check U & E's and calcium before initiation of medication and at six and twelve weeks. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

Thyroid Function Test
Rationale
Studies have indicated that the elevated serum levels of T4 may be specific for acutely ill schizophrenic patients and that neuroleptic medication may affect thyroid hormone metabolism (Baumgartnera *et al.* 2000) and that there is a spectrum of thyroid function test abnormalities in chronic schizophrenia (Othman *et al.* 1994).
For patients taking lithium, there is a higher than normal incidence of hypothyroidism (BMA 2009).

Recommended action
Check thyroid function before initiation of medication and at six and twelve weeks. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

Full Blood Count (FBC)
Rationale
A case-control study (Teixeira *et al.* 2009) in patients with schizophrenia showed a significantly higher number of patients with changes on leukocytes. Many patients presented low values of haemoglobin, erythrocytes and platelets. Leukopenia and neutropenia are recognised as side effects of antipsychotic medication (Taylor *et al.* 2007).

Recommended action
Check FBC before initiation of medication and at six and twelve weeks. If tests are abnormal, then review medication. If not associated with medication, refer to GP.

B12 and Folate
Rationale
A case-control study (Teixeira *et al.* 2009) in patients with schizophrenia presented low values of vitamin B12. Having a deficiency of vitamin B12 just because of eating a poor diet is rare in Western countries, but unhealthy diets are common lifestyle choices of people with schizophrenia (McCreadie 2003).

Recommended action
Check B12 and folate before initiation of medication. If tests are abnormal refer to GP.

Plasma Levels
Lithium
Rationale
There is potential toxicity caused by lithium therapy when the serum levels are outside of the narrow therapeutic range (BMA 2009).

Recommended action
It is recommended that lithium levels are monitored every three months (BNF 2011).

Carbamazepine
Rationale
Most authorities agree that plasma drug level monitoring is mandatory when using carbamazepine for seizure disorders and helpful for bipolar disorder (Taylor *et al.* 2000).

Recommended action
Consider monitoring at six and twelve weeks and/or until levels are stable.

Valproate
Rationale
Most authorities agree that plasma drug level monitoring is helpful for valproate in seizure disorders and bipolar disorder (Taylor *et al.* 2000).

Recommended action
Consider monitoring at six and twelve weeks and/or until levels are stable.

Normal blood test values

Liver function test
Albumin (ALB) = 35-50 g/L
Alkaline Phosphatase (ALK PHOS) = 38-126 IU/L
Alanine Aminotransferase (ALT) = M 21 - 72: F 9 - 52 IU/L
Aspartate Aminotransferase (AST) = M 17 - 59: F 14 - 36 U/L
Bilirubin (BIL) = 3 - 22 umol/L

Lipids
HDL = >0.9 mmol/L
If HDL is less than 1.0 mmol/L for men and less than 1.3 mmol/L for women, there is an increased risk of heart disease that is independent of other risk factors, including the LDL level.

Total Cholesterol = 3.0 - 5.5 mmol/L
If no CVD risk:
- Total cholesterol - less than 5.0mmol/l
- LDL cholesterol - less than 3.0mmol/l

If CVD risk:
- Total cholesterol - less than 4.0mmol/l
- LDL cholesterol - less than 2.0mmol/l

Glucose
Glucose = (fasting) 3.5 - 6.0 mmol/L (above 7mmols = diabetes)
Random glucose = > 11.1 mmols = diabetes, if > 6 mmols repeat fasting
Hba1c = less than 48mmols if do not have diabetes (cannot use alone if an antipsychotic has been initiated within eight weeks), 48-58mmols is the desired range for people with diabetes

Prolactin
Prolactin = M 45 - 375: F 59 – 619 mu/L

Urea
Urea = 3.3 - 6.7 mmol/L

Electrolytes
Sodium = 135 - 145 mmol/L
Potassium = 3.5 - 5.0 mmol/L
Creatinine = M 68 - 127: F 59 - 101 umol/L

Calcium
Calcium = 2.25 - 2.65 mmol/L

Thyroid function test
Thyroid Stimulating Hormone (TSH) = 0.35 - 5.5 mU/L

Full blood count

Haemoglobin (Hb) - M 13-18 g Dl, F 11.5-15.5 g dL

White cell count (WCC or WBC) = 4-11x10 ^{9}/L

Red blood cells (RBC) = M 4.5-6.5x10 ^{9}/L. F 3.80-5.80x10 ^{9}/L

Neutrophils/Granulocytes = 2-7.5 x10 ^{9}/L

Eosinophils = ≤ 0.4

Platelets = 150-400 x10 ^{9}/L

Mean cell volume (MCV) = 83-101 Fl

Mean Corpuscular Haemaglobin (MCH) = 27-32 pg

Haematinic levels

B12 = 210-910 ng/L

Folate = 5.4-24 ug/L

Plasma levels

Lithium = 0.6 - 1.0 mmol/L

Carbemazepine = 8 - 12 mg/L (single dose regimen)

Valproate = 50 - 100 mg/L

Lifestyle advice

Smoking
Rationale
Approximately 85% of people with schizophrenia smoke, compared with 23% of the general population (Goff *et al.* 2005). Smoking rates are higher in schizophrenia than in other severe mental illnesses (Goff *et al.* 2005).

Neurobiological, psychological, behavioural and social factors make it difficult for patients with mental illness to stop smoking (Robson and Gray 2007).

Smoking cessation medication and other non-pharmacological support can increase abstinence rates in those with mental health problems to as high as those in the general population (Foulds *et al.* 2006, Campion *et al.* 2008).

Recommended action
- Give advice about the possible health risks associated with smoking
- Ask about respiratory symptoms; chest examination if appropriate
- Refer any patients wishing to quit smoking to NHS Stop Smoking Services if appropriate (DH 2007a) or the primary care clinic's stop smoking service. They may need to be seen individually.
- Cigarette smoking lowers the levels of many antipsychotic medications (Vazquez *et al.* 2007). Therefore, if a patient stops or reduces their smoking, a medication review should be undertaken.
    - Blood levels of olanzapine and clozapine should be measured before smoking cessation followed by 25% dose reduction during first week of cessation and then further blood levels (Taylor *et al.* 2007).
    - Doses of fluphenazine and benzodiazepine should be reduced by up to 25% in first week of cessation.
    - Tricyclic antidepressants may need to be reduced by 10-25% in first week (Taylor *et al.* 2007).

Exercise
Rationale
People with severe mental illness are more physically inactive than the general population (Brown *et al*, 1999, McCreadie 2003).

Physical activity can have a positive effect on psychological well-being in people with schizophrenia (DH 2004).

Recommended action
Identify the patient's level of activity. The recommendation for exercise to be of benefit is 30 minutes five days a week (DH 2004). Help the patients make an exercise plan which fits in with their lifestyle and builds up activity gradually. For some individuals it may be appropriate to refer to an exercise scheme if there is one in your area.

Alcohol Intake

Rationale

Alcohol misuse is one of the most common and clinically significant co-morbidities among patients with severe mental illness (Brunette *et al*. 2004). There is considerable evidence to support the positive impact of reducing unsafe alcohol consumption on cardiovascular health (NHS Information Centre 2008).

Many antipsychotics can cause sedation and impair alertness, concentration and coordination. The use of alcohol can further increase any impairment (rethink 2008).

Recommended action

Offer recommendations on sensible daily alcohol intake:

- Adult women should not regularly drink > 2–3 units of alcohol a day
- Adult men should not regularly drink > 3–4 units of alcohol a day
- Women who regularly drink > 6 units a day (or > 35 units a week) and men who regularly drink > 8 units a day (or 50 units a week) are at highest risk of alcohol-related harm

(Department of Health 2007b)

Refer to the local Alcohol Support Agency if appropriate.

Diet

Rationale

In a survey of the dietary habits of 102 people with SMI by McCreadie (2003) the average fruit and vegetable intake for these people was 16 portions a week, compared with recommended intake of 35 per week (DH 2004). The physical health consequences of a poor diet include CVD, diabetes, obesity and some cancers.

Studies of people with SMI repeatedly show that saturated fats from dietary intake of meat and dairy products are associated with worse outcomes in schizophrenia (Peet 2004). There is a particularly strong association between sugar consumption and poorer outcome in schizophrenia whereas consumption of fish and sea food, particularly omega 3 fatty acids, has been associated with better outcomes (Peet 2004).

Recommended action

Agree and implement a diet plan with the patient (and any carers) – may include referral to other members of the multidisciplinary team.

Medication review

Observe for side effects. See appendix 1

Antipsychotics

Antipsychotics have a wide range of side effects. The most widely researched include (Rethink 2006):

Sedation: The antipsychotics that cause the most sedation include chlorpromazine, promazine, thioridazine, clozapine and zotepine. Often this can be dealt with by the patient taking their medication at night just before they go to bed. The dose may need to be reduced or changed if this is a big problem.

Movement disorders: There are different types of movement disorder. These include:

- **Dystonia** - prolonged muscle spasms often involving the face, neck, shoulders and upper limbs. Drugs such as procyclidine and orphenadrine are given to treat dystonia
- **Akathisia** - fidgety movements of the legs which may be accompanied by a strong sense of inner restlessness and unease. This often means that a person cannot sit comfortably, and may be driven to walk up and down to try and gain relief. It is best treated with clonazepam or propranolol
- **Parkinsonian movement disorders** - involve stiffness and shakiness, and resembles the unrelated condition of Parkinson's disease. The limbs move slowly and muscles of the face may be quite immobile, producing an expressionless, staring face. Rhythmic shaking may occur but is not usually very severe, and is most obvious in the hands. Procyclidine and orphenadrine, amongst other drugs, are given to treat Parkinsonian movement disorders
- **Tardive dyskinesia** - major signs of the condition are excessive movement of the lips, tongue and jaw, (known as oro-facial dyskinesia). The term "tardive" means delayed or late-appearing and this reflects the fact that treatment may have gone on for some months or years before the movement disorder becomes apparent. Oro-facial dyskinesia is the most common form of tardive dyskinesia. Other abnormal movements are seen including jerky, abrupt movements of the limbs and body, but these are less common.

Mood stabilisers

Lithium

In long-term use lithium has been associated with thyroid disorders and mild cognitive and memory impairment. Lithium salts have a narrow therapeutic/toxic ratio, therefore it is important to determine the optimum range for each individual patient. Lithium toxicity is made worse by sodium depletion (BNF 2011). Patients should be maintained on lithium after three to five years only if benefit persists.
(BNF 2011)

Carbamazepine

In order to be effective, carbamazepine has to reach a given level in the blood (NWMHFT 2005). Side effects include dizziness, drowsiness, shaky movements and feeling sick. Carbamazepine can cause a chronic low white blood cell count which

increases susceptibility to infection (NWMHFT 2005). This can be monitored with regular blood tests.

Valproate
Valproate causes an increase in appetite and therefore weight gain (NWMHFT 2005). Side effects include dizziness, drowsiness, shaky movements, feeling sick, impaired liver function, thrombocytopenia and impaired platelet function (NWMHFT 2005).

Follow up
The patients may not attend for follow up appointments due to their mental state. It is important, therefore to set up a robust system to allow further opportunities to attend.

Recommended action
- Try contacting the patient (or carer if known) by telephone
- Send a letter requesting that they contact the department to make a new appointment
- Inform the patient's link worker

References

Abdelmawla, M. and Mitchell , J. (2006) Sudden cardiac death and antipsychotics. *Advances in psychiatric treatment.* **12** 100-109.

Allison D & Casey D. (2001) Antipsychotic-induced weight gain. A review of the literature. *Journal of Clinical Psychiatry.* **62** (suppl. 7) 22-31.

Barnett, A., Mackin, P., Chaudhry, I. *et al.* (2007) Minimizing metabolic and cardiovascular risk in schizophrenia: diabetes, obesity and dyslipidaemia. *Journal of Psychopharmacology* **21** 357–373.

British Medical Association. (2009) Quality and Outcomes Framework guidance for GMS contract 2009/10.
http://www.bma.org.uk/images/qof0309_tcm41-184025.pdf

British National Formulary. (BNF). (2011) *BNF 61. http://bnf.org/bnf/index.htm*

Brown, S., Birtwistle, J., Roe, L. and Thompson, C. (1999) The unhealthy lifestyle of people with schizophrenia. *Psychological Medicine.* **29** 697–701.

Brunette, M.F., Mueser, K.T., Drake, R.E. (2004) A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders. *Drug Alcohol Rev*. **23** 471-481.

Bushe, B.and Holt, R. (2004) Prevalence of diabetes and impaired glucose tolerance in patients with schizophrenia. *British Journal of Psychiatry*. **184** S67–S71.

Campion, J., Checinski, K. and Nurse, J. (2008) Review of smoking cessation treatments for people with mental illness. *Advances in Psychiatric Treatment*. 14: 208-216.

Department of Health, (2004) *At Least 5 a Week.* London: Department of Health.

Department of Health. (2007a) *NHS Stop Smoking Services & Nicotine Replacement Therapy*. London: DH

Department of Health. (2007b) Safe. *Sensible. Social. The next steps in the National Alcohol Strategy.* London: DH.

Foulds, J., Steinberg, M., Richardson, D. *et al*. (2006) Factors associated with quitting smoking at a tobacco dependence treatment clinic. *American Journal of Health Behavior*. **30** 400-412.

Garcia-Unzueta, M., Herran A, Sierra-Biddle, D., Amado, J., Vazquez-Barquero, J. and Alvarez, C. (2003) Alterations of liver function test in patients treated with antipsychotics. *J Clin Lab Anal*. **17** 216-8.

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Goff, D., Cather, C., Evins, A., Henderson, D., Freudenreich, O., Copeland, P., Bierer, M., Duckworth,K. and Sacks, F. (2005) Medical morbidity and mortality in schizophrenia: guidelines for psychiatrists. *J Clin Psychiatry*. **66** 183-94.

Gough, S. and Peveler, R. (2004) Diabetes and its prevention: pragmatic solutions for people with schizophrenia. *British Journal of Psychiatry.* **184** (Suppl. 47) s106–s111.

Haddad, P., Hellewell, J. and Wieck, A. (2001) Antipsychotic induced hyperprolactinaemia: a series of illustrative case reports. *Journal of Psychopharmacology*. 15 (4) 293-295.

Hennekens ,C.H., Hennekens ,A.R., Hollar, D., *et al.* (2005) Schizophrenia and increased risks of cardiovascular disease. *American Heart Journal*. **150** 1115–1121.

Holt, R. and Peveler, R. (2005) Association between antipsychotic drugs and diabetes. *Diabetes, Obesity and Metabolism*. **8** 125–135.

Liperoti, R., Gambassi, G., Lapane, K. L., *et al.* (2005) Conventional and atypical antipsychotics and the risk of hospitalization for ventricular arrhythmias or cardiac arrest. *Archives of Internal Medicine*, **165** 696–701.

McCreadie, R. (2003) Diet, smoking and cardiovascular risk in people with schizophrenia. *British Journal of Psychiatry.* **183** 534–539.

National Institute for Health and Clinical Excellence (NICE). (2006) *Hypertension: Management of hypertension in adults in primary care.* London: National Institute for Health and Clinical Excellence.

Newcomer, J., Haupt, D., Fucetola, R., Melson, A., Schweiger, J., Cooper, B. and Selke, G. (2002) Abnormalities in glucose regulation during antipsychotic treatment of schizophrenia. *Archives of General Psychiatry.* **59** 337–345.

NHS Information Centre. (2008) *Measuring for Quality Improvement*. https://mqi.ic.nhs.uk/IndicatorDefaultView.aspx?ref=1.09.02.23

Norfolk and Waveney Mental Health Partnership NHS Trust (NWMHP). (2005) *Treatments for epilepsy and to help as a mood stabiliser.* www.nmhct.nhs.uk/pharmacy/mood2.htm

Othman, S., Kadir, K., Hassan, J., Hong, G., Singh, B. and Raman, N. (1994) High prevalence of thyroid function test abnormalities in chronic schizophrenia. *Australian and New Zealand Journal of Psychiatry.* **28** (4) 620-624.

Peet, M. (2004) Diet, diabetes and schizophrenia: review and hypothesis. *British Journal of Psychiatry*. **184** (Suppl. 47) s102–s105.

Peveler, R. *et. al.* (2008) Antipsychotics and hyperprolactinaemia: Clinical recommendations. *Journal of Psychopharmacology* **22** (2) Supplement 98–103.

Ray, W. A., Meredith, S., Thapa, P. B., *et al.* (2001) Antipsychotics and the risk of sudden cardiac death. *Archives of General Psychiatry*, **58** 1161–1167.

Rethink. (2008) *Antipsychotic Medication*. www.rethink.org/how_we_can_help/research/research_themes/antipsychotic_medic a.html

Rethink. (2006) *Side Effects of Antipsychotics.* www.rethink.org/living_with_mental_illness/treatment_and_therapy/medication/anti psychotics/side_effects_of.html

Robson D. & Gray R. (2007) Serious mental illness and physical health problems: a discussion paper. *International Journal of Nursing Studies* **44**, 457–466.

Taylor D, Paton C, Kerwin R. (2007) Maudsley prescribing guidelines. 9th Edition. Informa Healthcare.

Taylor, D., Starkey, K. and Ginary, S. (2000) Prescribing and monitoring of carbamazepine and valproate — a case note review. *Psychiatric Bulletin.* **24** 174-177.

Taylor, R., Keil, D., Gold, E., Williams, S. and Goulding, A. (1998) Body mass index, waist girth, and regional adiposity in women: evaluation using receiver operating characteristic curves. *Am J Clin Nutr*. **67** 44-49.

Teixeira, J., Rebelo, D., Simões do Couto, F. and Figueira, M. (2009) Requisition of blood analysis for patients with schizophrenia upon acute admission. *European Psychiatry.* **24** (1) s1200.

Williams R, Hunt S, Heiss G *et al*. (2001) Usefulness of cardiovascular family history data for population-based preventive medicine and medical research (The Health Family Tree Study and the NHLBI Family Heart Study). *The American Journal of Cardiology*. **87** 2 129-135.

Williams. B., Poulter, N., Brown. M., Davis. M., McInnes. G., Potter. J., Sever. P. and McG Thom. S. (2004) Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society,2004—BHS IV. *Journal of Human Hypertension.* **18** 139–185.

Wood D, De Backer G, Faergeman O, Graham I, Mancia G, Pyo¨ra¨la¨ K. (1998) Together with members of the Task Force. Prevention of coronary heart disease in clinical practice. Recommendations of the second Joint Task Force of European and other Societies on coronary prevention. *European Heart Journal*.**19** 1434–1503.

World Health Organization. (WHO). (2006) *BMI Classification*. Updated 2009. [Online]. Available from: apps.who.int/bmi/index.jsp?introPage=intro_3.html

Glasgow Antipsychotic Side-effect Scale (GASS)

Name: **Age:**   **Sex: M / F**

Please list current medication and total daily doses below:

This questionnaire is about how you have been recently. It is being used to determine if you are suffering from excessive side effects from your antipsychotic medication.

Please place a tick in the column which best indicates the degree to which you have experienced the following side effects. Tick the **end** box if you found that the side effect distressed you.

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Over the <u>past week</u>:	Never	Once	A few times	Everyday	Tick this box if distressing
1. I felt sleepy during the day					
2. I felt drugged or like a zombie					
3. I felt dizzy when I stood up and/or have fainted					
4. I have felt my heart beating irregularly or unusually fast					
5. My muscles have been tense or jerky					
6. My hands or arms have been shaky					
7. My legs have felt restless and/or I couldn't sit still					
8. I have been drooling					
9. My movements or walking have been slower than usual					
10. I have had, or people have noticed uncontrollable movements of my face or body					
11. My vision has been blurry					
12. My mouth has been dry					
13. I have had difficulty passing urine					
14. I have felt like I am going to be sick or have vomited					
15. I have wet the bed					
16. I have been very thirsty and/or passing urine frequently					
17. The areas around my nipples have been sore and swollen					
18. I have noticed fluid coming from my nipples					
19. I have had problems enjoying sex					
20. <u>Men only</u>: I have had problems getting an erection					

Tick yes or no for the following questions about the <u>last three months</u>	No	Yes	Tick this box if distressing

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21. <u>Women only</u>: I have noticed a change in my periods			
22. <u>Men and women</u>: I have been gaining weight			

<u>Staff Information</u>

1. Allow the patient to fill in the questionnaire themselves. Questions 1-20 relate to the previous week and questions 21-22 to the last three months.

2. Scoring

    For questions 1-20 award 1 point for the answer "once", 2 points for the answer "a few times" and 3 points for the answer "everyday".
    Please note zero points are awarded for an answer of "never".

    For questions 21 and 22 award 3 points for a "yes" answer and 0 points for a "no".

    Total for all questions=

3. For male and female patients a *total score* of:
    0-12 = absent/mild side effects
    13-26 = moderate side effects
    over 26 = severe side effects

4. Side effects covered by questions *1-2* sedation and CNS side effects
    3-4 cardiovascular side effects
    5-10 extra-pyramidal side effects
    11-13 anticholinergic side effects
    14 gastro-intestinal side effects
    15 genitourinary side effects
    16 screening for diabetes mellitus
    17-21 prolactinaemic side effects
    22 weight gain

The column relating to the distress experienced with a particular side effect is not scored, but is intended to inform the clinician of the service user's views and condition.

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RESEARCH

Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check?

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Background: Annual physical health checks are recommended for patients with severe mental illness (SMI) as this group has a higher risk of developing cardiovascular disease than the rest of the general population. There is little guidance for healthcare professionals to assist them in encouraging patients to attend a health check. **Aims:** To explore whether an invitation appointment letter is effective in prompting patients with SMI to attend a physical health check in primary care compared with those with diabetes. **Method:** A retrospective audit comparing the response rate of patients with SMI and diabetes to an appointment letter inviting them to attend a primary care health check. **Results:** Two-thirds ($n = 61$, 66%) of the patients with SMI ($n = 92$) and three-quarters ($n = 338$, 81%) of those with diabetes ($n = 416$) attended the practice on the date and time stipulated in the letter. Patients with diabetes were 2.2 times more likely to attend a health check compared with those with SMI (OR = 2.20, 95% CI = 1.13–3.62). **Conclusion:** Although attendance rates were lower than in patients with diabetes, they were higher than expected from the SMI group. An invitation appointment letter is an effective way of ensuring that patients with SMI have a physical health check.

Key words: enduring mental health issues; health screening; psychosis; schizophrenia; SMI

Background

Severe mental illness (SMI) includes diagnoses that typically involve psychosis (losing touch with reality or experiencing delusions) such as schizophrenia or bipolar disorder. This group of patients should receive an annual physical health check because they have a higher rate of cardiovascular, metabolic and other long-term physical co-morbidities (eg, respiratory disease, HIV; Hennekens, 2005; NICE, 2006; 2009). Rates of cardiovascular disease may be increased because of a combination of the side effects of antipsychotic medication and lifestyle factors (Marder *et al.*, 2004). People with SMI often eat unhealthy diets, have lower levels of physical activity and are twice as likely to smoke compared with the general population (McCreadie, 2003). They also tend not to volunteer symptoms readily, and as a consequence many physical co-morbidities go unrecognised and untreated (Saha *et al.*, 2007).

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The secret food diary of a person diagnosed with schizophrenia

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Accessible summary

- We wanted to find out whether looking at the food diaries filled in by people with schizophrenia would help us find out when they eat, what they eat and why they eat those foods. We looked at the food diaries filled in by eight people with schizophrenia during 1 week.
- All the people managed to fill in their diaries. The food diaries showed that most of the people:
  - did not eat a lot fruit and vegetables;
  - ate a lot of the same foods;
  - ate a lot of convenience food and ready meals;
  - had an organized mealtime routine;
  - did not drink enough liquid;
  - did not eat many cakes or sweets;
  - drank no or very little alcohol;
  - thought the food they ate was healthy when often it was not.
- The people with schizophrenia in our study do not have a very healthy diet. This could be because they:
  - cannot afford fruit and vegetables;
  - are not good at cooking;
  - do not feel like cooking;
  - are not sure what food is healthy.
- The people with schizophrenia all managed to fill in their diaries. This shows that:
  - they may want to get healthier;
  - filling in food diaries with the help of a nurse may assist people with schizophrenia eat healthier food.

Abstract

The objective was to consider the feasibility of food diaries as a method of understanding the dietary behaviour of people with schizophrenia. Examination of the food diaries completed in 1 week by eight patients with schizophrenia. All the patients were successful in completing the task. Examination of the food diaries revealed that: eating fruit and vegetables was largely absent; there was very little variety in most of the patients' diets; patients relied heavily on convenience food and ready meals for their main meal; as a rule patients followed an ordered mealtime routine; generally patients did not drink enough fluid; they were not big treat eaters; only one patient recorded drinking any alcohol; overall there appeared to be poor diet literacy in our small sample. The results show that on the whole, people with schizophrenia have a poor diet. This could be due to a combination of financial difficulty, lack of skills in food

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Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence

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Accessible summary

- All healthcare professionals caring for people with serious mental illness should be aware of the signs of physical problems and take action to help patients improve their health.
- Our objective is to develop education for healthcare professionals caring for people with serious mental illness to enable them all to offer better physical care.
- We performed a systematic search of the literature and found no papers reporting the outcomes of education with regard to healthcare professionals' knowledge, attitudes and behaviours. The only information reported was the effect of the action taken on patients.
- It is vital that researchers start to publish details of healthcare professional education and their outcomes in physical health research in serious mental illness.

Abstract

Healthcare professionals in primary and secondary care should monitor the physical health of people with serious mental illness, yet in practice this does not appear to be a routine intervention. Our objective is to develop evidence-based training for healthcare professionals to enable them all to offer better physical care to this population. We performed a systematic search with the aim of evaluating the current evidence of the efficacy of education interventions. Search terms covered Severe Mental Illness, Physical Health and Education. The search yielded 147 papers, of which none were eligible for inclusion. A number of studies were excluded from this review as although there was an implicit education package provided to healthcare professionals, no information was reported on the outcomes of this education with regard to healthcare professionals' knowledge, attitudes and behaviours. The only information that these studies provided was patient-specific outcomes. It is vital that researchers start to publish details of healthcare professional education and their outcomes in physical health and serious mental illness research.

Introduction

In this paper, the authors of the serious mental illness (SMI) Health Improvement Profile (HIP) and the Health Improve-ment Profile for Primary Care (HIP-PC) report the lack of evidence for the efficacy of healthcare professional educa-tional outcomes in studies of physical health in SMI. The importance of researchers paying attention to education in

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FEATURE ARTICLE

Adapting the severe mental illness physical Health Improvement Profile for use in primary care

Sheila Hardy[1,2,3] and Richard Gray[3]
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ABSTRACT: People with severe mental illness (SMI) have a higher incidence of long-term physical conditions, including diabetes and cardiovascular disease. This can dramatically reduce their life expectancy. In the UK, it is the duty of health-care professionals in primary care to monitor the physical health of this group of people. However, these professionals have been given no specific training in order to do this effectively. The Northampton Physical Health and Well-Being Project has been developed in order to reduce the mortality of people with SMI, improve their physical and emotional health, and increase their support network. We have adapted the Health Improvement Profile (a tool to help mental health nurses profile the physical health of people with SMI) for use in primary care by creating a manual and website and will provide bespoke training in its use to the health-care professionals.

KEY WORDS: health improvement profile, physical health, primary care, severe mental illness, training.

BACKGROUND

People with severe mental illness (SMI) have a dramatically reduced life expectancy compared to the general population (Gray *et al.* 2009), dying on average 10–15 years earlier (DRC 2006). The primary causes of death due to a physical cause are circulatory disease, diabetes, and obesity (Brown 1997). Unhealthy diets and a lack of exercise are common lifestyle choices of people with a diagnosis of schizophrenia (McCreadie 2003), leading to excessive weight gain (Allison & Casey 2001). The treatment of SMI is usually antipsychotic medication which can exacerbate weight gain (Allison & Casey 2001), increasing both the risk for hyperglycaemia and type 2 diabetes, and the risk of hypertension and cardiovascular disease (Fontaine *et al.* 2001).

The physical health of people with SMI has reached greater prominence. In the UK, this is due in part to the publication of a number of key documents designed to address this matter (DoH 2006, 2008; DRC 2006). In addition, for primary care, the General Practitioner (GP) Contract has gone some way towards enticing the physical health monitoring of mental health service users (BMA 2008). However, life expectancy for people with SMI is actually decreasing (Fontaine *et al.* 2001), and inequalities still exist in the provision of physical health checks in those with mental illness when compared to the general population. For example, studies have shown that people with schizophrenia and heart disease have fewer blood pressure or cholesterol tests (Hippisley-Cox & Pringle 2005). Unlike people experiencing other long-term conditions, such as diabetes, stroke, and heart disease, the current contract does not require the health-care professionals to measure or reach targets for risk areas, such as blood pressure, cholesterol, or glucose levels. The creators of the National Institute for Clinical Excellence (NICE) guidelines for schizophrenia (2009) state that it is GPs and other primary health-care workers that should

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Screening for cardiovascular risk in patients with severe mental illness in primary care: A comparison with patients with diabetes

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Abstract

Background: People with severe mental illness (SMI) have a higher risk of developing cardiovascular disease (CVD) compared with the general population. Clinical guidelines recommend annual screening for CVD risk factors with appropriate lifestyle counselling.
Aims: To establish the proportion of patients with SMI being screened for CVD risk factors in their primary care practice compared with those with diabetes and determine whether people with SMI receive lifestyle advice.
Method: Design: a retrospective audit. *Setting:* five primary care centres in Northampton, England. *Participants:* three hundred and eighty-six patients with SMI and 1875 with diabetes.
Results: Just over a fifth of patients with SMI received a full CVD screen compared with the 96% of those with diabetes (OR = 90.37; 95% CI = 64.53–126.55, $p < 0.01$). Fifty-seven per cent of the SMI patients were given smoking advice but only 13% and 14% received guidance regarding diet and exercise, respectively. On average of each patient with SMI received fewer than two (from four) screening interventions and less than one (from three) components of lifestyle advice.
Conclusions: In primary care, the number of people with SMI receiving screening for CVD risk is much lower than those with diabetes.

Keywords: *schizophrenia; bipolar affective disorder; cardiovascular disease; screening; primary care; risk factors*

Introduction

Studies in primary care in England have shown that people with severe mental illness (SMI) have an increased risk of death from coronary heart disease and stroke (Osborn et al., 2006, 2007, 2008). This research demonstrated high levels of cardiovascular disease (CVD) risk factors and metabolic syndrome, including raised blood pressure (BP), serum cholesterol and plasma glucose, smoking, poor diet and lack of physical activity. There is some disparity in the evidence regarding hypertension in this population. A meta-analysis established it to be less prevalent in schizophrenia, possibly due to the BP lowering effects of some antipsychotic

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Appendix 24

FEATURE ARTICLE

Training practice nurses to improve the physical health of patients with severe mental illness: Effects on beliefs and attitudes

Sheila Hardy
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ABSTRACT: *Annual health checks are recommended for patients with severe mental illness (SMI) as they are at high risk of cardiovascular disease. Ideally, these health checks should be carried out in primary care. Practice nurses are already competent in carrying out physical health checks, but might have misconceptions about mental illness, which is a barrier to offering the service. We used a mirror imaging study to establish the effectiveness of a training package for practice nurses that aims to address common misconceptions about the physical health of people with SMI. This 2-hour training package (Northampton Physical Health and Wellbeing Project) was delivered to eight practice nurses. Their misconceptions and beliefs were assessed before and after training. Motivation to work with community mental health workers was assessed after training. The practice nurses involved in the study rejected commonly held misconceptions about the physical health of people with SMI after training. Their attitudes towards their role in providing health checks appeared to be modified in a positive direction. Their motivation to work with community mental health workers also seemed to be enhanced. The Northampton Physical Health and Wellbeing Project training was effective in modifying practice nurses' misconceptions about physical health in people with SMI.*

KEY WORDS: *education, physical health check, practice nurse, primary care, severe mental illness.*

BACKGROUND

Due to a combination of lifestyle factors and the side effects of antipsychotic medication, there is a high incidence of cardiovascular disease (CVD) causing premature death in people with SMI (Filik *et al.* 2006; Hennekens *et al.* 2005). Therefore, it is necessary that these patients have an annual physical health check to identify risk factors for CVD. There is little evidence to show that these health checks are routinely taking place (Hardy *et al.* 2011; Roberts *et al.* 2007).

People generally attend primary care for routine health monitoring and, therefore, it is the best place for people with SMI to receive screening (Osborn *et al.* 2007). Practice nurses are already competent in carrying out physical health checks (Osborn *et al.* 2010), but misconceptions about people with mental illness might be a barrier to accepting this as part of their routine work. Lester *et al.* (2005) discovered that primary care doctors and practice nurses largely believed that the care of people with SMI was too specialized for their service. Even if practice nurses are not inviting patients with SMI to attend for a physical health check, this group might still present themselves for other reasons (Harvey *et al.* 2005) (e.g. coughs, cuts, and rashes).

Up to 30% of patients with SMI in the UK receive help from a mental health professional in secondary care (BMA & NHS Employers 2011) who could have a role in ensuring a health check has taken place in primary care (Osborn *et al.* 2010). We believe that as practice nurses are not used to working specifically with people with SMI,

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Appendix 25

Why are people with serious mental illness still not getting their physical health checked?

Sheila Hardy and Jacqueline White examine the factors that cause patients' physical health needs to be overlooked when they receive treatment for serious mental illness

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Abstract
This paper is a reflection on the present service provision for patients diagnosed with a serious mental illness. A possible way forward is suggested to make services more responsive and thus improve the detection and appropriate intervention for this patient group.

Key words
Serious mental illness, physical health

Introduction

In the UK all nurses are expected to be able to make a holistic and systematic assessment of physical, emotional, psychological, cultural, spiritual and social needs; this includes assessing risk and creating a comprehensive plan of care in partnership with the patient and others (Nursing & Midwifery Council, 2008).

They are encouraged to use reflection to learn from experience and plan for practice change (Gaser, 2003). In spite of these of these standards, due to the organisational systems of care delivery, patients are not always offered holistic care.

Using a reflection framework developed by Rolfe et al in 2001 (What, So What and Now What), we explain how a person with serious mental illness can take a journey through the healthcare system meeting healthcare professionals, including nurses, and not have their physical health assessed and treated.

It is our belief that the healthcare providers from each nation need to examine in detail each aspect of care delivery in order to start making improvements. We anticipate that by making an analysis of the situation in the UK, we are providing valuable information that can be used to influence change internationally.

What?

People with serious mental illness have an increased risk of cardiovascular disease and are less likely to receive screening or treatment for physical problems.

We have been aware of this for decades through various studies such as McIntyre and Romano, 1977; Brugha et al, 1989; yet little has changed in practice anywhere in the world.

Researchers are still measuring the prevalence of the problem (Mackin et al, 2007; Brown et al, 2010; Chang et al, 2011). While this is important and has influenced health policy, so far it has not influenced the nurses' role and therefore patient outcomes.

A recent Cochrane Effective Practice and Organisation Care (EPOC) Group Review (Tosh et al, 2010) failed to identify any randomised trials that examined the effectiveness of physical health monitoring in people with serious mental illness.

They concluded that guidance is based on expert consensus, clinical experience and good intentions. Nevertheless, experts agree that a comprehensive physical health check carried out by a competent practitioner will provide the opportunity to screen for cardiovascular risk, offer education regarding lifestyle and ask about other physical conditions (Hardy 2009).

This has the potential to reduce the mortality of this patient group and identify and treat any presenting physical ailments.

An important barrier to providing physical screening and intervention to patients with serious mental illness is that in place of the single NHS we now have an increasingly decentralised health system with a growing network of service providers.

The ethos of holistic care is ignored through this fragmented service driven by a

Learning zone

CONTINUING PROFESSIONAL DEVELOPMENT

Assessing cardiovascular risk in patients with severe mental illness

Abstract

Cardiovascular disease (CVD) is a term mainly used to describe disorders
affecting the heart and/or the arteries and veins that are associated with
atherosclerosis (the build up of fatty deposits and debris inside blood vessels).
CVDs, such as coronary heart disease and peripheral arterial disease, are
long-term conditions, but acute events such as myocardial infarction can
occur suddenly when a vessel supplying blood to the heart or brain becomes
blocked or ruptures. Lifestyle factors and the side effects of antipsychotic
medication result in a high incidence of CVD in people with severe mental
illness. This article explores how nurses in primary and secondary care can
identify CVD risk factors and help patients reduce these risks.

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Aims and intended learning outcomes

The aim of this article is to assist nurses
working in primary and secondary care who
have contact with people with severe mental
illness (SMI) to feel confident in screening their
patients for cardiovascular disease (CVD).
After reading this article and completing the
time out activities you should be able to:
▶ Understand the risk factors for CVD.
▶ Be aware of the increased risk of CVD
in people with SMI.
▶ Recognise the barriers to effective
management of the physical health of
patients with SMI.
▶ Decide how you can promote prevention
of CVD in patients with SMI.
▶ Understand the role of primary and
secondary care nurses in reducing CVD risk.
▶ Develop an action plan for your workplace
that promotes the prevention of CVD in
patients with SMI.

Introduction

Patients with SMI will most likely have
a diagnosis of schizophrenia or bipolar
disorder. Other mental health disorders,
such as depression, are not discussed in this
article because the care of patients with SMI
is considered separately in UK guidance
(National Institute for Health and Clinical
Excellence (NICE) 2006, 2010, British Medical
Association and NHS Employers 2011).

The worldwide point prevalence (the
proportion of people in a population who
have a disease or condition at a particular
time) is 0.4% for schizophrenia (Saha
et al 2005) and 1% for bipolar disorder

Appendix 27

DIABETES

Evidence-Based Management 47

The increased risk of diabetes in people with severe mental illness

People with severe mental illness have worse physical health compared to the general population, and a greater risk of developing diabetes. Sheila Hardy highlights the need for better screening and support

The term 'severe mental illness' includes diagnoses which typically involve psychosis or high levels of care, e.g. schizophrenia and bipolar disorder (British Medical Association and NHS Employers, 2012).

Schizophrenia is a long-term condition and generally presents in late adolescence or early adulthood. Symptoms of schizophrenia can include hallucinations, low motivation, and impaired attention and memory (Stahl, 2003).

Bipolar disorder is also a lifelong condition with the peak age of onset between 15–19 years of age. Bipolar disorder affects the patient's mood, which can swing from one extreme to another, i.e. periods or 'episodes' of depression and mania (NHS Choices, 2009).

Owing to the nature of severe mental illnesses, there are barriers which need to be overcome when attempting to engage the patients in preventive care (*Table 1*).

Aetiology of diabetes in severe mental illness

People with severe mental illness often have an increased risk of abnormal glucose metabolism and metabolic disorders (Ryan et al, 2003; McIntyre et al, 2005). The incidence of diabetes occurs in 15% of this group (Holt and Peveler, 2005), compared to 5% of the general population (Bushe and Holt, 2004).

The risk of developing diabetes is increased by:

▶ Family history of diabetes
▶ Physical inactivity
▶ Poor diet.

Additionally, for people with severe mental illness, there is the dispute that there may be a direct physiological association between severe mental illness and glucose regulation (Ryan et al, 2003) and the metabolic effects of antipsychotic medication (Gough and Peveler, 2004). However, the relative impact of pathophysiology and medication is raising the risk of diabetes in severe mental illness is disputed.

Physiology

In a study by Ryan et al (2003), it was discovered that patients with schizophrenia had higher fasting plasma levels of glucose, insulin and cortisol, and were more insulin resistant than healthy subjects.

Cortisol is a steroid hormone produced in the cortex of the adrenal glands. It maintains normal physiological processes during times of stress by releasing amino acids (from muscle), glucose (from the liver), and fatty acids (from adipose tissue) into the bloodstream for use as energy. This results in stimulation of gluconeogenesis (conversion of amino acids into glucose), inhibition of glucose uptake in muscle and adipose tissue (which further increases blood-sugar levels), and stimulation of lipolysis (fat breakdown) in adipose tissue. The fatty acids released by lipolysis reduce sensitivity to insulin and the pancreas therefore needs to produce more.

Medication

Typical antipsychotics (*Table 2*), in particular the low potency ones such as chlorpromazine, may induce or make existing diabetes

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Key words: Diabetes, severe mental illness, lifestyle, antipsychotics

Series Editor: **Anne Phillips** is senior lecturer in diabetes care, Alcuin C College, Department of Health Sciences, University of York, Heslington, York YO10 5DD

Table 1. Barriers to preventive care in patients with severe mental illness

Difficulty comprehending health care advice, and/or carrying out required changes in lifestyle owing to psychiatric symptoms and adverse consequences related to mental illness
Severity of mental illness
Less compliant with treatment
Unaware of physical problems owing to cognitive deficits, or to a reduced pain sensitivity associated with psychotropic medication
Migrant status and/or cultural and ethnic diversity
Lack of social skills and difficulties communicating physical needs

From: de Hart et al, 2011

Table 2. Types of antipsychotic medications

In schizophrenia and bipolar disorder, parts of the dopamine system can become overactive and produce hallucinations, delusions and thought disorder. Dopamine is also involved in interest, motivation and satisfaction, and controls muscle movements. Antipsychotic medication alleviates some of the symptoms of schizophrenia and bipolar disorder by affecting the action of a number of neurotransmitters in the brain, particularly dopamine.

Types of antipsychotic medication
- Typical: the older drugs e.g. Chlorpromazine, haloperidol, sulpiride, pimozide, trifluoperazine
- Atypical: the newer drugs e.g. Risperidone, olanzapine, quetiapine, aripiprazole, clozapine

The new drugs are less likely to cause parkinsonian side-effects and tardive dyskinesia (abnormal movement disorder). However, they are more likely to produce weight gain, cause diabetes and cause sexual problems.

From: Hardy and Gray, 2012a

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Appendix 28

Clinical Practice

Will the changes to the QOF mental health indicators improve care for people with severe mental illness?

Abstract
This article describes the changes made to the mental health clinical indicators in the General Medical Services Contract for 2011/12. The likely effect from these changes directly on patient care is discussed.

Key points
- People with severe mental illness (SMI) have a high incidence of cardiovascular disease causing premature death due to a combination of lifestyle factors and the side-effects of antipsychotic medication
- The QOF is an incentive scheme for GP practices in the UK, rewarding them for how well they care for patients
- The changes to the mental health QOF 2011/12 mean that people with SMI are still unlikely to be offered appropriate interventions

Key words
Severe mental illness, primary care, Quality and Outcomes Framework (QOF), physical health

People with severe mental illness (SMI) have a high incidence of cardiovascular disease causing premature death due to a combination of lifestyle factors and the side-effects of antipsychotic medication (Hennekens et al, 2005; Filik et al, 2006). Because these are modifiable risks, experts agree that this group of people should have their physical health monitored every year by a health-care professional in primary care (National Institute for Health and Clinical Excellence (NICE), 2006; 2009). Each GP practice receives payment through the Quality and Outcomes Framework (QOF) to provide care for patients with schizophrenia, bipolar affective disorder and other psychoses.

Quality and Outcomes Framework
Introduced in 2004 as part of the General Medical Services Contract, the QOF is an incentive scheme for GP practices in the UK, rewarding them for how well they care

for patients. The QOF contains groups of indicators, against which practices score points according to their level of achievement (British Medical Association and NHS Employers, 2011). This payment system has been criticised as the primary care doctors can decide to exclude patients they consider as unsuitable for a particular target, and the quality of the consultation is not measured (Ashworth and Jones, 2008).

Since 2009, NICE has been responsible for managing the development of the QOF clinical and health improvement indicators. Evidence for changes to the QOF is provided by an expert committee, which includes representatives from the Universities of Birmingham and Manchester, NHS Employers and the General Practitioners Committee. This panel met in June 2010 to make its recommendations for the QOF 2011/12 and a number of changes were proposed for mental health. The previous mental health indicators are described in Table 1 and the new ones are outlined in Table 2.

The authors of the new guidance make the point that the indicators in the QOF are not intended to cover all the process outcomes or disease issues for each category and in some areas the indicators cover only a small part of the care for those conditions. This makes the assumption that primary care staff will be carrying out the care not included; in busy practices where there is no one with a particular interest or specialty in mental health the likelihood of this being the case is very low.

Changes to the mental health QOF
The changes to the mental health QOF indicators are illustrated in Table 3.

Indicators that have been removed:
1 *Had a review in the last 15 months including health promotion advice*. There should have been evidence that the patient has

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Long-Term Conditions

Improving the physical health of people with severe mental illness

Abstract

This article describes a project in Northampton that aims to train clinicians in primary care and their link community mental health nurse how to deliver physical health checks to people with severe mental illness. It endeavors to reduce the mortality of people with severe mental illness (SMI), improve their physical and emotional health, improve their medication concordance, increase their support network and provide a more skilled workforce through data sharing and collaborative working.

Key points

- People with SMI will die 10–15 years earlier than the general population
- 90% of people with mental health problems are treated in primary care
- Physical health checks are the responsibility of primary care
- All patients should have access to a health check delivered by a health-care professional who has undergone relevant training

Key words

Severe mental illness, physical health education, health check

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People with severe mental illness (SMI) should receive an annual physical health check (National Institute for Health and Clinical Excellence (NICE), 2009), however, there appears to be disparity in the way this is provided in primary care. At present it is not clear who should take on this role within each practice. Practice nurses provide care for people with long-term physical complaints, such as asthma, hypertension or diabetes, but there is an abundance of education for these conditions along with clear targets to be met within the General Medical Service contract.

A systematic literature search using the terms 'severe mental illness', 'physical health' and 'education discovered' no current training that would help nurses improve the physical health of people with SMI. In addition, some GPs in Northampton have expressed to the author that they believe the practice nurses they employ are not equipped to carry out this role and therefore they have taken on the role of providing the health checks themselves opportunistically. This suggests many GP practices do not have a system of inviting people with SMI to their surgery, resulting in a large proportion of people not gaining the benefit of having a physical health check.

Importance of health checks

People with SMI will die 10–15 years earlier than the general population (Hennekens et al, 2005) and 50% of them will also have a co-morbid medical illness (Disability Rights Commission, 2006). The principal causes of death are circulatory disease, diabetes and obesity. It has been reported that the antipsychotic medication that most of these people need to take to keep well can exacerbate weight gain (Allison and Casey, 2001). Screening for diabetes, hypertension, raised cholesterol and other conditions regularly will ensure prompt treatment to reduce the consequences of these conditions (Hardy and Gray, 2010).

There are high levels of smoking in people with SMI and they often choose to eat unhealthy diets and not to exercise (McCreadie, 2003). These are modifiable risks, which nurses can reduce by providing ongoing education (Gray et al, 2009). This group of people tend not to volunteer symptoms readily, therefore many illnesses go undiagnosed. Careful questioning by the nurse will identify these illnesses and present the opportunity to offer treatment.

People with SMI who are no longer in contact with secondary care may not have a named person they can contact should they have concerns about their medication or be experiencing symptoms of their mental illness, emotional or social problems. These health checks offer the opportunity to help the person plan his/her care to prevent relapse, identify key people to be involved in his/her care (Hardy, 2009) and carry out a medication review (White and Hardy, 2010).

Whose provides the physical health check?

Around 90% of people with mental health problems are treated in primary care (Social Exclusion Unit, 2004) and 25% of patients with severe mental illness have no contact with secondary care (Samele et al, 2006). This figure is likely to rise with many NHS trusts in England presently examining methods to promote earlier discharge. The guidelines for bipolar disorder and schizophrenia produced by NICE (2006, 2009) state that the physical health checks

Clinical Focus **SCHIZOPHRENIA**

Managing medications in schizophrenia

The General Medical Services contract stipulates that each general practice has a register of people with schizophrenia, bipolar disorder and other psychoses, and that each patient should have a regular review of their medication as part of their annual physical health check (British Medical Association and NHS Employers, 2009). In addition, many patients have consented to discharge from secondary care and now attend their primary care practice regularly for their long-acting antipsychotic injection.

Medication management

Medication has been identified as a key concept of the recovery process in mental illness (Allott et al, 2002). Working collaboratively to meet the needs of patients who are prescribed medication is important to improve the health of patients and promote their future potential through engagement and empowerment. Medication management is a process of (Gray et al, 2002):

> Promoting and involving patients in treatment decisions
> Exchanging information and monitoring
> Evaluating
> Providing feedback.

Evidence suggests that using medication management to support patients with schizophrenia in using their medication effectively improves shared decision making and medication taking, reduces the incidence of relapse and can lead to an improvement in mental health (Gray et al, 2010).

Schizophrenia

Schizophrenia affects approximately 1% of the population, with an onset most common in late adolescence or early adulthood. It is characterized by a range of clinical experiences (*Table 1*). People with schizophrenia die 20–25 years earlier than people in the general population (Saha et al, 2007); most of these premature deaths are not related to suicide but to cardiovascular disease (CVD), with rates two to three times higher than expected (Newman and Bland, 1991). Many of the modifiable risk factors associated with CVD, such as smoking, obesity, poor diet, diabetes, hyperlipidaemia and lack of exercise, are highly prevalent among patients with schizophrenia (Brown et al, 2000). People with schizophrenia appear to have a natural vulnerability towards CVD, with even treatment-naïve people demonstrating increased amounts of visceral fat, elevated cortisol and excess impaired glucose tolerance (Ryan et al, 2004).

Respiratory disease is more common in people with schizophrenia, and antipsychotic medication can impact on a range of physical parameters, including sexual, bowel, eye and dental health (Robson and Gray, 2007).

Pharmacology

Although biological, social and psychological factors are all important in the maintenance of mental health in schizophrenia, medication treatment focuses on treating chemical imbalances in the brain to minimize distressing symptoms and provide future protection from relapse (Healy, 2005). Positive symptoms of psychosis are thought to be caused by an excess of the neurotransmitter chemical dopamine in the synapses between brain cells in the limbic area of the brain. Cognitive symptoms and negative symptoms are hypothesized to be caused by too little dopamine in the synapses of the cerebral cortex. Affective or mood symptoms are thought to be caused by the effect of dopamine dysregulation on levels of noradrenaline and serotonin.

General practice is taking on a greater role in managing the drug regimens of people with schizophrenia. Jacquie White and Sheila Hardy outline the principal considerations for nurses

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Table 1. Clinical experiences of patients with schizophrenia

Type of symptoms	Signs
Positive symptoms (those that are additional to normal for the person)	• Hallucinations • Delusions • Thought disorder
Negative symptoms (those that appear to take away from what the person once experienced)	• Poor motivation • Social isolation • Withdrawal
Cognitive symptoms	• Impaired attention and memory • Difficulty forward-planning and problem-solving
Affective or mood symptoms	• Signs of depression and/or anxiety are common
Adapted from Stahl, 2003.	

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NAS Resources

Positive Cardiometabolic Health Resource (CMH-resource)

**Integrated Physical Health Pathway**

Other resources

THE NATIONAL AUDIT OF SCHIZOPHRENIA (NAS) LAUNCHES A NEW CLINICAL RESOURCE:

"THE LESTER UK ADAPTATION – Positive Cardiometabolic Health Resource: an intervention framework for patients with psychosis on antipsychotic medication."

This clinical resource provides a simple framework for identifying and treating cardiovascular and type 2 diabetes risks in patients with psychosis receiving antipsychotic medication, which supports collaborative practice across professional disciplines and service settings. Its development was facilitated by the National Audit of Schizophrenia (NAS) an initiative led by the Royal College of Psychiatrists' Centre for Quality Improvement, funded by the Healthcare Quality Improvement Partnership (HQIP) and involving a close collaboration with the Royal College of General Practitioners (RCGP) and the Royal College of Nursing (RCN).

The RCGP Clinical Innovation and Research Centre has been working with the NAS project team to produce a clinical resource for the United Kingdom (UK), adapted from work by Australian colleagues (Curtis et al, 2012). This resource provides a simple collaborative framework for identifying and treating cardiovascular and type 2 diabetes risks in any service setting.

The resource was adapted for UK use initially through a consensus group* led on behalf of the RCGP by Professor Helen Lester and has now been fully endorsed by the RCGP, Royal College of Psychiatrists, Royal College of Nursing, Royal College of Physicians, HQIP, Rethink Mental Illness and Diabetes UK.
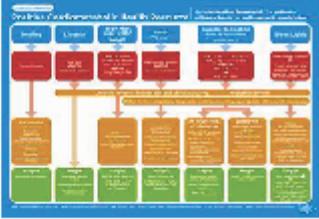
Download a PDF of the resource

Lead Authors on the UK adaptation

Helen Lester*, David Shiers*, Imran Rafi*, Steven Cooper*, Richard Holt*.

To cite: Lester H, Shiers DE, Rafi I, Cooper SJ, Holt RIG. (2012) Positive Cardiometabolic Health Resource: an intervention framework for patients with psychosis on antipsychotic medication. *Royal College of Psychiatrists. London.*

Expert contributions and review comments:

Particular thanks to: Salima Adatia, Thomas Barnes, Mike Crawford, Ahmet Fuat*, Roger Gadsby*, Fiona Gaughran, Kathryn Griffiths*, Kamlesh Khunti*, Ian Maidment, Carol Paton, Maxine Patel, David Taylor, Jogin Thakore, Andre Tylee*, David Yeomans.

Special acknowledgement:

This resource was inspired by the HETI initiative [1] in Sydney, New South Wales led by Dr Jackie Curtis, Consultant psychiatrist and Dr Katherine Samaras, Professor of Endocrinology, to whom we offer very warm thanks for their ongoing involvement and support in developing this UK adaptation of their original work.

Paula Reid
Rethink Mental Illness
89 Albert Embankment
London
SE1 7TP

28th November 2012

To whom it may concern

This is an outline of the significant contribution Sheila Hardy has made to Rethink Mental Illness' current work around the physical health of people affected by mental illness.

I first met Sheila at the *Improving Physical Health for people with Mental Health Conditions* held in London on 4th July 2012. Sheila was presenting her research to the conference, offering a primary care perspective on this issue. Sheila outlined the practical changes she had been involved in piloting and evaluating, and the impact this was having on the management and support of people affected by mental illness in primary care.

Later that month Rethink Mental Illness was due to hold a workshop to discuss some of the key challenges to better physical health outcomes for people affected by mental illness. We were hoping to design a resource that might support professionals in addressing these challenges. We invited Sheila to attend the workshop to share her research as a best practice example. Sheila took an active role in the roundtable discussions and offered invaluable expertise from a primary care perspective.

Following the workshop, Rethink Mental Illness worked with a range of stakeholders to develop a document that outlined where physical health monitoring should be taking place along the care pathway. This document also clarifies whether this monitoring should be overseen by primary or secondary care. Sheila has offered constructive feedback on a number of iterations of this document, particularly regarding the severe mental illness register and the annual physical health check. Sheila has also kindly agreed to allow us to share her resources as examples of best practice on the web pages we are designing for health professionals.

Sheila's research has helped us shape our resources to be more effective and relevant for a primary care audience. I am happy to share any more information on Sheila's contribution to the project, should it be useful.

Best wishes

Paula

Paula Reid
Policy Officer
Rethink Mental Illness

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Practice health check invites boost mental illness visits and QOF income

By Stephen Robinson, 01 March 2012

Writing to invite patients with mental illness for health checks could improve attendance and help practices earn thousands of pounds in QOF points, research suggests.

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Checks vital for mentally ill (Photograph: SPL)

The scheme could earn QOF points worth £2,871 for an average-sized practice, University of East Anglia researchers said.

They found that inviting patients to an appointment more than doubled attendance rates compared with invitations asking patients to arrange a visit.

Lead author Sheila Hardy, a nurse practitioner in Northamptonshire, told GP: 'I do think this method should be adopted nationally. It could help practices meet QOF targets.'

Patients with severe mental illness are at higher risk of cardiovascular, metabolic and other long-term comorbidities, so it is important they receive an annual health check, researchers said.

But a 2005 study found just one in five patients with severe mental illness responded to a letter asking them to arrange an appointment – only half the number of respondents from the general population.

Under the 2011/12 QOF, GPs can earn 22 points for ensuring patients with schizophrenia, bipolar affective disorder and other psychoses are checked for BMI, BP, alcohol consumption, cholesterol levels and blood glucose at least once a year.

The researchers wrote to 92 patients with severe mental illness inviting them to an appointment for a health check in 10 days. In addition, 416 patients with diabetes were invited.

Two-thirds (66%) of patients with severe mental illness attended as specified in the letter and three-quarters (81%) of diabetes patients attended. Patients with diabetes were 2.2 times more likely to attend. But the proportion of mentally ill patients who attended was far higher than predicted by the 2005 study.

The authors recommended that an invitation letter for patients with mental illness should become standard practice in primary care.

GP curriculum, statement 13 - Care of people with mental illness

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- GP curriculum, statement 13 - Care of people with mental illness

Dr McCulloch says there is a balance of pros and cons with medication. Although it remains very important for many sufferers, the side effects can be severe and require sensible management and balance. "It is about being transparent and giving information," he says.

Mental health is not the only issue for those with serious mental illnesses. Their physical health can also be impacted: for example, patients with schizophrenia can be at higher risk of cardiovascular disease.

Sheila Hardy, a nurse consultant in mental health, says that people with serious mental illness will die 15-25 years earlier than the general population. Physical health checks, carried out in primary care, are one way to identify patients at risk and move them towards a healthier lifestyle.

Yet provision for patients whose care moves from secondary to primary care is very patchy. Ms Hardy felt that one barrier might be that practices were reluctant to set up health check clinics because they were

inexperienced in dealing with this. She set up a practice nurse training course which she would deliver in practices, free of charge – but found practices were reluctant to

'Patients with schizophrenia can be at higher risk of cardiovascular disease'

release nurses for it. She has now set up a website to help nurses which has a range of tools and downloadable resources.

One of the issues can be that psychiatrists are not experts in physical health and GPs are not experts in mental health so who is best placed to monitor the service user?

Dr Niraj Ahuja, consultant psychiatrist at Northumberland Tyne and Wear Foundation Trust works closely with GPs to ensure that people don't fall between the

gaps and their physical as well as their mental health is monitored. "It is about building relationships," he says. "I see shared care guidelines not as rigid but more flexible – sometimes you pick up the phone and have a chat."

So what of the future? Mr Cooney says that there is growing evidence of the importance of early intervention. To identify those developing schizophrenia will mean working with adolescents and creating an atmosphere in which they or those around them can raise troubling symptoms.

"You have to get really close to young people," he says. "If you set up an early intervention in psychosis service in the middle of a psychiatric hospital they are not going to come."

And Dr McCulloch adds: "This is a very important group of people. The credibility of the system requires them to be well managed. It is a win-win for everyone to do it right and it is not necessarily more expensive than the wrong thing." ●

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FEATURE
RCN EAST MIDLANDS

13

Body and soul

An RCN member has devised an innovative programme to improve the physical health of people with a severe mental illness. Sharon Palfrey reports

"

Poor physical health outcomes on this scale are really no longer acceptable

A combination of lifestyle factors and the side-effects of antipsychotic medication means there is a high incidence of cardiovascular disease causing premature death in people with severe mental illness. The statistics are staggering. Compared to other population groups, ages at death can be 15 years lower for people with bipolar disorder and 25 years for those with schizophrenia.

RCN member Sheila Hardy, a nurse consultant and mental health nurse with 19 years' experience in the field, is determined to do something about it. She believes these clients should have an annual check to identify risk factors. "A comprehensive physical health check will also provide the opportunity to offer education regarding lifestyle and ask about other physical conditions," she says.

Time for action

Sheila is concerned that people with severe mental illnesses don't know they are at risk. "They are not being told and they are not being screened," she says. "Clinics are held for those with asthma or diabetes but not for those people with severe mental illnesses. Twenty years ago it was the same for patients with diabetes, but it's now time to address the issue for patients with severe mental illnesses."

Sheila has developed training and a website, which she sees as a practical tool to be used to help nurses in primary care address these issues. "I've purposely made the information freely available – I wanted to make it easy for nursing staff to access the information. As patient advocates, it's important we

Practices should make it easy for people with mental health problems to attend

have access to best practice information," she says.

Make it easy

Addressing barriers and perceptions among nursing staff is important for Sheila. "There's a worry that patients won't attend clinics but you have to look at how you approach this," she says. "We've found it's better to give patients an appointment with a named person at a set time of day. Don't ask them to make an appointment as this requires organisation, and making a telephone call can be a barrier. Make it easy for them so they just have to turn up."

While acknowledging the severe pressures many practice nurses are under, Sheila stresses the need to offer this kind of support. "Most people with severe mental illnesses have no contact with secondary health care. If we're not looking after them, no one else is."

Hope for the future

With funding secured and her free training programme already being

delivered, Sheila is hopeful for the future. "I hope my work will prove to be a benefit for patients and provide evidence of best practice," she says.

Ian Hulatt, RCN Mental Health Adviser, believes Sheila's work demonstrates the huge role to be played by nursing staff in this area. "Poor physical health outcomes on this scale are really no longer acceptable."

Free information

Sheila's website includes guidelines, a care plan outline, leaflets, links to professional websites and a guide for setting up a clinic. Read Sheila's guide, *Physical Health Checks for People with Severe Mental Illness: A Primary Care Guide*, at http://physicalsmi.webeden.co. uk and find out more information about how to book onto one of Sheila's free training courses at www.rcn.org.uk/bulletin

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Accreditation Co-ordinator
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Jorg Huber
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Email: bharati.mehta@rcn.org.uk

26 November 2012

Dear Jorg,

Re: Improving Physical Health in Severe Mental Illness (Short Course) - 5446

We are pleased to confirm that you have been awarded accreditation for the above programme which has been awarded 4 study hours until 26 November 2013, which is the date on which your accreditation expires.

Please note that your accreditation has been granted subject to the 'RCN Centre for Professional Accreditation Terms and Conditions of Business' ("terms and conditions"). You should ensure that the terms and conditions are carefully adhered to throughout the period of accreditation.

Once you have read this letter, please acknowledge receipt by signing and returning either; a hard copy to us in the enclosed pre-addressed envelope or a scanned copy by email to accreditation@rcn.org.uk

You may now state the following in respect of your learning

This programme has been accredited by the RCN Centre for Professional Accreditation
26 November 2013
Accreditation applies only to the educational content of the programme and does not apply to any product

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NHS
London

19 November 2012

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Fax: 020 7932 3800

To whom it may concern

Re: Sheila Hardy

This reference is to describe the work that Sheila Hardy has undertaken for NHS London strategic health authority, and the impact that she has had on practice improvements in London. Sheila has made a major positive impact on care in London through her participation in the following 2011-2012 programmes:

RCGP workshop on the role of practice nurses in the care of people with severe and enduring mental illness. At this seminal workshop, Sheila presented to an audience of 40 GPs. The feedback was that the GPs found her presentation to be excellent and her ideas on the role of the practice nurse very useful for their own practices and care offering.

Input to the London mental health CQUIN workshop: Sheila's input to the pan London mental health CQUIN workshop was very well received and she raised the profile of practice nurses, and the major contribution they can play in the care of people with SMI. This was to an influential audience of over 100 senior clinicians and managers.

Practice nurse pan London master class training programme: Sheila has been an exceptional force for good in London, through her generous and very expert contribution to this very critical pan London programme. She wrote the training materials in the care of people with mental ill heath in primary care and provided train the trainer sessions to senior nurse trainers in the ten mental health trusts. The 200 participants of the subsequent master classes report very significant improvement in their knowledge, and ability to provide care for people with schizophrenia and depression. Without her expertise, this programme would not have been possible, and London is in her debt.

Mental health Commissioning conference: Sheila presented, with her GP lead, David Smart at the national mental health commissioning conference. The commissioning audience was very enthused by her work and London services have subsequently requested that she run training events locally. Practice nurse profiles in London are rising as a result of her contribution to our city.

London care pathway profiling needs assessment programme and Expert reference group for the London Primary care mental health leadership development programme.

In addition to the formal contributions above, Sheila has been generous with her time and expertise, and is a very valued adviser to my own role as Associate medical director, mental health, at the strategic health authority and SHA London mental health lead.

Her contribution to her profession and the care of people with mental illness has been exceptional.

Dr Geraldine Strathdee, OBE, MRCPsych, Visiting Professor at UCLP
Associate Medical Director, Mental Health NHSL
NHS London, Southside, 105 Victoria Street, London, SW1E 6QT

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Monitoring the physical health of people with severe mental illness

6 OCTOBER, 2011 04:11 PM

Sheila Hardy
Northamptonshire Teaching PCT

The Northampton Physical Health and Wellbeing (PhyHWell) project won the 2010 Nursing in Practice Award for Mental Health and aims to improve the health and wellbeing of people with severe mental illness

Many nurses in primary care are responsible for offering physical health checks to people with severe mental illness (SMI). This is a vital role as, according to research, many people with SMI are not having their physical health monitored effectively.[1]

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RCN Research Society Marjorie Simpson New Researchers' award

The award is available to new or inexperienced researchers studying for a higher degree at masters or doctoral level. The award is a free place at the RCN annual international nursing research conference, and will cover the cost of the conference fees, conference accommodation and up to £100 travel costs. See the foot of the page for details of sponsors of the award.

2013 award

Winner

Suzanne Watts, Oxford Brookes University
Title: A qualitative multiple case study exploring child protection referrals from primary health care to child social care
Abstract: Watts (53KB PDF)

Highly Commended

Naglaa F.A. Youssef, University of Stirling
Title: Symptom experience and predictive factors in patients with liver cirrhosis: A cross sectional survey in Egypt
Abstract: Youssef (45KB)

Highly Commended

Sheila Hardy, University of East Anglia
Title: People with severe mental illness have a reduced life expectancy
Abstract: Hardy (57KB PDF)

2012 award winner

Seonaid Mackay, University of Stirling
Title: The use of tele-health to manage inflammatory bowel disease
Abstract: Mackay (PDF, 57KB)

2011 award winners

Orla Watt, University of Ulster
Title: The impact on children's development of having a child with Autism Spectrum Disorder (ASD) in the family.
Abstract: Watt (PDF, 369KB)

Rebecca Verity, Lecturer, King's College London
Title: Preparing and meeting the needs of family and friends who support people having chemotherapy
Abstract: Verity (PDF, 213KB)

2010 award winners

Suzanne Bench, Lecturer, King's College London
Title: Adult critical care discharge information; development and evaluation of a strategy which encompasses user participation and investigates the potential for self management.
Abstract: Bench (PDF, 99KB)

Wladzia Czuber-Dochan, Researcher in stroke, King's College London
Title: Living more effectively with fatigue in Inflammatory Bowel Disease.
Abstract: Czuber-Dochan (PDF, 51KB)

Julie Green, Lecturer, Keele University
Title: Does a patient focus to consultations in chronic venous leg ulcer care improve patient satisfaction and health related quality of life?
Abstract: Green (PDF, 18KB)

2009 award winners

Natalie Pattison, Clinical nursing research fellow, Royal Marsden NHS Foundation Trust
Title: End-of-life care in critically ill cancer patients: realities and hopes.
Abstract: Pattison (MS Word, 37K)

Anna Steele, Research nurse, Royal Devon & Exeter NHS Foundation Trust
Title: The health consequences of lifelong mild fasting hyperglycemia.
Abstract: Steele (MS Word, 38K)

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Letters of attrition

I have described the contributions from each of the authors of the publications. Letters from each author confirming this are included.

40a Professor Richard Gray

Richard provided me with supervision in the design, execution and writing up of each study.

1. Hardy S and Gray R. (2012) Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check? *Primary Health Care Research & Development.* doi:10.1017/S1463423612000023
2. Hardy S and Gray R. (2011) The secret food diary of a person diagnosed with schizophrenia. *Journal of Psychiatric and Mental Health Nursing.* doi: 10.1111/j.1365-2850.2011.01826.x
3. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.
4. Hardy S and Gray R. (2010) Adapting the severe mental illness physical Health Improvement Profile for use in Primary Care. *International Journal of Mental Health Nursing.* **19** 350–355. doi: 10.1111/j.1447-0349.2010.00686.x
5. Hardy S, Hinks P and Gray R. (2012) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health.* **22** (1) 42-50.
6. Hardy S, Hinks P and Gray R. (2013) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? International Journal of Social Psychiatry. (in press)
7. Hardy S, Deane K and Gray R. (2013) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press)
8. Hardy S and Gray R. (2012) Learning Zone: Reducing cardiovascular disease risk in patients with severe mental illness. *Nursing Standard.* **26** (45) 41-48.

40b Dr Katherine Deane

Katherine provided me with instruction and supervision in carrying out the systematic search. She supervised the writing up of the qualitative paper.

1. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.

2. Hardy S, Deane K and Gray R. (2013) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press)

40c Jacquie White

Jacquie carried out the systematic search with me. We wrote all three papers together.

1. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.
2. Hardy S and White J. (2013) Why are people with serious mental illness still not getting their physical health checked? *Mental Health Nursing.* **33** (1) (in press).
3. White J and Hardy S. (2010) Managing medications in schizophrenia. *Practice Nursing.* **21** (8) 393 -396.

40d Dr Alex Mitchell

For the study below, we followed the design of my previous study carried out locally. Alex carried out the statistical analysis. We wrote the paper together.

- Mitchell A and Hardy S (2013) Surveillance for metabolic risk factors in patients with severe mental illness vs diabetes: National Comparison of Screening Practices. *Psychiatric Services.* (in press)

40e Philippa Hinks

Philippa assisted me to clean the data for these two studies.

1. Hardy S, Hinks P and Gray R. (2012) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health.* **22** (1) 42-50.
2. Hardy S, Hinks P and Gray R. (2013) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? International Journal of Social Psychiatry. (in press)

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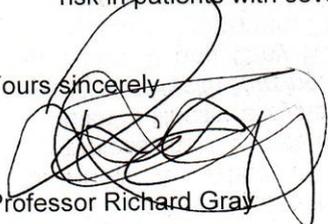University of the West of England

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NR4 7TJ

This letter is to confirm that I provided Sheila Hardy with supervision in the design, execution and writing up of each of the studies listed below.

1. Hardy S and Gray R. (2012) Is the use of an invitation letter effective in prompting patients with severe mental illness to attend a primary care physical health check? *Primary Health Care Research & Development.* doi:10.1017/S1463423612000023
2. Hardy S and Gray R. (2011) The secret food diary of a person diagnosed with schizophrenia. *Journal of Psychiatric and Mental Health Nursing.* doi: 10.1111/j.1365-2850.2011.01826.x
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6. Hardy S, Hinks P and Gray R. (2013) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? *International Journal of Social Psychiatry.* (in press)
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Yours sincerely

Professor Richard Gray

bettertogether

University of the West of England, Bristol
Vice-Chancellor Professor Steven West

25th February 2013

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k.deane@uea.ac.uk

This letter is to confirm that I provided Sheila Hardy with instruction and supervision in carrying out the systematic search. I supervised the writing up of the qualitative paper.

1. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing.* **18** (8) 721-727.
2. Hardy S, Deane K and Gray R. (2013) The Northampton Physical Health and Wellbeing Project: The views of patients with severe mental illness regarding their physical health check. *Mental Health in Family Medicine.* (in press)

Yours sincerely,

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21 March 2012

Ref: Mrs S Hardy

This letter is to confirm that I carried out the systematic review with Sheila Hardy. We wrote all three papers together.

1. Hardy S, White J, Deane K, Gray R. (2011) Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric and Mental Health Nursing*. **18** (8) 721-727.
2. Hardy S and White J. (2013) Why are people with serious mental illness still not getting their physical health checked? *Mental Health Nursing*. **33** (1) (in press).
3. White J and Hardy S. (2010) Managing medications in schizophrenia. *Practice Nursing*. **21** (8) 393 -396.

Yours sincerely,

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To whom it may concern

Re: Mitchell A and Hardy S. (2013) Surveillance for metabolic risk factors in patients with severe mental illness vs diabetes: National Comparison of Screening Practices. Psychiatric Services. (in press)

This letter is to confirm that for this study (cited above) we utilised the design of Sheila Hardy's previous study carried out in Northampton. I designed the study, obtained the data and conducted the statistical analysis. We (AJM, SH) wrote the paper together. SH submitted the paper and corresponded with the journal.

Yours sincerely

Alex Mitchell

Dr Alex Mitchell

Consultant and Senior Lecturer in Liaison Psychiatry/Psycho-oncology

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This letter is to confirm that I provided Sheila Hardy with assistance to clean the data for these two studies.

1. Hardy S, Hinks P and Gray R. (2012) Screening for cardiovascular risk in patients with severe mental illness in primary care: a comparison with patients with diabetes. *Journal of Mental Health.* **22** (1) 42-50.
2. Hardy S, Hinks P and Gray R. (2013) Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? *International Journal of Social Psychiatry.* (in press)

Yours sincerely

P. Hinks

Philippa Hinks