CASE FINDING FOR DEPRESSION IN PATIENTS WITH LONG-TERM PHYSICAL CONDITIONS IN PRIMARY CARE

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INTELLECTUAL PROPERTY AND PUBLICATION STATEMENTS

The candidate confirms that the work submitted is her own, except where work which has formed part of jointly-authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

Chapter two of this thesis is based on work jointly conducted and published as McLintock K, Russell AM, Alderson SL, et al. The effects of financial incentives for case finding for depression in patients with diabetes and coronary heart disease: interrupted time series analysis. *BMJ Open* 2014;**4**:e005178.

My own contributions, fully and explicitly indicated in the thesis, have been to lead on development of the study protocol, liaise with NHS Leeds to recruit participants and arrange data collection, oversee transfer of data to the University of Leeds, analyse processed data and act as lead author of the manuscript.

The other members of the group and their contributions have been as follows: Robbie Foy, Professor of Primary Care (principal investigator for RfPB grant), Robert West, Professor of Biostatistics (contribution to protocol , statistical analysis and analysis of processed data), Allan House, Professor of Liaison Psychiatry (contribution to protocol and analysis of processed data), Dr Sarah Alderson Clinical Lecturer in Primary Care (contribution to protocol and analysis of processed data), Dr Amy Russell Research Fellow (analysis of processed data) and Mrs Karen Westerman Information in General Practice Manager (facilitated recruitment and data collection). Dr Paul Lord assisted the research team by compiling practice average and England average demographic characteristics.

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Chapter five contains reference to McLintock K, Foy R, House A, Alderson S L. Letters »Screen all for depression. A policy of universal screening for depression: caution needed. *BMJ* 2016;353:i2174

I was the lead author of this letter. My co-authors (Robbie Foy, Professor of Primary Care, Allan House, Professor of Liaison Psychiatry and Dr Sarah Alderson, Clinical Lecturer in Primary Care) commented on drafts of the letter.

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ABSTRACT

The aim of this thesis was to describe the impact and consequences of case finding for depression in patients with long-term physical conditions in primary care from the perspective of primary healthcare professionals. Study one (chapter two) evaluated the effects of incentivised case finding using an interrupted time series analysis of routinely collected data. It found that incentivised case finding increased new depression-related diagnoses and rates of antidepressant prescribing. Increased prescribing is of concern as it may include treatment of people unlikely to respond to medication.

Study two (chapter three) identified and classified what has been written about primary healthcare professionals beliefs on implementing case finding using a systematic review and the 'best fit' framework synthesis approach. A range of contradictory beliefs and three new themes were identified; mistrust, trade-offs and dilemmas. These findings demonstrate conflict and tensions which could undermine implementation of case finding.

Study three (chapter four) characterised the range of positions held by primary healthcare professionals on the role, implementation and value of case finding using an online Q method study involving primary healthcare professionals. Three recognisable positions were produced; objections to the principle of case finding for depression, case finding for depression is worthwhile and objections to implementation of case finding for depression. These positions may influence how clinicians deliver and respond to case finding. Implementation is challenging if there is a spread of perspectives.

These findings, considered alongside the absence of evidence that case finding improves clinical outcomes, indicate that case finding for depression in long-term physical conditions should not be recommended or incentivised until more robust evidence of improved patient outcomes resulting from the changes case finding is likely to drive, especially in prescribing, and acceptability to professionals becomes available.

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KEY TO ABBREVIATIONS (IN CHRONOLOGICAL ORDER)

Abbreviation	Meaning
APMS	Adult Psychiatric Morbidity Survey
e.g.	for example
UK	United Kingdom
CHD	coronary heart disease
NICE	The National Institute for Health and Care Excellence
GP	general practitioner
ICD10	International Classification of Diseases, 10th edition
DSM4/DSM5	Diagnostic and Statistical Manual of Mental Disorders, 4th/5th Edition
NHS	National Health Service
PHQ2/PHQ99	Patient Health Questionnaire-2/ Patient Health Questionnaire-9
HCPs	healthcare professionals
PPV	positive predictive value
NPV	negative predictive value
LR+	positive likelihood ratio
LR-	negative likelihood ratio
US/USA	United States/United States of America
QOF	Quality and Outcomes Framework
PHCPs	primary healthcare professionals
RCGP	Royal College of General Practitioners
BMA	British Medical Association
GPC	General Practitioners Committee
COPD	chronic obstructive pulmonary disease
ITS	Interrupted time series analysis
OR	odds ratio
LARC	long acting reversible contraception
CI	confidence interval
RCT	randomised controlled trial
ARIMA	autoregressive integrated moving average
IAPT	Improving Access to Psychological Therapies programme
PCMHTs	Primary Care Mental Health Teams
CMHTs	Community Mental Health Teams
IiGP	Information in General Practice Team

TPP	The Phoenix Partnership
MIQUEST	Morbidity Information Query and Export Syntax
RF	Robbie Foy
AH	Allan House
SA	Sarah Alderson
KMc	Kate McLintock
IM&T DES	Information Management and Technology Direct Enhanced Service
SPC	Statistical process control
NIHR	National Institute for Health Research
RfPB	Research for Patient Benefit Programme
PPI	Patient and Pubic Involvement
CENTRAL	Cochrane Central Register of Controlled Trials
DARE	Database of Abstracts of Reviews of Effects
SIGN	Scottish Intercollegiate Guidelines Network
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PICOS	population, interventions, comparators, outcomes and study designs framework
diabetes	diabetes mellitus
BJGP	British Journal of General Practice
BMJ	British Medical Journal
HBE	Health Business Elite
TDF	Theoretical Domains Framework
BPS	British Psychological Society
TPB	Theory of Planned Behaviour
NPT	Normalisation Process Theory
GMC	General Medical Council
CASP	Critical Appraisal Skills Programme
PCT	Primary Care Trust
FTE	full time equivalent
ANPs	advanced nurse practitioners
VPS	Virtual Private Server
PCA	principal component analysis
CFA	centroid factor analysis

CHAPTER ONE

INTRODUCTION

This chapter will outline what depression is and how it is recognised and managed in primary care, summarise the association between depression and long-term physical illness, consider why depression may be under-detected in primary care and describe past and present recommendations for case finding for depression in long-term physical conditions.

The chapter will close with a statement of the aim and structure of the PhD, and description of the study questions which will be answered to achieve the aim.

DEPRESSION

Depression is a mood disorder which can present with a wide variety of psychological and physical symptoms. Psychological symptoms include low mood, anhedonia, feelings of guilt and loss of concentration, and physical symptoms include lethargy, pain and sleep and appetite disturbance. Depression differs from periods of unhappiness in that the symptoms are persistent; lasting weeks, months or years. Depression also varies in severity, from mild depression, with low mood for an extended period, to severe, which can result in psychomotor skill impairment and suicidal ideation or intent.

Depression is common. There is high prevalence of depression in England, with The Adult Psychiatric Morbidity Survey (APMS) report of 2014 describing one adult in six (15.7%) as having symptoms of a common mental disorder. (1) Common mental disorders were defined as different types of depression and anxiety (e.g. depression, generalised anxiety disorder, panic disorder, phobias, and obsessive compulsive disorder and mixed symptoms or 'common mental disorder not otherwise specified').

A number of causes of depression have been identified. These range from uncommon causes such as genetic predisposition,(2) to more commonly encountered precipitants like brain pathology (especially in older people),(3) drug induced depression (prescribed or recreational drugs)(4, 5) and depression in response to adversity.(6) Higher risk of common mental disorders is associated with social disadvantage, deprivation and poverty; (1, 7)this means that depression is more prevalent in sections of the population including but not limited to some

Black, Asian and minority ethnic groups,(8) adults not in employment and those in receipt of benefits. There is also an association between common mental disorder and long-term physical conditions.(1)

DEPRESSION IN LONG-TERM PHYSICAL CONDITIONS

There is a recognised association between common mental disorders and many long-term physical conditions. The APMS reported those diagnosed with a long-term physical condition were more likely than those without any co-morbid physical diagnoses to have at least one type of common mental disorder.(1) This association has been recognised for some time, with governmental policy on the issue dating back to 2011 in the United Kingdom (UK)(9).

Whilst the prevalence of depression varies amongst those with different long-term physical conditions, the APMS reported an association between the "presence of at least one chronic physical condition in the past 12 months, and having symptoms of common mental disorder in the past week."(1) The prevalence of co-morbid physical and mental health diagnoses was higher in men and women with severe common mental disorder symptoms, and the prevalence of subthreshold diagnoses of depression was also increased in those with long-term physical conditions.(1) Other authors have estimated there to be a two to three-fold increased lifetime risk of depression in those diagnoses with diabetes or coronary heart disease (CHD).(10, 11) The prevalence of depression rises as the number of physical co-morbidities increases, prevalence being greater still for those with long-term physical conditions resident in deprived areas .(12)

The Chief Medical Officer's annual report 2013(13) drew attention to the adverse outcomes in individuals with co-morbid physical and mental health diagnoses. Not only does co-morbidity worsen the prognosis of physically and mental health conditions, (10, 14, 15) it increases healthcare and societal costs (10, 16, 17), e.g. through increased use of unscheduled care services such as emergency hospital admissions or attendances at emergency departments.(18) In 2012 The King's Fund estimated, "co-morbid mental health problems raise total healthcare costs by at least 45% for each person with a long-term condition and co-morbid mental health problem… (suggesting) that between 12% and 18% of all NHS expenditure on long-term conditions is linked to poor mental health and wellbeing – between £8 billion and £13 billion in England each year. The more conservative of these figures equates to around £1 in every £8 spent on long-term conditions."(19) The authors went on to highlight the interaction between co-morbidity and deprivation which generates and maintains social inequalities.(19)

There is also a suggestion that co-morbid depression increases the risk of adverse physical health outcomes and is associated with a higher mortality rate than the general population; e.g. patients with co-morbid depression are more likely to develop cardiovascular disease than is predicted by established risk factors, such as smoking tobacco and hypercholesterolaemia, alone.(20-23)

The mechanism by which morbidity and mortality are increased in those with depression and long-term psychical conditions is not currently understood, though a number of biopsychosocial factors are implicated which operate in a bidirectional way. Biological factors include autonomic dysfunction, inflammatory processes and neuro-endocrine dysregulation. For example, chronic mental stress can lead to sustained sympathetic overdrive and diminished vagal tone which are associated with transient endothelial dysfunction and inflammation, and affect neurotransmitter regulation. Deficiencies in serotonin may independently contribute to the development of depression, hypertension and cardiovascular risk.(24, 25) Psychological factors such as reduced tolerance and concordance with treatment plans can adversely affect an individual's symptom control, increase disease burden and adversely affect their wellbeing. Similarly depression may adversely affect an individual's ability or motivation to manage their physical health. Behavioural mechanisms such as increased likelihood of tobacco smoking and physical inactivity also contribute.(26) Social factors include the potential adverse social and financial consequences of long-term physical conditions, such as social isolation, difficulty gaining or maintaining employment and reduced earnings. Each of these factors can worsen physical and mental health through loss of social opportunity and financial barriers to an individual protecting or maintaining their physical and mental health.(11, 19, 27-32)

THE MANAGEMENT OF DEPRESSION IN PRIMARY CARE

This issue of depression is especially relevant to primary care as the majority of assessment, recognition, diagnosis and treatment of depression in adults takes place in this setting, with reference to national, clinical guidelines. Following diagnosis the National Institute for Health and Care Excellence (NICE)(33, 34) advises a 'stepped-care' approach to the treatment of depression in primary care. This aim of this approach is that the "least intrusive, most effective intervention is provided first; if a person does not benefit from the intervention initially offered, or declines an intervention, they should be offered an appropriate intervention from the next step."(34) Stepped-care seeks to both avoid overtreatment, and to tailor care to the individual patient. NICE has published general guidance on the recognition and management

of depression in adults, (34) and specific guidelines applicable to patients who have long-term physical conditions(33).

UNDER-DETECTION OF DEPRESSION IN PRIMARY CARE

Traditionally depression was recognised and diagnosed by a general practitioner (GP) during a face to face consultation, the family doctor's familiarity with the patient playing an important part in the process of disclosure, recognition and diagnosis.(35) Discussion about mood and related psychological or physical symptoms would be initiated by the patient or doctor if the issue was believed to be pertinent, and a diagnosis made on the basis of symptoms identified during isolated or ongoing assessment, often after ruling out a physical cause for the patient's symptoms.(35, 36) This description could now be considered overly simplistic, with the majority of interactions between primary healthcare professionals (PHCPs) and patients taking place in complex and busy primary care consultations. A cross-sectional study of video recordings by Salisbury described consultations covering an average of 2.5 problems in a mean duration of 11.9 minutes, with 41% of consultations involving at least three problems and 72% of consultations including multiple disease areas. (33) It has been suggested that 'usual care' by general practitioners fails to detect between 30-50% of depressed patients. (37) This is in part due to the complex consultations described, and the role co-morbidity plays in making depression hard to recognise. (38, 39)

Another issue in the recognition and diagnosis of depression is the definition of depression, and associated diagnostic criteria, recognised by a PHCP. NICE guidelines rely on the standardised definition of depression from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM4).(40)NICE state this definition was preferred to the alternative International Classification of Diseases, 10th edition (ICD10)(41) because DSM4 was used in the majority of the evidence reviewed when generating the guideline and also provides definitions for atypical or seasonal symptoms and grades the severity of depression, making guidance on 'stepped-care' treatment easier to apply.(34) DSM4 also requires a slightly higher threshold of symptom burden to make a diagnosis of depression (five out of nine symptoms, including one key symptom, in DSM4, compared with four out of ten symptoms, including two key symptoms, in ICD10).(34) The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM5)(42) has since been published, though updates to NICE guidance do not yet reflect this.

Alongside explicit reference to DSM4, NICE guidance on the recognition and management of depression in adults also recognises that “symptoms below the DSM4 and ICD‑10 threshold criteria can be distressing and disabling if persistent.”(34) As a consequence the guidance was updated in 2016 to include “’subthreshold depressive symptoms', which fall below the criteria for major depression.”(34) This decision reflects that the use of the term ‘depression’ in ordinary conversation is not synonymous with the definition recognised in psychiatric literature, but includes a broader spectrum of mood or common mental disorder symptoms which can be associated with other biopsychosocial risk factors for mental illness.(43)

In keeping with this many doctors recognise cases of ‘depression’ which do not meet the standardised diagnostic criteria laid out by the DSM or ICD, or do not routinely refer to standardised criteria when assessing patients. This is possibly more commonplace in busy primary care clinics where a diagnosis of depression may replace repeated assessments over multiple visits and “be an attractive instrument for managing uncertainty in the consulting room.”(44) There is also suggestion GPs “consider(ed) their practical wisdom and clinical judgment…to be more important than objective assessments.”(45) Whatever the driver, regular subthreshold diagnoses of depression on the basis of symptom burden, rather than diagnostic criteria, make depression quite different from many physical conditions (e.g. diabetes, hypertension) where diagnosis and treatment on the basis of symptoms that do not meet diagnostic criteria would be judged improper and challenged by colleagues.

The evidence for under-detection of depression, particularly in long-term physical conditions, (37-39) led to the introduction of policies recommending case finding for depression.

CASE FINDING AND SCREENING

This thesis uses the National Health Service (NHS) England definition for case finding, “a systematic or opportunistic process that identifies individuals from a larger population for a specific purpose.”(46) This definition differentiates case finding from screening. Public Health England has defined screening as “the process of identifying healthy people who may be at increased risk of disease or condition.”(47)

Wilson and Jungner for the World Health Organisation, set out criteria for appraising the validity of a screening programme in 1968 (table 1).(48) Whilst these criteria have been subject to revision and refinement, (49, 50) they illustrate the principal features of a screening programme.

TABLE 1,

Wilson and Jungner criteria for appraising the validity of a screening programme (1968)(48)	
1	The condition being screened for should be an important health problem
2	The natural history of the condition should be well understood
3	There should be a detectable early stage
4	Treatment at an early stage should be of more benefit than at a later stage
5	A suitable test should be devised for the early stage
6	The test should be acceptable
7	Intervals for repeating the test should be determined
8	Adequate health service provision should be made for the extra clinical workload resulting from screening
9	The risks, both physical and psychological, should be less than the benefits
10	The costs should be balanced against the benefits

The primary distinction is therefore that case finding aims to identify patients who have a particular condition, and screening aims to identify those at increased risk of developing a particular condition, or identify the condition in an early or latent phase.

Systematic population screening for depression is not recommended by the UK National Screening Committee for the following reasons;

- "The questionnaire-based tests used to identify people who are at risk of depression are not reliable when used in the general population. Many people would be falsely identified as having depression."(51)
- "Although screening would detect people who are at risk of developing depression, there is no clear evidence that treatment would prevent people with mild depression going on to develop severe depression."(51)

This is in contrast to the US where screening for depression in the general adult population is recommended by the US Preventive Services Task Force.(52)The Task Force qualify their recommendation with the statement "screening should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up."(52)

Recently Google, in partnership with the US National Alliance on Mental Illness, have introduced the option to "check if you're clinically depressed"(53) via self-assessment using a validated screening instrument (Patient Health Questionnaire-9 (PHQ-9)). Google and the US National Alliance on Mental Illness suggest the result of this self-assessment will indicate whether an individual needs to seek face to face assessment with their doctor and help them to have a more informed discussion about depression.(53) Responses to the launch of this initiative have been mixed, with suggestion it could raise awareness and improve detection and treatment of depression, or potentially cause harm through over-diagnosis, inadequate follow up and misuse of personal data.(54)

CASE FINDING FOR DEPRESSION

THE PROCESS OF CASE FINDING

Case finding for depression requires healthcare professionals (HCPs) identify the population of interest and ask patients about the presence of recognised symptoms of depression. Standardised instruments are often recommended, instruments suggested by the US Preventive Services Task Force include the Patient Health Questionnaire-2 (PHQ-2) or PHQ-9 item scales, Hospital Anxiety and Depression Scales in adults, the Geriatric Depression Scale in older adults, and the Edinburgh Postnatal Depression Scale in postpartum and pregnant women.(52) This thesis will not consider case finding for depression in pregnancy or the post partum period.

Each of the case finding instruments listed has been validated for use and there is little evidence to suggest one is better than another.(55) The brief PHQ-2 and PHQ-9 are suggested to be the most commonly used and validated instruments used in the primary care setting,(56) both have been shown to be as good as more time consuming scales.(57, 58)

The PHQ-2 has been evaluated in a number of studies; overall the instrument has been judged to be sensitive rather than specific, indicating a false positive result is more likely than a false negative.(59) Table 2 is not exhaustive, but provides a brief summary of sensitivities and specificities from large analyses.

TABLE 2, SUMMARY OF SENSITIVITIES AND SPECIFICITIES OF PHQ2

Lead Author	Setting	PHQ2 compared with	Sensitivity	Specificity
B Arroll(59)	2,642 family practice patients	Composite International Diagnostic Interview depression reference standard	86%	78%
C Li(60)	8,205 adults aged 65 and older participating in a survey on alcohol and related conditions	DSM4	100%	77%
D McManus(61)	1024 cardiology outpatients	Diagnostic Interview Schedule	39%	92%
B Löwe(62)	1,419 outpatients	Structured Clinical Interview for DSM4	78%	79%
K Kroenke(58)	580 primary care and obstetrics/gynaecology outpatients	Health professional interview	83%	92%

A meta-analysis of 14 studies found that the PHQ-9 is 81 percent sensitive and 92 percent specific for major depressive disorder in the primary care setting.(57)

The variation in sensitivity and specificity calculated for PHQ2 in different settings is apparent in table 2. The positive predictive value (PPV) predicts the likelihood a 'true positive' diagnosis of depression is identified by a positive test result. The negative predictive value (NPV) predicts the likelihood a 'true negative', or person without depression, is identified by a negative test result. The test sensitivity and specificity and disease prevalence are used to calculate PPV and NPV.

$$\mathrm{NPV} = \frac{sensitivity\ x\ prevalence}{sensitivity\ x\ prevalence + (1-specificity) x\ (1-prevalence)}$$

$$\text{PPV} = \frac{specificity\ x\ (1-prevalence)}{(1-sensitivity)\ x\ prevalence + specificity\ x\ (1-prevalence)}$$

Due to the large effect of prevalence on the calculation of PPV and NPV, the result can only be used to estimate the predictive value of a test when the values have been calculated in a study population with similar disease prevalence to the patient population being considered. In some circumstances the prevalence is 'normalised' to 50% to standardise the PPV/NPV and overcome this issue.(63) In the primary care population, where a relatively low prevalence of depression is encountered, this can result in a large number of false positives from a test which demonstrated good predictive values in a different setting.

Figure 1 is a worked example of false positive rates for case finding for depression in patients with CHD and/or depression in UK primary care. It assumes a 20% prevalence of depression in primary care patients with CHD and/or diabetes,(64) and uses meta-analysis findings of 81% sensitivity and 92% specificity for case finding (57) in a population of 1000 patients.

FIGURE 1, WORKED EXAMPLE

		Case		Total
		+	-	
Test	+	162	64	226
	-	38	736	774
Total		200	800	1000

Extrapolating this to a practice population of 7500, close to the English national average,(65) with the number of adult patients taken to be 6000, and one third (2000) of those adults assumed to have a diagnosis of CHD and/or diabetes,(66-68) case finding would generate 128 episodes of unnecessary patient follow up per screening cycle. This follow up would be spread across a number of GPs. The average number of full time equivalent GPs per 1000 patients per practice in England is 0.59,(69) suggesting the 128 patients would be seen by 4.4 full time equivalent GPs in this example practice of population 7500.

To overcome the limitations of predictive values a likelihood ratio can be calculated. As with predictive values the positive likelihood ratio (LR+) indicates likelihood of a 'true positive' diagnosis of depression being identified by a positive test result, and a negative likelihood ratio (LR-) the converse. A likelihood ratio of greater than one (LR+ or LR-) suggests the test result is

associated with the presence or absence of the disease; the closer to one the result, the lower the association.

$$LR+ = \frac{sensitivity}{1 - specificity}$$

$$LR- = \frac{1 - sensitivity}{specificity}$$

LR+, LR- and PPV for PHQ2 were calculated in a primary care population by Arroll.(59) A range of results was given, corresponding to the number of positive responses given by the patient. LR+ ranged from 2.4 – 11.0, LR- from 0.07 – 0.62 and PPV from 14% – 42%. As expected a greater number of positive responses to PHQ2 questions are more significantly associated with an accurate test result

If the case finding instrument reveals a positive result this is not diagnostic of depression in itself, it indicates only the need for further assessment by an appropriately trained clinician. Some suggest this should include administration of PHQ-9 to assess the severity of any depression. (55, 59) In older adults, the Geriatric Depression Scale is also an appropriate instrument to grade depression severity. Suitable treatment or follow-up would be arranged if a diagnosis of depression is made as a result of further assessment. All organisations delivering case finding for depression should ensure adequate systems are in place to ensure these subsequent steps occur.

The recommended timing or frequency of case finding for depression varies between guidelines and will be outlined later in the introduction.

No optimum means of delivering case finding has been identified(70) and some instruments can be used face to face, via the telephone or self-administered by the patient.(71) In the United States (US) primary care providers who have fully adopted electronic health records are more likely to deliver case finding for depression than those providers using paper records.(72)

EFFECTIVENESS OF CASE FINDING

Case finding instruments have been demonstrated to be valid and effective when used to identify which adult patients from an at-risk population are likely to be depressed and benefit from diagnostic assessment with an appropriately trained HCP.(59) Despite this there is no evidence that case finding for depression in adults, whether in the presence(73) or absence of

coordinated care systems, (74, 75) improves patient outcomes. NICE guidelines which advocate case finding (33, 34) and the US Preventive Services Task Force statement on screening (52) specify the need for coordinated follow-up.

Looking specifically at case finding in adults with long-term physical conditions, a cohort study found a greater likelihood of a new diagnosis of depression and initiation of antidepressant treatment in the 28 days following Quality and Outcomes Framework (QOF) incentivised case finding.(76) A one year, cross-sectional study of non-QOF incentivised case finding in primary care for depression in patients with CHD, diabetes and/or stroke using the Hospital Anxiety and Depression Scales, found associations between case finding and both new diagnoses and antidepressant prescribing.(77) The longer term effects on the populations eligible for case finding are unknown. As highlighted by the UK National Screening Committee there is no clear evidence that early treatment prevents people with mild depression going on to develop severe depression.(51)

Case finding is likely to be more accurate in severe depression, where it is perhaps less necessary because PHCPs are less likely to miss symptoms, or GPs fail to diagnose depression, via 'usual care'. In mild depression the high false positive rate for case finding instruments becomes more of a problem, and the possible benefits of case finding become less perceptible, because common treatments such as anti-depressant medication are less effective. Yet this is the patient group in which previously undetected symptoms of depression are perhaps most likely to be recognised following case finding.(33, 34)

The greater likelihood of false positive results with case finding for depression indicates hidden costs of case finding in clinical practice. The need to follow every positive result up with further assessment by an appropriately trained clinician, typically a GP, creates significant demand in the already busy primary care setting,(78) and false positive case finding results may also result in distress, anxiety or confusion in for the patient affected. If a true positive result is identified this would also increase demand on the GP practice through generation of follow up appointments and treatment costs. Whilst it is likely all PHCPs view identification and treatment of depression to be appropriate, accommodating the greater demands generated by case finding, in follow up and ongoing care of both 'true and false' results, may lead PHCPs to question whether the benefits of case finding outweigh the costs.

THE ENGLISH CONTEXT OF CASE FINDING FOR DEPRESSION IN PATIENTS WITH LONG-TERM PHYSICAL CONDITIONS IN PRIMARY CARE

NON-INCENTIVISED CASE FINDING

In the UK various bodies including NICE(33, 34, 79) and the Royal College of General Practitioners (RCGP)(80) recommend case finding for depression in high-risk groups using the PHQ2 instrument. There is no financial or material incentive to implement these guidelines. This thesis will focus only on guidance concerned with case finding for depression in adults with long-term physical conditions. Whilst guidelines for carers,(80) antenatal & postnatal care(79) may overlap these will not be considered in detail, though the outputs of this PhD may have implications for case finding for depression outside long-term physical conditions.

NICE guidance on Depression in Adults with a Chronic Physical Health Problem(33) advocates HCPs, "be alert to possible depression (particularly in people with a past history of depression or a chronic physical health problem with associated functional impairment)."(33) This loose definition of the population of interest suggests guidance is broadly applicable to primary care patient populations.

The guidance advises HCPs to ask patients following questions, which make up the PHQ2 instrument.(33) No guidance is offered on the optimum frequency of delivering these case finding questions.

- During the last month, have you often been bothered by feeling down, depressed or hopeless?
- During the last month, have you often been bothered by having little interest or pleasure in doing things?"(58)

If the patient answers 'yes' to either of the PHQ2 questions but the HCP is not competent to perform a mental health assessment, NICE advises the HCP refer the patient to an appropriate professional. If this professional is not the patient's GP, the GP should be informed of the referral.(33)

The guidance goes on to offer detailed advice on assessment:

"A practitioner who is competent to perform a mental health assessment should:

- ask three further questions to improve the accuracy of the assessment of depression, specifically:

    - During the last month, have you often been bothered by feelings of worthlessness?
    - During the last month, have you often been bothered by poor concentration?
    - During the last month, have you often been bothered by thoughts of death?
- review the patient's mental state and associated functional, interpersonal and social difficulties
- consider the role of both the chronic physical health problem and any prescribed medication in the development or maintenance of the depression
- ascertain that the optimal treatment for the physical health problem is being provided and adhered to, seeking specialist advice if necessary."(33)

This differs from NICE guidance on Depression in Adults which offers simpler advice that "a practitioner who is competent to perform a mental health assessment should review the person's mental state and associated functional, interpersonal and social difficulties."(34) Both guidelines recommend HCPs consider using a "validated measure…to inform and evaluate treatment,"(33, 34)and suggest using the Distress Thermometer(81) or an informant history as part of the clinical assessment of patients with significant language or communication difficulties.(33, 34)

The basis of the guideline recommendation for case finding is outlined in supporting evidence provided by NICE. Five considerations are identified; the higher prevalence of depression in patients with long-term physical conditions, adverse outcomes of co-morbid depression and physical conditions, difficulties in detecting co-morbid depression , clinical challenges to accurate diagnosis due to the crossover of physical consequences of long-term physical conditions and somatic symptoms of depression, and the availability of valid case finding instruments.(82)

NICE guidelines are developed using a rigorous methodology, though some recommendations are still based more upon consensus than evidence. There have been no trials in the UK or similar healthcare systems internationally, which have directly compared outcomes following case finding for depression with no case finding, and whilst the considerations behind the recommendation for case finding seem plausible, there is no evidence to date that case finding addresses the issues or improves clinical outcomes.(73-75)

INCENTIVISED CASE FINDING

QUALITY AND OUTCOMES FRAMEWORK

The UK QOF for general practice was established in 2004 as “the largest health related pay-for performance scheme in the world.”(83) QOF is voluntary and “rewards practices for the provision of 'quality care' and helps to fund further improvements in the delivery of clinical care.”(84) If practices choose to participate, staff work to achieve specific targets known as QOF indicators. By achieving these targets practices earn QOF points which are remunerated at a set monetary value per point. The number of points allocated to a target varies, making some targets more financially attractive than others according to the perceived results-to-effort ratio.

Indicators are located in one of three QOF domains; clinical (e.g. depression, asthma, cancer), public health (e.g. smoking, obesity) or public health - additional services (e.g. cervical screening, contraception). In the past organisational or quality and productivity indicators were included,(85) but yearly revisions of QOF, now overseen by NICE, NHS Employers and the British Medical Association (BMA) General Practitioners Committee (GPC)(86) see indicators and domains introduced, maintained or retired according to NHS priorities. The QOF gives an indication of the overall practice achievement through a points system which is published annually by the NHS. These data are publically available.(87)

Studies examining the overall effectiveness of QOF have concluded that the incentive programme led to improvements in the quality of care when judged on process (e.g. monitoring blood pressure or prescribing a specific class of drug),(88, 89) with an associated small, detrimental effect on the quality of non-incentivised elements of care. (89) The focus on process based QOF indicators, and the thresholds applied to targets, were criticised due to the limited impact of QOF in improving health outcomes(90) or reducing health inequalities.(91) The impact on professional behaviour and patient experience is uncertain.(88)

QOF currently continues in England and Wales, though its format has evolved with time and the scheme is due to be phased out altogether by 2018 having, “reached the end of its useful lifespan”.(92) QOF has been decommissioned in Scotland, being described as outdated, bureaucratic and time-consuming,(93) its quality improvement function has been transferred to ‘quality circles’; groups of local practices working together to identify and develop relevant improvement work.(83) QOF is temporarily suspended in Northern Ireland due to pressures facing general practice services.(94)

QUALITY AND OUTCOMES FRAMEWORK INCENTIVISED CASE FINDING

QOF rewarded case finding for depression in all patients with a diagnosis of CHD or diabetes over 2006-13. This indicator was known as 'QOF DEP1' and defined as, "the percentage of patients on the diabetes register and/or the CHD register for whom case finding for depression has been undertaken on one occasion during the previous 15 months using two standard screening questions."(95) These two questions were the PHQ2. A designated clinical code indicating the use of these questions was recorded in the patient record whenever the PHQ2 was administered, irrespective of the responses. Practices were reimbursed according to the proportion of patients with a record of case finding in the preceding 15 months. Financial rewards were not linked to the provision of further care following case finding. Payment thresholds were set at achievements of 40-90% of eligible patients until 2012, and 50-90% 2012-13. The indicator had a value of eight points from 2006-10 and six points from 2010-13. Each point was worth £133.76 in 2012-13, the final year of incentivisation.

The rationale for the introduction of QOF incentivised case finding for depression was the increased prevalence of depression in patients with diabetes and/or CHD, the poorer clinical outcomes; including increased mortality and the availability of safe and effective treatment for depression.(96) No explanation was given why patients with diabetes and CHD were selected for QOF incentivised case finding, and those with other chronic diseases associated with depression (e.g. musculoskeletal disorders and chronic obstructive pulmonary disease (COPD))(19) excluded from the initiative. Incentivised case finding was withdrawn from the QOF at the end of the 2012-13 year because of doubts over benefits.(97)

SUMMARY

There is a recognised association between depression and many long-term physical conditions.(1) The challenges faced in the recognition and diagnosis of depression in patients with long-term physical conditions, (37-39) and the poorer physical, psychological and societal outcomes (10, 14-17) of this co-morbidity have resulted in the promotion of case finding for depression using validated instruments in the belief that identifying depression could lead to treatment which would improve patient outcomes. Effective treatments for depression are available, e.g. low-intensity psychosocial and psychological interventions for subthreshold or mild depression, and anti-depressant medication which is more effective in severe depression.(33, 34)

In clinical practice case finding is likely to be more accurate in severe depression, where it is perhaps less necessary because PHCPs are less likely to miss symptoms or fail to diagnose depression via 'usual care'. In mild depression the high false positive rate for case finding instruments becomes more of a problem, and the possible benefits of case finding become less perceptible because common treatments, such as anti-depressant medication, are less effective; yet this is the patient group most likely to be diagnosed following case finding for depression in long-term physical conditions.

The recommendation for case finding has been both guideline based and financially incentivised. Although QOF incentivised case finding for depression in patients with diabetes and/or CHD has been retired because of doubts over benefits, (97)case finding remains relevant as NICE guidelines continue to promote case finding for patients with long-term physical conditions.(33) This is not an exceptional recommendation; case finding is also promoted for other clinical conditions.(34, 79, 80, 98)

Despite these recommendations it is known that there is no evidence that case finding for depression in adults, whether in the presence(73) or absence of coordinated care systems, (74, 75) improves patient outcomes. Previous research has found associations between incentivised case finding for depression and both new diagnoses and antidepressant prescribing.(76, 77)

The recommendations for case finding have been grounded in logic; that identifying and treating depression in patients in at-risk groups through case finding will improve patient outcomes. But current evidence and experience of QOF incentivised case finding does not support this assumption. In order to understand doubts about the benefits of case finding for depression in long-term physical conditions it is necessary to understand the present-day and retrospective experience and responses of PHCPs, the group primarily responsible for delivering case finding, to the initiative.

AIM AND OVERVIEW OF THE PhD

AIM

To describe the impact and consequences of case finding for depression in patients with long-term physical conditions in primary care from the perspective of primary healthcare professionals.

OBJECTIVES

This thesis will answer the following study questions to achieve this aim.

Study questions	Issues being addressed	Study design	Thesis chapter
What were the effects of QOF incentivised case finding for depression on diagnosis and treatment?	Case finding for depression in long term physical conditions was withdrawn because of doubts over benefits. This study will examine the presumed mediators of patient benefit, including increased diagnosis and treatment.	Interrupted Time Series analysis	2
What has been written about the beliefs held by primary healthcare professionals on implementing case finding for depression in patients with long-term physical conditions?	Case finding for depression is still relevant and promoted. To understand how both incentivised and non-incentivised case finding has been received, and how future attempts to employ case-finding are likely to fare, it is important to know the range of beliefs about case finding and identify any attitudinal barriers to implementation.	Systematic review	3
Are there shared perspectives about case finding among primary healthcare professionals? What	Can primary healthcare professionals be characterised according to their positon on case finding for depression in patients with long-term physical	Q methodology study	4

influences the holding of a particular perspective?	conditions? While case finding is promoted this information could be used to guide strategies and initiatives to increase uptake of case finding and implement it more effectively.

CHAPTER TWO

INTERRUPTED TIME SERIES ANALYSIS EXAMINING THE EFFECTS OF FINANCIAL INCENTIVES FOR CASE FINDING FOR DEPRESSION IN PATIENTS WITH DIABETES AND CORONARY HEART DISEASE

ABSTRACT

OBJECTIVES

To evaluate the effects of Quality and Outcomes Framework incentivised case finding for depression on diagnosis and treatment in targeted and non-targeted long-term conditions.

DESIGN

Interrupted time series analysis (ITS).

SETTING

General practices in Leeds, UK.

PARTICIPANTS

Sixty-five (58%) of 112 general practices shared data on 37,229 patients with diabetes and coronary heart disease targeted by case finding incentives, and 101,008 patients with four other long-term conditions not targeted (hypertension, epilepsy, chronic obstructive pulmonary disease and asthma).

INTERVENTION

Introduction of a policy of incentivised case finding for depression using two standard screening questions.

MAIN OUTCOME MEASURES

Clinical codes indicating new depression-related diagnoses and new prescriptions of antidepressants. We extracted routinely recorded data from February 2002 through April 2012. The number of new diagnoses and prescriptions for those on registers was modelled with a binomial regression which provided the strength of associations between time periods and their rates.

RESULTS

New diagnoses of depression increased from 21 to 94 per 100,000 per month in targeted patients between the periods 2002-4 and 2007-11 (OR 2.09; 1.92 to 2.27). The rate increased from 27 to 77 per 100,000 per month in non-targeted group (OR 1.53; 1.46 to 1.62). The slopes in prescribing for both groups flattened to zero immediately after QOF was introduced but before incentivised case finding (p<0.01 for both). Antidepressant prescribing in targeted patients returned to the pre-QOF secular upward trend (Wald test for equivalence of slope, z=0.73, p=0.47); the slope was less steep for non-targeted group (z=-4.14, p<0.01).

CONCLUSIONS

Incentivised case finding increased new depression-related diagnoses. The establishment of QOF disrupted rising trends in new prescriptions of antidepressants which resumed following the introduction of incentivised case finding. Prescribing trends were of concern as prescriptions for people with mild to moderate depression unlikely to respond to such treatment may be included.

INTRODUCTION

BACKGROUND AND RATIONALE

As outlined in chapter one, pages 12-15, NICE recommends case finding for depression in people with long-term physical conditions.(33, 34) The QOF for general practice was established in 2004 and rewarded case finding for depression in all patients with a diagnosis of CHD or diabetes over 2006-13 (QOF years three to nine). Incentivised case finding was withdrawn from the QOF in 2013 because of doubts over benefits.(97) This study was undertaken in 2012, before withdrawal.

The evidence on the effectiveness of financial incentives in changing clinical behaviour is limited(99) and pay-for-performance schemes can have unintended adverse consequences , such as improving documentation rather than the quality of healthcare provided to patients.(100) More specifically in relation to QOF, a systematic review concluded advances in quality of care for long-term conditions were modest.(88) There are few rigorous evaluations of the effects of pay-for-performance, given that controlled comparisons are seldom acceptable to policy-makers, though a number of evaluations of QOF using ITS study designs have been published. Outcomes of these studies have varied; three evaluations examining processes of care and clinical outcomes in hypertension,(101)reduction in mortality (102) and

premature death in long-term physical conditions targeted by QOF,(103) did not show any significant or sustained effects. A study of incentivised care for patients with diabetes saw mixed effects; with initial improvements in processes of care such as measures of disease control and documentation of clinical assessment, but little sustained improvement in patient management, outcomes or equality of care.(104) Two ITS assessments of QOF identified positive effects; one examining long-acting reversible contraception (LARC) found incentives for contraceptive counselling in primary care led to an increase in prescribing and uptake of LARC methods,(105) and an evaluation of emergency admission for incentivised conditions described a greater than expected reduction in admissions when QOF targeted conditions were compared with non-incentivised conditions, suggesting QOF had unmeasured impacts on the provision and quality of healthcare.(106)

Whilst there are no coded data prior to the introduction of the case finding indicator, at face value the QOF did incentivise a change in practice given that around 86% of patients with diabetes and CHD were coded as screened at least every 15 months from indicator inception to retirement.(107) Yet, as described in chapter one, pages 10-11, there is no evidence that case finding for depression, whether in the presence(73) or absence of coordinated care systems, (74, 75) improves patient outcomes. A cohort study found a greater likelihood of a new diagnosis of depression and initiation of antidepressant treatment in the 28 days following QOF-incentivised case finding. Relative incidence was 3.03 [95% confidence interval (CI) 2.44–3.78] for diagnosis and 1.78 (95% CI 1.54–2.05) for treatment. The number needed to screen was 976 (95 CI 886–1104) for a new diagnosis and 687 (95% CI 586–853) for new antidepressant treatment. (76) The longer term effects on the whole population eligible for case finding are unknown. There may be further unintended effects on populations with other long-term conditions not targeted by incentivised case finding. Examining quality of care across a number of conditions Doran et al found that improvements associated with QOF incentives occurred at the expense of small detrimental effects on aspects of non-incentivised care.(89)

INTERRUPTED TIME SERIES

ITS study designs are quasi-experimental, or non-randomised, and are used when evaluation of an intervention by the ‘gold standard’ randomised controlled trial (RCT)(108) is not appropriate, feasible or ethical.(109)Interventions suitable for ITS analysis have been termed “natural experiments in real world settings” (109) and might include media campaigns or changes to health policy.

In an ITS data are collected at multiple instances over time, before and after a defined intervention, to detect whether the intervention had an effect significantly greater than underlying (secular) trends.(110) Data collection at multiple instances and statistical comparison of secular trends distinguish ITS analyses from simple before-and-after designs. By considering secular trends an ITS is less likely to under or overestimate an intervention effect than a before and after study.(111)Though it does not protect against other factors, e.g. publication of a related guideline or change in instrumentation of data collection, which might also influence practice or affect measurement.(112) It is important to consider these other factors during study design and analysis; ITS studies can be 'simple' without a comparison group, or be designed to compare the study population with a non-randomly assigned comparison group that did not participate in an intervention.

Autocorrelation can occur in data collected for ITS analysis, a situation where data collected in a short space of time are related or more similar than data points further apart, e.g. due to seasonal effects. Autocorrelation precludes the use of ordinary statistical tests which assume data are unrelated, and requires an appropriate statistical modelling technique, e.g. autoregressive integrated moving average (ARIMA) or time series regression modelling, be used. (109, 110)

In an ITS the intervention being considered can cause step changes or changes in slopes (immediate or delayed effects), e.g. a delayed effect could be seen following introduction of guidelines which have to be disseminated, understood and implemented by practitioners, leading to a lag between intervention and effect. To avoid false positive conclusions, or overestimation of intervention effect, attributing changes to a delayed effect requires a robust theoretical basis. For this reason it is good practice to state in advance (pre-specify) the hypothesised intervention effect.(110)

AIM

To evaluate the effects of QOF incentivised case finding for depression on diagnosis and treatment in patient populations with targeted and non-targeted long-term conditions.

RESEARCH QUESTION

It is known incentivised case finding was widely implemented, with QOF data reporting over 86% of eligible patients were asked case finding questons in England 2011-12.(107) As such the overall research question was:

- Did QOF incentivised case finding for depression change subsequent clinical practice?

A supplementary research question was also asked:

- Did incentivised case finding for depression change clinical practice for other patients with long-term physical conditions not targeted by QOF?

To answer these questions we considered whether QOF incentivised case finding was associated with any changes in underlying trends of:

- Coded diagnoses of depression recorded in patient notes
- Prescribing of antidepressant drugs
- Referrals to the Improving Access to Psychological Therapies programme (IAPT), Primary Care Mental Health Teams (PCMHTs), Community Mental Health Teams (CMHTs) or psychiatrists

Trends observed in patient populations targeted and not targeted by incentivised case finding were then compared.

METHODS

DESIGN

ITS analysis allowed evaluation of the effects of incentivised case finding whilst accounting for underlying secular trends. We compared trends in depression diagnosis and treatment between those patient populations targeted by incentivised case finding (diabetes and CHD) and other patient populations with long-term physical conditions not targeted by incentivised case finding (hypertension, epilepsy, COPD and asthma). Our rationale was that we would not expect outcomes in the non-targeted group to diverge from underlying secular trends unless there was a wider effect of incentives.

SETTING

General practices in Leeds, UK

PARTICIPANTS

All general practices in Leeds were invited to participate in this study. The inclusion criteria were that participant practices provided NHS services, were overseen by NHS Leeds, used electronic medical records and participated in QOF. No distinction was made between users of different electronic records systems or QOF attainment.

Compared with English indicators the physical health of people in Leeds was generally worse and levels of deprivation were higher.(113) Recorded depression in adults was similar (both around 11%)(114) as was performance on the QOF incentivised case finding indicator in our

final year of data collection (87% for Leeds over 2011-12 compared to England average of 86%).(107, 115)

TABLE 3, INCLUSION AND EXCLUSION CRITERIA

Inclusion Criteria	Exclusion Criteria
NHS general practice	Non-NHS practice
Overseen by NHS Leeds	Outside the authority of NHS Leeds
Used electronic clinical records system	Did not use electronic clinical records system

INTERVENTION

The ITS focused on the impact of QOF incentivised case finding for depression, an intervention which was part of the wider QOF programme and occurred separately to, but alongside, other changes.(110)

OUTCOME MEASURES

Outcome measures representing different aspects of depression diagnosis and management were chosen. This was because the study aim encompassed the general effects of case finding, meaning no one optimal outcome measure could be selected. The study team were also limited to working with routinely collected data. Accordingly the following outcome measures, derived from anonymised practice level data, were chosen; clinical codes indicating *case finding* for depression had taken place, recorded *diagnoses* of depression, the *prescription* of antidepressant drugs and *onward referral* for depression management to IAPT, PCMHTs, CMHTs or psychiatrist.

The limitations of some outcome measures were recognised. Whilst clinical code data are relatively specific they lack sensitivity, meaning false positives are avoided as clinicians should not enter a clinical code unless case finding has been delivered, though false negatives are a possibility if staff record the delivery of case finding in free text rather than using a designated clinical code. Referral data also have limited sensitivity, meaning higher rates of false negatives could be expected, e.g. referrals produced on paper and not recorded electronically, rendering the action undetectable when analysing routinely collected data. Despite these shortcomings each of the measures logically represented steps in the management of depression following

diagnosis and were judged to generate signals which would indicate changes in practice following the introduction of QOF DEP1.

Consideration was given to including patient outcomes as an outcome measure (e.g. severity of depression diagnosed following case finding and time to recovery from depression). This was not possible as data were collected at a practice rather than individual patient level. The use of routinely collected data also meant it was not possible for the ITS to assess the effect of case finding on population health outcomes.

With all ITS analyses it is important to rule out alternative explanations for any changes recorded in outcome measures to make a transparent and empirically-informed judgement about the impact of the intervention being examined. Accordingly we also considered which initiatives relevant to depression, and not directly related to the QOF DEP1 incentive for depression screening, may have influenced these processes of care over the period of analysis. This was achieved by looking for new initiatives, policies and guidelines at local and national level. Relevant initiatives are highlighted in the subsection *results*.

RECRUITMENT

We invited all 112 general practices in Leeds to share anonymised patient data via the Information in General Practice Team (IiGP) of the then National Health Service (NHS) primary care trust, NHS Leeds. Data were collected by the IiGP Team as part of their established, quarterly audit programme. The quarterly audit reports were anonymised and data gathered from electronic records systems by members of the IiGP team. Data extraction was performed remotely in the case of practices that used The Phoenix Partnership (TPP) SystmOne electronic record and locally, by IiGP Team members visiting the practice, for users of other clinical records systems (EMIS LV, EMIS PCS, EMIS Web, iSOFT Synergy, iSOFT Premiere, Healthysoft and InPS Vision were in use in Leeds in 2012).

To formally arrange inclusion in the quarterly audit programme an application was made to NHS Leeds using an ‘audit application overview’ form (APPENDIX 1). This document described the rationale for the study, data collection requirements, data security measures, assistance required from the NHS Leeds IiGP team and individual general practices, and what workload impact the study would have on these agencies. The application was accepted. We provided the participant information sheet and study consent form (APPENDIX 2) to the IiGP Team who ensured the participant documents were mailed to practices along with other documentation about the quarterly audit programme.

This recruitment strategy aimed to maximise participation and generalisability. Because the study used only anonymised patient data there was little or no work required by practices to collect data, and no individual practices were identifiable during aggregated data analysis. Over 90% participation had been achieved in a previous study using similar data collection methods.(116)

Prior to the offer of inclusion in the NHS Leeds quarterly audit programme an alternative approach to recruitment was considered; collecting anonymised patient data via TPP SystmOne only. Whilst, unlike other electronic records systems, SystmOne offers the ability to access anonymised data remotely, this method of recruitment would exclude users of other these other electronic records systems creating a potential source of bias. A comparison of QOF performance across electronic records systems found differing levels of performance, above and below QOF averages, even after controlling for patient and practice characteristics.(117)

DATA COLLECTION

We collected retrospective, electronic data from each month February 2002 through April 2012 for patients aged 18 years and over. This time frame and frequency were chosen to provide a sufficient number of data points before and after the introduction of QOF in 2004/2005, and QOF DEP1 in 2006/2007. A minimum of ten pre- and ten post intervention data points is recommended.(110) The last data collection point (April 2012) was contemporaneous with and controlled by the date of data collection.

Beginning data collection in 2002 allowed a reasonably long pre-intervention baseline period. A baseline encompassing both pre-QOF and pre-QOF DEP1 periods was chosen to ensure any observed effects were not likely to be attributable to other QOF incentivised activities (e.g. practices reviewing patients with long-term conditions more frequently to ensure they achieved QOF targets relating to physical health care). Monthly data points throughout the study period ensured sufficient data points to enable reliable statistical inference; there were 26 data points in period one February 2002 – March 2004, 24 in period two April 2004 – March 2006, 12 in period three April 2006 – March 2007 and 60 in period four April 2007 – April 2012. The details of these study periods and rationale for introducing discontinuities is discussed further in the subsection *data analysis*. Monthly data collection also ensured a sufficient number of data points were available to ensure any effects were not random or transient variations in clinical activity, and also established the duration of any effects of QOF DEP1.(110)

Data were extracted on a single occasion for each practice through Morbidity Information Query and Export Syntax (MIQUEST) software, used for collecting data from general practice clinical computing systems in a consistent and comparable way. The tool utilises a query language, which incorporates security and confidentiality safeguards; pseudoanonymisation supports the extraction of patient level information, but ensures it is not attributable to individual patients.(118) Participating practices consented to the extraction of anonymised patient data and did not need to take any further action; no direct access to patient records was required and identifiable information was not handled. The use of identical MIQUEST queries to extract data from the same data source (the anonymised electronic medical record) at each time point, pre- and post-intervention, provided protection against detection bias. Similarly the intervention had no known effect on data collection.(119)
The QOF targeted group (diabetes and CHD), and non-targeted group (hypertension, epilepsy, COPD and asthma), were identified using recognised clinical codes for each diagnosis used to create QOF disease registers. Patients with conditions in both targeted and non-targeted groups were excluded from non-targeted group analysis to avoid double counting. Therefore, any change in outcomes in the non-targeted group was not attributable to individuals being screened because they had a targeted condition.

We searched for clinical codes or entries in anonymised electronic medical records for targeted and non-targeted or comparator populations for each outome measure:

- A clincial code indicating case finding for depression had taken place
- A clinical code indicating diagnosis of depression
- Prescription of antidepressant drugs
- Onward referral to IAPT, PCMHTs, CMHTs or psychiatrist

Whilst researchers were not blinded to the outcome measures, the measures were objective and standardised.(110) Our data included only the first clinical code recorded in the anonymised medical record for each outcome measure, e.g. only the first prescription of any antidepressant drug. This ensured that only incidences of case finding, diagnosis, prescription or referral were identified, and any observed trends were attributable to greater numbers of patients being newly diagnosed, treated or referred rather than multiple diagnoses, extended periods of prescribing or multiple episodes of treatment or referral for a minority of patients.

CASE FINDING

This search included both the clinical code signifying two question screening for depression had taken place, and clinical codes which indicated that patients had been ‘excepted’ from the

QOF depression domain. Exception reporting was introduced to 'allow practices exclude specific patients from data collected to calculate QOF achievement scores' and avoid being penalised where this data collection was not possible.(120) Within the depression domain exception was justified on the basis of patient refusal to participate or unsuitability for involvement in the incentivised activity.

DIAGNOSIS

We recognised that the diagnosis of depression was likely to be under-recorded in clinical records because of factors such as diagnostic uncertainty, possible gaming(83) and patient preference. At the time QOF DEP1 was active the recording of certain diagnostic clinical codes, such as 'depressive disorder,' automatically triggered alerts for further assessments required by QOF. Failure to meet these targets reduced practice income and hence coding behaviour may have changed, e.g. using alternative clinical codes which did not trigger QOF depression protocols, or avoiding coding of depression diagnoses altogether. Alongside QOF-recognised codes we therefore also searched for use of more sensitive but less specific clinical codes such as 'low mood' or 'depressed mood' which were not assessed by the QOF, and included these in our outcome of diagnosis. We excluded codes related to postnatal depression.

PRESCRIBING

NICE clinical guideline 90 *Depression in adults: recognition and management*,(34) recommends selective serotonin reuptake inhibitors (SSRIs) are normally prescribed first line for depression. Data on prescription of all drugs in this class were sought. Whilst other anti-depressants are prescribed less frequently they are recommended in specific circumstances, most significantly in chronic illness where poly-pharmacy and drug interactions are often a concern, as highlighted by NICE clinical guideline 91 'depression with a chronic physical health problem.'(33) Data on the prescription of licensed antidepressant drugs listed in British National Formulary section 4.3 were collected, with the exception of antidepressants judged by clinicians involved in the project (Robbie Foy (RF), Allan House (AH), Sarah Alderson (SA) and Kate McLintock (KMc)) to be more commonly prescribed for other indications (e.g. amitriptyline and nortriptyline for neuropathic pain).(121)

REFERRALS

NICE clinical guideline 90 (34) recommends low intensity psychological interventions for mild to moderate depression and high intensity intervention for moderate, severe or complex depression. As such referrals to PCMHTs, IAPT therapists and CMHTs or secondary care psychiatrists are regularly used management options for patients with depression. Clinical

codes indicating a referral had been made to services within general practice or outpatients were collected. These referral codes were not linked to clinical codes for depression due to the concerns about under recoding of the diagnosis, as such there was the possibility that some referrals may not be for depression but other mental health problems, e.g. anxiety. Despite this it was judged that referral data were reasonably informative markers of clinical activity, outweighing this potential limitation. Sensitivity analysis was planned to explore this issue further during analysis of specific codes.

We recognised that electronic referrals were not standard practice until the introduction of the NHS Choose and Book national electronic referral system, rolled out from 2004. To maximise uniformity and continuity of data collection from the start of the study period (February 2002) an agreement was made with NHS Leeds Research and Clinical Audit Team to aggregate a database with anonymised primary care referrals, including the reason for referral (depression, anxiety etc.) matched to GP practices.

Unfortunately, following receipt of these data from NHS Leeds Research and Clinical Audit Team it was not possible to match referral data to targeted and non-targeted ITS study groups to include them in the analysis. Also the start date for NHS Leeds Research and Clinical Audit Team data recording was 2005, over 36 months after the start of the standard, 123 month-long time series collected for other outcome measures. Had matching to study populations been possible, inclusion of these data would have adversely affected the completeness of the data set at each time point.

A complete list of clinical codes or data extracted for each outcome measure is listed. (APPENDIX 3)

ANALYSIS

DATA ANALYSIS

The denominators comprised the numbers of patients on practice registers for each financial year (starting 1 April) targeted by incentivised case finding (diabetes and CHD) and those not targeted (hypertension, epilepsy, COPD and asthma). We assumed that registered long-term condition populations would be relatively stable over each year, and took the number of registered long-term condition populations per practice as constant over each QOF year. This tractable and pragmatic approach to data analysis permitted a more parsimonious and practical model to facilitate interpretation.

For each targeted and non-targeted patient group, we analysed trends in new depression-related diagnoses and antidepressant prescribing. We also examined the uptake of case finding for depression. We recognised that these trends could relate to changes in coding as well as clinical practice; we principally used their outputs to guide interpretation of the main outcomes. The longitudinal data were aggregated by month for each of the practices so that each time series was 123 months long (February 2002 to April 2012). Analysis was carried out at the practice level and aggregated city-wide level(122) using a binomial regression based on the calculated numerators and the available denominators. Discontinuities were modelled at key dates: April 2004 for the introduction of QOF; and April 2006 for the introduction of incentives for case finding for depression. A further discontinuity was introduced at April 2007 to isolate exceptional behaviour noted during the QOF year April 2006 through March 2007 (Figure 2).

FIGURE 2, DIAGRAM TO DEMONSTRATE MODELLING OF DISCONTINUITIES

Our focus was on the long-term sustained effects seen after the introduction of case finding incentives, rather than the immediate change. To avoid bias from the first year (2006/7) rates were permitted to be different in that year, isolating it from the sustained effect we sought to assess. For each time period (February 2002 to March 2004; April 2004 to March 2006; April 2006 to March 2007; April 2007 to April 2012) the model had an overall constant and slope. Specific slope terms were dropped when they were found not to be statistically significant from zero at the 5% level.

Fitting seasonal effects improved the model but added complexity. As reference and intervention periods were integer multiples of complete years, there would be no perturbation of level or slope if explicit seasonality terms were not included, but rather seasonality was encompassed within the error term. Since the profile of seasonality appeared to change from the reference period to the intervention period, and vary in the group with targeted interventions compared to the group for other long-term conditions, this option was selected to yield the clearest effect in the model. The model, developed by Robert West Professor of Biostatistics, can be expressed as:

Let Y_{Tit} and Y_{Nit} be random variables representing the number of diagnoses at practice i in month t for targeted T and non-targeted N groups respectively. Then

$$\Pr\ (Y_{Tit=y\ Tit}) = \binom{n_{Tit}}{y_{Tit}}\ \pi_{Tit}^{y_{Tit}}\ (1-\pi_{Tit}\ )^{(n_{Tit}-\ y_{Tit})} \qquad (1)$$

Where $y_{Tit}\ \in \{0, 1, \dots, n_{Tit}\}$, n_{Tit} is the relevant denominator for practice i in month$t$, and π_{Tit} is the corresponding rate of diagnosis. Using a logit link function in the generalised regression, we model the rate π_{Tit} with

$$\log\left(\frac{\pi_{Tit}}{1-\pi_{Tit}}\right) = \mu_{T0} + m_{Ti} + \beta_{T1}\ 1_{t\in 2006} + \beta_{T2}\ 1_{t>2006} \qquad (2)$$

and

$$m_i \in N\ (0, \sigma^2) \qquad (3)$$

where $1_{t\in 2006}$ is an indicator variable for the year 2006/2007 and $1_{t>2006}$ is an indicator for the intervention period, that is after the year 2006/2007. A random intercept m_{Ti} was included to account for clustering within practices. Slope terms were also added where appropriate. The open source software R 2.12.0 64 bit version was used for all statistical analysis.(123)

EXTERNAL INFLUENCES

Prior to the analysis I considered factors or influences independent from QOF DEP1 that might account for any trends observed, e.g. publication of national guidance on the management of depression which could lead to altered clinical behaviour around the detection, diagnosis and treatment of depression in primary care. Local and national factors were considered and recorded on a timeline referred to during analysis (highlighted in subsection *results*).

SHAPE OF THE INTERVENTION EFFECT

The shape of the intervention effect was not predicted prior to analysis. Whilst it is considered good practice when conducting an ITS, the statistician undertaking this analysis preferred to avoid making a prediction on the basis this was an exploratory study and we did not know whether practice would change when QOF DEP1 was announced, at the very start of incentivisation, or later when GPs had become familiar with the process.

RESEARCH GOVERNANCE AND ETHICS

This study was approved by the East Midlands - Derby 2 Research Ethics Committee (reference 11/EM/0144).

Written consent was gained from all participating practices. Practices were required to provide written consent to participate in the existing NHS Leeds quarterly audit programme by returning a signed data sharing agreement. A separate consent form for this research project was also signed and returned by practices. The separate consent for this research project made it explicit that an additional set of data were being collected for a University of Leeds research project, rather than to provide local evidence for targets or commissioning. It was clear the quarterly audit programme and ITS were not linked and practices were not under any obligation to participate in the ITS by virtue of their involvement with NHS Leeds audit programme. Signed research consent forms were returned to NHS Leeds in the same way as the quarterly audit data sharing agreement before being collected by me.

Caldicott guidelines(124) were followed during data collection; anonymised patient data were sufficient for the purposes of this project. Data were supplied to us by the IiGP team via an encrypted memory stick which was erased immediately after transfer of data to the University of Leeds N: Drive.

Anonymised data were stored in a secure, password protected file on the shared N: Drive of the University of Leeds network. Only research team members were password holders. Holding the data securely on this shared drive allowed all team members to access and work

on data. To ensure transparency team members were asked to revise the name given to any documents each time they made changes or updates. This ensured only the most recent documents were referred to and an audit trail of changes was available.

Consent forms, and any other paper notes or documents were held securely in a locked cabinet in the University Of Leeds, Leeds Institute of Health Sciences. Consent forms included a NHS Leeds practice code and were stored in a separate locked cabinet to the practice code key. Again, only we had access to these files. It was planned that all electronic or paper data would be deleted or shredded three years after completion of the study. However, an extension was granted to keep electronic data until five years after the end of the study (January 2018), ensuring these data remained available beyond submission of this PhD thesis.

RESULTS

We recruited 65 (58%) of 112 Leeds practices. Their 2012 QOF registers indicated that they served 37,229 patients with diabetes and CHD targeted for case finding for depression, and 101,008 patients with other long-term conditions not targeted (hypertension, epilepsy, COPD and asthma). Table 4 provides data on all English practices and compares characteristics of recruited and not-recruited Leeds practices.

TABLE 4, PRACTICE CHARACTERISTICS

P-VALUE COMPARISON IS BETWEEN RECRUITED AND NOT-RECRUITED PRACTICES, THERE IS NO COMPARISON TO 'ALL ENGLAND' AS THE LOCAL PRACTICES ARE ALSO IN THIS GROUP AND CANNOT BE COMPARED TO A GROUP CONTAINING THEMSELVES.

Practice characteristics	All England	Recruited	Not-recruited	p
Practices, n(125)	8323	65	47	-
List Size (patients, median)(125)	5987	7182	4694	0.03
Under 18 years (%)	20.5	20.7	20.2	0.29
65 years and over (%)	16.2	14.5	15.8	0.05
Number of GPs in the practice (mean)(126)	4.4	5.3	4.2	0.04 *†
Male	2.4	2.5	2.2	0.28 *†

Female	2	2.8	1.9	0.02 *†
Indices of Multiple Deprivation (125)	23.9	28.5	28.9	0.88
Rural/Urban Classification (% urban)(127)*	84.9	96.9	97.9	0.93
Patient Survey (%)(125)				
Would Recommend	85.9	83.2	82.8	0.8
Have a Chronic Disease	53.4	52.5	53.7	0.17
Carers	18.2	17.1	18.9	0.04
Working	60.1	61.7	58.9	0.13
Unemployed	5.2	5.76	6.42	0.91
Clinical Computing System (128)*				
TPP SystmOne	1494	42 (64.6%)	33 (70.2%)	-
EMIS (combined LV, PCS, Web)	4649	22 (33.8%)	11 (23.4%)	-
Other	2231	1 (1.5%)	3 (6.4%)	0.25‡
QOF (%)(125)				
Total Score	98.5	98.8	98.7	0.99
Exception Rate	5.1	5.4	4.7	0.08
Chronic Disease Prevalence (%)(125)				
CHD	3.4	3.6	4.1	0.03
Hypertension	13.9	13	13.8	0.04
Diabetes	4.7	4.4	4.6	0.48
Asthma	5.9	6	5.9	0.81
COPD	1.6	1.7	2	0.02

Depression	8.7	8.7	7.8	0.35
Epilepsy	0.6	0.6	0.7	0.04
Dementia	0.4	0.5	0.5	0.69

*Data published 2012, except *2011. Averages are median unless otherwise stated. Comparison with Kruskall-Wallis test except †Student's T-test when comparison of means was more appropriate, and ‡Fisher's exact where comparison was between proportions.*

Overall the characteristics of recruited and non-recruited practices were similar, though some important distinctions are acknowledged. The practices recruited were larger, and larger practices are recognised to provide higher quality care when measured using average QOF scores and rates of admission for ambulatory care sensitive conditions, though considerable variation in practice quality is noted within practices of all sizes.(129) Non-recruited practices had higher morbidity levels for five of the total of eight targeted and non-targeted conditions; CHD, hypertension, diabetes, COPD and epilepsy. Despite this, we found no significant differences in Indices of Multiple Deprivation or, total QOF scores. The majority (64.6%) of practices used one clinical computing system, TPP SystmOne, by the end of data collection.

Tables 5 and 6 summarise the annual incidences of case finding, depression-related diagnoses and prescription of antidepressants by count and rates per 100,000 patients, for targeted and non-targeted groups.

TABLE 5, INCIDENCE OF CASE FINDING, NEW DEPRESSION RELATED DIAGNOSES AND NEW PRESCRIPTIONS FOR ANTIDEPRESSANT DRUGS BY COUNT

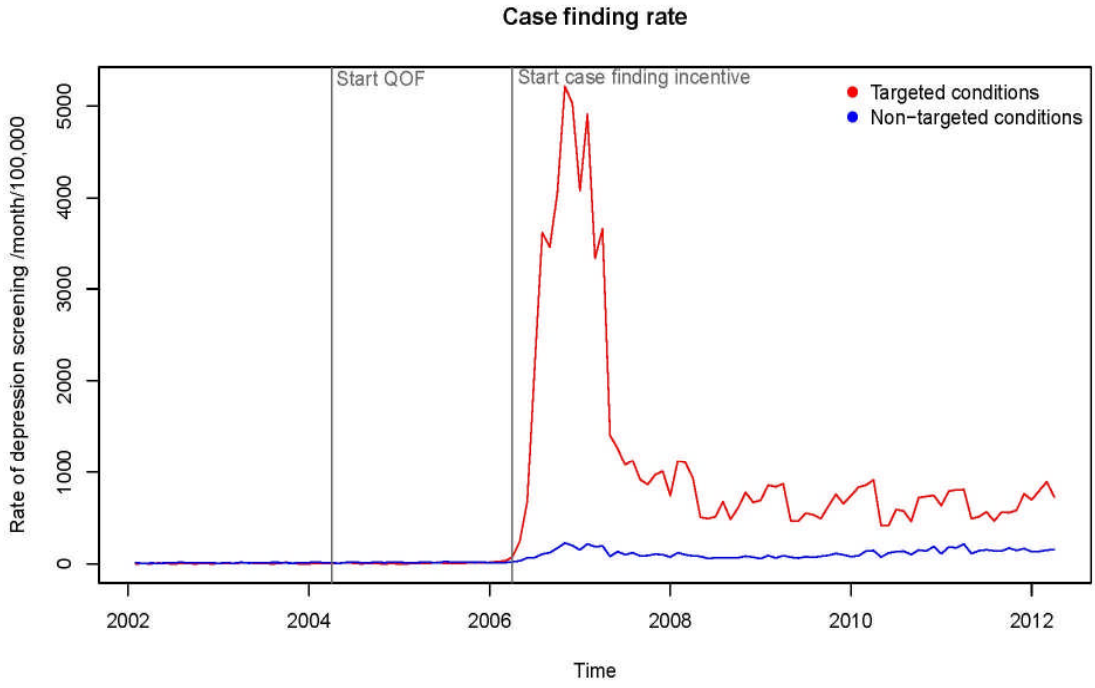
Year	Counts					
	New episodes of case finding		New depression related diagnoses		New prescriptions for antidepressants	
	Targeted	Non-targeted	Targeted	Non-targeted	Targeted	Non-targeted
2001-2002	1	20	11	36	99	199
2002-2003	14	99	97	323	406	864
2003-2004	18	121	165	477	526	1163
2004-2005	17	144	218	687	575	1324
2005-2006	68	169	260	706	604	1312
2006-2007	13363	1555	705	927	909	1429
2007-2008	4242	1089	438	985	871	1594
2008-2009	2741	800	423	860	925	1752
2009-2010	2809	1080	420	1003	1028	1921
2010-2011	2801	1691	458	979	1244	2195
2011-2012	2830	1755	435	937	1306	2319

TABLE 6, INCIDENCE OF CASE FINDING, NEW DEPRESSION RELATED DIAGNOSES AND NEW PRESCRIPTIONS FOR ANTIDEPRESSANT DRUGS BY RATE PER 100,000 PATIENTS

Year	Rates per 100,000 patients					
	New episodes of case finding		New depression related diagnoses		New prescriptions for antidepressants	
	Targeted	Non-targeted	Targeted	Non-targeted	Targeted	Non-targeted
2001-2002	0.0010	0.0058	0.0061	0.0138	0.1050	0.0662
2002-2003	0.0038	0.0072	0.0279	0.0286	0.1118	0.0794
2003-2004	0.0039	0.0088	0.0366	0.0441	0.1257	0.1057
2004-2005	0.0032	0.0103	0.0557	0.0710	0.1565	0.1354
2005-2006	0.0210	0.0121	0.0648	0.0664	0.1524	0.1314
2006-2007	3.3199	0.1450	0.1946	0.0907	0.2296	0.1359
2007-2008	1.0276	0.0989	0.1127	0.1077	0.2185	0.1564
2008-2009	0.7139	0.0732	0.1125	0.0918	0.2414	0.1674
2009-2010	0.7244	0.0850	0.1212	0.0952	0.2543	0.1774
2010-2011	0.6708	0.1293	0.1258	0.0905	0.2783	0.1843
2011-2012	0.6849	0.1254	0.1093	0.0805	0.2954	0.1973

Practice-level analysis found significant increases in new coded case finding following the initiation of incentives, also reflected in aggregated city-wide level trends (Figure 3). The exceptional rise in 2006 reflects first coding in patients with existing diagnoses of diabetes and CHD. Comparing the period April 2004 to March 2006 with April 2007 to March 2012, rates of case finding increased in the targeted population from 0.07 to 7.45 per 1000 per month (OR 99.76; 95% confidence interval 83.15 to 119.68) and in the non-targeted group increased from 0.1 to 0.78 per 1000 per month (OR 7.54; 6.91 to 8.24).

FIGURE 3, CITY LEVEL RATES OF CASE FINDING FOR DEPRESSION



Binomial regression of the practice level data confirmed statistically significant rate increases in new depression-related diagnoses in both patient populations. In targeted patients, the diagnosis rate increased from 21 to 94 per 100,000 per month between the periods 2002-4 and 2007-12 (OR 2.09; 1.92 to 2.27). In the non-targeted group, the rate increased from 27 to 77 per 100,000 per month (OR 1.53; 1.46 to 1.62). In neither of these periods was the slope statistically significant from zero; that is the rates can be assumed to be constant during these periods. Figure 4 shows these trends aggregated at a city level with fitted constants and slopes, indicated by dashed lines.

FIGURE 4, CITY LEVEL RATES OF DEPRESSION RELATED DIAGNOSES

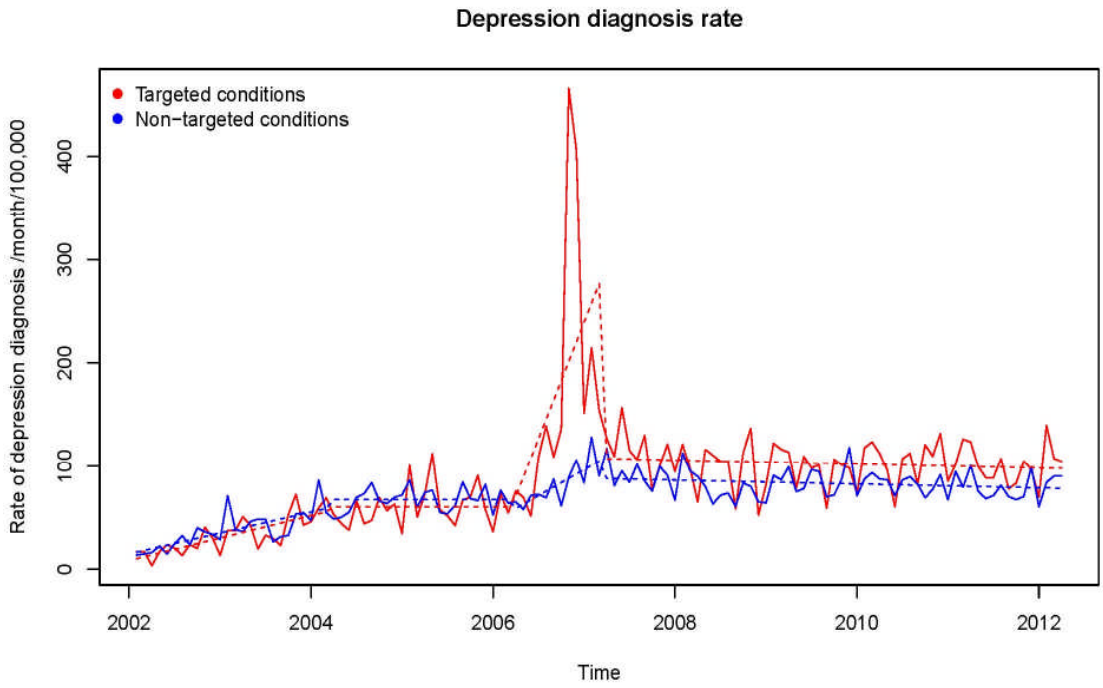
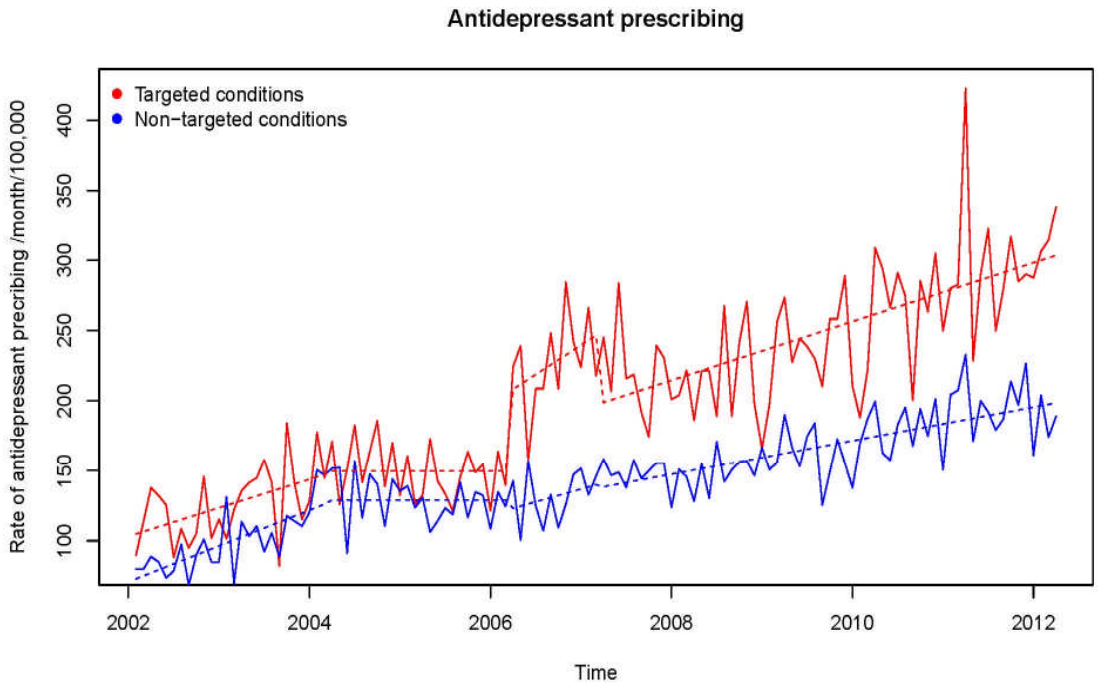


Figure 5 shows the city-level trends for new antidepressant prescribing with fitted constants and slopes. Rates of prescribing increased over the full period of observation. During the period after QOF was introduced but before incentives (April 2004 to March 2006), the slopes for both populations flattened to zero (p<0.01 for both groups). For targeted patients, the slopes before the introduction of QOF and after the exceptional year were similar (Wald test for equivalence of slope, z=0.73, p=0.47). For the non-targeted group the slope for the latter period was less steep (Wald test for slope, z=-4.14, p<0.01). All Wald tests for slopes were undertaken using practice level data.

FIGURE 5, CITY LEVEL RATES OF ANTIDEPRESSANT DRUG PRESCRIBING



Across practice analysis demonstrated an increase in referrals to primary and secondary care mental health services from 2002, with greater rates of referral after 2006, though little difference between targeted and non-targeted groups which were both significant at the 5% level or lower and with similar R^2 values.

By practice analysis was comparable with increase in referral rates for both targeted and non-targeted groups significant at the 0.1% level. The rate of recorded referrals increased from 0.012 per 1000 per month to 0.086 per 1000 per month for patients with diabetes or CHD and from 0.046 per 1000 to 0.250 per 1000 per month for other chronic diseases. Odds ratios were 7.07 (5.56, 8.99) for targeted and 5.48 (4.81, 6.24) for non-targeted groups.

Whilst all outcome measures were objective, the reliability of these referral data was questioned due to concerns about matching referral data to targeted and non-targeted groups and incomplete data sets beginning in 2005 discussed earlier in this chapter. As a result these data were not considered further.

EXTERNAL INFLUENCES ON CASE FINDING AND OUTCOME MEASURES

The tables below summarise the events I considered might influence PHCPs behaviour or recording of measured outcomes. Events which influenced clinical coding or recording of data

were expected to have had an immediate effect on data collected. Changes to policy or guidelines were anticipated to have a delayed effect.

TABLE 7, LOCAL INITIATIVES

Year	Local (NHS Leeds) Initiative	Potential Influence
2003/2004	Intensive training programme introduced, concentrating on clinical systems and clinical coding training	Increase in recording of all outcome measures collected by electronic clinical code (case finding, diagnoses, referral)
2004/2005	Training in summarising to improve coding and recording of electronic data	Increase in recording of all outcome measures collected by electronic clinical code (case finding, diagnoses, referral)
2007	Push for paper-light practice accreditation resulting in a greater uptake of electronic medical record use	Increase in electronic recording of prescribing, plus all outcome measures collected by electronic clinical code (case finding, diagnoses, referral)
2008/2009	IAPT initiative introduced to Leeds	A change to referral patterns. Resulting in either increase or decrease in referrals to new and existing primary and secondary care services

TABLE 8, NATIONAL INITIATIVES

Year	National Initiative	Potential Influence
2004/2005	QOF introduced	Altered clinical behaviour of PHCPs, resulting in either increased or decreased focus on case finding for depression in long-term physical conditions
2004	Choose & Book introduced	Increase in electronic recoding of referrals to secondary care and other agencies located outside of an individual practice
2004	NICE clinical guideline 23, 'Depression: management of depression in primary and secondary care,' published in December. This guideline advocated screening for depression in 'high risk groups.' The definition of high risk included those with 'significant physical illnesses causing disability.'	Altered clinical behaviour of PHCPs. Resulting in increased focus on case finding for depression in all patients, and either increase or decrease in prescribing and referrals for all patients
2005/2006	Choose & Book rolled out	Increase in electronic recording of referrals to secondary care and other agencies located outside of an individual practice
2006	The Information Management and Technology Direct	Increase in electronic recording of prescribing,

	Enhanced Service (IM&T DES) introduced. DES are voluntary schemes linked to GP General Medical Services contracts and national priorities for the NHS. Participating practices receive payment for achieving specified targets. The IM&T DES aimed to improve the quality of data recording in electronic medical records.	plus all outcome measures collected by clinical code (case finding, diagnoses, referral)
2006/2007	QOF DEP1 introduced	Altered clinical behaviour or focus of PHCPs. Substantial increase in case finding expected
2009	NICE clinical guideline 91, Depression in adults with a chronic physical health problem: recognition and management, published in October.	Altered clinical behaviour of PHCPs. Resulting in increased focus on case finding for depression in any patients with any long-term physical condition, and either increase or decrease in prescribing and referrals for these patients
2009	NICE clinical guideline 90, Depression in adults: recognition and management (update), published in October	Altered clinical behaviour of PHCPs. Resulting in increased focus on case finding for depression in all patients, and either increase or decrease in prescribing and referrals for all patients

Considering Figure 3, city level rates of case finding for depression, and the description of statistical findings, no discernible change in rates of case finding likely to be associated with local or national influences was identified.

Local clinical coding training 2003/2004 or summarising training 2004/2005 may have influenced the electronic recording of depression related diagnoses during the overall 2002-2004 period leading to the increase in city level rates of depression related diagnoses from 2002-2004 in targeted and non-targeted groups seen in Figure 4.

The same initiatives, clinical coding 2003/2004 and summarising training 2004/2005, may have contributed to the similar increase in city level rates of anti-depressant drug prescribing in targeted and non-targeted groups from 2002-2004 seen in Figure 5, by affecting clinical coding behaviours. In addition the IM&T DES 2006 and push for paper-light practices 2007, which coincided with QOF incentivised case finding 2006/2007, were likely to increase the rates of electronic prescribing from this time. These factors potentially contributed to the rise in rates of antidepressant prescribing.

DISCUSSION

PRINCIPAL FINDINGS

Incentivised case finding increased rates of new depression-related diagnoses in patients with CHD and diabetes and, to a lesser extent, increased rates of depression-related diagnoses in those with non-targeted long-term conditions. The establishment of QOF disrupted rising trends in new prescriptions of antidepressants; these resumed following the introduction of incentivised case finding, although there was a modest deceleration in antidepressant prescribing for non-targeted conditions. Rates of new prescriptions for antidepressants exceeded those for depression-related diagnoses.

COMPARISON WITH OTHER STUDIES

The majority of quasi-experimental evaluations of QOF have found no sustained effects for other clinical indicators.(101-104) Financial incentives in primary care tend to have modest effects on relatively simple clinical behaviours such as risk factor recording or test ordering. (99) A longitudinal analysis of the impact of financial incentives on ascertaining smoking status in UK general practice, using data from The Health Improvement Network database, found QOF increased primary care rates of smoking status ascertainment and recording of smoking cessation advice, but no simultaneous increase in prescriptions for nicotine addiction treatments was evident.(130) The nature of targeted clinical behaviours is likely to influence

the effectiveness of incentives.(131, 132) Given that the QOF incentives directly rewarded case finding, we sought and found evidence of changed clinical practice 'downstream' to case finding. Three other ITS studies examining 'downstream' effects of QOF were identified; two with positive impacts. One examining LARC found QOF incentives for contraceptive counselling in primary care led to an increase in prescribing and uptake of LARC methods (105) and an analysis of emergency admissions found QOF was associated with a decrease in emergency admissions for incentivised conditions compared with conditions that were not incentivised,(106) though QOF incentivisation of hypertension care (101) was found to have no effect on blood pressure control. Previous research has found associations between case finding for depression and both new diagnoses and antidepressant prescribing.(76, 77) However, our analysis of longitudinal data demonstrates policy effects at a population level and highlights the importance of accounting for secular trends and additional insights from comparative data.

The mechanisms by which rates of depression-related diagnoses increased remains unclear. The spike in diagnoses immediately following incentivisation probably reflects coding patterns before general practitioners began to realise they would trigger alerts for further assessments required by QOF when recording depression related diagnoses. Similar phenomena have been observed in first years of new QOF indicators.(133) Following the introduction of incentivised case finding, rates of new depression-related diagnoses rose in non-targeted long-term conditions, coincident with only a modest rise in recorded case finding in these patients. Incentivised case finding may have directly affected pathways of care or, more generally, increased awareness of the higher risk of depression in all patients with long-term conditions. A combination of these explanations seems likely for two reasons. First, we found strong evidence of seasonality for coded case-finding but not for new diagnoses or prescribing. Second, a parallel ethnographic study of general practices by the same research team found case finding did not fit naturally within the consultation and demonstrated the absence of a systematic approach to following up and managing screen-positive cases. It was recommended that acceptable alternative ways to raise the issue of depression, which operate via available systems and resources, need to be supported.(134) It remains uncertain how the QOF and other payment for performance systems work.(135)

The interpretation of prescribing trends was more challenging. Taking pre-QOF trends into account, new prescriptions of antidepressants in patients with long-term conditions plateaued following the introduction of QOF, before resuming the underlying trend in targeted conditions when incentivised case finding for depression was introduced. This plateau effect appears

compatible with a view that the initial introduction of QOF diverted attention from psychosocial aspects of long-term condition care towards achieving biomedical targets.(136) It is also consistent with a longitudinal analysis of QOF in English general practice which found lower overall achievement rates for non-incentivised indicators compared to predicted values, than for incentivised indicators.(89) Arguably, this might not represent a detrimental unintended consequence in the case of a potentially over-medicalised condition such as depression.(44)

This study and the ITS examining LARC both found increased rates of prescribing after QOF incentivisation, though the LARC study found prescribing increased from a stable, downward trend. In this study both antidepressant prescribing and depression diagnoses were already increasing and escalated after QOF. Neither ITS found the marked spike in activity identified after QOF incentivisation of case finding. This may suggest hypertension care and LARC counselling were already established parts of clinical care, whereas case finding for depression was not.

The causes of ongoing secular increases in antidepressant prescribing have been debated.(137, 138) Hypotheses include poor compliance with clinical guidelines which do not recommend prescribing in the more commonly encountered mild to moderate depression,(34, 139, 140) an increase in duration of antidepressant prescribing in line with clinical guidelines rather than an increase in the number of patients prescribed for,(141) and the intensifying effect of QOF on prescribing patterns.(142) Our data included only the first, or incident, prescription of any antidepressant for each patient, indicating that our observed trends were attributable to greater numbers of patients being treated rather than extended periods of prescribing. Therefore, our analysis supports the explanation that incentivised case finding perpetuated the rise in antidepressant prescribing because of a perceived need for clinical action over and above referral for counselling or watchful waiting.

The rate of antidepressant prescribing in this study exceeded the rate of diagnosis of depression in targeted and non-targeted groups, this trend was also reported by Burton and colleagues.(76) The limited use of clinical codes in the diagnosis of depression is recognised. Rather than a lack of diagnostic accuracy, it probably reflects how clinical coding is not always a part of routine practice and how GPs pragmatically prescribe according to symptoms and responses to treatment rather than diagnostic categories.(143, 144)

STRENGTHS AND WEAKNESSES OF THE STUDY

Given the impracticality of addressing the study aims using a prospective randomised design (145) an ITS analysis, making full use of existing, routine clinical data, was chosen. Statistical process control (SPC) is considered by some to be an alternative to ITS, though whilst this design is useful in monitoring processes, it is not suitable to research the impact of interventions. SPC analysis assumes data are unrelated and does not protect against autocorrelation. The method also requires a stable baseline, not often seen in data from healthcare due to secular changes and influences on clinical behaviour.(146)

Critical reviews of ITS methodology have been published which offer guidance on research design.(109-112, 147) Ramsay describes eight quality criteria which consider the intervention, outcome, data and analysis.(110)

First, *the intervention should occur independently of other changes over time*, and second, be *unlikely to affect data collection*. QOF incentivised case finding met these standards through being a stand-alone initiative within the QOF programme, introduced on a single date and which required the use of existing clinical codes to achieve the designated target. Observed trends may have been related to changes in practice computerised record systems. Leeds practices began migrating to TPP SystmOne after 2006 until it became the majority provider in 2012 (Table 4). The choice of clinical computing system is associated with differences in practice QOF performance, with variation above and below national averages, after controlling for patient and practice characteristics.(117) Given the absence of a control population of practices it is also possible that concurrent national and local initiatives may have contributed to our observed trends. NICE issued a clinical guideline on depression in 2004, which was subsequently revised in 2009;(34) even allowing for delayed diffusion or anticipatory effects, it is unlikely to explain any changes observed from 2006 onwards. Nor do the introduction of the Improving Access to Psychological Therapies programme in Leeds from 2008-09 onwards or publication of the NICE clinical guideline on depression in adults with a chronic physical health problem in 2009 offer plausible alternative explanations.(33, 148) Furthermore, the isolation of the exceptional year when case finding incentives were first introduced permits me to infer with confidence that we observed sustained higher rates of diagnosis.

Third, *the outcome should be assessed blindly or measured objectively*, and fourth, *the outcome itself should be reliable or measured objectively*. In this study all retained outcome measures were measured objectively, once concerns about the reliability of referral data were identified these data were withdrawn from further analysis.

Fifth, *the data set should cover 80% of the total number of study participants at each time point.* Complete sets of time series data from all recruited practices were collected and analysed, the single point of data collection facilitating retention of 100% of participants. This meant attrition bias through withdrawal of participating practices was not a concern. Time series collected from each practice comprised repeated cross sections of anonymised data from patients in targeted and non-targeted groups. Through involvement with the IiGP audit programme recruited practices were known to maintain patient registers adequately, making attrition bias through loss of patients unlikely. One limitation of this approach was the true denominator for the binomial regression varies monthly as patients exit the denominator population after undergoing incentivised case finding. There were also variations due patients dying or leaving the practice. We used annual QOF reports for the denominator values and took them to be constant for that year. Since the denominator was large compared to the number screened, the error of the model will be small. No selection bias relating to non-recruited practices was identified; overall the characteristics of recruited and non-recruited practices were similar.

Sixth, *a rationale for the number and spacing of data points should be provided*, and seventh, *analysis should be undertaken with an appropriate time series technique*. Monthly data points throughout the study period ensured sufficient data points to enable reliable statistical inference and ensured a sufficient number of data points were available to ensure any effects were not random or transient variations in clinical activity.(110) This long time series of 50 pre and 72 post-intervention data points reduced the risk of bias by better adjusting for secular and seasonal effects.

Eighth*, the shape of the intervention effect should be pre-specified*. This recommendation was not met. The study team were uncertain whether practice would change when QOF DEP1 was announced, at the start of incentivisation, or later on when GPs had become familiar with the process. The modelling of discontinuities does, however, indicate each of these predictions about potential intervention effects were considered during analysis. The shape of intervention effect identified in this study is compared to those from other ITS analyses(101, 105)earlier in the discussion, headed '*comparison with other studies*'.

Five further limitations beyond the Ramsay quality criteria were identified. The first two relate to the use of routinely available NHS data. Items three and four consider residual confounding. The final limitation focuses on recruitment.

Considering the use of routinely available NHS data the high 'signal to noise' ratio inherent in the use of routinely recorded data may have diminished the magnitude of observed effects. Also, we were unable to examine patient outcomes such as recovery from depression, nor the appropriateness of treatment. We explored the use of routinely collected referral data but these were unreliably recorded and prone to temporal changes in coding practices.

Residual confounding, an undue influence occurring despite controlling for confounding in the study design, usually occurs because additional confounding factors were not considered, there was insufficient control of these extraneous variables or the variables were incorrectly classified. In this study targeted patients, with diagnoses of diabetes and CHD, may have included individuals with a greater number of comorbidities than non-targeted patients.(12) As depression is more prevalent in patients with a greater number of physical comorbidities (64, 149) this could suggest we were more likely to identify depression related diagnoses in this group. Further, our analysis is based upon one geographical area with a response rate of 58%. Despite this the characteristics of practices participating in the study were broadly similar to those for England and the non-participating practices.

Considering recruitment, reminders could not be sent to non-respondents to increase our participation levels. Inclusion in the IiGP Team's quarterly audit programme meant that invitations to participate in the study could only be sent once. This was the IiGP standard, necessary to meet their timeline for audit and study data collection. A Cochrane review considering recruitment to randomised controlled trials identified that techniques such as telephone reminders to non-respondents and use of opt-out rather than opt-in procedures when approaching participants can increase recruitment.(150) Recruitment to this study may have benefited if it were possible to incorporate these techniques.

IMPLICATIONS FOR POLICY AND PRACTICE

Given the sustained promotion of case finding for depression across a range of long-term conditions and for carers,(33, 34, 80, 98) there is a need for clearer guidance to optimise the pathway and outcomes of care for case finding-detected depression, including limiting antidepressant prescribing to patients most likely to benefit. Any effects of incentivised case finding need to be considered alongside costs. Based on payments offered under the 2012-13 UK QOF contract and without considering opportunity costs, I estimate that case finding for depression in CHD and diabetes cost over £6 million per annum(151) in the context of the £1 billion total estimated cost of QOF each year. These costs, the limited benefits we found, and the withdrawal of incentivised case finding for depression demonstrate the risk of rolling out

policies in the absence of rigorous supporting evidence. Although policy-makers express frustration when debates about evidence appear to hold back service improvement,(152) there are hazards in following assumptions about how and whether apparently simple but deceptively complex interventions such as incentivised case finding work.(153)

The impact of the withdrawal of QOF incentivised case finding for depression is not yet known. A retrospective longitudinal study suggested levels of performance remain stable across a range of clinical activities following the removal of QOF incentives, although all indicators studied were indirectly or partly linked to activities which remained incentivised.(154) The longer term effects of completely withdrawing an incentive, such as case finding for depression, on clinical behaviour is unknown and merits further research.

CONCLUSIONS

Incentivised case finding increased new depression-related diagnoses in patients with CHD and diabetes and, to a lesser extent, in those with non-targeted long-term conditions. The establishment of QOF disrupted rising trends in new prescriptions of antidepressants, which resumed following the introduction of incentivised case finding. Rates of new prescriptions for antidepressants exceeded those for depression-related diagnoses. Prescribing trends were of concern given that they may include people with mild-to-moderate depression unlikely to respond to such treatment.

PUBLICATION

This work was published as McLintock K, Russell AM, Alderson SL, et al. The effects of financial incentives for case finding for depression in patients with diabetes and coronary heart disease: interrupted time series analysis. BMJ Open 2014;**4**:e005178.

The article was published alongside a linked ethnography Alderson SL, Russell AM, McLintock K, et al. Incentivised case finding for depression in patients with chronic heart disease and diabetes in primary care: an ethnographic study. BMJ Open 2014;**4**:e005146.

FUNDING

This study was funded by the National Institute for Health Research (NIHR) under its Research for Patient Benefit (RfPB) Programme (Grant Reference Number PB-PG-0110-21046).

PATIENT AND PUBLIC INVOLVEMENT

Three Patient and Pubic Involvement (PPI) members were involved across the ITS and linked ethnography throughout the research. PPI members read through participant and commented on content and layout. They attended three patient advisory panels and two PPI members were on the project Steering Group. Our PPI members commented on the responses we received from Research Ethical Committees and helped strengthen our responses.

THE RESEARCH TEAM

My role in this study was to lead on development of the study protocol, liaison with NHS Leeds to recruit participants and arrange data collection, overseeing transfer of data to the University of Leeds and analysis of processed data. Other members of the research team were Robbie Foy Professor of Primary Care (principal investigator for RfPB grant), Dr Robert West Professor of Biostatistics (contribution to protocol , statistical analysis and analysis of processed data), Allan House, Professor of Liaison Psychiatry (contribution to protocol and analysis of processed data), Dr Sarah Alderson Clinical Lecturer in Primary Care (contribution to protocol and analysis of processed data), Dr Amy Russell Research Fellow (analysis of processed data) and Mrs Karen Westerman Information in General Practice Manager (facilitated recruitment and data collection). Dr Paul Lord, University of Leeds, assisted the research team by compiling practice average and England average demographic characteristics. All members of the team were employees of the University of Leeds with the exception of Mrs Westerman, employed by NHS Leeds. Affiliations and job titles describe positions held at the time the study was undertaken.

My role in the linked ethnography was contributing to writing the study protocol when applying for grant funding. My contribution to the published manuscript was commenting on draft copies prior to submission for consideration of publication.

APPENDIX 1

COMPLETED AUDIT APPLICATION OVERVIEW. 29 MARCH 2011

Information

IN GENERAL PRACTICE

Audit Project Initiation

Application Overview

Name:	Kate McLintock
Title:	GP and Clinical Lecturer
Department:	Academic Unit of Primary Care, University of Leeds
Date:	29/3/11

1. Why is the data required?

To conduct a time series analysis investigating the process of QOF-driven depression screening during routine patient reviews, and its relation to subsequent clinical management of patients with depression. This work has been funded by the National Institute for Health Research Research for Patient Benefit Programme.

2. What data is required?

Retrospective data at monthly intervals for the years 2002-2011 is required. This time frame and frequency of collection has been chosen to allow a sufficient number of data points to be collected before and after the introduction of QOF in 2004/2005 and QOF DEP1 in 2006/7. This amount of data is necessary for analysis via the time series analysis method to take place.

Specific data required;

Clinical code signifying 2 question screening under QOF has taken place and related exception reporting codes

Clinical codes for diagnosis of depression; QOF depression registers and selected non-QOF codes (total and first or new episodes of each of the codes will be requested)

Prescribing data for specified antidepressant drugs

Selected clinical codes for referral to primary and secondary care mental health services

This data will be required for the following groups;

All patients in the practice age over 18 years, including those specifically on QOF diabetes, ischaemic heart disease, hypertension, epilepsy, asthma and COPD registers and all patients in the practice minus those on QOF diabetes and ischaemic heart disease registers.

3. Who will have access to the data?

The research team comprises;

Professor Robbie Foy, Professor of Primary care, University of Leeds (principal investigator)

Dr Sarah Alderson, Clinical Lecturer in Primary Care, University of Leeds

Dr Kate McLintock, Clinical Lecturer in Primary Care, University of Leeds

Dr Robert West, Professor of Biostatistics, University of Leeds

Dr Barbara Potrata, Research Fellow, University of Leeds
Professor Allan House, Professor of Liaison Psychiatry, University of Leeds
Mrs Karen Johnson, Information in General Practice Manager, NHS Leeds

Electronic data and any resulting paper documentation will be stored securely at the University of Leeds. All electronic and paper documentation relating to this study will be destroyed after a maximum of three years.

4. What is the outcome you require?

Anonymised, routinely collected patient data from practices (as described in point two) will be analysed via time series analysis to determine trends in diagnosis, treatment and referral rates for depression before and after the introduction of QOF DEP1 (case-finding for depression in patients with diabetes and heart disease.)

5. What input / support do you require, either from the IiGP Team or the General Practice?

IiGP team;

a) Build a search strategy based on clinical codes and outcome measures provided by the research team

b) Conduct an anonymised search in each consenting general practice

c) Transfer the anonymised data to the research team

General Practice;

a) Consent to data sharing

6. What support will you, the PCT audit co-ordinator provide to either the IiGP Team or the General Practice?

We will provide information as to the purpose of the research project, rationale for data collection and an outline of analysis. Any specific queries will also be answered. A summary of the results of the research project will be circulated to all participating practices where they indicate a wish to receive this.

7. Who will be responsible for the data analysis?

Members of the research team;

Professor Robbie Foy, Professor of Primary care, University of Leeds (principal investigator)
Dr Kate McLintock, Clinical Lecturer in Primary Care, University of Leeds
Dr Robert West, Professor of Biostatistics, University of Leeds
Professor Allan House, Professor of Liaison Psychiatry, University of Leeds

8. **Who will be responsible for supporting the practice with any queries regarding the purpose of the audit?**

Professor Robbie Foy, Professor of Primary care, University of Leeds (principal investigator) or Dr Kate McLintock, Clinical Lecturer in Primary Care, University of Leeds

9. **What future workload impact will this have, and on whom, e.g. General Practice and/or PCT?**

No future workload impact is envisaged.

10. **Required Quarter to be run (see Pg. 3); 1st .... 2nd .... 3rd .... 4th .... All ....**

Quarterly Audit Timeframe – 2010/11

Quarter 1 – July 2010	***No later than.....***
New audit / request for changes	1st April 2010
Audit Project Initiation	3rd May 2010
Codes agreed	17th May 2010
Draft queries written	31st May 2010
Queries tested	14th June 2010
Testing results validated	18th June 2010
Final queries run	1st July 2010 (start of Qtr1 audit run)
Results submitted	23rd July 2010

Quarter 2 – October 2010	***No later than.....***
New audit / request for changes	1st July 2010
Audit Project Initiation	2nd August 2010
Codes agreed	16th August 2010
Draft queries written	30th August 2010
Queries tested	13th September 2010
Testing results validated	17th September 2010
Final queries run	1st October 2010 (start of Qtr2 audit run)
Results submitted	22nd October 2009

Quarter 3 – January 2011	***No later than.....***
New audit / request for changes	1st October 2010
Audit Project Initiation	1st November 2010
Codes agreed	15th November 2010
Draft queries written	29th November 2010
Queries tested	6th December 2010
Testing results validated	10th December 2010
Final queries run	1st January 2011 (start of Qtr3 audit run)
Results submitted	21st January 2011

Quarter 4 – April 2011	***No later than.....***
New audit / request for changes	3rd January 2011
Audit Project Initiation	1st February 2011

Codes agreed	14th February 2011
Draft queries written	28th February 2011
Queries tested	7th March 2011
Testing results validated	11th March 2011
Final queries run	1st April 2011 (start of Qtr4 audit run)
Results submitted	22nd April 2011

If an additional audit is included in one or more quarters, each Practice must complete and sign a specific Data Collection Agreement giving consent for that particular audit to be carried out. Each Practice has the option to decline a new audit whilst still participating in the main audit run.

Application Summary **(to be completed by member of the IiGP team)**

1. Information required;

2. Is this information available elsewhere?

   Yes / No

3. Sample size;

4. Quarterly run;

   1st .... 2nd .... 3rd .... 4th .... All .... Not Confirmed ....

5. Summarised by;

6. Audit Co-ordinator;

APPENDIX 2

PARTICIPANT INFORMATION SHEET AND STUDY CONSENT FORM. 29-31 MARCH 2011

UNIVERSITY OF LEEDS

Participant Information Sheet:

Evaluation of screening for depression in patients with coronary heart disease and diabetes in primary care

Invitation We would like to invite you to take part in a research study, tell you why we are doing the research and what it would involve.

Why are we doing the study? This study is being undertaken for educational purposes, as part of a PhD by Dr Kate McLintock. We aim to assess the impact on the detection and clinical management of depression of QOF-incentivised screening in people with chronic physical illness. We will do this by analysing existing, routinely collected data from patient records to determine trends in diagnosis, treatment and referral rates for depression before and after the introduction of QOF. All data used in this project will be anonymised. This work has been funded by the National Institute for Health Research, Research for Patient Benefit Programme.

Why am I being asked? Because your practice participates in QOF and is encouraged to screen patients with heart disease and diabetes for depression.

Do I have to take part? No, it is voluntary. If you want to take part we will ask you to sign a consent form to show you have agreed to take part. You can still change your mind at any time without giving a reason.

What will I have to do if I take part? If you want to take part please return the signed consent form along with the 'Data Sharing Agreement' to NHS Leeds. Data collection will be carried out by the Information in General Practice team from NHS Leeds when they extract data for the quarterly audit programme. Data will be collected in the same way as for NHS Leeds audit and your practice will not need to take any further action.

We are collecting anonymised and aggregated patient data to judge the effects of QOF-related screening on clinical practice. For the analysis, we will only identify

general practices by practice code; this allows us to compare effects in practices from different areas. All data will be treated confidentially and reported anonymously. We are not interested in evaluating individual practices.

The following data will be collected for all patients aged 18 years and over; clinical codes signifying 2 question screening has taken place, exception codes for 2 question screening, clinical codes for diagnosis of depression, prescribing data for antidepressants and clinical codes indicating a referral to mental health services has taken place. Collecting data on all patients allows us to compare those eligible for screening under QOF to other patients.

Will I be paid? No

What are the possible benefits of taking part? Individually you do not stand to gain but your contribution will help us to understand whether QOF-driven screening for depression has had an impact on patient care; this may help to improve depression care in the future.

What are the possible disadvantages of taking part? No specific risks have been identified, after giving consent you need take no further action.

Will my taking part in the study be kept confidential? Yes. Data collection will be managed by NHS Leeds. The information we collect will be anonymous and kept securely so that only authorised people have access to it; they will be bound by the rules of confidentiality.

What will happen to the results of the study? It will take about 18 months to complete the study. When it is finished we will send you a report of the results. We expect the results will also be presented at medical conferences and published in a medical journal. No confidential information will be used.

Who is organising the study? The principal investigator is Robbie Foy, a GP and Professor of Primary Care from the University of Leeds. The other people involved are Dr Kate McLintock, Dr Robert West and Professor Allan House from the University of Leeds.

Who has reviewed the study? This study has been reviewed by the East Midlands - Derby 2 Research Ethics Committee (reference 11/EM/0144).

What if I have a complaint? We think this is unlikely to happen, but if it does you can contact us at the email address or telephone number below, or speak to the complaints department of NHS Leeds on 0800 052 5270.

If you want to discuss this project in further detail please contact:

Dr Kate McLintock, e: K.L.McLintock@leeds.ac.uk t: (0113) 343 2708

REC reference number: 11/EM/0144

UNIVERSITY OF LEEDS

Practice code:

Evaluation of screening for depression in patients with coronary heart disease and diabetes in primary care

Please initial or tick all boxes that apply

1. I confirm that I have read and understand the participant information sheet for this study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily ☐

2. I understand that practice participation is confidential and voluntary. I am aware the practice is free to withdraw from the study at any time, without giving any reason and without its legal rights being affected ☐

3. I am authorised to act as practice representative and agree for the practice to take part in this study ☐

4. I would like to be sent a summary of the results of the study

   Yes ☐ No ☐

Name of representative ……

Designation ……

Signature ……

Date ……

APPENDIX 3

LIST OF CLINICAL CODES OR DATA EXTRACTED FOR EACH OUTCOME MEASURE

TABLE A, CASE FINDING FOR DEPRESSION

Name	Clinical code	QOF Flag
Depression screening using questions	XaLIc	QOF DEP1

TABLE B, QOF DEPRESSION EXCEPTION REPORTING CODES

Name	Clinical code	QOF Flag
Excepted from depression quality indicators: Informed dissen	XaLFr	In the DEPEXC QOF cluster
Excepted from depression quality indicators: Patient unsuita	XaLFq	In the DEPEXC QOF cluster
Exception reporting: depression quality indicators	XaLFe	In the DEPEXC QOF cluster

TABLE C, DIAGNOSIS OF DEPRESSION; CLINICAL CODES RECOGNISED BY QOF

Name	Clinical code	QOF Flag
[X] Depression recurrent: [unspecified] or [monopolar NOS]	Eu33z	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X](Depressn: [episode unsp][NOS (& react)][depress dis NOS]	Eu32z	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X]Depress with psych sympt: [recurr: (named vars)][endogen]	Eu333	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X]Depression: [oth episode][atypic][single epis masked	Eu32y	In the DRDEP1 and DEPR QOF clusters

NOS]		Not recommended for use
[X]Depressive episode, unspecified	XE1Zb	In the DRDEP1 and DEPR QOF clusters
[X]Depressn, no psych symp: [recurr: (named var)]/[endogen]	Eu332	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X]Mild depressive episode	Eu320	In the DRDEP1 and DEPR QOF clusters
[X]Moderate depressive episode	Eu321	In the DRDEP1 and DEPR QOF clusters
[X]Other depressive episodes	XE1Za	In the DRDEP1 and DEPR QOF clusters
[X]Recurr depress disorder cur epi severe without psyc sympt	XE1Zd	In the DRDEP1 and DEPR QOF clusters
[X]Recurrent depress disorder cur epi severe with psyc symp	XE1Ze	In the DRMH1, DRDEP1 and DEPR QOF clusters
[X]Recurrent depressive disorder, current episode moderate	Eu331	In the DRDEP1 and DEPR QOF clusters
[X]Recurrent depressive disorder, unspecified	XE1Zf	In the DRDEP1 and DEPR QOF clusters
[X]Sev depress epis + psych symp:(& singl epis [named vars])	Eu323	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X]Sev depress epis, no psych: (& single [agit][maj][vital])	Eu322	In the DRDEP1 and DEPR QOF clusters Not recommended for use
[X]Severe depressive episode with psychotic symptoms	XE1ZZ	In the DRMH1, DRDEP1 and DEPR QOF clusters

[X]Severe depressive episode without psychotic symptoms	XE1ZY	In the DRDEP1 and DEPR QOF clusters
[X]Single episode agitated depressn w'out psychotic symptoms	XaCHr	In the DRDEP1 and DEPR QOF clusters
[X]Single episode major depression w'out psychotic symptoms	XaCHs	In the DRDEP1 and DEPR QOF clusters
Agitated depression	X00SQ	In the DRDEP1 and DEPR QOF clusters
Atypical depressive disorder	E11y2	In the DRDEP1 and DEPR QOF clusters
Chronic depression	E2B1.	In the DRDEP1 and DEPR QOF clusters
Cotard syndrome	XSKr7	In the MH, DRMH1, DRDEP1 and DEPR QOF clusters
Depression NOS	XaB9J	In the DRDEP1 and DEPR QOF clusters
Depression: [reactive (neurotic)] or [postnatal]	XE1aY	In the DRDEP1 and DEPR QOF clusters Not recommended for use
Depression: [single maj episode][agit][endogen (& 1st epis)]	E112.	In the DRDEP1 and DEPR QOF clusters Not recommended for use
Depressive disorder	X00SO	In the DRDEP1 and DEPR QOF clusters
Depressive disorder NEC	E2B..	In the DRDEP1 and DEPR QOF clusters
Endogenous depression	X00SR	In the DRDEP1 and DEPR QOF clusters
Endogenous depression - recurrent	XM1GC	In the DRDEP1 and DEPR QOF

		clusters
Endogenous depression first episode	X00SS	In the DRDEP1 and DEPR QOF clusters
Major depressive disorder	XSEGJ	In the DRDEP1 and DEPR QOF clusters
Masked depression	X00SU	In the DRDEP1 and DEPR QOF clusters
Mild depression	XaCIs	In the DRDEP1 and DEPR QOF clusters
Mild major depression	XSGok	In the DRDEP1 and DEPR QOF clusters
Mixed anxiety and depressive disorder	X00Sb	In the DRDEP1 and DEPR QOF clusters
Moderate depression	XaCIt	In the DRDEP1 and DEPR QOF clusters
Moderate major depression	XSGol	In the DRDEP1 and DEPR QOF clusters
Post-schizophrenic depression	X00S8	In the MH, DRMH1, DRDEP1 and DEPR QOF clusters
Reactive depression	XE1YC	In the DRDEP1 and DEPR QOF clusters
Reactive depressive psychosis	E130.	In the DRDEP1 and DEPR QOF clusters
Recurrent brief depressive disorder	Xa0wV	In the DRDEP1 and DEPR QOF clusters
Recurrent depression	E1137	In the DRDEP1 and DEPR QOF clusters
Recurrent depression: [major episode] or [endogenous]	E113.	In the DRDEP1 and DEPR QOF clusters

		Not recommended for use
Recurrent major depressive episode NOS	E113z	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes	XE1Y1	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, in full remission	E1136	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, mild	E1131	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, moderate	E1132	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, severe, no psychosis	E1133	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, severe, with psychosis	E1134	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes, unspecified	E1130	In the DRDEP1 and DEPR QOF clusters
Recurrent major depressive episodes,partial/unspec remission	E1135	In the DRDEP1 and DEPR QOF clusters
Seasonal affective disorder	X761L	In the DRDEP1 and DEPR QOF clusters
Severe depression	XaClu	In the DRDEP1 and DEPR QOF clusters
Severe major depression with psychotic features	XSGon	In the DRMH1, DRDEP1 and DEPR QOF clusters
Severe major depression without psychotic features	XSGom	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode	XE1Y0	In the DRDEP1 and DEPR QOF clusters

Single major depressive episode NOS	E112z	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, in full remission	E1126	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, mild	E1121	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, moderate	E1122	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, partial or unspec remission	E1125	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, severe, with psychosis	E1124	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, severe, without psychosis	E1123	In the DRDEP1 and DEPR QOF clusters
Single major depressive episode, unspecified	E1120	In the DRDEP1 and DEPR QOF clusters

TABLE D, DIAGNOSIS OF DEPRESSION; CLINICAL CODES NOT RECOGNISED BY QOF

Name	Clinical code
Anxiety with depression	Y5448
Depressed mood	XE0re
Symptoms of depression	XaLmU
C/O - feeling depressed	
O/E - depressed	2257
[X]Recurrent depressive disorder	XE1Zc
Depression medication review	XaK6e
Depression annual review	XaK6d
Depression interim review	XaK6f

On depression register	XaJWh
Depression monitoring administration	XaMGL
Depression monitoring first letter	XaMGN
Depression monitoring second letter	XaMGO
Depression monitoring third letter	XaMGP
Patient given advice about management of depression	XaKEz
Depression worse in morning	761J
Depression management programme	Xaltx
Depression screen	Y6303
Depression screening	6891.
[X]Other mood affective disorders	Eu3y.
[X]Other persistent mood affective disorders	Eu34y
[X]Other recurrent mood affective disorders	XE1Zh
[X]Other single mood affective disorders	XE1Zg
[X]Other specified mood affective disorders	Eu3yy
[X]Persistent mood affective disorder, unspecified	Eu34z
[X]Persistent mood affective disorders	Eu34.
[X]Unspecified mood affective disorder	XE1Zi
Adjustment reaction with anxious mood	E2924
Crying associated with mood	XM0Ar
Cyclic mood swings	XaAyL
Blunting of mood	Xa00z
Diurnal variation of mood	X761I
Dysphoric mood	XaKUk

Mood disorder	XE1Xy
Moody	Xa3Xf
Moody after illness	Y4284
Moody before illness	Y4236

TABLE E, ANTIDEPRESSANT DRUGS

Drug Class	Drugs included in search	Drugs excluded from search (and rationale)
Selective serotonin reuptake inhibitors (SSRIs)	Citalopram Escitalopram Fluoxetine Fluvoxamine Paroxetine Sertraline	
Tricyclic and related antidepressants	Clomipramine Dosulepin Doxepin Lofepramine Trimipramine	Amitriptyline (neuropathic pain) Nortriptyline (neuropathic pain) Imipramine (nocturnal eneuresis)
Monoamine oxidase inhibitors (MAOIs)	Phenelzine Isocarboxazid Tranylcypromine Moclobemide	
Other antidepressant drugs	Mirtazipine Venlafaxine Agomelatine	Duloxetine (Stress incontinence or diabetic neuropathy)

	Tryptophan Reboxetine	Flupentixol (psychoses)

TABLE F, CLINICAL CODES FOR REFERRAL TO PRIMARY AND SECONDARY CARE

Name	Clinical code
Referral for guided self-help for depression	XaL0r
Referral to improving access to psychological therapies prog	XaPvw
Referral to mental health team	XaIPw
Referral to primary care mental health gateway worker	XaLFL
Discharged by mental health primary care worker	XaOxM
Referral to primary care mental health graduate worker	XaLFk
Referral to primary care mental health team	XaMhM
Seen by primary care graduate mental health worker	XaL0t
Seen by primary care mental health gateway worker	XaM7s
Psychological therapies	XaIOt
Psychological therapies – 1-2 contacts/week	XaIXC
Psychological therapies – 1-3 contacts/month	XaIXE
Psychological therapies – 24 hour not intensive	XaIX1

Psychological therapies – 3-5 contacts/week	XaIX8
Psychological therapies - <1 contact/month	XaIXH
Psychological therapies – Daily intensive	XaIX7
Psychological therapies – Full day: day care	XaIX2
Psychological therapies – Part day: day care	XaIX3
Therapeutic psychology	8G91
Referral to psycho-educational group	XaKbY
Referral to counsellor	XaBT1
Psychological counselling	6779
Counselling service	XaC6N
Referral to counselling service	XaAeI
Referral for mental health counseling	XaAen
Referral to mental health counselling service	XaAem
Referral to mental health counsellor	XaAfJ
Discharge by mental health counsellor	XaAil
Seen by counsellor	9N2B
Seen by mental health counselllor	XaAS4
Under care of counsellor	XaAOd
In-house counselling	9NJ1
In-house counselling first appointment	XaLnp
In-house counselling follow-up appointment	XaLnr
In-house counselling discharge	XaLnq
Counselling by other agency	6715
Counselling offered	6712

Patient counselled	6721
Counselled by a counsellor	6736
Counselling carried out	6714
Referral to psychiatric nurse	XaAh4
Under care of psychiatric nurse	XaAQi
Psychiatric social worker	03AJ
Community mental health nurse	Ua0ZJ
Seen by community mental health nurse	XaAUA
Under care of community mental health nurse	XaAQo
Community mental health team	Ua0um
Psychiatric self-referral	8HJ3
Referral to psychogeriatric day hospital	XaAeM
Private referral to psychogeriatrician	8HVS
Under care of psychogeriatrician	XaAPr
Discharge by psychogeriatrician	ZaAjP
General psychiatric care of older adults	XaIOo
Referral to psychiatry day hospital	XaAeL
Referral for mental illness domiciliary visit	XaAeu
Referral to liaison psychiatrist	XaAgC
Seen by liaison psychiatrist	XaATF
Urgent referral to psychiatrist	XaPDH
Private psychiatric referral	Y8647
Under care of hospital psychiatric team	XaL2L

Psychiatric outreach clinic	XaL03
Emergency psychiatric admission MHA	8H230
Emergency voluntary psychiatric admission Mental Health Act	XaNIN
Non-urgent psychiatric admission	8H38
Admission by psychiatrist	XaAM0
Brief solution focused psychotherapy	Xaltc
General psychotherapy	8G1
Group psychotherapy	8G51
Other psychotherapy	8G9
Interpersonal psychotherapy	XaQBz
Psychoanalytic and psychodynamic therapy	Xa8IG
Psychotherapy	X71bp
Psychotherapy service	XaC8T
Psychotherapy/sociotherapy	Xe0iL
Psychotherapy (specialty)	Xalm4
Referral to nurse psychotherapist	XaAh1
Referral to psychotherapist	XaAhN
Referral to psychotherapy service	XaAdM
Seen by psychotherapy – service	XaAXe
Seen by psychotherapist	XaAUN
Under care of psychotherapist	XaAR3
Cognitive - behaviour therapy	XaABO
Cognitive and behavioural therapy	Ub0qp

Cognitive behavioural therapy by multidisciplinary team	XaM2J
Cognitive behavioural therapy by unidisciplinary team	XaM2I
Cognitive behavioural therapy NOS	XaM2L
Computerised cognitive behavioural therapy	XaKzQ
Did not attend cognitive behaviour therapy	XaLCQ
Generic cognitive behavioural therapy	Xa8I9
Guided self help cognitive behavioural therapy	XaQC0
Other specified cognitive behavioural therapy	XaM2K
Referral for cognitive behavioural therapy	XaR5D
Referral to cognitive behavioural therapist	XaR2j

TABLE G, DIAGNOSTIC CODES; DIABETES MELLITUS

Name	Clinical code	QOF Flag
Insulin treated Type 2 diabetes mellitus	X40J6	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Insulin-dependent diabetes mellitus secretory diarrhoea synd	X40JY	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Pre-existing diabetes mellitus, insulin-dependent	L1805	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Pre-existing diabetes mellitus, non-insulin-dependent	L1806	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters

Type 1 diabetes mellitus with exudative maculopathy	XaJSr	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type 1 diabetes mellitus with gastroparesis	XaKyW	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type 1 diabetes mellitus with persistent microalbuminuria	XaIzN	In the MAL, DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type 1 diabetes mellitus with persistent proteinuria	XaIzM	In the PRT, DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus	X40J4	'/dm1' synonym In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus - poor control	C1088	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus maturity onset	C1089	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with arthropathy	XaFmL	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with diabetic cataract	XaFm8	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with gangrene	C1086	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF

		clusters
Type I diabetes mellitus with hypoglycaemic coma	XaFWG	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with mononeuropathy	XaEnn	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with multiple complications	C1083	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with nephropathy	XaF04	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with neurological complications	C1082	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with neuropathic arthropathy	XaFmM	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with ophthalmic complications	C1081	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with peripheral angiopathy	XaFmK	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with polyneuropathy	XaEno	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with renal complications	C1080	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters

Type I diabetes mellitus with retinopathy	C1087	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus with ulcer	C1085	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type I diabetes mellitus without complication	XaELP	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus	X40J5	'/dm2' synonym In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus - poor control	C1097	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with arthropathy	XaFn8	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with diabetic cataract	XaFmA	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with exudative maculopathy	XaJQp	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with gangrene	C1095	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with gastroparesis	XaKyX	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF

		clusters
Type II diabetes mellitus with hypoglycaemic coma	XaFWI	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with mononeuropathy	XaEnp	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with multiple complications	C1093	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with nephropathy	XaF05	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with neurological complications	C1092	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with neuropathic arthropathy	XaFn9	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with ophthalmic complications	C1091	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with peripheral angiopathy	XaFn7	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with persistent microalbuminuria	XaIzR	In the MAL, DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with persistent proteinuria	XaIzQ	In the PRT, DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters

Type II diabetes mellitus with polyneuropathy	XaEnq	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with renal complications	C1090	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with retinopathy	C1096	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus with ulcer	C1094	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Type II diabetes mellitus without complication	XaELQ	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters
Unstable type I diabetes mellitus	Xa4g7	In the DRSMOK6, DRDM1, DRDEP3 and DM QOF clusters

TABLE H, DIAGNOSTIC CODES; CORONARY HEART DISEASE

Name	Clinical code	QOF Flag
(Angina:[cresc][unstabl][at rest])(preinfar syn)(imp infarc)	G311.	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters Not recommended for use
(Myocard inf (& [ac][silent][card rupt])) or (coron thromb)	G30..	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters Not recommended for use
[X]Acute transmural myocardial infarction of	Gyu34	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF

unspecif site		clusters
[X]Other current complicatns following acute myocard infarct	Gyu31	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
[X]Other forms of acute ischaemic heart disease	Gyu32	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
[X]Other forms of angina pectoris	Gyu30	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
[X]Other forms of chronic ischaemic heart disease	Gyu33	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
[X]Subsequent myocardial infarction of other sites	Gyu35	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
[X]Subsequent myocardial infarction of unspecified site	Gyu36	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Aborted myocardial infarction	G3110	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute anterior myocardial infarction	Xa0YL	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute anteroapical infarction	G3010	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute anterolateral myocardial infarction	G300.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

Acute anteroseptal myocardial infarction	G3011	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute atrial infarction	G30y0	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute coronary insufficiency	G31y0	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Acute coronary syndrome	XaINF	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute inferior myocardial infarction	X200K	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute inferolateral myocardial infarction	G302.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute inferoposterior infarction	G303.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute lateral myocardial infarction	X200P	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute myocardial infarction	XE0Uh	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute myocardial infarction NOS	G30z.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

Acute non-Q wave infarction	XaAzi	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - anterolateral	X200J	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - anteroseptal	X200H	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - inferior	X200M	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - inferolateral	X200O	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - lateral	X200R	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-Q wave infarction - widespread	X200U	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute non-ST segment elevation myocardial infarction	XaIwY	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute papillary muscle infarction	G30y1	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute posterior myocardial infarction	X200V	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

Acute posterolateral myocardial infarction	XaJX0	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - anterolateral	X200I	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - anteroseptal	X200G	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - inferior	X200L	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - inferolateral	X200N	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - lateral	X200Q	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave infarction - widespread	X200T	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute Q wave myocardial infarction	XaAC3	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute septal infarction	G30y2	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute ST segment elevation myocardial infarction	XaIwM	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

Acute subendocardial infarction	G307.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute widespread myocardial infarction	X200S	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Acute/subacute ischaemic heart disease NOS	XE0WC	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Angina	G33..	'/ang' synonym In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Angina at rest	X2007	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Angina decubitus	G330.	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Angina decubitus NOS	G330z	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Angina pectoris NOS	G33z.	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Anterior myocardial infarction NOS	G301z	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Asymptomatic coronary heart disease	XaG1Q	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF

		clusters
Cardiac rupture after acute myocardial infarction	X200e	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Chronic ischaemic heart disease NOS	XE0WG	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Chronic myocardial ischaemia	G34y1	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Coronary (atheroscl or artery dis) or triple vess dis heart	G340.	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters Not recommended for use
Coronary artery atheroma	XSDT6	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Coronary thrombosis not resulting in myocardial infarction	G312.	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Double coronary vessel disease	G3401	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Exercise-induced angina	Xa7nH	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
First myocardial infarction	Xalf1	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Heart disease:	XE0WE	In the IHD, DRSMOK1,

[arteriosclerotic] or [chronic ischaemic NOS]		DRDEP5 and DRCHD1 QOF clusters Not recommended for use
Inferior myocardial infarction NOS	G308.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Ischaemic heart disease	XE2uV	'/ihd' synonym In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Ischaemic heart disease (& [arteriosclerotic])	G3...	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters Not recommended for use
Ischaemic heart disease NOS	G3z..	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Lateral myocardial infarction NOS	G305.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Microinfarction of heart	G31y1	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Myocardial infarction	X200E	'mi' synonym In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Myocardial infarction (& [acute]) or coronary thrombosis	XE0WA	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

		Not recommended for use
Myocardial ischaemia	X200C	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
New onset angina	X200A	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Nocturnal angina	G3300	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Non-Q wave myocardial infarction	XaEgZ	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Old anterior myocardial infarction	X200W	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Old inferior myocardial infarction	X200X	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Old lateral myocardial infarction	X200Y	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Old myocardial infarction	XE2aA	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Old posterior myocardial infarction	X200Z	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other acute and subacute ischaemic heart disease	G31..	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF

		clusters
Other acute and subacute ischaemic heart disease NOS	G31yz	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other acute myocardial infarction	G30y.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other acute myocardial infarction NOS	G30yz	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other chronic ischaemic heart disease	G34..	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other chronic ischaemic heart disease NOS	G34z.	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other specified anterior myocardial infarction	G301.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other specified chronic ischaemic heart disease	G34y.	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other specified chronic ischaemic heart disease NOS	G34yz	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Other specified ischaemic heart disease	G3y..	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Post infarct angina	XaEXt	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters

Post-infarction ventricular septal defect	X200d	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Posterior myocardial infarction NOS	G304.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative myocardial infarction	XaD2b	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative myocardial infarction, unspecified	XaD2i	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative subendocardial myocardial infarction	XaD2h	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative transmural myocardial infarction anterior wall	XaD2d	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative transmural myocardial infarction inferior wall	XaD2e	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative transmural myocardial infarction other sites	XaD2f	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Postoperative transmural myocardial infarction unspec site	XaD2g	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Preinfarction syndrome NOS	G311z	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters

Refractory angina	XaFsG	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Ruptur cardiac wall w'out haemopericard/cur comp fol ac MI	G363.	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Silent myocardial infarction	X200a	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Silent myocardial ischaemia	X200D	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Single coronary vessel disease	G3400	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Stable angina	X2008	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Status anginosus	G33z0	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Stenocardia	G33z1	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Subendocardial ischaemia	G31y2	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Subsequent myocardial infarction	G35..	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters

Subsequent myocardial infarction of anterior wall	G350.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Subsequent myocardial infarction of inferior wall	G351.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Subsequent myocardial infarction of other sites	G353.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Syncope anginosa	G33z2	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Transient myocardial ischaemia	XaFsH	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Triple vessel disease of the heart	X2006	In the IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
True posterior myocardial infarction	G306.	In the MI, IHD, DRSMOK1, DRDEP5 and DRCHD1 QOF clusters
Unstable angina	X2009	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters
Worsening angina	XE0Ui	In the IHD, DRSMOK1, DRDEP5, DRCHD1 and ANG QOF clusters

TABLE I, DIAGNOSTIC CODES; ASTHMA

Name	Clinical code	QOF Flag
(Asthma:[exerc ind][allerg NEC][NOS]) or (allerg bronch NEC)	H33zz	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
(Hay fever + asthma) or (extr asthma without status asthmat)	H3300	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
(Intrinsic asthma) or (late onset asthma)	H331.	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
(Severe asthma attack) or (status asthmaticus NOS)	H33z0	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Acute asthma	Xa9zf	In the DRSMOK9, DRAST1 and AST QOF clusters
Allergic asthma	X101x	In the DRSMOK9, DRAST1 and AST QOF clusters
Allergic asthma NEC	X101z	In the DRSMOK9, DRAST1 and AST QOF clusters
Allergic atopic asthma	XE0YQ	In the DRSMOK9, DRAST1 and AST QOF clusters
Allergic non-atopic asthma	X1021	In the DRSMOK9, DRAST1 and AST QOF clusters
Aspirin-induced asthma	XaJFG	In the DRSMOK9, DRAST1 and AST QOF clusters
Aspirin-sensitive asthma with nasal polyps	X1024	In the DRSMOK9, DRAST1 and AST QOF clusters

Asthma	H33..	'/ast' synonym In the DRSMOK9, DRAST1 and AST QOF clusters
Asthma NOS	XE0YX	In the DRSMOK9, DRAST1 and AST QOF clusters
Asthma unspecified	H33z.	In the DRSMOK9, DRAST1 and AST QOF clusters
Asthma: [extrins - atop][allerg][pollen][childh][+ hay fev]	H330.	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Asthma: [intrinsic] or [late onset]	XE0ZR	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Asthma: [NOS] or [attack]	XE0ZT	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Asthmatic bronchitis	Xa0lZ	In the DRSMOK9, DRAST1 and AST QOF clusters
Baker's asthma	X1026	In the DRSMOK9, DRAST1 and AST QOF clusters
Brittle asthma	Ua1AX	In the DRSMOK9, DRAST1 and AST QOF clusters
Byssinosis	H440.	In the DRSMOK9, DRAST1 and AST QOF clusters
Byssinosis grade 3	X101k	In the DRSMOK8, DRSMOK9, DRCOPD1, DRAST1, COPD and AST QOF clusters
Cannabinosis	H441.	In the DRSMOK9, DRAST1

		and AST QOF clusters
Childhood asthma	X101t	In the DRSMOK9, DRAST1 and AST QOF clusters
Chronic asthmatic bronchitis	H3120	In the DRSMOK9, DRAST1 and AST QOF clusters
Colophony asthma	X1027	In the DRSMOK9, DRAST1 and AST QOF clusters
Detergent asthma	H47y0	In the DRSMOK9, DRAST1 and AST QOF clusters
Drug-induced asthma	X1023	In the DRSMOK9, DRAST1 and AST QOF clusters
Exercise-induced asthma	173A.	In the DRSMOK9, DRAST1 and AST QOF clusters
Extrinsic asthma - atopy (& pollen)	XE0ZP	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Extrinsic asthma NOS	H330z	In the DRSMOK9, DRAST1 and AST QOF clusters
Extrinsic asthma with asthma attack	X101y	In the DRSMOK9, DRAST1 and AST QOF clusters
Extrinsic asthma with status asthmaticus	XE0YS	In the DRSMOK9, DRAST1 and AST QOF clusters
Extrinsic asthma without status asthmaticus	XE0YR	In the DRSMOK9, DRAST1 and AST QOF clusters
Flax-dressers' disease	XaEKI	In the DRSMOK9, DRAST1 and AST QOF clusters
Grain worker's asthma	X1028	In the DRSMOK9, DRAST1 and AST QOF clusters
Hay fever with asthma	X1020	In the DRSMOK9, DRAST1

		and AST QOF clusters
Intrins asthma with: [asthma attack] or [status asthmaticus]	H3311	In the DRSMOK9, DRAST1 and AST QOF clusters Not recommended for use
Intrinsic asthma NOS	H331z	In the DRSMOK9, DRAST1 and AST QOF clusters
Intrinsic asthma with asthma attack	X1022	In the DRSMOK9, DRAST1 and AST QOF clusters
Intrinsic asthma with status asthmaticus	XE0YU	In the DRSMOK9, DRAST1 and AST QOF clusters
Intrinsic asthma without status asthmaticus	H3310	In the DRSMOK9, DRAST1 and AST QOF clusters
Late onset asthma	X101u	In the DRSMOK9, DRAST1 and AST QOF clusters
Mill fever	X102B	In the DRSMOK9, DRAST1 and AST QOF clusters
Mixed asthma	H332.	In the DRSMOK9, DRAST1 and AST QOF clusters
Nocturnal asthma	XaLPE	In the DRSMOK9, DRAST1 and AST QOF clusters
Non-allergic asthma	XE0YT	In the DRSMOK9, DRAST1 and AST QOF clusters
Occupational asthma	X1025	In the DRSMOK9, DRAST1 and AST QOF clusters
Status asthmaticus	X102D	In the DRSMOK9, DRAST1 and AST QOF clusters
Status asthmaticus NOS	XE0YV	In the DRSMOK9, DRAST1 and AST QOF clusters
Sulphite-induced asthma	X1029	In the DRSMOK9, DRAST1

		and AST QOF clusters
Work aggravated asthma	XaKdk	In the DRSMOK9, DRAST1 and AST QOF clusters

TABLE J, DIAGNOSTIC CODES; CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Name	Clinical code	QOF Flag
(Sawyer-Jones syndrome) or (other emphysema NOS)	H32yz	In the DRSMOK8, DRCOPD1 and COPD QOF clusters Not recommended for use
[X]Other emphysema	Hyu30	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
[X]Other specified chronic obstructive pulmonary disease	Hyu31	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Acute vesicular emphysema	H32y0	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Atrophic (senile) emphysema	XE0YO	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Bronchiolitis obliterans	X101l	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Bronchiolitis obliterans with usual interstitial pneumonitis	X102z	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Bullous emphysema with collapse	XE0YN	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Byssinosis grade 3	X101k	In the DRSMOK8, DRSMOK9, DRCOPD1, DRAST1, COPD and AST QOF clusters
Centrilobular emphysema	H322.	In the DRSMOK8, DRCOPD1

		and COPD QOF clusters
Chronic bronchitis	H31..	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic bronchitis NOS	H31z.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic bullous emphysema	H320.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic bullous emphysema NOS	H320z	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic emphysema due to chemical fumes	H4640	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic obstructive airways disease NOS	H3z..	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic obstructive lung disease	H3...	'/copd' synonym In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic tracheobronchitis	H31y1	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Chronic: [bronchitis NOS] or [tracheobronchitis]	XE0ZN	In the DRSMOK8, DRCOPD1 and COPD QOF clusters Not recommended for use
Compensatory emphysema	H582.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Congenital lobar emphysema	X101q	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Drug-induced bronchiolitis obliterans	X101m	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Emphysema	H32..	In the DRSMOK8, DRCOPD1 and COPD QOF clusters

Emphysema NOS	H32z.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Emphysematous bronchitis	H3121	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
End stage chronic obstructive airways disease	XaIND	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Giant bullous emphysema	H3202	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Interstitial pulmonary emphysema	XaIQg	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
MacLeods syndrome	H32y2	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Mild chronic obstructive pulmonary disease	XaEIV	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Mixed simple and mucopurulent chronic bronchitis	H313.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Moderate chronic obstructive pulmonary disease	XaEIW	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Mucopurulent chronic bronchitis	H311.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Mucopurulent chronic bronchitis NOS	H311z	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Obstructive chronic bronchitis NOS	H312z	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Occupational chronic bronchitis	X101j	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Other chronic bronchitis	H31y.	In the DRSMOK8, DRCOPD1

		and COPD QOF clusters
Other chronic bronchitis NOS	H31yz	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Other emphysema	H32y.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Other emphysema NOS	XE0YP	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Other specified chronic obstructive airways disease	H3y..	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Panlobular emphysema	H321.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Pulmonary emphysema	X101n	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Pulmonary emphysema in alpha-1 PI deficiency	X101o	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Purulent chronic bronchitis	XE0YM	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Scar emphysema	X101r	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Segmental bullous emphysema	H3200	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Severe chronic obstructive pulmonary disease	XaEIY	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Simple chronic bronchitis	H310.	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Simple chronic bronchitis NOS	H310z	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Toxic bronchiolitis obliterans	H4641	In the DRSMOK8, DRCOPD1 and COPD QOF clusters

Toxic emphysema	X101p	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Very severe chronic obstructive pulmonary disease	XaN4a	In the DRSMOK8, DRCOPD1 and COPD QOF clusters
Zonal bullous emphysema	H3201	In the DRSMOK8, DRCOPD1 and COPD QOF clusters

TABLE K, DIAGNOSTIC CODES; EPILEPSY

Name	Clinical code	QOF Flag
(Epilepsy NOS) or (fit in known epileptic NOS)	F25z.	In the EPIL and DREPIL1 QOF clusters Not recommended for use
(Epilepsy) or (epileptic attack)	XE185	In the EPIL and DREPIL1 QOF clusters Not recommended for use
(Grand mal status) or (status epilepticus)	F253.	In the EPIL and DREPIL1 QOF clusters Not recommended for use
[X]Other epilepsy	Fyu51	In the EPIL and DREPIL1 QOF clusters
[X]Other generalised epilepsy and epileptic syndromes	Fyu50	In the EPIL and DREPIL1 QOF clusters
[X]Other status epilepticus	Fyu52	In the EPIL and DREPIL1 QOF clusters
[X]Status epilepticus, unspecified	Fyu59	In the EPIL and DREPIL1 QOF clusters
Alcohol-induced epilepsy	X006u	In the EPIL and DREPIL1

		QOF clusters
Amygdalo-hippocampal epilepsy	X005y	In the EPIL and DREPIL1 QOF clusters
Anterior frontopolar epilepsy	X0064	In the EPIL and DREPIL1 QOF clusters
Aquagenic epilepsy	X0079	In the EPIL and DREPIL1 QOF clusters
Chr progressive epilepsia partialis continua of childhood	X006C	In the EPIL and DREPIL1 QOF clusters
Cingulate epilepsy	X0063	In the EPIL and DREPIL1 QOF clusters
Complex partial epileptic seizure	XaJFI	In the EPIL and DREPIL1 QOF clusters
Complex partial status epilepticus	X007G	In the EPIL and DREPIL1 QOF clusters
Convulsive status epilepticus	XE15Y	In the EPIL and DREPIL1 QOF clusters
Cryptogenic generalised epilepsy	X006N	In the EPIL and DREPIL1 QOF clusters
Cryptogenic Lennox-Gastaut syndrome	X006R	In the EPIL and DREPIL1 QOF clusters
Cryptogenic myoclonic epilepsy	X006Z	In the EPIL and DREPIL1 QOF clusters
Cryptogenic West syndrome	X006O	In the EPIL and DREPIL1 QOF clusters
Cursive (running) epilepsy	F25y0	In the EPIL and DREPIL1 QOF clusters
Decision-making epilepsy	X0078	In the EPIL and DREPIL1

		QOF clusters
Dorsolateral epilepsy	X0066	In the EPIL and DREPIL1 QOF clusters
Drug-induced epilepsy	X006t	In the EPIL and DREPIL1 QOF clusters
Early infant epileptic encephalopathy wth suppression bursts	X006e	In the EPIL and DREPIL1 QOF clusters
Early myoclonic encephalopathy	X006d	In the EPIL and DREPIL1 QOF clusters
Eating epilepsy	X0075	In the EPIL and DREPIL1 QOF clusters
Epilepsy	F25..	'/epi' synonym In the EPIL and DREPIL1 QOF clusters
Epilepsy associated with specific stimuli	F2551	In the EPIL and DREPIL1 QOF clusters
Epilepsy NOS	XE15a	In the EPIL and DREPIL1 QOF clusters
Epilepsy only in relation to photic stimulation	X006z	In the EPIL and DREPIL1 QOF clusters
Epilepsy undetermined whether focal or generalised	X006l	In the EPIL and DREPIL1 QOF clusters
Epilepsy with continuous spike wave during slow-wave sleep	X006p	In the EPIL and DREPIL1 QOF clusters
Epilepsy: [Jacksonian] or [focal] or [motor]	F2550	In the EPIL and DREPIL1 QOF clusters Not recommended for use

Epileptic seizures - myoclonic	F2513	In the EPIL and DREPIL1 QOF clusters
Eyelid myoclonus with absences	X0070	In the EPIL and DREPIL1 QOF clusters
Fit (in known epileptic) NOS	XaC34	In the EPIL and DREPIL1 QOF clusters
Frontal lobe epilepsy	X0061	In the EPIL and DREPIL1 QOF clusters
Generalised convulsive epilepsy	F251.	In the EPIL and DREPIL1 QOF clusters
Generalised convulsive epilepsy NOS	F251z	In the EPIL and DREPIL1 QOF clusters
Generalised epilepsy	F2510	In the EPIL and DREPIL1 QOF clusters
Generalised non-convulsive epilepsy	F250.	In the EPIL and DREPIL1 QOF clusters
Generalised non-convulsive epilepsy NOS	F250z	In the EPIL and DREPIL1 QOF clusters
Hemiplegia-hemiconvulsion-epilepsy syndrome	X006E	In the EPIL and DREPIL1 QOF clusters
Idiopathic myoclonic epilepsy	X006a	In the EPIL and DREPIL1 QOF clusters
Infantile spasms NOS	F256z	In the EPIL and DREPIL1 QOF clusters
Jacksonian, focal or motor epilepsy	XaB4S	In the EPIL and DREPIL1 QOF clusters
Kojevnikov's epilepsy	F257.	In the EPIL and DREPIL1 QOF clusters
Lafora disease	X006X	In the EPIL and DREPIL1

		QOF clusters
Lateral temporal epilepsy	X0060	In the EPIL and DREPIL1 QOF clusters
Lennox-Gastaut syndrome	X006Q	In the EPIL and DREPIL1 QOF clusters
Localisation-related cryptogenic epilepsy	X006F	In the EPIL and DREPIL1 QOF clusters
Localisation-related epilepsy	X005m	In the EPIL and DREPIL1 QOF clusters
Localisation-related symptomatic epil with spec precipitant	X006D	In the EPIL and DREPIL1 QOF clusters
Localisation-related symptomatic epilepsy	X005x	In the EPIL and DREPIL1 QOF clusters
Locl-rlt(foc)(part)idiop epilep&epilptic syn seiz locl onset	F25y2	In the EPIL and DREPIL1 QOF clusters
Menstrual epilepsy	X006w	In the EPIL and DREPIL1 QOF clusters
Mesiobasal limbic epilepsy	F2543	In the EPIL and DREPIL1 QOF clusters
Motor cortex epilepsy	XE15Z	In the EPIL and DREPIL1 QOF clusters
Motor epilepsy	XaB4R	In the EPIL and DREPIL1 QOF clusters
Motor simple partial status	X007F	In the EPIL and DREPIL1 QOF clusters
Musicogenic epilepsy	X0073	In the EPIL and DREPIL1 QOF clusters

Myoclonic absence epilepsy	X006U	In the EPIL and DREPIL1 QOF clusters
Myoclonic astatic epilepsy	X006T	In the EPIL and DREPIL1 QOF clusters
Myoclonic encephalopathy	F1322	In the EPIL and DREPIL1 QOF clusters
Myoclonic epilepsy - ragged red fibres	X006Y	In the EPIL and DREPIL1 QOF clusters
Narcotic withdrawal epilepsy	X006v	In the EPIL and DREPIL1 QOF clusters
Nocturnal epilepsy	X006x	In the EPIL and DREPIL1 QOF clusters
Non-convulsive simple partial status epilepticus	X007E	In the EPIL and DREPIL1 QOF clusters
Non-convulsive status epilepticus with 3/sec spike wave	X007C	In the EPIL and DREPIL1 QOF clusters
Non-convulsive status epilepticus without 3/s spike wave	X007D	In the EPIL and DREPIL1 QOF clusters
Non-convulsive status epilepticus wth impaired consciousness	F252.	In the EPIL and DREPIL1 QOF clusters
Non-progressive Kozhevnikow syndrome	X0068	In the EPIL and DREPIL1 QOF clusters
Occipital lobe epilepsy	X006A	In the EPIL and DREPIL1 QOF clusters
Opercular epilepsy	X0067	In the EPIL and DREPIL1 QOF clusters

Orbitofrontal epilepsy	X0065	In the EPIL and DREPIL1 QOF clusters
Other forms of epilepsy	F25y.	In the EPIL and DREPIL1 QOF clusters
Other forms of epilepsy NOS	F25yz	In the EPIL and DREPIL1 QOF clusters
Other specified generalised convulsive epilepsy	F251y	In the EPIL and DREPIL1 QOF clusters
Other specified generalised non-convulsive epilepsy	F250y	In the EPIL and DREPIL1 QOF clusters
Parietal lobe epilepsy	X0069	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy with autonomic symptoms	F2553	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy with impairment of consciousness	F254.	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy with impairment of consciousness NOS	F254z	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy without impairment of consciousness	F255.	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy without impairment of consciousness NOS	F255z	In the EPIL and DREPIL1 QOF clusters
Partial epilepsy without impairment of consciousness OS	F255y	In the EPIL and DREPIL1 QOF clusters
Petit mal (minor) epilepsy	XaQbJ	In the EPIL and DREPIL1

		QOF clusters
Photosensitive epilepsy	X006y	In the EPIL and DREPIL1 QOF clusters
Post-anoxic myoclonus	X004s	In the EPIL and DREPIL1 QOF clusters
Progressive myoclonic epilepsy	XE15I	In the EPIL and DREPIL1 QOF clusters
Progressive myoclonic epilepsy (& [Unverricht-Lundborg dis])	F1321	In the EPIL and DREPIL1 QOF clusters Not recommended for use
Psychomotor epilepsy	XaB4T	In the EPIL and DREPIL1 QOF clusters
Psychosensory epilepsy	F2542	In the EPIL and DREPIL1 QOF clusters
Rasmussen syndrome	X001S	In the EPIL and DREPIL1 QOF clusters
Reading epilepsy	X006q	In the EPIL and DREPIL1 QOF clusters
Rhinencephalic epilepsy	X005z	In the EPIL and DREPIL1 QOF clusters
Secondary reading epilepsy	X006s	In the EPIL and DREPIL1 QOF clusters
Self-induced non-photosensitive epilepsy	X007A	In the EPIL and DREPIL1 QOF clusters
Simple partial epileptic seizure	XaL2B	In the EPIL and DREPIL1 QOF clusters
Somatosensory epilepsy	F2552	In the EPIL and DREPIL1 QOF clusters
Status epilepticus	X007B	In the EPIL and DREPIL1

		QOF clusters
Stress-induced epilepsy	XaJgP	In the EPIL and DREPIL1 QOF clusters
Supplementary motor epilepsy	X0062	In the EPIL and DREPIL1 QOF clusters
Symptomatic generalised epilepsy	X006c	In the EPIL and DREPIL1 QOF clusters
Symptomatic Lennox-Gastaut syndrome	X006S	In the EPIL and DREPIL1 QOF clusters
Symptomatic myoclonic epilepsy	X006f	In the EPIL and DREPIL1 QOF clusters
Symptomatic West syndrome	X006P	In the EPIL and DREPIL1 QOF clusters
Tactile epilepsy	X0074	In the EPIL and DREPIL1 QOF clusters
Tapping epilepsy	X0076	In the EPIL and DREPIL1 QOF clusters
Temporal lobe epilepsy	F2540	In the EPIL and DREPIL1 QOF clusters
Toothbrushing epilepsy	X0077	In the EPIL and DREPIL1 QOF clusters
Traumatic epilepsy	SC200	In the EPIL and DREPIL1 QOF clusters
Unilateral epilepsy	F2555	In the EPIL and DREPIL1 QOF clusters
Unverricht-Lundborg syndrome	X006V	In the EPIL and DREPIL1 QOF clusters
Visual reflex epilepsy	F2554	In the EPIL and DREPIL1 QOF clusters

West syndrome	F256.	In the EPIL and DREPIL1 QOF clusters
Writing epilepsy	X0072	In the EPIL and DREPIL1 QOF clusters

TABLE L, DIAGNOSTIC CODES; HYPERTENSION

Name	Clinical code	QOF Flag
[X]Hypertension secondary to other renal disorders	Gyu21	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
[X]Hypertensive diseases	Gyu2.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
[X]Other secondary hypertension	Gyu20	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Benign essential hypertension	G201.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters In Read code Benign essential hypertension
Diastolic hypertension	XSDSb	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Essential hypertension	XE0Uc	'/ht' synonym In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Essential hypertension NOS	XE0Ud	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Hypertension	XE0Ub	In the HYP, DRSMOK4 and DRHYP1 QOF clusters In Read code Hypertension
Hypertension secondary to drug	G24z1	In the HYP, DRSMOK4 and DRHYP1 QOF clusters

Hypertension secondary to endocrine disorders	G244.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Hypertensive disease	G2...	'/hyp' synonym In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Hypertensive disease NOS	G2z..	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Labile hypertension	Xa0Cs	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Malignant essential hypertension	G200.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Malignant hypertension	Xa3fQ	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Malignant secondary hypertension	G240.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Other specified hypertensive disease	G2y..	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Pre-exist 2ndry hypertens comp preg childbth and puerprum	L1282	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Renovascular hypertension	Xa0kX	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary benign hypertension	G241.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary benign hypertension NOS	G241z	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary benign renovascular hypertension	G2410	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary hypertension	G24..	In the HYP, DRSMOK4 and

		DRHYP1 QOF clusters
Secondary hypertension NOS	G24z.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary malignant hypertension NOS	G240z	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary malignant renovascular hypertension	G2400	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Secondary renovascular hypertension NOS	G24z0	In the HYP, DRSMOK4 and DRHYP1 QOF clusters
Systolic hypertension	G202.	In the HYP, DRSMOK4 and DRHYP1 QOF clusters

CHAPTER THREE

A SYSTEMATIC REVIEW OF PRIMARY HEALTHCARE PROFESSIONALS' BELIEFS ABOUT IMPLEMENTING CASE FINDING FOR DEPRESSION IN PATIENTS WITH LONG-TERM PHYSICAL CONDITIONS IN PRIMARY CARE

ABSTRACT

OBJECTIVES

To identify and classify what has been written about the beliefs held by primary healthcare professionals on implementing case finding for depression in patients with long-term physical conditions.

DESIGN

Systematic review of published qualitative and quantitative studies.

DATA SOURCES

Searches of bibliographic databases; Ovid MEDLINE, Embase, CINAHL, PsycINFO, Health Management Information Consortium, Web of Science. Searches of primary care magazines (*Pulse*, *GP*, *The Practitioner*), Doctors.net.uk and the news and comment pages of Selected primary care journals and magazines.

ELIGIBILITY CRITERIA

English language articles examining the beliefs of general practitioners and primary healthcare professionals, based in the UK or overseas settings which have primary care provision similar to that of the National Health Service, on implementing case finding for depression in adult patients with long term physical conditions using any recognised case finding or screening tool.

DATA EXTRACTION AND ANALYSIS

The ‘best fit’ framework synthesis approach, with The Theoretical Domains Framework providing the initial framework for data extraction.

RESULTS

Frequency of coding to The Theoretical Domains Framework domains was variable. All data conformed to four superordinate themes; contradictory beliefs about case finding, mistrust, trade-offs and dilemmas. Together these themes demonstrated conflict and tensions within and between organisations, professional groups and individuals.

CONCLUSIONS

The healthcare tensions demonstrated in the review suggests significant influences on the perception and implementation of case finding beyond direct barriers and enablers, offering one explanation, from the perspective of primary care staff, for perceived doubts about the efficacy of, and difficulty in effectively implementing, case finding for depression in long-term physical conditions in primary care.

INTRODUCTION

BACKGROUND AND RATIONALE

To understand how incentivised(155) and guideline recommended(33, 80, 82, 156) case finding has been received, and how any future attempts to employ systematic case-finding are likely to fare, it is important to know what GPs and other PHCPs believe about the scheme and identify any attitudinal barriers to implementation.(157, 158) Identifying beliefs on implementing case finding for depression may also offer wider insights into influences on and consequences of employing case finding for other conditions. As it is not possible to obtain contemporaneous opinion from GPs and PHCPs on QOF incentivised case finding which was withdrawn in 2013,(97) and reflections may now be influenced by the withdrawal of the scheme, this review sought to capture both views expressed during the time QOF DEP1 was implemented and those conveyed following withdrawal. Beliefs were defined as, “the cognitive act or state in which a proposition is taken to be true.”(159)

Before undertaking this review a search was undertaken to identify any existing systematic review answering the same or a sufficiently similar question which would render this review redundant. The search focused on The Cochrane Library, using Wiley, to incorporate:

Cochrane Database of Systematic Reviews
Cochrane Central Register of Controlled Trials (CENTRAL)
Cochrane Methodology Register
Database of Abstracts of Reviews of Effects (DARE)
Health Technology Assessment Database
NHS Economic Evaluation Database

As many guidelines are based on evidence derived from systematic reviews a search of outputs from the following agencies was conducted:

National Institute for Health and Clinical Excellence, England and Wales
Scottish Intercollegiate Guidelines Network, Scotland
Agency for Healthcare Research & Quality, USA
National Collaborating Centre for Methods and Tools, Canada
National Health and Medical Research Council, Australia
Ministry of Health (including archives of the New Zealand Guidelines Group liquidated in 2012), New Zealand

No existing review was identified when the search was completed March 2014, or on update September 2017.

SYSTEMATIC REVIEW QUESTION

What do general practitioners and other primary healthcare professionals believe about implementing case finding for depression in patients with long-term physical conditions primary care?

AIM

To identify and classify what has been written about the beliefs held by GPs and other PHCPs on implementing case finding for depression in patients with long-term physical conditions, in primary care.

METHODS

This review was designed and conducted in line with guidance published by the Centre for Reviews and Dissemination, University of York, and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).(160, 161)

ELIGIBILITY CRITERIA

The PICOS (population, interventions, comparators, outcomes and study designs) framework was used to formulate the review question and inclusion criteria.

P GPs and PHCPs in UK primary care and overseas settings which have primary care provision similar to that of the NHS.

I Implementing case finding for depression in adult patients with long-term physical conditions through unprompted, recommended or incentivised case finding using any recognised case finding or screening tool.

C Opportunistic detection either in routine care or as part of systematic long-term conditions management of the physical condition.

O What GPs and PHCPs think about implementing case finding?

S Both qualitative and quantitative studies were sought, along with informal (non-research) comments in the grey literature. Owing to the focus on what GPs and PHCPs believe, grey literature was also targeted with the aim of capturing letters and opinion pieces published in the mainstream media and GP magazines rather than established journals. By supplementing the bibliographic databases search with an exploration of grey literature and integrating these data sources, it was intended the review would capture the fullest range of GP and PHCP beliefs.

Only studies published in the English language were included as the PhD was conducted on limited resources and no monies were available for translation services. Whilst this decision potentially introduced language bias it was judged that the majority of studies meeting inclusion criteria were likely to be published in the English language. Research examining language bias suggests exclusion of non-English language studies does not generally affect the results of a systematic review.(162)

EXCLUSION CRITERIA

Healthcare worker views on depression care excluding implementing case finding.

SEARCH STRATEGY AND INFORMATION SOURCES

Two pilot searches were undertaken in Ovid Medline. Medline was chosen for this purpose as it is one of the largest and most comprehensive databases of medical literature. The first search used subject heading (MeSH) and free text search terms analogous to depression, case finding or screening and primary care and retrieved a total of 1614 studies. Title and abstract screening of these results revealed a large number of irrelevant and unrelated studies. The second search added terms CHD, diabetes mellitus (diabetes) and long-term physical conditions in accordance with the definition of QOF DEP1, and retrieved 147 studies with a greater proportion of relevant studies. As a result the specific rather than sensitive search strategy was selected.

Electronic searches were undertaken on the following bibliographic databases 12/3/14 and grey literature sources 22-29/7/14. Searches and screening were complete and analysis began 11/10/2014. Automatic updates continued until 30/09/2017 when this thesis was nearing completion.

- Ovid MEDLINE(R) 1946 to present
- Embase Classic+Embase 1947 to present
- CINAHL 1960 to present
- PsycINFO 1806 to present
- Health Management Information Consortium 1983 to present
- Web of Science (within Web of Knowledge) 1898 to present
- Targeted grey literature search, each source searched from earliest available date to present
    - GP magazines; *Pulse*, *GP*.
    - *British Journal of General Practice* (*BJGP*), *British Medical Journal* (*BMJ*), *Family Practice* and *The Practitioner*. Whilst these publications are searched by bibliographic databases a targeted search using the on line search facility of each journal was conducted with the aim of retrieving editorials, letters and responses to published research which may not have been entered in to databases.

- Doctors.net.uk. This website is stated to be the largest and most active web based professional network for UK doctors.(163)

Bibliographic databases search terms included exploded MeSH and free text terms linked with appropriate commands. A complete list of search terms defined according to the database searched, and the number of studies retrieved from each database, is contained in APPENDIX 4. The search strategy was developed in consultation with senior information specialists, Judy Wright and Thomas Veale. No methodological filters were used as both qualitative and quantitative results were sought. Restrictions to English language and studies on humans were applied. All search results were saved in their entirety and retained for future re-analysis as required. Bibliographic databases were searched from the earliest available date to ensure early references to case finding for depression, and any publications reporting comparable initiatives which preceded QOF DEP1, were retrieved.

Grey literature searches were conducted in individual websites for all sources. *Pulse* and *GP* magazines are indexed in bibliographic databases but with limited coverage; *Pulse* in Health Business Elite (HBE), Health Management Information Consortium and Embase, and GP in HBE. Test searches of HBE, the Ovid databases using appropriate commands to identify the publications (e.g. Pulse.jn.) and using a filter developed by Senior Information Specialists to identify opinion pieces for an unconnected realist synthesis, demonstrated less specific searches than using individual websites. Test searches conducted in *BJGP*, *BMJ*, *Family Practice* and *The Practitioner* websites demonstrated an additional yield of editorials and letters. Doctors.net.uk does not have links to existing bibliographic databases. As this was a targeted grey literature search terms were tailored to each website to optimise the number of results returned. A complete list of search terms defined according to the website searched, and the number of articles retrieved from each website, is contained in APPENDIX 5.

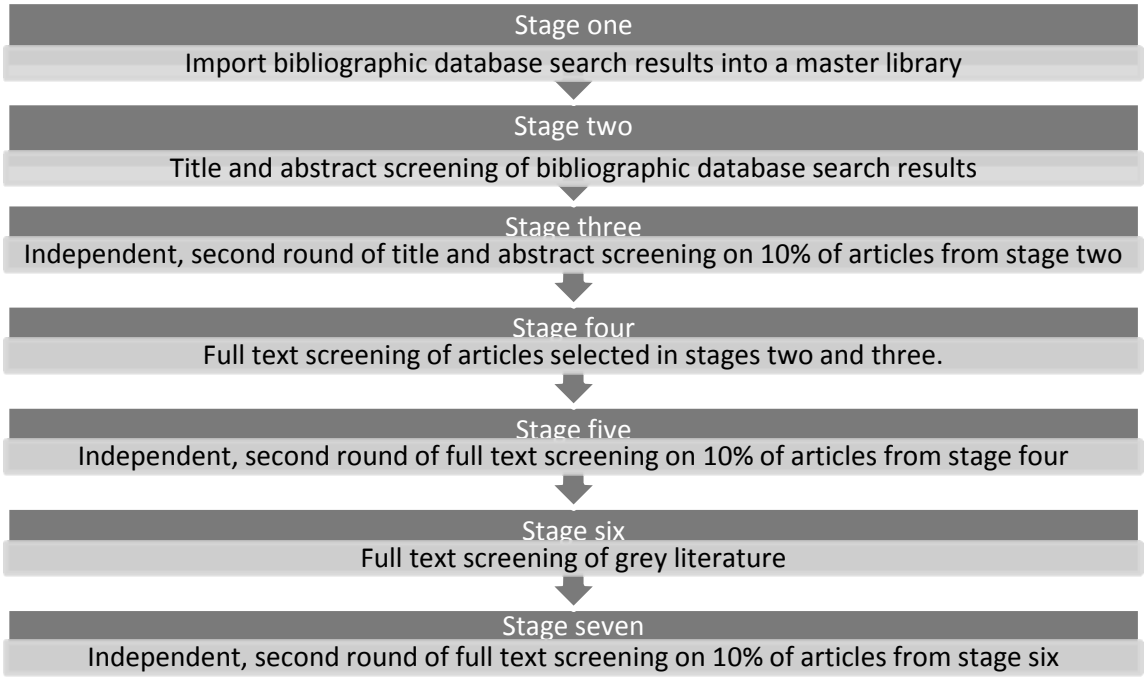
It is acknowledged that it is unusual to use data from sources such as the Doctors.net.uk forum. The decision to include these data in the review was based on iterative appraisal of search results, and the belief that peer reviewed and ‘standard’ grey literature sources did not adequately capture the depth, breadth or outspoken nature of many beliefs expressed by PHCPs.

Through involvement in an ethnographic study linked to the interrupted time series analysis, and jointly funded by the NIHR RfPB, I was involved in the preparation of a manuscript relevant to this review. The manuscript met eligibility criteria but by virtue of pre-publication status would not be detected by any search at the time the review was conducted. Following

discussion with supervisors it was decided to include the manuscript of this ethnographic study entitled, 'Incentivised screening for depression in patients with chronic heart disease and diabetes in primary care: an ethnographic study,' in data synthesis and analysis.(134) My role in the ethnographic study was contributing to writing the study protocol when applying for grant funding. My contribution to the manuscript was commenting on draft copies prior to submission for consideration of publication.

STUDY SELECTION

FIGURE 6, STUDY SELECTION



As summarised in figure 6 bibliographic databases search results were imported into a master library using EndNote reference management software. Duplicate studies matched on author, year and title were identified using EndNote and manually verified.

I undertook initial screening of bibliographic databases search results, based on examination of title and abstracts and with attention to the specified inclusion criteria. Where studies appeared to meet the inclusion criteria, or if the title and abstract contained insufficient information to determine relevance, the full paper was obtained.

A second researcher (SA) independently evaluated a randomly selected 10% of title and abstract screened studies contained in the bibliographic search EndNote library to validate the selections made by the first researcher. The second assessor was blinded to the decision made

by the first assessor. Disagreements about inclusion were evident in four of 405 articles evaluated. Following discussion and reference to the review protocol agreement was reached in all cases. Two articles were added to full text screening; both were later excluded on the basis of not meeting review inclusion criteria. Two articles remained excluded through being non-English language articles and not based in primary care.

Full text screening of selected articles found that two papers, with the same lead author, were duplicate publications from two different journals.(164, 165) The shorter, less descriptive article which provided a smaller amount of data was excluded from the review. This avoided both duplication in data extraction and undue emphasis on the concepts it described during data synthesis and analysis.

SA independently evaluated a randomly selected 10% of full text screened studies to validate selections made by the first researcher. The second assessor was blinded to the decision made by the first assessor. Disagreements about inclusion were evident in three of 18 articles evaluated. Following discussion and reference to the review protocol agreement was reached in two cases and articles removed from inclusion in qualitative synthesis. The third article was passed to PhD supervisor, RF, for final assessment, it was subsequently agreed this article would remain included in qualitative synthesis.

Due to the search method used it was not possible to import supplementary grey literature search results in to EndNote and treat them in the same way as the bibliographic search result library. Articles were therefore obtained in full text format at the time of the initial search, and I undertook full text screening during this search.

In an attempt to manage grey literature search results in a similar way to the bibliographic search independent evaluation of grey literature via full text screening of one source, GP magazine, was undertaken by SA to validate selections made by the first researcher. GP magazine was felt to be broadly representative of the grey literature and produced approximately 10% of total grey literature search results. Disagreements about inclusion were evident in one of 31 articles evaluated. Following discussion and reference to the review protocol agreement was reached and the article removed from inclusion in qualitative synthesis.

At each stage disagreements were resolved by discussion and with reference to the review protocol. Where agreement was not reached using these measures consultation with a research supervisor took place. The decision not to use a kappa statistic as a formal measure of

agreement was made in line with recommendations contained in the Cochrane Handbook of Systematic Review for Interventions. (166) It is accepted kappa values may not always communicate the impact of disagreements by reviewers making inclusion, exclusion decisions on a systematic review. “Comparison of a value of kappa with arbitrary cut-points is unlikely to convey the real impact of any disagreements on the review. For example, disagreement about the eligibility of a large, well conducted, study will have more substantial implications for the review than disagreement about a small study with risks of bias.”(167)

To ensure transparency reasons for study rejection, including a record of any disagreement between reviewers, was documented at each stage. Rejected citations were stored in EndNote with reasons recorded in custom fields. A PRISMA flow diagram showing the number of studies remaining at each point was constructed (APPENDIX 6).(161)

DATA EXTRACTION, SYNTHESIS AND ANALYSIS

CHOICE OF METHOD OF DATA SYNTHESIS

The primary focus of the synthesis was integrative rather than interpretive;(168) aggregating and providing a descriptive account of the data rather than developing theory or concepts, though considerable overlap between integrative and interpretive approaches is recognised.(169) The choice of method of data synthesis was driven by this integrative focus. The additional criterion was that the method should not only accurately and effectively integrate data, but also preserve the original context for use in the Q-sort.

Ontologically interpretive methods including meta-study,(170) textual narrative synthesis,(171) grounded theory,(172) realist synthesis,(173) Miles and Huberman’s data analysis technique,(174) critical interpretive synthesis(175) and meta-ethnography(168) were judged unsuitable due to their focus on revising and extending theory.

Theories with an integrative foundation (content analysis, qualitative comparative analysis method, case survey and Bayesian meta-analysis) were therefore considered.(169) The criterion not met or reasons for rejection are listed in table 9.

TABLE 9, INTEGRATIVE METHODS OF DATA SYNTHESIS

Method	Description	Reason for rejection
Content analysis(176)	A means of categorising data and determining the	Loss of context and the possibility that frequency

	frequencies of those categories	counting may not accurately represent the significance of less common concepts
Qualitative Comparative Analysis Method (QCA)(177)	Converts qualitative data into quantitative form before applying a Boolean minimisation process to disregard logically inconsistent variables	This approach would effectively integrate review data but lose context. The method is more relevant to identifying causal pathways rather than the more complex question of the thoughts and meanings individuals attach to an intervention(169)
Case survey approach(178)	Converts qualitative data to a quantitative form appropriate for statistical analysis. This method is targeted at studying outcomes and requires a sufficient number of cases, or studies, to make analysis viable	Loss of context through transformation of data to quantitative form, unsuitable for the review due to concerns that an insufficient number of studies would be identified for inclusion
Bayesian meta-analysis(179)	A means of quantitatively synthesising qualitative data	Whilst this method might accurately reflect the range of qualitative evidence gathered, by handling data from diverse study types and offering an indication of variables and effect size, it is recognised as difficult to implement(169) and as such was not an ideal choice for a first review

Following rejection of these methods a decision was made to use framework-based synthesis, an established technique for data synthesis which is based on framework analysis and provides a structured platform to both organise and analyse data.(180) The 'best fit' framework synthesis approach was preferred whereby a conceptual framework relevant to the review question is selected for use as the initial coding framework, and then extended using data derived from studies included in the review which does not fit in to the existing framework structure.(181, 182) As such the approach is "augmented and deductive rather than grounded or inductive."(182) This method was chosen as it provided a means of conducting a fully developed synthesis whilst making best use of limited resources. Although 'best fit' framework synthesis may be somewhat reductive and stifle interpretive process, the ability to retain quotes and data as they were in the original articles and customise the chosen framework to provide a descriptive account of GP and PHCP beliefs on implementing case finding for depression in long-term physical conditions, provides a pragmatic compromise between the theory driven interpretive approach and overly reductive integrative approaches.

The Theoretical Domains Framework (TDF),(183) a revision of the British Psychological Society (BPS) Framework,(184) was chosen to provide the framework for data extraction, synthesis and analysis. The TDF was designed with 'the aim of integrating a number of behaviour change theories to make theory more accessible to, and useable by, other disciplines.'(183) In the original BPS framework 33 theories and 128 key theoretical constructs were assimilated into 12 domains by a group of psychological theorists, health service researchers and health psychologists to assess intervention using a six stage consensus approach. The BPS was revised in 2011 through a three step validation study(183) which provided support for the basic structure of the original BPS, refining it to produce the TDF with 14 domains and 84 component constructs. The removed constructs were described by the framework authors as vague, very general, ambiguous or infrequently used. (183)

The 14 domains of the TDF are: 'Knowledge', 'Skills', 'Social/Professional Role and Identity', 'Beliefs about Capabilities', 'Optimism', 'Beliefs about Consequences', 'Reinforcement', 'Intentions', 'Goals', 'Memory, Attention and Decision Processes', 'Environmental Context and Resources', 'Social Influences', 'Emotions' and 'Behavioural Regulation.' To ensure clarity and aid understanding of the analysis and synthesis which follow, the component constructs of each TDF domain are summarised (table 10).

TABLE 10, THEORETICAL DOMAINS FRAMEWORK(183)

Domain (definition)	Constructs
Knowledge **(An awareness of the existence of something)**	Knowledge (including knowledge of condition /scientific rationale) Procedural knowledge Knowledge of task environment
Skills **(An ability or proficiency acquired through practice)**	Skills Skills development Competence Ability Interpersonal skills Practice Skill assessment
Social/Professional Role and Identity **(A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting)**	Professional identity Professional role Social identity Identity Professional boundaries Professional confidence Group identity Leadership Organisational commitment
Beliefs about capabilities **(Acceptance of the truth, reality, or validity about an ability, talent or facility that a person can put to constructive use)**	Self-confidence Perceived competence Self-efficacy Perceived behavioural control Beliefs Self-esteem Empowerment Professional confidence
Optimism **(The confidence that things will happen for the best or that desired goals will be**	Optimism Pessimism Unrealistic optimism

attained)	Identity
Beliefs about consequences **(Acceptance of the truth, reality or validity about outcomes of a behaviour in a given situation)**	Beliefs Outcome expectancies Characteristics of outcome expectancies Anticipated regret Consequents
Reinforcement **(Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)**	Rewards (proximal/distal, valued/not valued, probable/improbable) Incentives Punishment Consequents Reinforcement Contingencies Sanctions
Intentions **(A conscious decision to perform a behaviour or resolve to act in a certain way)**	Stability of intentions Stages of change model Transtheoretical model and stages of change
Goals **(Mental representations of outcomes or end states that an individual wants to achieve)**	Goals (distal / proximal) Goal priority Goal / target setting Goals (autonomous / controlled) Action planning Implementation intention
Memory, Attention and Decision Process **(The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)**	Memory Attention Attention control Decision making Cognitive overload / tiredness
Environmental Context and Resources **(Any circumstances of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour)**	Environmental stressors Resources / material resources Organisational culture /climate Salient events / critical incidents Person x environment interaction Barriers and facilitators

Social Influences **(Those interpersonal processes that can cause individuals to change their thoughts, feelings or behaviours)**	Social pressure Social norms Group conformity Social comparisons Group norms Social support Power Intergroup conflict Alienation Group identity Modelling
Emotion **(A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event)**	Fear Anxiety Affect Stress Depression Positive / negative affect Burn-out
Behavioural Regulation **(Anything aimed at managing or changing objectively observed or measured actions)**	Self-monitoring Breaking habit Action planning

The authors propose three key advantages to the revised TDF; comprehensive coverage of possible influences on behaviour, clarity about each influence with component constructs of domains being specified and explicit links in the framework between theories and techniques of behaviour change. The latter allows the framework to be used to both to assess and address implementation problems. The authors suggest the TDF is suitable for gathering both qualitative and quantitative data.(183)

The BPS framework and TDF have been useful in helping research teams to summarise a range of behavioural factors frequently considered to influence professional practice. The frameworks have been used to evaluate the implementation of evidence or guideline based practice and inform interventions in a broad range of settings, including hand hygiene, schizophrenia, blood transfusion, back pain, spinal and head imaging guidelines, Human

Papilloma Virus testing and head injury.(185-194) In this case the revised TDF was chosen as a broad organising framework to appraise implementation of practice, what GPs and PHCPs think about the implementation of case finding for depression in patients with long-term physical conditions in primary care as promoted by NICE, RCGP and QOF amongst others.(33, 34, 80, 98, 155)

The decision to use the TDF was made following examination of frameworks and theories used by, or referred to, in papers identified via scoping searches of the NHS Cancer Screening Programmes Literature Database, EMBASE, Medline and PsycINFO, and consideration of concepts described in a text examining implementation of change in clinical practice.(195) The TDF was judged appropriate to analyse clinician's viewpoints on implementing case finding for depression as it is wide-ranging; although the review question is focused the broad scope of the TDF allows assessment of views relating to individual, clinical team, organisation and wider systems levels to be considered in the analysis. Efforts have been made by the creators of the TDF to ensure its domains are clearly defined, enabling constructs to be coded to existing themes or the framework expanded via the creation of new themes to aggregate and describe the gathered data faithfully and fully. Furthermore its predecessor has been used to understand clinical practice in a number of conditions, providing confidence the TDF can be similarly employed.

A potential bias in this review is that it may centre on particular aspects of case finding which researchers or grey literature authors choose to investigate or report. Whilst structured searches of bibliographic and grey literature sources seek to redress this, it is unavoidable in a review examining what is written about beliefs. Data synthesis using the TDF potentially grants privilege to individualistic accounts of GP and PHCP interactions with patients during case finding, e.g. only two of fourteen domains are based on constructs which describe environmental context and resources or social influences. Implicit assumptions which influence interaction between GPs, other PHCPs and patients may not be as readily highlighted by the TDF, e.g. the effects of practice culture, or population characteristics such as local poverty or affluence. This limitation does not preclude the use of the framework, but requires that the reviewer heeds these limitations and the potential effect on data extraction, synthesis and analysis.

Key models considered alongside the BPS framework were the Theory of Planned Behaviour (TPB) and Normalisation Process Theory (NPT).(196, 197) The TPB is a psychological theory which focuses on attitudes towards a particular behaviour, perceived social norms and

perceived control related to the behaviour. These factors combine to influence both intention to perform the behaviour and the behaviour itself. Whilst this theory has been used previously in fields such as health promotion and implementation research,(198, 199) it was rejected on the grounds it was less likely to consider the wide range of determinants affecting practice than the TDF.

NPT is a sociological theory which provides tools to understand and describe the social processes by which innovations are operationalised, focusing on implementation, embedding and integration of processes or practices. The theory postulates innovations are normalised in social contexts by way of individual and collective human agency, with agency being promoted or inhibited through four generative mechanisms (coherence, cognitive participation, collective action and reflexive monitoring). NPT suggests it is not enough to adopt and disseminate an innovation, for it to become routinely embedded in day to day practice requires continuous investment by the agents involved or the innovative practice will wane. NPT is promoted for use in systematic review data analysis,(200) either as a coding framework using the four generative mechanisms as existing themes or conducting a thematic analysis and examining how the newly emerging themes fit within the existing framework.

Both the TDF and NPT are sufficiently comprehensive models which are capable of sensitising the reviewer to concepts identified in the data, as such either would be an acceptable choice for this review. The TDF was selected on the basis that supervisors were more familiar with, and had previous experience, using this approach.

DATA EXTRACTION, SYNTHESIS AND ANALYSIS

Data extraction was conducted in line with the methodology described by Carroll et al in their published 'best fit' framework synthesis.(182) The unit of analysis was verbatim quotations or author's statements extracted from articles included in the review.

The 'best fit' approach to data extraction and analysis provided an adequate framework to begin to map and code data extracted from to studies identified for inclusion. The domains described in the TDF framework were used as initial coding themes. Data selected for analysis were transcribed as verbatim quotations from participants in the original studies or as extracts of findings reported by authors. Deviating from the published 'best fit' framework synthesis(182) data were extracted from any part of a published article and included in the analysis providing the lead author or any co-author and guarantor of the paper was identified as a GP or PHCP, either through author affiliations listed in the published article or a search of that individual's host institution website. Carroll et al caution against extracting data from any

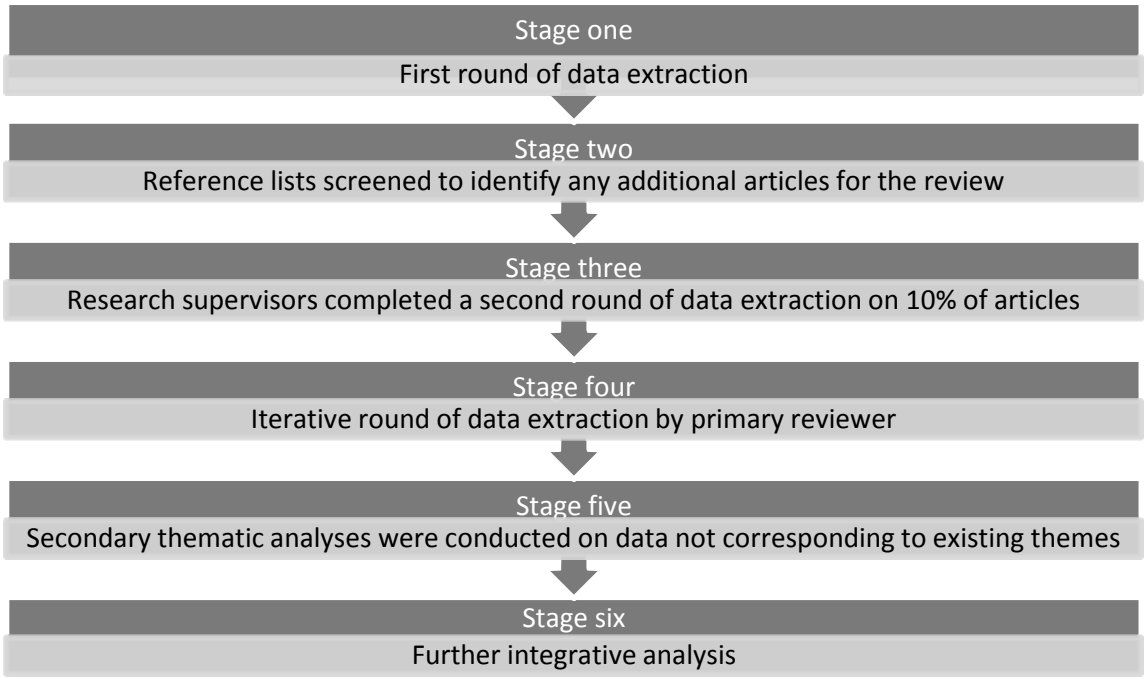
part of the article other than results section in the belief that data from discussion or conclusion sections will not correspond to new data, only the original author's interpretations of that data. For the purposes of this review any statement of belief about implementing case finding for depression in patients with long-term physical conditions by a GP or PHCP was sought, whether new data collected through primary research or a primary care author's response to this. Where data did not map on to existing themes as defined by the TDF, secondary thematic analysis(201) was used to create new themes and expand the framework.

The use of verbatim quotes from authors was not possible using data from doctors.net.uk. Unlike *Pulse* and *GP* magazines where articles and news reports were identified as data sources and much of the website is open access and it is possible for a log in to be created by any user, doctors.net.uk data were located in the member's forum. This forum is closed to the public and requires contributors are members of the General Medical Council (GMC). GMC status is verified by doctors.net.uk when membership is created. On the doctors.net.uk forum authors of all comments posted are easily identifiable. A telephone conversation was held on 2 December 2014 with Dr James Quekett, Director of Educational Services and GP Advisor doctors.net.uk, to clarify the ownership of forum data and the ethical issues surrounding use of these data. During this conversation Dr Quekett advised that the data were owned by doctors.net.uk and by virtue of authors being identifiable data could only be used at a descriptive level; anonymous, grouped responses where only TDF or outlying themes were reported, with no use of verbatim quotes. This approach to the use of data derived from the internet where it is not possible to contact individual contributors to gain consent, and the data were perceived to be private at the time of communication by virtue of being posted to a password-protected forum, is consistent with British Psychological Society's Ethics Guidelines for Internet-Mediated Research.(202) Following discussion with supervisors it was decided that treating these data differently was preferable to losing the content.

Following data extraction further integrative analysis was conducted with the aim of moving beyond simple, descriptive themes to develop super-ordinate themes and gain greater understanding of the data.

A standardised, electronic, data extraction form (APPENDIX 7) was completed for all articles selected for inclusion. The form was designed with the review question, aims and plan for data analysis in mind. The data extraction form was piloted by me and supervisor RF on a search conducted in 2011, to ensure that relevant information was captured and collation of unnecessary data avoided.

FIGURE 7, STAGES OF DATA EXTRACTION AND ANALYSIS



As summarised in figure 7 I completed the first round of data extraction using pre-existing themes derived from the TDF. Data from peer-reviewed research articles, general grey literature and doctors.net.uk were processed discretely at each stage to determine whether these sources yielded new or diverse results.

Reference lists from articles identified for inclusion in the review were screened to identify any additional articles suitable for inclusion. It was planned authors would be contacted for clarification, missing data or unpublished studies where necessary. Two articles were identified for consideration. Neither met inclusion criteria. Reasons for rejection are recorded in the EndNote library used to conduct this review.

In view of the limitations of single researcher data extraction, including concerns about subjectivity and error, both research supervisors (AH and RF) completed a second round of data extraction on 10% of articles selected for inclusion. Supervisors were blinded to data extraction performed by me. Data extraction forms were compared to ensure data extraction proved reliable and consistent. Disagreements were resolved by discussion and reference to the review protocol, revisions were made by consensus. In all instances where data were mapped to an existing theme of the TDF or a new theme was identified, agreement on allocation was identified between a minimum of two reviewers; me and one supervisor, or both supervisors. Data were assigned to the theme selected by the majority. Amendments were recorded within the data extraction form to ensure transparency. In summary changes

were made to four articles; splitting two quotes and relocating two of the four new data items in the first article, relocating one quote in the second, relocating three quotes in the third and relocating one quote and adding four new quotes in the fourth article.

I performed an iterative, second round of data extraction, aiming to incorporate insights and understanding gained. Changes were made to a further seven articles. One quote was relocated in each of five articles, and two and five quotes respectively added to the remaining two articles. Amendments were recorded within the data extraction form to ensure transparency.

Secondary thematic analyses on data not corresponding to existing themes were then undertaken. All instances of new theme creation were examined critically by a research supervisor. A decision was made whether data did in fact correspond to an existing theme, a new theme was required or new themes could be mapped on to one another by reciprocal translation.(203)

I then conducted further integrative analysis. The relationship of the data coded to existing and new themes in the customised framework was considered and super-ordinate themes developed, with the aim of deepening understanding and gaining more than a superficial, descriptive picture of data included in the review. The outcome of this process of synthesis is described under results.

RISK OF BIAS IN INDIVIDUAL STUDIES AND ACROSS STUDIES

There is a lack of consensus on the appropriateness and means of appraising study quality in qualitative reviews due to the variety of theoretical backgrounds and quality criteria researchers from different qualitative disciplines apply.(160) As it was uncertain whether this review would be composed of entirely qualitative papers or a mix of methodologies it was decided to use a recommended, structured appraisal tool, whilst accepting these can be difficult to apply to qualitative studies.(204)

The quality of studies included were assessed using the Critical Appraisal Skills Programme (CASP) tool specific to the research methodology of the paper being considered.(205) This resource was chosen for the range of methodologies covered by the tools. Quality checklists were not available for grey literature and such articles were assumed to be at high risk of bias in the absence of evidence to the contrary.

The outcome of quality assessment was not intended to exclude studies from the review(206) but inform the analysis, e.g. explaining any difference in outcome between otherwise similar studies and considering impact on the internal validity of the review. The high risk of bias inherent in data from grey literature sources was recognised during analysis and the weight given to these data, in comparison to data derived from higher quality peer reviewed articles, reflected this. This is contrary to the published method of framework analysis(203) but in line with the methodology used in the published 'best fit' framework synthesis followed.(182)

RESULTS

STUDY SELECTION

As outlined in the PRISMA flow diagram (APPENDIX 6) 5560 articles were identified by database searching and 303 articles from other sources, after removal of duplicates 4441 articles remained. Each of these was screened by title and abstract and 3969 articles excluded. 472 full text articles were assessed for eligibility using the inclusion criteria described and 435 articles excluded; reasons for exclusion are recorded in the EndNote library used to conduct this review (e.g. not related to depression, does not consider case finding for depression). The remaining 37 articles, 10 resulting from searches of bibliographic databases and 27 from searches of grey literature, were selected for synthesis.

STUDY CHARACTERISTICS AND RISK OF BIAS WITHIN STUDIES

PEER-REVIEWED RESEARCH ARTICLES

Of 10 articles identified for inclusion from searches of bibliographic databases were five qualitative studies using varying methods, two cross sectional surveys of PHCPs' attitudes, one editorial, one descriptive account and one news report.(165, 207-215) All qualitative and cross sectional survey studies were conducted in the UK and authors of the editorial, descriptive account and news report were UK based PHCPs.

The descriptive account and news report were judged to be grey literature and transferred for analysis with other grey literature articles. These two articles are described under the grey literature subheading.(208, 211)

Articles are listed by author name and include the month or year of publication where necessary to distinguish between multiple articles by the same author, or where no author is listed. These identifiers will be used in description of results to define the article of origin.

The CASP qualitative checklist for each of the articles is summarised beneath descriptions of the studies (table 11).

QUALITATIVE STUDIES

Alderson and colleagues used a mix of observation of consultations, interviews with patients and professionals and review of patient records to examine the process of case finding for depression in people with diabetes and CHD within the context of the QOF.(215) Audio recorded consultations and interviews with patients and healthcare professionals along with observation field notes were thematically analysed and outcomes of case finding assessed using patient records. All general practices in Leeds were invited to participate and 12 purposively sampled general practices selected, providing a total of 63 consultation observations and 57 patient interviews.

Barley and colleagues performed individual, in-depth interviews with 10 GPs, 11 practice nurses and one clinical pharmacist from 12 GP practices in South East London to understand GP and practice nurse views and experience of managing depression in CHD. Participants were identified from a sampling frame of 31 practices participating in the UPBEAT-UK cohort study of patients with depression and CHD. This study formed part of the UPBEAT-UK programme of research. To limit the number of participants who were sensitised to the link between depression and CHD snowballing was used to identify clinicians whose practices were enrolled in UPBEAT-UK, but who were not personally involved. Data were analysed using constant comparison.(214) Though the authors took steps to limit response bias, the possibility the sample may not be representative of typical UK GPs was considered during analysis.

Chew-Graham and colleagues conducted semi-structured interviews with a purposive sample of 25 GPs involved in undergraduate teaching in the Northwest of England, to examine the views and beliefs of GPs about the management of depression in patients with chronic physical illness. Data were analysed using constant comparison.(213) The possibility that the responses of participant GPs, a convenience sample of those involved in undergraduate teaching, may not be representative of typical GP beliefs was considered during analysis.

Maxwell and colleagues conducted focus groups with a total of 90 participants; GPs, Nurse Practitioners, practice nurses and NHS Managers in five primary care practices and five Community Health Partnerships in Scotland. They explored the views and experiences of participants to understand how the implementation of QOF incentivised case finding might impact on its effectiveness. The article is based on the combined results of two larger studies; a feasibility study for a practice nurse led self help intervention for depression in people with diabetes or CHD and a quality improvement study targeting the identification, assessment and care of depression in people with long-term physical conditions. The authors state the two studies explore similar populations and provide complementary findings. Participants for study one were drawn from practices registered with the Scottish Primary Care Research Network as having an interest in long-term conditions, study two also recruited staff from research practices. Data were analysed using constant comparison informed by an interpretive approach, based on the constructivist version of grounded theory as its epistemological underpinning.(209) The possibility recruited research practices may not be representative of a typical UK general practice was considered during analysis.

Mitchell and colleagues conducted topic guide led multidisciplinary focus groups with 38 participants; GPs, practice nurses, Doctors in Training, Mental Health Workers and a NHS Manager in four practices in South Yorkshire. A maximum variation sampling approach, based on socioeconomic characteristics and ethnic diversity by reference to census data was used. Researchers explored participant's perspectives on the impact of QOF and NICE clinical guidelines on the diagnosis and management of depression. Data analysis was iterative and thematic. During analysis authors demonstrated reflexivity about the potential influence of the local academic GP who conducted the focus groups.(212)

TABLE 11, CRITICAL APPRAISAL SKILLS PROGRAMME QUALITATIVE CHECKLIST

Screening Questions	Lead Author				
	Alderson	Barley	Chew-Graham	Maxwell	Mitchell
Was there a clear statement of the aims of the research?	Yes	Yes	Yes	Yes	Yes
Is a qualitative methodology appropriate?	Yes	Yes	Yes	Yes	Yes

Is it worth continuing?	Yes	Yes	Yes	Yes	Yes
Was the research design appropriate to address the aims of the research?	Yes	Yes	Yes	Yes	Yes
Was the recruitment strategy appropriate to the aims of the research?	Yes	Yes	Yes	Yes	Yes
Was the data collected in a way that addressed the research issue?	Yes	Yes	Yes	Yes	Yes
Has the relationship between researcher and participants been adequately considered?	Yes	Can't tell	Can't tell	Can't tell	Yes
Have ethical issues been taken into consideration?	Yes	Yes	Can't tell	Yes	Yes
Was the data analysis sufficiently rigorous?	Yes	Yes	Yes	Yes	Yes
Is there a clear statement of findings?	Yes	Yes	Yes	Yes	Yes
How valuable is the research?	Good quality. Applicable to the review	Good quality. Applicable to the review	Good quality. Applicable to the review	Good quality. Applicable to the review	Good quality. Applicable to the review

CROSS SECTIONAL SURVEYS

Haws and colleagues distributed an online questionnaire, developed by the authors, to nurses and GPs registered to receive the Primary Care Cardiovascular Journal or the British Journal of Primary Care Nursing. The questionnaire aimed to investigate PHCPs' attitudes to depression after myocardial infarction. A response rate of 8.9% was recorded. Data were anonymised and for each item the proportion of participants that agreed with the statement and the mean score were calculated. For each of the subscales summary scores were calculated. Internal consistency was tested using Cronbach's alpha values; correlations were also explored using Pearson's correlation. Finally mean scores for GPs and nurses were compared. (165) No relevant quality checklist was available, this research was judged to have some methodological limitations, largely due to low response rate and the convenience sample of participants in which selection and response bias are more likely resulting in non-representative data.

Yohannes distributed a pre-paid, postal questionnaire developed by the author to a random sample of 3956 GPs (principals and salaried) in England and Wales. Participants were drawn from the 2007 General Medical Services statistics database. This study aimed to explore GPs' experiences and views of managing depression in patients with COPD and was part of a larger, national survey of the experiences and views of GPs managing co-morbid depression in patients with COPD. A response rate of 22% was recorded. During analysis, free comments in the questionnaire were categorised using the content analysis method. No further description of analysis was provided.(207) The research was judged to have some methodological limitations, including a relatively small response rate and concern that self-report surveys which enquire about the clinician's behaviour are prone to recall bias.

EDITORIAL

Kendrick, a UK based GP and academic, authored an evidence based editorial which summarises both relevant policy and research evidence largely drawn from the UK and USA. This editorial focuses on what more we need to know about detecting and treating depression in primary care. The author also states beliefs about screening for depression in patients with co-morbid physical illness.(210) No relevant quality checklist was available, the article was judged to accurately summarise relevant evidence and contain pertinent beliefs. As the beliefs of one clinician are reported they will be treated with appropriate caution and not viewed as broadly representative.

GREY LITERATURE

The 27 articles identified for inclusion from searches of grey literature were all located in professional resources websites, and comprised 10 news reports which also contained PHCP beliefs, three descriptive accounts, one mixed article containing a news report and descriptive account, three blog posts and 10 doctors.net.uk forum posts. Contributors, interviewees and authors were all UK based PHCPs.(216-242)

The descriptions below include the two grey literature articles transferred from bibliographic searches; an additional news report and descriptive account.

NEWS REPORTS

Anekwe (2006)(219) reports on a published meta-analysis of case finding for depression in patients with heart failure.(243) The article contains quotes from two GPs; one current GP and a former GP who is now chief executive of Primary Care Mental Health and Education.

Anekwe (2007)(220) reports on a published systematic review of the tools used in QOF case finding for depression.(244) The article contains quotes from four GPs; one current GP, two GP academics and a former GP who is now chief executive of Primary Care Mental Health and Education.

Anekwe (2008) (221) reports on data published at the 2008 Diabetes UK conference on the accuracy of PHQ2.(245) The article contains quotes from three current GPs, including the lead author and a former mental health advisor to a now dissolved Primary Care Trust (PCT).

Lacobucci (240)reports on a published systematic review of the prevalence of depression in patients with diabetes.(246) The article contains quotes from one GP who was also the CHD lead for a now dissolved NHS PCT.

Liddle(235) reports on analyses of QOF depression and mental health domain data from Scotland, Wales and Northern Ireland for 2006/7. The article contains quotes from five GPs; one current GP, a member of the BMA GPC, the Chairs of GPC Scotland and Wales and a spokesperson for the RCGP.

This article dated November 2008, with no named author, (216) reports on a published systematic review of case finding for depression and patient outcomes in cardiovascular

care.(247) The article contains quotes from one GP, also a former Chair of the Primary Care Cardiovascular Society.

This article dated April 2011, with no named author,(211) reports on research suggesting QOF case finding questions encourage a reductionist approach to the detection of depression in patients with diabetes and CHD.(248) It contains a quote from an advanced nurse practitioner who comments on the availability of other screening tools and how training may impact on this incentivised activity. This article was identified in searches of bibliographic databases but judged to be grey literature in origin.

This article dated November 2011, with no named author, (217) reports on the decision by NHS Employers, the Department of Health and the BMA to maintain QOF incentivisation for case finding. The article contains quotes from one GP and one academic GP.

This article dated March 2012, with no named author,(218) reports on a data presented at the 2012 Diabetes UK Conference on the accuracy of QOF case finding questions.(249) The article contains quotes from one GP academic.

Swan (236) reports on published research comparing the short term impact of annual QOF incentivised case finding on diagnosis and treatment of depression, with care provided by GPs for the remainder of the year.(76) Swan then goes on to discuss NICE's 2011 recommendation to discontinue QOF incentivised case finding. The article contains quotes from one GP and one GP with a Special Interest in mental health.

Wilkinson (237) reports on published research examining the incidence of new-onset depression in patients with and without diabetes.(250) The article contains quotes from four GPs.

No relevant quality checklist was available for news reports; each article was judged to report subject matter with sufficient accuracy and contain pertinent PHCP beliefs. As the beliefs of individual GPs were reported, some with extended or alternative roles, data will be treated with appropriate caution and not viewed as broadly representative.

DESCRIPTIVE ACCOUNTS

Bland, a GP with an interest in mental health, provides an evidence based, descriptive account of how depression should be diagnosed, the role of case finding and when patients should be referred. The author also describes practice in his place of work.(231)

Hague (2007), a GP and former mental health advisor to a dissolved PCT, offers advice on maximising points from QOF depression targets and describes practice in his place of work.(233)

Hague (2009), the same GP who authored the 2007 article described above, but now acting as NHS East of England GP clinical lead for the IAPT programme, offers 10 tips on treating depression, including advice on case finding.(234)

Lockyer (2006), a GP and hospital practitioner in diabetic medicine, provides a descriptive account of the proposals for diabetes care in the second year of the QOF and describes how practices might manage these changes and maximise the points earned. The author also states beliefs and describes practice in his place of work. This article was identified in searches of bibliographic databases but judged to be grey literature in origin.(208)

No relevant quality checklist was available for descriptive accounts; each article was judged to accurately summarise subject matter and contain pertinent beliefs. As the beliefs and practice of individual GPs with extended roles were reported, data will be treated with appropriate caution and not viewed as broadly representative.

MIXED NEWS REPORT AND DESCRIPTIVE ACCOUNT

Lockyer (2007),(241) the same GP who authored the 2006 citation, reports on two published studies(251, 252) examining the effectiveness of treating depression in patients with diabetes and provides a descriptive account of his own practice's approach to QOF incentivised case finding. No relevant quality checklist was available for this article, though it was judged to report the research with sufficient accuracy and contain pertinent details on implementing case finding. As the practice of only one GP was described data will be treated with appropriate caution and not viewed as broadly representative.

BLOGS

Copperfield (2012), a UK GP, posted comment on his regular blog, featured on a professional resources website, about the proposed indicators for QOF 2013/14 which contains statements on implementing incentivised case finding for depression.(239)

Copperfield (2013) posted comment on the same blog, describing what he considered the three worst QOF indicators. Incentivised case finding is included as one of the 'meaningless' incentives.(232)

McCartney, a UK GP and medical journalist, outlines evidence based objections and beliefs opposing case finding for depression in her blog, featured on a professional resources website.(242)

No relevant quality checklist was available for blog posts; all were judged to contain pertinent beliefs. The beliefs are those of two recognised GPs, a bloggers and journalist, and whilst not generalisable, could be viewed as influential in the primary care community.

DOCTORS.NET.UK FORUM POSTS

The anonymised posts are numbered to reflect chronological date of posting.

doctors.net.uk-1 (2006) begins with a joke based on PHQ2, before developing in to a discussion on evidence for and implementation of case finding for depression.(225)

doctors.net.uk-2 (2006) debates implementation of case finding and the prevailing social norms within primary care. Contributors state their beliefs about case finding, both based in fact (e.g. evidence base and screening criteria) and beliefs.(223)

doctors.net.uk-3 (2006) is a short thread about exception reporting a group of patients from QOF incentivised case finding.(224) Exception reporting is a term used in QOF guidance to describe formally excluding a patient from a QOF target for which they are eligible. Eligibility is conferred by being on a particular disease register or a member of a defined target population. Exceptions are made on the basis of meeting one or more exception criteria and can be applied, individually, to any QOF target. Exception results in the patient being removed from the target numerator and denominator when calculating QOF achievement, allowing practices to avoid being financially penalised for not achieving an unattainable target; e.g. when a patient cannot safely be prescribed a named class of drugs due to side effect, interaction or comorbidity.(253)

doctors.net.uk-4 (2006) is a discussion largely focused on implementation of QOF incentivised case finding, with some comment on published evidence for the target. The dialogue reveals a largely negative view of case finding, with only a few positive comments from a minority of contributors. (222)

doctors.net.uk-5 (2007) concerns exception reporting patients from QOF incentivised case finding.(228)

doctors.net.uk-6 (2007) contains responses to an enquiry submitted by a *Pulse* reporter about the dip in QOF scores predicted by Local Medical Committees (LMCs). Two responses contain comment on QOF incentivised case finding.(226)

doctors.net.uk-7 (2007) concerns how to exception report patients with a diagnosis of diabetes and/or CHD from QOF incentivised case finding if they are being treated for depression, but are not on the QOF depression register. (227) This situation arises when a decision is made to treat a patient with an anti-depressant drug but no QOF recognised clinical code is entered in to the medical record, meaning the patient does not appear on the depression disease register. The PHCPs alternative action is to enter no clinical code or use a code not recognised by QOF. One consequence of avoiding entering a patient on the depression register is circumventing further targets associated with the QOF depression domain.

doctors.net.uk-8 (2009)is a short thread which expresses pessimistic views on QOF incentivised case finding through the use of cynicism and humour.(238)

doctors.net.uk-9 (2011) contains a query from a dermatologist about which tools can be used in case finding for depression. Responses display both knowledge and misunderstanding of applicable guidance, and also detail some negative viewpoints on the role and use of questionnaires in assessment and patient care.(229)

doctors.net.uk-10 (2013) concerns exception reporting patients from QOF incentivised case finding.(230)

In summary three forum threads consider implementation, four explore exception reporting, two contain responses to third party queries and one lampoons QOF incentivised case finding.

SUMMARY OF RISK OF BIAS

Whilst the qualitative studies were judged to be of good quality, concerns about the representativeness of study populations were observed. Both cross sectional surveys were judged to be at risk of response bias. The editorial, news reports, descriptive accounts, blogs and forum posts all recount the beliefs of individuals. Taken in isolation data derived from each of these sources may not be generalisable, but viewed collectively they demonstrate a range of GP and PCHP beliefs.

With the exception of anonymised, grouped responses from doctors.net.uk, the source of quotes, particularly in grey literature, could lead to suggestion data are more representative of

the beliefs of local or national opinion leaders than the everyday GP. Yet, as these accessible data were recorded contemporaneously, reflecting beliefs held at the time case finding was incentivised by QOF, it is contended they are superior to retrospective reports of beliefs and implementation.

Each of these limitations will be considered and inform the analysis and synthesis of results.

RESULTS BY DOMAIN

This section sets out findings by domain, with illustrative quotations taken from peer-reviewed research articles and grey literature. Full findings and quotations are available in APPENDIX 8. Data from doctors.net.uk are summarised under each domain and are not included in this appendix.

KNOWLEDGE

Data from one peer-reviewed research article(215), five grey literature articles(211, 220, 233, 240, 242) and five doctors.net.uk posts (222, 223, 225, 228, 229) were coded to this domain and corresponded to the themes of practical knowledge, whether accurate or misunderstood, and the relevance of published evidence to practice.

PRACTICAL KNOWLEDGE

Practical knowledge was characterised by both accurate insights and misunderstanding. Misunderstandings included misinterpreting the aim of the QOF recommendation for case finding for depression,(215) misidentification of clinical codes resulting in failure to achieve targets or exception report,(228) confusing case finding for depression with depression severity scoring,(222) and PHCPs being aware of QOF incentivised case finding but misinterpreting the aim of the recommendation and demonstrating a lack of knowledge about how case finding was implemented within a practice.(215, 223)

"Although GPs were aware that nursing staff undertook case finding, many did not know how a positive case finding would be communicated to them. Nurses assumed that GPs reviewed the case-finding outcome when seeing patients following reviews, but this was seldom the case."(215) (Qualitative study)

Advice or corrections to posts containing errors on the doctors.net.uk forum were offered by other contributors.(222, 223, 228, 229) Accurate insights stated in isolation, or in response to

colleague misunderstanding, included; information on the wording of PHQ2 questions, how to implement PHQ2 including the need to follow up positive responses with GP review, discussion of the sensitivity and specificity of PHQ2 and how this translates into everyday practice and highlighting recommended clinical codes to successfully achieve QOF points or exception report individuals. It may be noted that that although QOF guidance is jointly published by the BMA, NHS Employers and NHS England and is readily available to practices or individual clinicians,(253) a number of contributors to the forum actively sought advice on implementation from colleagues rather than referring to this guidance. Forum contributors also responded to a query about choice of case finding tools posed by a secondary care colleague.

RELEVANCE OF PUBLISHED EVIDENCE TO PRACTICE

Statements reflecting knowledge of the relevance of published evidence on case finding for depression, or application of case finding tools, were a mix of neutral, positive and negative interpretations.(211, 220, 233, 242) Positive statements noted the link between chronic disease and depression, highlighting the increased prevalence of depression and suggesting case finding therefore must be a worthwhile intervention.(222) Negative statements included; outcomes of studies in to the efficacy of case finding for depression,(220, 223, 225, 240) the perception that changes implemented by the NICE QOF Advisory Committee were solely intended to reduce practice income rather than reflect the changing evidence base on depression care(228) and commentators suggesting case finding for depression does not meet Wilson and Jungner's 1968 criteria for screening on the basis of the absence of a latent or early symptomatic phase, and a lack of understanding of the natural history of the condition including development from latent to declared disease.(222, 223)

"So how accurate are the questionnaires? The ideal questionnaire with no false positive or negative results does not exist. One commonly used questionnaire, the PHQ (Patient Health Questionnaire), has been noted to be truly correct for depression only around half the time."(242) (Grey literature blog)

Overall, clinicians described discrepancies in their understanding of the rationale for case finding, uncertainty about how case finding is best operationalised and concerns over the underpinning evidence base.

SKILLS

Data from five peer-reviewed research articles(165, 207, 212, 214, 215) and three grey literature articles(211, 233, 236) were coded to this domain and corresponded to themes of difficulty incorporating case finding, employing case finding and alternative approaches. No relevant doctors.net.uk posts were identified.

DIFFICULTY INCORPORATING CASE FINDING

Difficulty incorporating case finding included a number of impediments identified by participants; the incongruity of enquiring about mood-related symptoms in a physical health review,(215) the burden of additional work created by case finding and the imposition of questions without prior training.(212)

"Incorporating depression-screening questions into chronic disease management consultations was new to the nurses, who felt the questions were imposed, and created additional work, with no responsive training. One practice nurse said: 'I think we had little education about it really, they've just said this is QOF, this is what you've got to ask and they're the questions. We didn't really have any training.'"(212) (Qualitative study)

Solutions to the problem were also suggested; training for staff(211) and practicing case finding in order to become more familiar with the process.(233)

"I know many in primary care find scales intrusive and difficult to use. I think that this is best compared with taking a sexual history – something that we all found difficult at first, but got better at over time."(233) (Grey literature descriptive account)

EMPLOYING CASE FINDING

The theme of employing case finding included both comment and numeric data on frequency of enquiry about mood, and comment on the use of case finding tools and follow up of positive responses with depression severity scores. Sources described "regular" use of PHQ2 as incentivised by QOF, (214) (Qualitative study) or quantified use.(165) One article went further, describing enquiry about low mood or case finding for depression in COPD, a condition not incentivised by QOF.(207)

ALTERNATIVE APPROACHES

The theme of alternative approaches is derived from one news report (236) on published research suggesting QOF incentivised case finding had little impact on the diagnosis and treatment of depression when compared with usual care provided by PHCPs. The GP commenting on the outcome of the research suggests that it may be preferable for PHCPs to focus on the management of existing depression rather than case finding or detection of new cases.

SOCIAL/PROFESSIONAL ROLE AND IDENTITY

Data from seven peer-reviewed research articles,(165, 207, 209, 212-215) six grey literature articles(220, 231-233, 236, 242) and three doctors.net.uk posts(222, 223, 229) were coded to this domain. Data corresponded to four themes; competing views about the impact of case finding on the consultation, beliefs about the wider impact of case finding, the PHQ2 tool and professionalism.

THE IMPACT OF CASE FINDING ON THE CONSULTATION

This theme included competing views about the positive and negative impact of case finding on the consultation, namely the promotion of holism and introduction of discordance, with PHCPs going on to describe how they subsequently approached and incorporated case finding for depression in long-term physical conditions.

Grey literature alone highlighted the positive impacts of case finding. These were often presented alongside negative aspects, (232, 242) or followed by descriptions of how individuals incorporated PHQ2 and practices had adapted clinical processes to address perceived shortcomings of the initiative.(231) Positive impacts including increasing the focus on depression in long-term physical conditions,(233) encouraging a holistic view by clinicians,(220) and providing a framework for delegation of case finding or to improve patient understanding of any resulting action plan.(236)

"The questions promote a healthy realignment in GP thinking, and reinforce our role as whole-person doctors."(220) (Grey literature news report)

Negative features were highlighted in both peer-reviewed and grey literature articles and included case finding being incongruous in the context of PHCP and patient interaction,(209, 215) introducing discord in to the consultation(212, 233) and being less effective than, or

adversely affecting, the doctor patient interaction.(207, 213, 242) Contributors described adapting case finding questions to the consultation or patient to overcome this.(213, 215)

"pretty impersonal and I do not, it is too much like a research method, it does not help…you do not feel like you empathize with the patient…"(213) (Qualitative study)

THE WIDER IMPACT OF CASE FINDING

This theme was identified only in doctors.net.uk data and described positive and negative beliefs about the wider impact of the case finding initiative. Forum members acknowledged QOF DEP1 had improved awareness of depression in target conditions, diabetes and CHD, but highlighted that targeting a number of other acute and chronic physical conditions and markers of social disadvantage associated with depression would also identify individuals who might benefit from case finding. The suggestion to thereby extend case finding was made by some, with others drawing comparisons between case finding and different targets which were also suggested to be unreasonable, irrelevant or ill thought out and imposed by professional or governmental bodies.(222)

THE PHQ2 TOOL

This theme was identified in grey literature and doctors.net.uk data, highlighting positive and negative features of the PHQ2 tool.

Positive descriptions of PHQ2 focused on efficiency and ease of use. Expressions of disbelief that anyone would struggle to incorporate case finding, ask the questions out of context or send case finding questions by post when all eligible patients are likely be seen in some capacity, including an annual chronic disease review, were directed by some doctors.net.uk contributors to colleagues who described such difficulties or approaches.(222) Negative statements included PHQ2 being labelled reductionist,(220) comments that the initiative is little more than mechanistic box ticking(222) and case finding, along with necessary follow up, being a waste of GP's time;(223) this statement implying the tasks should be omitted or delegated to other PHCPs. Each of these beliefs about PHQ2 link to PHCPs beliefs about the impact of using a case finding tool on their professionalism and competence.

"Dr Chris Manning, chief executive of Primary Care Mental Health and Education, supports the new focus on a patient's mental state, but has grown increasingly frustrated with what he calls the 'reductionism' of depression screening tools.' Of course two to three simple questions will not be enough; they are the start not the finish. The QOF has, at least, prompted

clinicians to consider a patient's mental state - even if this has been achieved at the cost of sending many other doctors in to spirals of despair at the sheer mindlessness and reductionism of it all.'"(220) (Grey literature news report)

Descriptions of how individuals or practices used the tool were found in two articles;(231, 232), one a provocative gibe, the other a well-intentioned description of the steps taken by a practice to overcome the perceived shortcoming of PHQ2.

"DEP1, the need to case-find depression in those patients on the diabetic and CHD registers using two standard screening questions. I confess, I cheat. I don't ask the questions but I tick the boxes anyway. Take me to the GMC, I don't care. I don't need to ask them."(232) (Grey literature blog)

PROFESSIONALISM

The theme of professionalism covered professional confidence and professional responsibility and was identified in peer reviewed articles(165, 207, 209, 214, 215) and doctors.net.uk forum.(222, 229)

Largely positive assertions from a variety of PHCPs on their ability to carry out case finding for depression were identified in peer reviewed articles. Whilst one article described that significantly more GPs than nurses were comfortable talking about depression with patients, (165) others described nursing staff being better placed to deliver the ongoing, holistic monitoring and care perceived to be required by patients with depression long-term physical conditions.(207, 209) One article reported concerns from nurses about adequacy of training for the case finding role.(165)

"Nurses were also less likely to agree that making a diagnosis of depression was something that primary care practitioners had been trained to undertake. The majority of respondents indicated that depression required intervention; more GPs compared with nurses agreed that ensuring patients received treatment (for depression) was part of their role."(165) (Cross sectional survey)

doctors.net.uk data focused on the perceived superiority of GP's professional judgement over the performance of case finding tools, with a number of statements that GPs are better placed or more able to assess patients than a case finding tool. The rationale included GPs holding first-hand knowledge of individual patient needs, belief in holistic assessment and care, the

consultation process being more effective at detecting depression than a recognised case finding tool and doubts about the efficacy of case finding tools.(222, 229)

The theme of professional responsibility was found in two articles which reported PHCPs beliefs about their obligation to undertake, or follow up, case finding and the motivation for this. Whether compelled to immediately address a newly identified problem, or driven by QOF rules and points.(214, 215)

"When asked, they questioned whether they were case finding for QOF rather than patient benefit."(215) (Qualitative study)

BELIEFS ABOUT CAPABILITIES

Data from six peer-reviewed research articles,(165, 207, 209, 213-215) one grey literature article(242) and one doctors.net.uk post(222) were coded to this domain which corresponded to two themes; how case finding was administered and PHCP abilities.

HOW CASE FINDING WAS ADMINISTERED

This theme was identified in peer reviewed and grey literature articles, and focused on clinicians using their own judgement on how best to administer case finding. Decisions included deviating from the recommended questions and process by discounting a screening result, or assessing patients using alternative means.(207, 209, 214, 215, 242) Data indicated some PHCPs still considered these processes to be case finding and that relevant codes were entered to achieve QOF incentivisation targets.(215)

"Professionals avoided directly asking case-finding questions if they were familiar with patients but still recorded case finding; they expressed beliefs that they could identify mood changes through existing knowledge of patients. They often adapted the questions to suit their consultation style or perceived patient needs."(215) (Qualitative study)

PRIMARY HEALTHCARE PRACTITIONER ABILITIES

The theme of PHCP abilities was recognised in all three data sources. It considers the influence of GP and PHCP knowledge, training, perceived competence and confidence on the mode of administration and outcomes of case finding. (165, 209, 213, 215, 242) GPs in particular described high levels of perceived competence and confidence in administering case finding and achieving QOF incentivised targets.(165, 209, 215, 222)

"Compared with nurses, almost twice the proportion of GPs indicated that they were competent in using screening tools for depression." (165) (Cross sectional survey)

OPTIMISM

Data from one peer-reviewed research article(207) and one doctors.net.uk post(238) were coded to this domain. No relevant grey literature articles were identified. Data domain from the two sources corresponded to the theme of optimism about the case finding initiative.

The peer-reviewed research article demonstrated optimism in the form of a quantitative poll of GPs.

"There is little value in routinely screening for depression in patients with COPD. Strongly disagree/disagree (%) 624 (72), neither agree nor disagree (%) 163 (19), strongly agree/agree (%) 76 (9)" (207) (Cross sectional survey)

Contrary to this, data from the single, anonymised doctors.net.uk forum was entirely pessimistic in tone. Contributors emphasised underlying principles, features and outcomes of the case finding initiative which were deemed undesirable, the discussion extending to reports of general dissatisfaction with the whole of the QOF programme.(238)

BELIEFS ABOUT CONSEQUENCES

Data from six peer-reviewed research articles,(207, 210, 212-215) 14 grey literature articles(208, 216-221, 233-237, 241, 242) and four doctors.net.uk posts(222, 223, 225, 226) were coded to this domain. These data corresponded to themes of futility, ability to detect treatable cases, physical consequences, unease, impact on the consultation and financial consequences.

FUTILITY

Peer reviewed, grey literature articles and doctors.net.uk forums detailed how positive case finding results, or depression diagnosed following case finding, were perceived to be left unmanaged. Peer reviewed articles suggested this could be due to inadequate resources or treatment options, (207) PHCP or patient being unwilling to engage with ongoing care, (215) or a perceived lack of ability on the part of the PHCP.(214)

"[The nurse] said if they answered they were depressed she'd do the PHQ9 with them and make them an appointment to see the Dr but she felt the Dr wouldn't do anything for them

and doing the PHQ9 makes her run late so she's conflicted about how useful it is to screen if you feel no one cares about the result. Field notes Practice A."(215) (Qualitative study)

Grey literature and doctors.net.uk forums considered that optimal or guideline recommended treatment was limited due to lack of availability or long waiting times for intervention.(222, 223, 225, 237)

"There are long waits for mental health referrals, waits of six to 12 months for counselling and virtually no CBT – so it's Prozac as usual for many of them."(237) (Grey literature news report)

Contributors to doctors.net.uk forums made additional comments concerning the futility of incentivised case finding, suggesting the activity did not provide any clinically useful information(226) and was imposed by 'ivory tower' researchers and politicians.(222) A small number of forum members discussed exception reporting large numbers of patients in order to circumvent or rebel against the QOF requirement they judged ineffective, rather than simply choosing not to participate. (225)

ABILITY TO DETECT TREATABLE CASES

Peer reviewed and grey literature articles described case finding as having the ability to detect treatable cases. The majority of data correspond to positive viewpoints on the performance of case finding tools in patients with chronic physical conditions who might otherwise go undiagnosed.(210, 214) Case finding was described as worthwhile, despite the associated increase in workload,(219, 220) and even in the presence of concerns about the case finding process the intervention was regarded as a route to diagnosis superior to alternative approaches.(213) Contributors highlighted that case finding tools are only one part of the process of assessment and diagnosis.(218) Concerns were expressed that the detection and management of depression in patients with chronic physical conditions may be neglected if incentivisation were removed.(217, 236)

"Several, however, noted that a 'jolly demeanour' may mask depression, which was an argument for active screening. 'Some of them surprise me - you think 'oh yes, they're fine.....and you get them to fill in this form and you think 'oh!' (practice nurse 3)" (214) (Qualitative study)

Negative viewpoints were also evident and included worries about accuracy and efficacy.(220) Specific reservations about the transferability to minority ethnic groups where depression may

be more commonly conceptualised using somatic symptoms were described.(214) Some commentators went further in expressing concerns about misdiagnosis and suggestibility of vulnerable patients.(221, 242)

"These screening tools generate large numbers of false positive and false negatives- with the associated problem that if we tell patients they're depressed then they're likely to believe us."(221) (Grey literature news report)

PHYSICAL CONSEQUENCES

Comments on the physical consequences of case finding for patients were found in grey literature and doctors.net.uk data. The physical consequences being considered were effects on management of chronic physical conditions or outcomes of that condition, and the effects of treatment of depression. Statements about management and outcomes of chronic physical conditions ranged from expressions of curiosity,(221) a neutral stance, (241) negative (221) and positive viewpoints, including beliefs that case finding contributed to positive outcomes and benefits to the physical health of patients.(233, 234) The subsequent financial benefits to practices that were able to bring about improvements in patient's physical health were also highlighted.(234) All statements concerning the consequences of treating depression diagnosed in those with chronic physical conditions were negative, drawing attention to potential adverse effects following prescription of antidepressant medication.(225, 242)

UNEASE

The theme of unease was evident in peer reviewed, grey literature articles and doctors.net.uk forum. It included comment on both PHCP and perceived patient discomfort with use of case finding(215) and its consequences including adverse effects on the dynamic(207, 213) and time management of the consultation.(215)

"Professionals at nearly every practice mentioned the term 'can of worms' to express unease with case finding for depression. This metaphor indicated professional perceptions of both patient discomfort with being asked about emotions and their own emotional labour in asking the questions. 'Can of worms' helped articulate the belief that case finding for depression was anticipated as a problematic part of the consultation and threatened to derail routines. Professionals anticipated having to manage and close down answers before patients began to give them; this often informed their immediate response to patients' answers regardless of what the patients said."(215) (Qualitative study)

The process of case finding also generated concern, with authors describing PHCPs ticking boxes with only token effort and without adequate consideration.(76, 80) Concerns were also expressed that case finding or depression rating tools were sometimes provided free of charge by drug companies. The motivation for this was questioned.(225)

IMPACT ON THE CONSULTATION

The theme of impact on the consultation was evident in peer reviewed and grey literature; both positive and negative impacts were noted. These included effects on the doctor patient relationship,(235, 242) the process of the consultation,(241) diverting patients from their intended agenda(242)or patients taking the opportunity to highlight unmet needs and attempting to re-focus the consultation to address these issues.(215) It was noted that PHCPs disregarded these attempts due to the anticipated impact on the format and duration of the consultation. (215)

"So does depression by numbers do any good? Or does our eagerness to hone general practice down to an 'evidence based' set of protocols and ticksheets create fundamental departures from what the patient might actually want to talk about?"(242) (Grey literature blog)

FINANCIAL CONSEQUENCES

One peer reviewed article described the financial disincentive of using QOF recognised clinical codes to record depression as a powerful influence on case finding behaviour and PHCP actions subsequent to the intervention. The use of QOF codes triggered further targets which had to be met in order to achieve additional remuneration under the QOF depression domain. (212)

"... we realised if we kept labelling people as depressed when they perhaps weren't, then we weren't going to see them again and lose the points ... so we had to adapt our coding...' (GP1 FG2)"(212) (Qualitative study)

REINFORCEMENT

Data from two peer-reviewed research articles,(207, 209) two grey literature articles(233, 241) and two doctors.net.uk posts(222, 223) were coded to this domain, corresponding to the themes incentives for and against case finding and use of written information as reinforcement.

INCENTIVES FOR AND AGAINST CASE FINDING

This theme was identified in peer reviewed articles and doctors.net.uk data, contributors to both sources describing positive and negative reinforcement for case finding through QOF.

Positive reinforcement was suggested in the form of the scheduled annual chronic disease review, financial remuneration for asking case finding questions(209) and templates ensuring ease of implementation.(222) Contributors also considered the rationale for QOF incentivised case finding was itself a positive reinforcement; that cases of depression may be identified which without the scheme would otherwise go undetected.(207)

"The Quality Outcomes Framework payments have changed attitudes to screening for depression with depression assessment scales."(207) (Cross sectional survey)

Descriptions of negative reinforcement by QOF mirrored those cited as positively reinforcing. It was suggested incorporating case finding questions in the chronic disease annual review ensured case finding questions were delivered, but resulted in the importance of case finding being minimised or the questions being delivered in an unsatisfactory way. It was acknowledged such negative effects could be mitigated by clinician behaviour.(209) Others stated that financial remuneration was inadequate, so much so they described channelling clinical activity to targets which would provide greater financial reward.(223)

USE OF WRITTEN INFORMATION AS REINFORCEMENT

Grey literature data alone focused on the use of written information in reinforcing case finding; written information was used to introduce and communicate the purpose and benefits of case finding to patients,(233) and also served practices by providing documentary evidence of invitiations to attend for case finding.(241)

INTENTIONS

Data from four peer-reviewed research articles(165, 207, 214, 215) and seven doctors.net.uk posts(222-225, 227, 228, 230) were coded to this domain. No relevant grey literature articles were identified. Data corresponded to the themes PHCP plan for case finding delivery and priority accorded to case finding by PHCPs.

PLAN FOR CASE FINDING DELIVERY

This theme was identified in peer reviewed articles and doctors.net.uk data.

Contributors to peer reviewed articles described how they would introduce or deliver case finding, (207) including referencing QOF incentivisation to introduce and legitimise case finding questions.(214)

"…screening instruments helped some clinicians initiate a conversation about mood in a non-threatening manner. 'We're saying 'it's not actually our fault - we've been told to do this by big brother. So actually, it's OK to talk about it'. So it's been very helpful from that point of view. It's kind of taken the stigma off asking and responding.' (GP3)" (214) (Qualitative study)

By contrast anonymised doctors.net.uk data focused on plans for case finding delivery or to limit case finding activity.(225, 228, 230) Forum contributors debated the rights and wrongs of implementing case finding, each describing their interpretation of the QOF target and associated business rules.(223) A variety of means of delivering case finding questions were shared in the forum threads, including sending the questions by post, telephoning patients and using written or verbal questions during a consultation.(222, 225) The rationale for these choices was not always given, but was typically said to be to avoid or limit face to face contact or because QOF was not accorded high priority. The discussion extended to focusing on specific targets or rationalising clinical activity to maximise financial profit, with contributors including questions, responses and statements of intent about exception reporting patients to reach the QOF case finding target more easily.(228) Some contributors sought information on, or intended to exclude, specific patient groups e.g. those with dementia, or previous diagnoses of depression which were either not clinically coded or ascribed a code not recognised by QOF depression indicators.(224, 227) Others saw exception reporting as a way of reducing workload, maximising financial profit or avoiding a QOF target which they did not believe was of value to patients or the practice.(230)

PRIORITY ACCORDED TO CASE FINDING

Two peer-reviewed research articles detailed the theme of priority, (165, 215) which included examples of case finding being accorded high and low priority status. Where the initiative was of low priority the GP described an intention to review the process for case finding in the practice.

"[The doctor] said she didn't really look at the mental health stuff. I said 'Is there like a system in place or does a score of two trigger anything, or?' and she said 'no, maybe we need to look at that.' But she left it there. Field notes Practice F."(215) (Qualitative study)

GOALS

Data from one peer-reviewed research article (215) and one grey literature article (208) were coded to this domain. No relevant doctors.net.uk literature posts were identified.

Data from the two sources described how practices planned and considered the delivery or delegation of case finding, directing their activity to achieve the chosen outcome.(208) This might be attaining designated QOF targets or choosing not to participate in this part of the QOF incentive scheme, perceiving the significant clinical effort required to incorporate case finding disproportionate to the resultant financial reward.(215)

"Practices varied in how they prioritised and organised case finding for depression. Some practices devoted a lot of time and energy while others considered that some elements of QOF, such as the depression indicators, required too much effort for too little gain. 'Field notes, Practice B: This leads to a debate over the decision between QOF payments and the work put in to achieve those payments. GPs are saying they should "choose their battles".'"(215) (Qualitative study)

MEMORY, ATTENTION AND DECISION PROCESS

Data from four peer-reviewed research articles were coded to this domain.(165, 207, 213, 214) No relevant grey literature articles or doctors.net.uk posts were identified. Data were coded to two themes; aiding attention and perceived importance of case finding.

AIDING ATTENTION

The theme of aiding attention outlined the potential benefits of using standardised case finding tools, including reliability,(213) raising PHCP awareness and prompting review of patients who might otherwise have gone without assessment.(214)

"For several participants, these instruments raised awareness of depression in CHD. 'Now that I've actually been asking the questions, I've picked up people that, actually, looking back, I've known it for years and I haven't done anything about it.' (GP3)."(214) (Qualitative study)

PERCEIVED IMPORTANCE OF CASE FINDING

The theme of perceived importance described whether PHCPs judged case finding for depression in patients with chronic physical conditions to be important. PHCPs were generally

positive,(165) and responses to allied questions on the association between depression and a physical condition suggest this view is influenced by PHCP beliefs the presence of a chronic physical condition increases the risk of developing depression, and that co-morbid depression adversely affects control and self management of the physical condition.(207)

ENVIRONMENTAL CONTEXT AND RESOURCES

Data from five peer-reviewed research articles,(207, 209, 212, 213, 215) six grey literature articles (208, 221, 237, 239-241) and five doctors.net.uk posts(222, 223, 225, 226, 229) were coded to this domain. Three themes were identified; time, limited resources and clinician response to limitations encountered in the environment.

TIME

The theme of time was derived using data from each of the three sources and considered time limitations imposed by the structure of the primary care consultation, and the impact of case finding on clinician's time.

Content varied from how time limitations could negatively impact the delivery of case finding,(208, 209, 213, 241) with suggestion this issue may be heightened in socioeconomically deprived and ethnically diverse areas,(212, 215) to how some PHCPs adapt delivery of case finding to accommodate the questions in to a time restricted consultation(209, 212, 215) and beliefs that those PHCPs who provide care in the patient's home (e.g. district nurses) may have fewer time pressures.(212) The themes of time and clinician response to limitations encountered in the environment were frequently intertwined, with contributors descriptions of how they incorporated case finding being followed by statements that clinician time may be better spent on other aspects of patient care.(226, 237, 240)

"(Participants) reported concerns about the way screening was incorporated into the consultation which suggested that not only was it difficult, but that it may bias the results. Time constraints were a particular problem: 'I think the screening questions are seen as a sort of tick box exercise. Also there's not time, you know, we have twenty minutes/half an hour, we've to do their feet, BP, cholesterol and right at the end it's 'are you depressed?' 'No?' (Phew!) that's fine, next!. . .' (Study 2, Group 1b, Specialist Diabetes Nurse)."(209) (Qualitative study)

LIMITED RESOURCES

The theme of resources was found in articles from each of the three sources and centred on potential consequences of limited resources said to be available to GP practices, and the impact of case finding activity on these resources. Some contributors stated resources were essentially insufficient to support the delivery of the initiative,(212, 237) appropriate training for clinicians(215) or treatment for patients.(209) Others suggested that due to financial burdens or lack of resources, freely available or drug company sponsored case finding and depression rating scales were used by practices. The potential negative consequences of this activity on remaining resources were alluded to, e.g. shaded responses in a sponsored questionnaire highlighting the responses which might lead to clinical intervention.(225, 229)

"The holistic NICE depression guideline was viewed positively by practitioners, but its impact was compromised by limited resources and application at practice level."(212) (Qualitative study)

Issues such as wasted resources associated with following up false positive case finding results generated by questions with low specificity,(221) and the disparity between resources available to UK general practice and those conducting research (241) on case finding as part of collaborative care programmes, (254) and on which evidence the recommendations for case finding are partly based, were also highlighted.

CLINICIAN RESPONSE TO LIMITATIONS IN THE ENVIRONMENT

The theme of clinician response to limitations encountered in the environment was derived from data from all three sources. It included descriptions of omitting case finding questions and altering the delivery to discourage disclosure of active symptoms.(207, 212, 213, 239, 241) Contributors to the doctors.net.uk forum most discussed customising case finding by using remote, paper based PHQ2 with no face to face contact. No forum members offered insight into how they managed any patients with positive case finding results following remote delivery.(222, 223, 225) Other articles described PHCPs responding to patients with positive case finding results in a disobliging way. Such responses did not serve the patient and led to failures to follow up or further assess those patients with positive results.(209, 215) In almost all instances the GP or PHCP made reference to limited resources or time when explaining these behaviours.

"The problem of time for the consultation and screening extended to the problem of dealing with a positive result; with concerns that the clinician might be overwhelmed by

opening a 'Pandora's box' or 'can of worms'. As a result, questions may be asked in a way which discouraged the patient to respond: GP1: And when this QOF stuff came out, you know, I think we all thought 'well it's great identifying it, but what are we going to do with the extra 300/400 patients who identify with mild anxiety and depression?'. [....] So one way of dealing with it of course is not to deal with it…GP2: Just ignore it. GP1: And let's ignore, well we ask the question, but not in a way…." [participant interrupted by another] (Study 1, Group 1, GPs)."(209) (Qualitative study)

SOCIAL INFLUENCES

Data from one peer-reviewed research article,(213) one grey literature article(233) and six doctors.net.uk posts(222, 223, 225-228) were coded to this domain. Data from the three sources corresponded to the theme of social or peer influences on the behaviour of the patient and clinician.

SOCIAL OR PEER INFLUENCES ON THE BEHAVIOUR OF THE PATIENT

One peer-reviewed research article featured GPs describing beliefs that patients may be reluctant to disclose or complain about depression, fearing this may be perceived as a sign of weakness by others or suggest the patient is ungrateful for the care or help already provided by the GP or PHCP.(213)

SOCIAL OR PEER INFLUENCES ON THE BEHAVIOUR OF THE CLINICIAN

The grey literature article(233) discussed how GPs and PHCPs think about case finding and case finding tools, influences how they feel and behave when implementing the initiative. That a shift from the commonly cited viewpoint that case finding is simply an act of box ticking, to recognising case finding as a requisite and valuable part of the management of chronic physical conditions, would allow clinicians to realise the benefits of case finding.

"Looking at the depression indicators as an integral, logical, professional, normal practice gives them a meaning beyond 'box ticking', which they coincidentally allow you to achieve."(233) (Grey literature descriptive account)

doctors.net.uk data forums considered the implementation of case finding. The majority of posts featured queries about how other GPs or PHCPs individually asked case finding questions, or incorporated the initiative in their practice. A number of GPs sought approval and reassurance on their plans to implement case finding, contributors responded positively,

discussing implementation and sharing resources.(222, 223, 225, 227, 228) Some GPs writing on the forum explored the acceptability and norms of case finding in other practices, the replies suggested that on the whole case finding was acceptable but accorded low priority.(226)

EMOTION

Data from one peer-reviewed research article(215) and one doctors.net.uk post(222) were coded to this domain. No relevant grey literature articles were identified. Data corresponded to the themes of the emotional challenge of case finding and the use of emotive language.

EMOTIONAL CHALLENGE OF CASE FINDING

The peer-reviewed research article highlighted that some PHCPs described case finding as emotionally challenging and that personal resilience was required to manage the process.(215)

"Some healthcare professionals talked about the emotional labour involved in case finding. Discussing depression was seen as being emotionally difficult and required feeling strong in themselves, in order to cope with the answer."(215) (Qualitative study)

The emotional challenges of working in primary care, including case finding, were represented as a parody of the PHQ2 by a contributor to the doctors.net.uk forum; the questions rephrased to suggest there may be a greater likelihood the PHCP is depressed. The responses to this post were all in agreement with the thrust of the statement and many offered humorous replies suggesting appropriate 'treatment' for this malady.(222)

USE OF EMOTIVE LANGUAGE

The use of emotive language, or words describing emotions, in PHQ2 questions was highlighted by contributors to the doctors.net.uk forum. The effect of this language on the patient and their response to the questions was considered, specifically whether using the word 'depressed' in the case finding questions prematurely labelled the patient's emotional state as pathological and suggestive of mental illness. It was suggested emotive language may encourage patients to see their emotions as abnormal or prompt PHCPs to diagnose depression by default rather than undertaking further, objective assessment.(222)

BEHAVIOURAL REGULATION

Data from one grey literature article(231) was coded to this domain. No relevant articles from peer-reviewed research articles or doctors.net.uk posts were identified.

The article described the audit activities of one practice, demonstrating their efforts to objectively measure performance and actions.(231) Two audits were undertaken, the first prior to the introduction of QOF incentivisation to assess the number of patients with CHD and undiagnosed depression, and a second after one year to review the outcome of the practice's approach to case finding.

"An audit of our screening programme in the first year of the QOF indicated that, although the three-step screening process appeared to work well (31% of those identified by the two-question screen were given an appointment with their GP), the intervention rate for those patients who were referred on was very disappointing (23%). We are therefore considering whether patients should be referred to the mental health lead rather than their usual GP, as part of a care management programme."(231) (Grey literature descriptive account)

The statement in the paragraph above, "the intervention rate for those patients who were referred on was very disappointing,"(231) highlights a potential misinterpretation of the purpose of PHQ2, which is not to form a diagnosis but indicates the need for further evaluation with a diagnostic interview and depression rating scale. It also discounts the possibility of a diagnosis of depression being made and doctor and patient agreeing it is preferable to defer or avoid intervention.

OTHER THEMES AND CONSTRUCTS WHICH DO NOT CORRESPOND TO THE FRAMEWORK

Data from five peer-reviewed research articles,(165, 207, 210, 213, 214) four grey literature articles(217, 232, 237, 242) and three doctors.net.uk posts(224, 225, 238) were coded to this domain. These data produced two themes; understandable low mood and cynicism. Plus one standalone comment; disquiet about delays to the withdrawal of incentivised case finding.

UNDERSTANDABLE LOW MOOD

The theme of understandable low mood was evident in peer reviewed and grey literature articles. Each described GP and PHCP beliefs that low mood or depression are

undifferentiated, or that depression can be an understandable or expected consequence of a patient's chronic physical condition or the social sequelae of that condition.(165, 207, 214, 232) Some suggested lower rates of treatment were associated with this belief.(207, 213)Authors attributed lower rates of treatment to GPs preference for focusing on symptoms of physical rather than mental illness(207) or concerns about adverse effects of antidepressant medication on the pre-existing physical condition,(210) but acknowledged lower rates of referral for psychological therapies remained unexplained.(210)

"Depression in this group of patients is difficult to treat as you can not get rid of the cause (the chronic disease). The real cure is for the patient to accept and live with their current limitations. This is a lot easier said than done. Doctors focus on the physical aspects as they feel more able to do something about these."(207) (Cross sectional survey)

Others considered low mood related to ill health and adverse life events was often incorrectly labelled as depression following case finding, potentially resulting in inaccurate inference by researchers that depression is therefore underdiagnosed.(242)

"…a commonly made comment is 'well I would be depressed if I had that' so they see it as understandable and therefore for some reason because it is understandable they will not treat them."(213) (Qualitative study)

One commentator extended the theme of understandable depression, describing a belief that the diagnosis of depression is too indistinct to incentivise management of the condition. This is despite established diagnostic criteria and management guidelines analogous to those of many other physical or mental health conditions. The commentator goes on to cite this belief as an example of the inappropriateness of the entire QOF scheme.

"How on earth can you provide indicators for something as nebulous as depression – it's an example of the inappropriateness of the QOF."(237) (Grey literature news report)

CYNICISM

This theme was derived from doctors.net.uk forum data. Contributors commented on and poked fun at PHQ2, finding irony in patients not needing to answer the case finding questions posed for the practice to earn QOF points, and discussing past patient responses in a churlish manner.(224, 238) A number of contributors found fault with QOF incentivisation of case finding, suggesting there may be a greater evidence base for exception coding than delivering case finding and questioning the political motivations for the scheme, implying incentivisation

indicated mental illness in those recommending QOF DEP1 rather than the target population.(225)

DISQUIET ABOUT DELAYS TO WITHDRAWAL OF INCENTIVISED CASE FINDING

Disquiet about the delay to withdrawing incentivised case finding was voiced in a grey literature article by one GP who suggested a political motive for the failure of NICE to end incentivisation as early as anticipated.

"A lot of things NICE said should go haven't gone, like depression, which NICE acknowledges are useless. I can only guess it's been left here for political reasons."(217) (Grey literature news report)

SYNTHESIS OF RESULTS

This synthesis aims to take an overview of all data coded to the TDF and other themes and constructs, and interpret data lying outside TDF domains to identify new, superordinate themes. New and existing themes will then be integrated to provide an explanation of PHCPs' beliefs about implementing case finding for depression in patients with long-term physical conditions in primary care.

DISTRIBUTION OF DATA

Inspection of data coded across the 14 domains of the TDF, and the other themes and constructs category, demonstrated a number of overlapping themes between the three sources; peer-reviewed research articles, grey literature articles and doctors.net.uk posts. Data from all three sources were coded to seven of the TDF domains plus the other themes and constructs category. Of the remaining seven TDF domains, data from two sources were coded to five domains and data from one source coded to two domains. Grey literature and doctors.net.uk data were each missing from four domains, peer-reviewed research articles from one (visual representation APPENDIX 9). On eleven occasions data items were coded in isolation; the only quote from a particular source in the domain. In all but one domain, behavioural regulation, the items coded in isolation could be considered and contrasted against at least one other data item from another source.

Frequency of coding was variable with five domains having data from only one (behavioural regulation) or two articles (optimism, goals, social influences, emotion). The remaining domains contained data from four (memory, attention and decision process), six

(reinforcement), eight (skills, beliefs about capabilities), 11(knowledge, intentions), 12 (other themes and constructs), 16 (social/professional role and identity, environmental context and resources) and 24 (beliefs about consequences) of the 37 articles included in the analysis.

Overall, data coded to the TDF and other themes and constructs category falls in to four superordinate themes; contradictory beliefs about case finding, mistrust, trade-offs and dilemmas.

CONTRADICTORY BELIEFS ABOUT CASE FINDING

Examples of contradictory beliefs about case fnding can be seen throughout the results, most often within but also between domains. Within domains 'knowledge' contains a mix of contradictory interpretations of the relevance of published evidence to practice, 'beliefs about consequences' includes comments on both the futility of case finding and the ability of PHQ2 to detect treatable cases and 'social/professional role and identity' reports high and low levels of perceived professional competence in delivering case finding, the beliefs of nursing staff often being negative and GPs positive. Between domains descriptions of case finding as efficient and PHQ2 easy to use in 'social professional role/identity' were contrasted with statements in 'skills' that it is difficult to incorporate case finding into the consultation.

MISTRUST

Mistrust was primarily derived from data coded to 'other themes and constructs'; suspicion about the political motivation for case finding, later misgiving about delays to the planned withdrawal of the incentive and wider mistrust of the QOF scheme. Data from TDF domains linking to this new theme included contributors questioning who incentivised case finding was intended to benefit (social/professional role and identity) and using published research evidence to both illustrate concerns and justify misgivings (knowledge). Mistrust also extended to case finding tools and the technology of case finding. Drug company sponsored checklists (environmental context and resources), the use of emotive language in case finding questions (emotion) and concerns about the accuracy of diagnosing and labelling patients as depressed after administering case finding questions (beliefs about consequences) were all concerns. The PHQ2 itself was divisive; considered reductionist or tokenistic by some and easy to administer and an effective tool able to identify undetected depression by others (social/professional role and identity). Doubts about the cultural sensitivity of the tool were expressed (beliefs about

consequences). Although the bulk of statements expressed suspicion, a number of constructive and supportive statements were made and are acknowledged.

TRADE-OFFS

Trade-offs involves PHCPs describing exercising their choice whether or not to implement case finding, by prioritising this or other activities. Trade-offs were often suggested by clinicians highlighting understandable depression, doubts about the efficacy of case finding and the management of physical or mental health issues; frequently seen as separate entities rather than linked or on a continuum. Data linking to this new theme included management of physical health conditions taking precedence for some PHCPs (other themes and constructs), with comments about perceived difficulty or incongruity in incorporating case finding for depression in to patient reviews with a focus on physical health (skills) and suggestions emotional issues derail the routine (beliefs about consequences). Other clinicians viewed case finding, detection and management of depression as means of improving the outcome of the physical condition rather than an independent, purposeful activity (beliefs about consequences). The potential side effects or consequences on the physical condition of treatment of depression were also a notable concern, these concerns potentially exceeding the perceived benefits of treatment for some PHCPs (other themes and constructs). These findings suggest that for a number of clinicians the management of the patient's physical condition dominates considerations about the possibility or presence of depression, or perhaps indicates a belief something can more easily be done to manage the physical condition.

DILEMMAS

The superordinate theme of dilemmas characterises the sometimes muddled, internal discourse presented by individuals discussing their beliefs about case finding. It remains distinct from contradictory beliefs in that dilemmas are beliefs originating in and presented by one person, rather than contradictory beliefs which are expressed by a number of PHCPs.

Data linking to this new theme included the belief it is appropriate to deliver case finding questions yet allow personal judgement to abrogate the formal outcome (beliefs about capabilities), and individuals wanting to implement the initiative but lacking the confidence in their ability to do so (beliefs about capabilities) or struggling with the process through difficulty distinguishing depression from 'understandable' distress or low mood due to illness or life

events (other themes and constructs). Case finding was also described as worthwhile in the context of beliefs that resources are insufficient to support the initiative, or too many limitations exist in the primary care setting (environmental context and resources). It was also stated that case finding makes clinical sense but delivering such care made individual clinicians uncomfortable due to perceived adverse impacts on the consultation (social/professional role and identity), the belief that appropriate treatment was unavailable or that management of physical conditions should take priority (beliefs about consequences).

DISCUSSION

STATEMENT OF PRINCIPAL FINDINGS

This review applied the 'best fit' framework synthesis approach, using the TDF, to provide a descriptive account of GP and PHCP beliefs about implementing case finding for depression in long-term physical conditions in primary care. Frequency of coding to the TDF domains was variable. When data coded to the TDF was considered alongside data not coded to or represented by the framework, other themes and constructs, four superordinate themes were identified; contradictory beliefs about case finding, mistrust, trade-offs and dilemmas. These reflect the TDF domains which contained most data; knowledge, intentions, social/professional role and identity, environmental context and resources and beliefs about consequences.

It is suggested contradictory beliefs held by PHCPs may have resulted in tensions within and between organisations and professional groups, and dilemmas within individuals. Such conflict, along with mistrust of case finding and associated case finding technologies, may have resulted in practices and individuals making trade-offs when deciding whether to implement case finding or prioritise other activities.

This offers one explanation, from the perspective of primary care staff, for perceived doubts about the efficacy of, and difficulty in effectively implementing, case finding for depression in long-term physical conditions in primary care.

STRENGTHS AND WEAKNESSES IN RELATION TO OTHER STUDIES

This is the first known review and synthesis of published data, from peer-reviewed research articles and grey literature, of PHCPs' beliefs about implementing case finding for depression in patients with long-term physical conditions in primary care. The other published, peer-reviewed studies examining beliefs about case finding for depression are included in this

review. As discussed under results, each of the qualitative articles was judged to be of good methodological quality using the CASP qualitative checklist and the cross sectional surveys were judged have some methodological limitations. These limitations were accepted due to the paucity of relevant published literature.

Using the CASP checklist for systematic reviews(255) the results of this review are judged to be valid. This review may therefore add to the existing body of work on beliefs about case finding by considering the range of published findings on this subject. The inclusion of data from grey literature also adds to the scope and may strengthen findings through the inclusion of more candid PHCP insights. The outcomes are particularly applicable to UK practice in that all peer reviewed and grey literature articles were derived from this geographical area.

STRENGTHS AND WEAKNESSES OF THE STUDY

STRENGTH

Both qualitative and quantitative studies were included in this review, an approach accepted by the Centre for Reviews and Dissemination, University of York.(160)The articles selected for inclusion were analysed in the same way whether sourced from peer reviewed or grey literature and data were synthesised without consideration of origin. It was possible in this work to synthesise qualitative data from different foundations,(256) and some have suggested combining data in this way can strengthen a review.(257) The wider debate about the acceptability of combining qualitative studies, particularly those with different theoretical foundations, is acknowledged, though difficulties encountered in defining precise foundations of some published articles is recognised.(256)

WEAKNESSES

Four leading weaknesses were identified during the review; a broad review question, the use of ‘best fit’ framework synthesis in preference to a theory or model, one reviewer coding the majority of review data alone and the utility of TDF in underpinning the analysis.

It is acknowledged the review question is broad. ‘What do General Practitioners and other primary healthcare professionals believe about implementing case finding for depression in patients with long-term physical conditions primary care?’ As a consequence of this broad question the results and discussion of the review are more expansive than is ideal. Though much like the need to know patient views on the use of antibiotics when attempting to

address prescribing rates,(258) it is necessary to recognise the breadth of PHCP beliefs in order to understand the impact and improve implementation and integration of case finding. Whilst a narrower question focused on one aspect of case finding or associated guideline and policy may have provided more focused results, it is possible that novel beliefs and insights would be overlooked.

'Best fit' framework synthesis was chosen to analyse and synthesise review data in preference to a specific theory or model. Theories aim to explain behaviours and models to predict them, an enormous number of theories and models exist originating from all academic disciplines. Case finding for depression in long-term physical conditions in primary care is a broad topic which could invoke justified use of many theories or models in isolation or combination. One stimulus for developing the TDF, an overarching theoretical framework derived from explanatory constructs and theories of behaviour, was the belief that choosing one theory as the basis of analysis or intervention design can leave researchers uncertain whether key factors have been overlooked.(259) It was for this reason 'best fit' framework synthesis using the comprehensive TDF was selected. In this review that meant the 'best fit' framework analysis and TDF provided only a means of mapping or describing data and did not interpret the idea or consequences of case finding further. This was not a concern as the review simply sought a framework that was able to effectively categorise and describe findings. The TDF, established as an effective basis for understanding and assessing implementation and behaviour change,(259) achieved this.

One reviewer coding the majority of review data alone might introduce bias and be considered a weakness. To ameliorate this risk senior colleagues performed independent checks on 10% of articles at each stage of the review, any disagreements were discussed with another member of the research team and final decisions made by consensus. An iterative round of data extraction on all articles chosen for inclusion in the review was also undertaken following review of these articles with supervisors.

Following selection of the TDF its utility in underpinning analysis was appraised whilst conducting the review. It was agreed by all members of the team performing data extraction that it was sometimes difficult to assign items unambiguously using the 'best fit' framework synthesis approach and TDF. Throughout the description of results by domain are items which could have been assigned to multiple or alternative domains, e.g. the quote describing a lack of GP and nurse awareness about how positive case finding results were communicated was assigned to 'knowledge', but could have been allied to 'environmental context and resources'

on the basis it refers to organisational culture and barriers to practice. In this instance 'knowledge' was agreed by the team to be the most appropriate domain, though on reflection it is recognised that the significance could have been captured equally well elsewhere in the TDF, or indeed in an alternative framework. Similar difficulties operationalising the TDF were recognised in a published exploration of professional's experiences of using the framework.(260)

Low inter-coder agreement and difficulty clarifying boundaries between domains is a recognised limitation of the TDF when used as a coding framework. One commentary noted that the integration of a large number of theoretical constructs may render the depth of meaning contained in TDF domains difficult to understand for those researchers not grounded in health psychology, conceivably leading to the framework being superficially applied.(259) Moreover the TDF may be considered too disaggregated to effectively organise articles due to domains representing composite ideas. The TDF may also be considered better suited to examining specific, evidence based behaviours rather than initiatives such as case finding; a multi-component, non evidence based activity with complex consequences affecting targeted patient, PHCP and organisation.

As outlined in synthesis of results data were coded with variable frequency to the TDF, with domains containing data from one to 24 articles. This could suggest domains associated with larger numbers of data items effectively captured the relatively small number of concepts relevant to case finding for depression in patients with long-term physical conditions in primary care, though it should not be assumed data coded to domains infrequently or in isolation are unimportant. These items can offer valuable insights, whether as examples of spontaneous comment or intuitive interviewing and questionnaires which prompt perceptive observations. The TDF is based upon theories which largely focus on individuals, and therefore have a limited ability to explore or understand team or higher level influences on clinical behaviour. The risk of fitting findings to the TDF domains at the expense of identifying other themes was recognised and addressed through the other themes and constructs category which led to new, superordinate themes being developed.

The identification of other themes and constructs in the review which do not correspond to the TDF suggests the TDF offers a sensitising, but limited, framework for wider perspectives which could influence implementation of case finding for depression. These items may be missing from the framework or overlooked through domains being primarily focused on

individuals. Examples include organisational culture and gender which will be outlined, plus factors such as age, ethnicity, class, economic conditions and public planning.

Organisational culture includes factors such as shared values, beliefs and behaviours which influence an organisation's environment and ability to deliver good quality care.(261) Bodies such as The King's Fund offer culture assessment tools, aiming to spread existing good practice and improve delivery of healthcare(262) though a 2011 Cochrane intervention review "did not find any rigorous evidence to demonstrate the effect of strategies to change organisational culture on healthcare performance."(263) The TDF domain 'environmental context and resources' mentions organisational culture but the definition does not specifically refer to shared factors which define the concept. 'Social/professional role and identity' and 'social influences' refer to components of organisational culture, though the focus is primarily on the individual rather than shared characteristics.

The feminist perspective to healthcare, a belief that health inequalities are directly and indirectly linked to gender inequalities, may also be pertinent to case finding for depression and overlooked by the framework. Women make up the majority of older people, the group frequently diagnosed with long-term physical conditions, and occupy the bulk of unpaid carer roles.(264) This makes women common targets for both incentivised and guideline recommended case finding, e.g. RCGP recommendations on case finding in carers. Within the GP workforce 47% of full time equivalent (FTE) GPs, and 98.1% of FTE nurses of all grades are women.(265) The number of part-time staff are converted to FTE for the purpose of these HSCIC data, headcount figures are not available. The majority of case finding for depression is therefore likely to be delivered by female staff, with review data suggesting the majority of practices delegate this activity to nurses. Any consequences of the gender of clinician or patient on the experience and outcome of delivering or being subject to case finding, and the interaction between those of same and different genders, may not be highlighted by the TDF. 'Environmental context and resources' recognises barriers and facilitators and 'person x environment interaction', and 'social influences' consider interpersonal processes, though these domains may not expose the subtle effect of gender experience.

MEANING OF THE STUDY: POSSIBLE MECHANISMS AND IMPLICATIONS FOR CLINICIANS OR POLICYMAKERS

The overarching theme of contradictory beliefs contains many conflicting and opposing statements from PHCPs, illustrating tensions within and between organisations, professional

groups and individuals. It suggests significant influences on the perception and implementation of case finding beyond direct barriers and enablers. Along with new superordinate themes, and those derived from data coded to existing TDF domains, this provides a possible explanation of PHCP beliefs about implementing case finding for depression in patients with long-term physical conditions in primary care.

Acknowledging issues of mistrust, the prioritising of care of physical conditions and expressions of futility concerning case finding, it is perhaps unsurprising that PHCPs voiced resentment about the perceived imposition of incentivised case finding. The initiative was often styled as a burden, eating away at time and wasting clinician and practice resources in return for inadequate financial remuneration. Though it must be recognised that others described the initiative as quick, easy and welcome. It was believed the adverse impact on time and resources was heightened in areas of deprivation where PHCPs already struggled to meet the needs of patients.

The authority possessed by PHCPs was another common theme, including PHCP confidence that they were both capable and well placed to deliver case finding; a belief more commonly associated with GPs than nurses. Nurses, despite being confident about their abilities, expressed greater concerns that they had not received appropriate explanation or adequate training to deliver case finding. This may have resulted in hostility within practice teams given GP statements and descriptions that case finding was delegated to practice nursing staff.

Some GPs cited structured efforts to establish case finding in their practice, communicating the potential benefits to eligible patients and occasionally extending the initiative to other patient groups likely to benefit. Others described case finding having an unacceptable results-to-effort ratio due to factors such as poor cost effectiveness, futility when treatment is refused and loss of opportunity through diversion from more profitable activities.

Many PHCPs delivering case finding described QOF templates as a helpful prompts and case finding tools as capable of detecting treatable cases of depression; an effective route to the diagnosis of depression which might otherwise go undetected. Though a spectrum of maladaptive coping mechanisms, or conceivably subversive behaviours, were also characterised by PHCPs. These included assertions that PHCPs know and understand their patients and the context in which they live very well, suggesting holism and resultant superior acumen rendered the use of case finding tools redundant. Other clinicians explained that they omitted or adapted PHQ2 in order to deliver something resembling case finding in situations

where time or resources were restricted. Some took the view they knew how best to deliver and implement case finding, adapting tools and utilising alternative approaches to the assessment of patients which lay outside guideline recommendations. In each of these circumstances practices suggested they still claimed QOF reward payments despite not working to designated QOF rules. A smaller number of GPs took a more defiant or cynical view of case finding by employing active resistance to the initiative and claiming QOF payment despite employing deliberately reductionist and tokenistic behaviour when delivering PHQ2, avoiding case finding altogether by manipulating exception reporting, disregarding patient attempts to steer the consultation to concerns about mood or depression, or using clinical codes not recognised by QOF to deliberately avoid further targets following a diagnosis of depression linked to case finding.

This push and pull, for and against the implementation of case finding, offers one interpretation of why the benefits of this guideline recommended, and previously incentivised activity, have been doubted. At organisational, professional group and individual levels tensions were potentially created, leading to antagonistic perceptions of case finding within the primary care community and difficulty in implementing the initiative effectively. The review therefore adds to existing literature on tensions in healthcare.(266, 267) This issue is likely to remain relevant to clinicians and policymakers, particularly in the context of limited resources during a time of considerable, governmentally imposed change in primary care and the wider NHS.(268)

When outcomes of this review were compared to the results from a small number of studies using TDF to examine evidence-based practices(185-187, 191, 192, 194, 269-272) the broad review question and expansive results and synthesis are highlighted. Each of the articles cited in comparison used TDF to inform an explanatory analysis, and no other articles employing 'best fit' framework synthesis were identified. None of the articles examined clinical behaviours broadly similar to case finding, indeed use of the TDF to analyse a non-evidence based activity in this review is a novelty, though this may be criticised as deviating from the intended application of the TDF.

Despite the diverse nature of the comparison studies, overlap of common themes in results was evident. The comparison studies were obtained from the *Implementation Science* TDF article collection and considered a range of topics; factors influencing management of brain injury, (270) understanding of computerised tomography head rules,(187) midwife engagement with pregnant women about stopping smoking,(271) intensive care physician

beliefs about blood transfusion behaviour,(192) prescribing errors amongst trainee doctors,(186) North American chiropractor compliance with guidelines,(185) implementation of hand hygiene,(194) PHCP behaviour in relation to Human Papilloma Virus, (191) perceptions about pre-operative testing in low risk groups, (269) and implementing evidence in to practice.(272)

Overlap with this review was evident in themes such as low awareness of guideline message, (191, 192, 269, 270, 272) practitioner's positive beliefs about their capabilities and role in a specific intervention (192, 270-272) and the social influence of peers.(185) The benefits of using objective clinical tools (270) and clinical prompts were recognised, (194)alongside expressions of professional confidence in varying interpretation of guideline recommendations or modifying how clinical tools are used without concern about adversely affecting outcomes for patients.(185, 270) Contributors also articulated concerns about a lack of training in the use of a specified tool, (186, 270), difficulty in initiating discussion about awkward or sensitive aspects of care, (191) obstacles to providing guideline recommended care through environmental factors such as limited time, staff and resources, (194, 269, 270) and the positive and negative consequences of implementing guideline recommended care on practitioner's workload(270, 272) and patient outcomes.(272) A number of the studies commented on TDF domains not relevant to(186, 192) or missing(185, 269, 270) from their results, in contrast with this review where each domain was populated with at least one item and outlying concepts were also identified. Although this small, convenience sample of studies is not exhaustive it demonstrates common themes despite a focus on varied clinical behaviours. As such, it could be suggested that PHCP's beliefs about implementing case finding are not exceptionally different from those expressed about other clinical behaviours.

This review identified four superordinate themes, but only two comparison articles recommended modification of the TDF. Duncan,(186) examining prescribing errors, suggested expansion of the behavioural regulation, and Beenstock,(271) examining midwives engaging with pregnant women about stopping smoking, created the proposed mediator variable 'propensity to act' after principal component analysis of the 11 TDF domains highlighted by the study questionnaire identified one component accounting for the majority of variability in TDF scores. No other unexpected or unique features or findings about case finding or the review were identified.

Acknowledging that PHCP's beliefs about implementing case finding are not unique when compared with other clinical behaviours, and that case finding for depression remains

guideline recommended despite withdrawal of incentivisation, the themes identified in this review may assist clinicians and policymakers to identify strategies to implement case finding in a more effective way.

UNANSWERED QUESTIONS AND FUTURE RESEARCH

If this work were repeated consideration would be given to the use of an alternative theoretical lens, most notably NPT. NPT it is a well established theory for analyses and reporting findings which also proposes testable hypotheses. A qualitative review of studies using NPT to research the implementation process found recommendations from several authors who had employed the framework. (273) Many NPT constructs and TDF domains contain overlap, e.g. NPT's contextual integration within collective action shares some features with TDF's environmental context and resources, though it is conceivable NPT, a theory, may have greater influence on interpretation of the results of the review than TDF, a framework, by guiding exploration of why a recommended practice is, or is not, routinely implemented. This potential to answer the question of 'why' may have made NPT preferable to the TDF.

It is not possible to know whether the conclusions of the review would have differed if NPT had been used. It is likely data from the review would have assigned strength to each of the NPT variables (monitoring, sense-making, participation, action), and possible the positive and negative belief typologies would have resulted in strength being quite evenly assigned throughout these variables due to the counterbalancing effects of opposing statements in the data. The use of NPT as a heuristic tool to consider the implementation or integration process may therefore have been challenging, with identification of key issues made more difficult if strength was quite evenly assigned to each of the NPT variables.

The choice of TDF to underpin analysis could, therefore, be criticised. Whilst in this review, through independent assessment, joint discussion and consensus the team achieved pragmatic organisation of the data and agreed a satisfactory, descriptive account which facilitated analysis and synthesis of the data using the chosen methodology, NPT may have been preferred for use with 'best fit' synthesis.

Further research to understanding PHCP's beliefs and responses to case finding for depression in long-term physical conditions is also necessary. To explore this further a Q method study aiming to characterise and describe the range of positions held by PHCPs on the implementation, role and value of case finding for depression in long-term physical conditions is planned.

CONCLUSIONS

This review of PHCPs' beliefs about implementing case finding for depression in patients with long-term physical conditions in primary care, using 'best fit' framework synthesis, identified a range of beliefs spread across all TDF domains; knowledge, intentions, social/professional role and identity, environmental context and resources and beliefs about consequences being particularly well represented. All data were considered to be represented by four superordinate themes; contradictory beliefs about case finding, mistrust, trade-offs and dilemmas.

The perceived imposition of case finding, along with the push and pull created by PHCPs conflicting beliefs and limitations within the environment, created tensions between organisations and professional groups, and dilemmas within individuals. This was particularly evident in reports from nursing staff who expressed concerns about the level of explanation or training provided to them while the majority of case finding was delegated to their care by practice teams. Although the majority of PHCPs viewed themselves to be well placed and capable of delivering case finding, some resorted to modifying or trading case finding off against other clinical demands to cope in the context of limited resources and high demand, or to maximise practice income. Others purposely subverted case finding activity through the belief their clinical judgement was superior to case finding tools or mistrust of the initiative.

This interpretation may offer an explanation for perceived doubts about the benefits or efficacy of case finding for depression in patients with long-term physical conditions, and difficulty in effectively implementing the initiative in primary care. These outcomes might be of value when retrospectively reviewing the retired QOF initiative or promoting guideline recommended case finding for depression.

AMENDMENTS TO THE PROTOCOL

No changes were necessary

THE REVIEW TEAM

I was the primary reviewer. Independent evaluation of selected studies was provided by Dr Sarah Alderson, GP and NIHR Clinical Lecturer in Primary Care. Support in managing, conducting and analysing the review was provided by supervisors Allan House, Professor of Liaison Psychiatry, and Robbie Foy, GP and Professor of Primary Care. All other members of the

team are employees of the University of Leeds. The systematic review protocol was approved by the review team prior to data collection searches being undertaken.

APPENDIX 4

SEARCH TERMS AND NUMBER OF STUDIES RETRIEVED; BIBLIOGRAPHIC DATABASES 12 MARCH 2014

OVID MEDLINE 1946 TO FEBRUARY WEEK 4 2014

1. Depression/
2. exp Depressive Disorder/
3. depress*.tw.
4. 1 or 2 or 3
5. exp Primary Health Care/
6. exp General Practice/
7. exp general practitioners/ or exp physicians, family/ or exp physicians, primary care/
8. exp Nurse Practitioners/ or exp Primary Care Nursing/ or exp Community Health Nursing/
9. ((general or family) adj2 (practi* or physician*)).tw.
10. "family doctor*".tw.
11. (primary adj2 care).tw.
12. QOF.tw.
13. (qualit* adj2 outcome* adj2 framework*).tw.
14. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15. exp Mass Screening/
16. exp Psychiatric Status Rating Scales/
17. (case adj2 (finding or identification)).tw.
18. (screen* or detect* or diagnos*).tw.
19. 15 or 16 or 17 or 18
20. exp Chronic Disease/
21. (chronic* adj2 (illness* or ill or disease* or condition* or sick*)).tw.
22. (long* adj2 (illness* or ill or disease* or condition* or sick*)).tw.
23. exp Diabetes Mellitus/
24. exp Cardiovascular Diseases/
25. ((isch* or coronary) adj2 (heart adj2 disease*)).tw.
26. exp Comorbidity/
27. comorbid*.tw.
28. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27
29. 4 and 14 and 19 and 28

30. exp animals/ not (exp animals/ and exp humans/)

31. exp Veterinary Medicine/

32. 30 or 31

33. 29 not 32

34. limit 33 to english language

Results = 1406

OVID EMBASE CLASSIC+EMBASE 1947 TO 2014 MARCH 11

1. exp depression/

2. depress*.tw.

3. 1 or 2

4. exp primary medical care/ or exp primary health care/

5. exp general practice/

6. exp general practitioner/

7. ((general or family) adj2 (practi* or physician*)).tw.

8. "family doctor*".tw.

9. (primary adj2 care).tw.

10. QOF.tw.

11. (qualit* adj2 outcome* adj2 framework*).tw.

12. exp nurse practitioner/ or exp family nurse practitioner/

13. exp community health nursing/

14. 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13

15. exp screening test/ or exp screening/

16. exp depression inventory/

17. (screen* or detect* or diagnos*).tw.

18. (case adj2 (finding or identification)).tw.

19. 15 or 16 or 17 or 18

20. exp chronic disease/

21. (chronic* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

22. (long* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

23. exp cardiovascular disease/

24. exp diabetes mellitus/

25. ((isch* or coronary) adj2 (heart adj2 disease*)).tw.

26. exp comorbidity/

27. comorbid*.tw.

28. 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27

29. 3 and 14 and 19 and 28

30. exp animals/ not (exp animals/ and exp humans/)

31. exp nonhuman/ not (exp nonhuman/ and exp human/)

32. exp experimental animal/

33. exp veterinary medicine/

34. animal experiment/

35. 29 not (or/30-34)

36. limit 35 to english language

Results = 2275

EBSCO CINAHL				
S5	S1 AND S2 AND S3 AND S4	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	43
S4	((MH "Primary Health Care") OR (MH "Physicians, Family") OR (MH "Nurse	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	59,430

	Practitioners") OR (MH "Family Nurse Practitioners") OR (MH "Family Practice")) OR TI general n2 practi* OR TI family n2 practi* OR TI family n2 doctor* OR TI primary n2 care OR TI QOF OR TI qualit* n2 outcome* n2 framework*			
S3	((MH "Chronic Disease") OR (MH "Cardiovascular Diseases+") OR (MH "Diabetes Mellitus+")) OR TI chronic* n2 ill* OR TI long* n2 ill* OR TI chronic* n2 disease* OR TI long* n2 disease* OR TI chronic* n2 condition* OR TI long* n2 condition* OR TI chronic* n2 sick* OR TI long* n2 sick* OR TI coronary n2 heart n2 disease* OR TI isch* n2 heart n2	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	313,079

	disease* OR TI comorbid*			
S2	((MH "Mental Health Screening (Saba CCC)") OR (MH "Health Screening+") OR (MH "Self-Rating Depression Scale")) OR TI screen* OR TI detect* OR TI diagnos* OR TI case n2 finding OR TI case n2 identification	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	98,695
S1	(MH "Depression+") OR TI depress*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL	45,482

OVID PSYCINFO 1806 TO MARCH WEEK 1 2014

1. exp Major Depression/
2. depress*.tw.
3. 1 or 2
4. exp Primary Health Care/ or exp General Practitioners/
5. family medicine/ or exp family physicians/
6. ((general or family) adj2 (practi* or physician*)).tw.
7. "family doctor*".tw.
8. (primary adj2 care).tw.
9. QOF.tw.
10. (qualit* adj2 outcome* adj2 framework*).tw.
11. exp Nurses/

12. 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11

13. exp Screening Tests/ or exp Screening/

14. (case adj2 (finding or identification)).tw.

15. (screen* or detect* or diagnos*).tw.

16. 13 or 14 or 15

17. exp "Chronicity (Disorders)"/ or exp Chronic Illness/

18. (chronic* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

19. (long* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

20. exp Cardiovascular Disorders/

21. exp Diabetes Mellitus/

22. (coronary adj2 heart adj2 disease*).tw.

23. (isch* adj2 heart adj2 disease*).tw.

24. exp Comorbidity/

25. comorbid*.tw.

26. 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25

27. 3 and 12 and 16 and 26

28. limit 27 to english language

Results = 761

OVID HEALTH MANAGEMENT INFORMATION CONSORTIUM (HMIC) 1983 - PRESENT

1. exp Depression/

2. depress*.tw.

3. 1 or 2

4. primary care/ or exp general practice/ or exp primary care nursing/ or exp community health services/ or exp family health services/ or exp personal medical services/ or exp primary care nurses/ or exp primary care teams/ or exp primary health workers/

5. exp general practice/ or exp general practice medical work/ or exp general practice nursing/ or exp general practice patients/ or exp general practice staff/ or exp general practices/ or exp general practitioners/

6. family doctor*.tw.

7. QOF.tw.

8. (qualit* adj2 outcome* adj2 framework*).tw.

9. ((general or family) adj2 (practi* or physician*)).tw.

10. (primary adj2 care).tw.

11. 4 or 5 or 6 or 7 or 8 or 9 or 10

12. exp Mass screening/ or exp Screening policy/ or exp Screening/ or exp Screening programmes/ or exp Screening services/

13. (case adj2 (finding or identification)).tw.

14. (screen* or detect* or diagnos*).tw.

15. 12 or 13 or 14

16. exp chronic disease/

17. (chronic* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

18. (long* adj2 (illness* or ill or disease* or condition* or sick*)).tw.

19. exp Cardiovascular diseases/

20. exp Diabetes/

21. ((coronary or isch*) adj2 (heart adj2 disease*)).tw.

22. comorbid*.tw.

23. 16 or 17 or 18 or 19 or 20 or 21 or 22

24. 3 and 11 and 15 and 23

Results = 66

THOMSON REUTERS WEB OF SCIENCE 1898 TO PRESENT

#5	#4 AND #3 AND #2 AND #1 *DocType=All document types; Language=All languages;*
#4	**TITLE:** (SCREEN* OR DETECT* OR DIAGNOS* OR CASE FINDING OR CASE IDENTIFICATION OR SCREEN* TOOL*) *DocType=All document types; Language=All languages;*
#3	**TOPIC:** (LONG* ILLNESS* OR LONG* ILL OR LONG* DISEASE* OR LONG* CONDITION* OR LONG* SICK* OR CHRONIC* ILLNESS* OR CHRONIC* ILL OR CHRONIC* DISEASE* OR CHRONIC* CONDITION* OR CHRONIC* SICK* OR CARDIOVASCULAR DISEASE* OR CORONARY HEART DISEASE* OR ISCH* HEART DISEASE* OR DIABETES OR COMORBID*) *DocType=All document types; Language=All languages;*
#2	**TOPIC:** (GENERAL PRACTI* OR FAMILY PRACTI* OR FAMILY PHYSICIAN* OR PRIMARY CARE OR FAMILY MEDICINE OR FAMILY DOCTOR OR QOF OR QUALIT* OUTCOME* FRAMEWORK*) *DocType=All document types; Language=All languages;*
#1	**TOPIC:** (DEPRESS*) *DocType=All document types; Language=All languages;*

Results = 791

APPENDIX 5

SEARCH TERMS AND NUMBER OF ARTICLES RETRIEVED; GREY LITERATURE. 22-29 JULY 2014

PULSE MAGAZINE WEBSITE

1. Depression AND screening AND QOF

   69 results, 1 duplicate, 16 articles selected

2. Depression AND case finding

   32 results, 3 duplicates, 0 articles selected

GP MAGAZINE WEBSITE

1. Depression AND screening AND QOF

   22 results, 0 duplicates, 1 selected

2. Depression AND case finding AND QOF

   9 results, 0 duplicates, 0 selected

BRITISH JOURNAL OF GENERAL PRACTICE (BJGP)

1. Depression AND screening

   10 results, 0 duplicates, 0 selected

2. Depression AND case finding

   0 results

BRITISH MEDICAL JOURNAL (BMJ)

1. Depression AND screening

   14 results, 2 duplicates, 0 selected

2. Depression AND case finding

   0 results

FAMILY PRACTICE

1. Depression AND screening

   7 results, 2 duplicates, 0 selected

2. Depression AND case finding

   0 results

THE PRACTITIONER WEBSITE

1. Depression AND screening

   55 results, 1 duplicate, 0 selected

2. Depression AND case finding

   38 results, 0 duplicates, 0 selected

DOCTORS.NET.UK

1. Depression AND screening AND QOF

   Education, jobs, news, clinical information, home, library, off duty; 63 results, 0 duplicates, 0 selected

   Forum; 27 results, 0 duplicates, 6 threads selected

2. Depression AND "case AND finding"

   Education, jobs, news, clinical information, home, library, off duty;

   Forum; 12 results, 0 duplicates, 4 threads selected

3. Case AND finding

   Education, jobs, news, clinical information, home, library, off duty; 6 results, 0 duplicates, 0 selected

SUMMARY

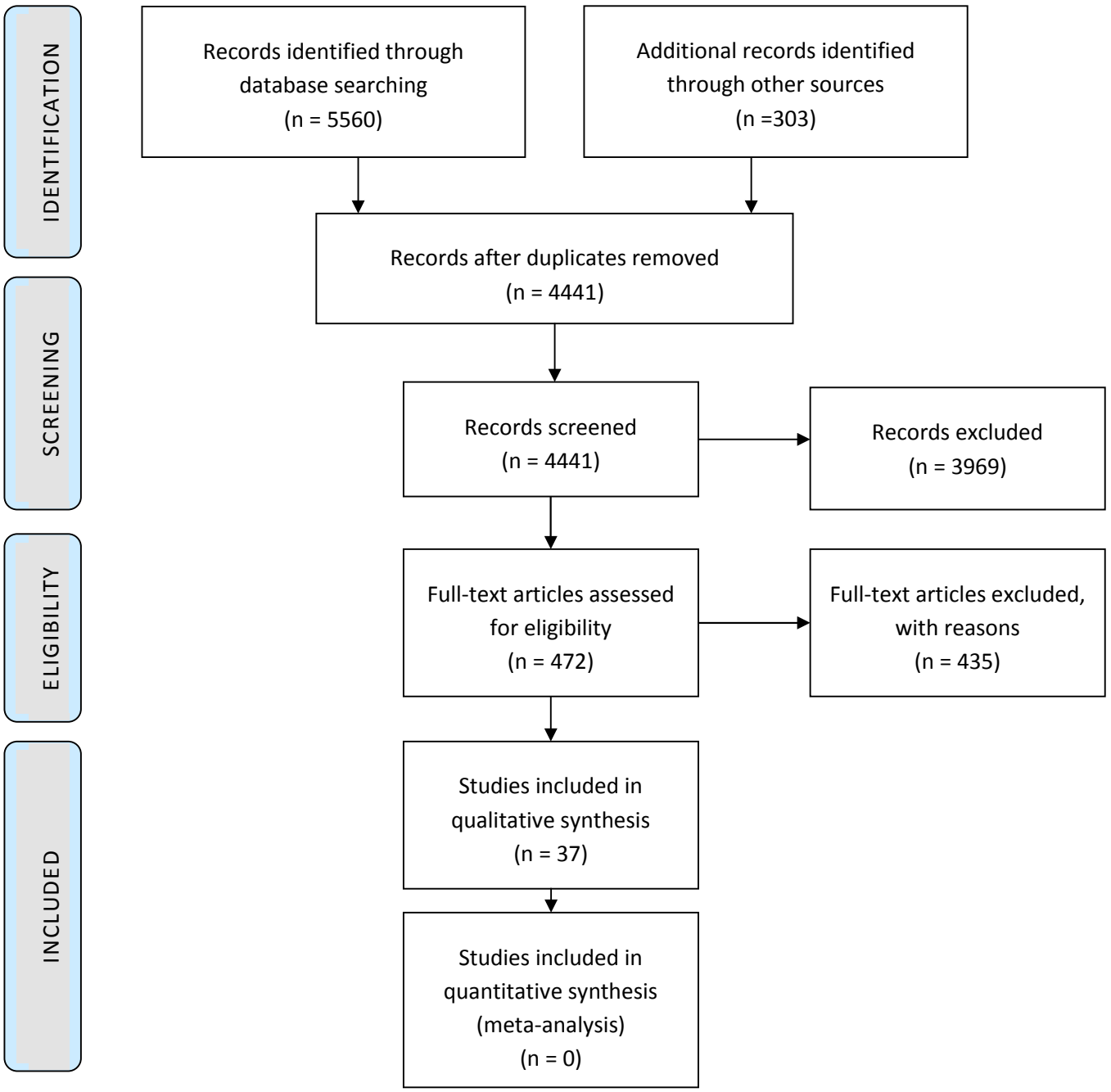
301 results

8 duplicates

27 selected

APPENDIX 6

PRISMA 2009 FLOW DIAGRAM



APPENDIX 7

DATA EXTRACTION FORM (MASTER)

STUDY IDENTIFICATION NUMBER . DATE

Eligibility *Does the article meet inclusion criteria defined in the study protocol?*	Yes ☐ No ☐ *P GPs and PHCPs in United Kingdom (UK) primary care and overseas settings which have primary care provision similar to that of the National Health Service (NHS)* *I Implementing case finding for depression in adult patients with long-term physical conditions using any recognised case finding or screening tool* *C Opportunistic detection either in routine care or as part of systematic long-term conditions management of the physical disorder* *O What GPs and PHCPs think about implementing case finding?* *S Both qualitative and quantitative studies sought, along with grey literature.*
Title	
Author(s)	
Date of Publication	
Citation	
Source of Funding	
Country of Origin	UK ☐ Other ☐
Bibliographic Details	Journal - Research Article ☐ Journal - Clinical Review ☐ Journal - Editorial ☐ Letter to journal ☐ Conference Proceedings ☐ Guideline ☐ Report ☐ Book ☐ Professional resources website ☐
Study Design	Meta-analysis ☐ Systematic Review ☐ Qualitative ☐ Quantitative ☐ Randomised Controlled Trial ☐ Cohort Study ☐ Case-control study ☐ Cross sectional Questionnaire ☐ Other ☐ Descriptive Account ☐ News report ☐ Forum ☐ Blog ☐
Study Aims	Are the aims and purpose of the study clearly stated? Yes ☐ No ☐ Not applicable ☐ *Free text.*

Setting	UK; NHS ☐ UK; non-NHS ☐ UK; sector not stated ☐ Non-UK ☐	
Participants & Sample Size	Total Characteristics	General Practitioners ☐ GPSI Mental Health ☐ Nurse Practitioners ☐ Practice Nurses ☐ Health Care Assistants ☐
Inclusion Criteria	*Who was included in the study?*	
Exclusion Criteria	*Who was excluded from the study?*	
Sample Selection & Appropriateness	*How was the sample selected? What factors influenced this? (Access, timescale etc.)* *Is the sample appropriate, able to meet the aims of the study etc?*	
Method of Data Collection	Questionnaire ☐ Interview ☐ Focus Group ☐ Observation ☐ Mixed Methods ☐ *Was data collection adequately described and rigorously conducted?* Yes ☐ No ☐ Unclear ☐ Comments	
Theoretical Framework Used?	No ☐ Yes ☐ *Was use of framework justified?* No ☐ Yes ☐	
Role of the Researcher	*What is the role of the researcher within the setting?*	
	Are there any potential conflicts of interest? Yes ☐ No ☐ Unclear ☐	
Data Analysis	*How was the data analysed? How adequate is the description of data analysis? Is adequate evidence provided to support the analysis?*	
Themes and Constructs Identified	Knowledge	☐
	Skills	☐
	Social/Professional Role and Identity	☐
	Beliefs about Capabilities	☐
	Optimism	☐
	Beliefs about Consequences	☐
	Reinforcement	☐
	Intentions	☐
	Goals	☐
	Memory, Attention and Decision Processes	☐
	Environmental Context and Resources	☐

	Social Influences	☐
	Emotions	☐
	Behavioural Regulation	☐
	Other themes or constructs which do not correspond to the framework	☐
Knowledge		
Skills		
Social/Professional Role and Identity		
Beliefs about Capabilities		
Optimism		
Beliefs about Consequences		
Reinforcement		
Intentions		
Goals		
Memory, Attention and Decision Processes		
Environmental Context and Resources		
Social Influences		
Emotions		
Behavioural Regulation		
Other themes or constructs which do not correspond to the framework		
Key Findings of the Study		
Reflexivity	Are the findings substantiated by the data? Yes ☐ No ☐ Unclear ☐	
	Has consideration been given to limitations of methods or data which may affect the results? Yes ☐ No ☐ Unclear ☐	
Conclusions		
Evaluative Summary	*Comments on study as a whole; ethical considerations, strengths, weaknesses and implications for policy, practice and theory.*	
Further Information Required from Author?	Yes ☐ No ☐ Applied for? Yes ☐ No ☐ Received? Yes ☐ No ☐	
External Validity	Can the results be applied to UK primary care? Yes ☐ No ☐ Unclear ☐	
References to follow up?	Yes ☐ No ☐	

	Free text
Is a CASP checklist available for this type of article?	Yes ☐ No ☐ *Comments*

Check for Quality

Checklist taken from the Critical Appraisal Skills Programme

CASP Qualitative Checklist http://media.wix.com/ugd/dded87_951541699e9edc71ce66c9bac4734c69.pdf

Screening Questions			
Was there a clear statement of the aims of the research?	Yes ☐	No ☐	Can't tell ☐
Is a qualitative methodology appropriate?	Yes ☐	No ☐	Can't tell ☐
Is it worth continuing?	Yes ☐	No ☐	
Was the research design appropriate to address the aims of the research?	Yes ☐	No ☐	Can't tell ☐
Was the recruitment strategy appropriate to the aims of the research?	Yes ☐	No ☐	Can't tell ☐
Was the data collected in a way that addressed the research issue?	Yes ☐	No ☐	Can't tell ☐
Has the relationship between researcher and participants been adequately considered?	Yes ☐	No ☐	Can't tell ☐
Have ethical issues been taken into consideration?	Yes ☐	No ☐	Can't tell ☐
Was the data analysis sufficiently rigorous?	Yes ☐	No ☐	Can't tell ☐
Is there a clear statement of findings?	Yes ☐	No ☐	Can't tell ☐
How valuable is the research?			

Was this article included in the 10% verification, second round of data extraction, completed by a PhD supervisor?	Yes ☐ No ☐	
Were disagreements encountered and resolved? *If yes, record summary of discussion and changes below.*	Yes ☐ No ☐	
Summary of discussion		

Summary of changes	
Second reviewer Agreement	Yes ☐ No ☐ *Comments*

APPENDIX 8

QUOTES NOT INCLUDED IN MAIN TEXT OF REVIEW

KNOWLEDGE

PRACTICAL KNOWLEDGE

"…the professionals believed the case finding was to detect depression associated with chronic disease only, not depression of any cause. 'Nurse: Then so do you feel about your diabetes, do you have any, do you worry about it, does it bother you at all?'"(215) (Qualitative study)

RELEVANCE OF PUBLISHED EVIDENCE TO PRACTICE

"…Two-question tests are never going to be accurate – they simply tell the doctor if a patient needs more tests."(220) (Grey literature news report)

"'the jury is still out' on whether screening people with CHD and diabetes for depression works." (220)(Grey literature news report)

"'They are not the only tool for screening" (QOF questionnaires)(211) (Grey literature news report)

"Adding a third question to the two questions, by asking: 'Is this something with which you would like help?' increases the negative predictive value to 94%, meaning that a no to this question (as opposed to yes, or yes but not today) essentially means that the patient is not depressed. If they score positively, then you or your nurse in the clinic just move straight to using a depression rating scale. And, of course, you won't forget to record the result on the computer."(233) (Grey literature descriptive account)

"Dr John Ashcroft, CHD lead for Erewash PCT and a GP in Ilkeston, Derbyshire, said there was 'not enough evidence' that screening was a worthwhile use of GPs' time."(240) (Grey literature news report)

SKILLS

DIFFICULTY INCORPORATING CASE FINDING

"The case-finding questions appeared out of place in the consultation that mainly involved measuring physical factors rather than mood-related problems. When asked about the case finding, most nurses felt it was difficult to switch from asking something that could be

measured (such as weight, units of alcohol consumed) to something more subjective."(215) (Qualitative study)

"I would hope that GP practices that are on the ball will invest in proper training for staff too."(211) (Grey literature news report)

EMPLOYING CASE FINDING

"I routinely ask the two prompt questions to screen for depression. GPs; 67% agree, mean 3.75, SD 1.07. Nurses; 73% agree, mean 4.04, SD 1.20. t test -2.41. p value 0.016."(165) (Cross sectional survey)

"Seventy-two percent of the GPs responded positively that they were screening for depression in COPD patients regularly, 9% disagreed and 19% gave a neutral response…How often do you ask about low mood (depression) in consultations with patients who have COPD? Always 80 (9) Often 294 (34) Sometimes 473 (55) Never 16 (2)."(207) (Cross sectional survey)

"Several" participants were said to use depression severity scores (Patient Health Questionnaire 9 (PHQ9) or the Hospital Anxiety and Depression Scale (HADS)) following a positive response to case finding,(214) though in some practices it was noted these additional tools "were not available to practice nurses,"(214) (Qualitative study)

ALTERNATIVE APPROACHES

"We should perhaps be focusing our efforts on what we currently have and upskilling our GPs and practice nurses in managing depression."(236) (Grey literature news report)

SOCIAL/PROFESSIONAL ROLE AND IDENTITY

THE IMPACT OF CASE FINDING ON THE CONSULTATION

"Professionals believed it was good to ask about mental health but disliked the structure of the PHQ-2 and feeling forced to add it to consultations. They subsequently responded by going 'off script' or discounting cues."(215) (Qualitative study)

"Case finding for depression did not naturally fit within primary care consultations. It appeared to cause discordance between professionals and patients. Professionals struggled to align case finding with a person-centred approach."(215) (Qualitative study)

"…nurses found the screening questions intrusive and expressed discomfort in asking patients about low mood, for example: 'It's very difficult because we're supposed to see a large number of people just for one thing and ... you sort of do think twice about asking those

questions if you see they need to be asked ... but also I think if you do ask them, then it's very difficult if someone's telling you about some problem, it's very difficult to just fob them off and say "oh well, you can have an appointment". I feel you have to listen, you have to listen there and then and we only ... have 10 minutes."(212) (Qualitative study)

"The introduction of recommended tools was reported by both nurses and GPs as replacing a more holistic discussion with patients. They described this more mechanistic process as 'less professional', and disrupting the normal patient/professional interaction. Nurses felt that the scripted questions required more surrounding dialogue. 'The QOF questions are progress in tackling this issue but a lot of us don't like using PHQ9 because we're sitting speaking to the patient, you then print off this sheet, give it to them to fill in rather than engaging verbally . . . it's really much less professional I think most of us feel, but we have to do it, so. . .'(Study 2, Group 3a, Specialist Nurse)."(209) (Qualitative study)

"The general approach taken is to individually assess each persons needs. I struggle with the 'do this, do that' approach."(207) (Cross sectional survey)

"It's reasonable to ask about mood if patients suffer from CHD or diabetes, which have quite severe psychological effects. Even if the reasons for depression are understandable, this isn't a reason not to treat, or at least investigate."(220) (Grey literature news report)

"Having the courage of your convictions and allowing the score to guide your actions works a treat. It gives you a logical plan to follow, which your patients can understand too."(233) (Grey literature descriptive account)

"So, if it makes sound clinical sense, why do we find it so difficult? It can feel artificial to bring up the screening questions."(233) (Grey literature descriptive account)

"Surveys collect a snapshot, data taken at a single point in time. This is contrary to the usual way patients and doctors interact. So, patients who have a diagnosis of heart disease are the kind of patients who are regular attenders at the surgery, returning to have blood pressure checked or blood tests done, and who may well have other conditions too. Real life medicine is not a 'point in time', paper-based exercise. It is a relationship flowing over months and years."(242) (Grey literature blog)

"I think the two screening questions provide a good framework for delegation to nurses, so that they can feel confident when it comes to dealing with these issues."(236) (Grey literature news report)

"I think you have got to explore it directly, you know, by specific questions that are, you know, sort of like 'you must be finding this hard to cope with'…"(213) (Qualitative study)

“One practice did not concentrate on QOF at all and offered a different style of practice to their patients, with patients being seen as and when they wanted and most staff being unaware of the QOF domains and items needed, or where to find them on the computer system. Despite this, the nursing staff still used the QOF template to conduct the chronic disease reviews. I ask how many patients haven’t been screened for depression in the last 15 months. No one knows how to find this out (including the Practice Manager and the IT guy). Field notes Practice J.”(215) (Qualitative study)

"I do not routinely ask those sort of people, although possibly just, you know, 'how are things?' you know, you tend to roll questions out according to the responses you get do you not? But no, I do not have a standard 'tell me how you feel'."(74) (Qualitative study)

THE PHQ2 TOOL

“The main difficulty with (depression) indicator 1…is the low PPV of the two-question screen. In our practice we have therefore set up a three-step screening process. Those patients who answer ‘yes' to either of the two questions are asked to complete a HADS questionnaire. Patients with a HADS depression score >8 are interviewed by our practice nurse, who has experience of providing shared care for depressed patients and therefore has the necessary skills to filter out some of the false positives. If she feels the patient may be depressed, she arranges a GP appointment.”(231)

PROFESSIONALISM

“Many felt that by identifying a problem, it was their duty to uncover the scale of the problem and to discuss this further with the patient, rather than requesting that the patient should make an appointment to discuss this with the doctor or when there would be more time to devote to this.”(215) (Qualitative study)

“One practice nurse made home visits to housebound CHD patients in order to gain QOF points. However, a practice nurse at a different practice believed these patients were excluded from QOF registers and so they did not receive any depression screening or management. ‘those patients probably get exempt from their registers because they are housebound.....’cause I think that if you prove that you’ve written or invited them three times and they haven’t come in then you can exempt them.’”(214) (Qualitative study)

“General practice involves long-term relationships and therefore opportunity to explore feelings more than once. Patients must be given choices in treatment and explanation.”(207) (Cross sectional survey)

“Chronic disease management nurses have an important role to play in accessing COPD patients and they should also be asked for input as they are more likely to appreciate changes in severity of disease over time – GPs tend to see these patients more in crisis situations than for long-term monitoring.”(207) (Cross sectional survey)

“The majority of both groups (but significantly more GPs than nurses) felt comfortable talking about depression routinely, not just when they suspected patients were depressed and asked the two prompt questions.”(165) (Cross sectional survey)

“When nurses felt confident in dealing with mental health, normally through some previous experience or training in mental health, they viewed themselves as being able to take an holistic approach, which included encouraging discussion of mood. They were also more able to see a role for themselves (alongside the GP) in responding to patients. “I’ve got him coming back in six months time; he didn’t want to see anybody, but I thought it was planting the seeds to. . . you know, if he went home and thought about it and thought ‘well, actually maybe I do need to speak to somebody’ then he could come back and do that either at the [nurse led] clinic or with the GP."(209) (Qualitative study)

BELIEFS ABOUT CAPABILITIES

HOW CASE FINDING WAS ADMINISTERED

“I only ask the two prompt questions if I think patients are depressed. Ps; 22% agree, mean 2.47, SD 1.17. Nurses; 9% agree, mean 1.77, SD 1.02. t test 6.54. p value <0.001.”(165) (Cross sectional survey)

“I do not have a formal diagnostic tool that I use all of the time.

“I do have an alternative set of routine questions that I score on experience … not validated, but a routine!”(207) (Cross sectional survey)

“Several participants felt they could recognise depression from the patient’s demeanour. For some, this involved intuition; others noted signs such as a head down stance, lethargic manner, fixed gaze or lack of eye contact.”(214) (Qualitative study)

“Most participants also valued their clinical judgement. They used this to decide when to ask just the QOF questions or to give a more detailed questionnaire, or to supplement the information obtained by such measures. Most agreed that if they felt the QOF questions were not providing a ‘true picture’ they would use their clinical judgement.”(214) (Qualitative study)

“This mechanical reliance on formal measures was portrayed as superfluous to some nurse’s professional skills and instincts: ‘So I think in the half hour you get a good idea of whether someone is. . . this is just a bad day, or whether there’s been a lot of bad days. . . And I think your instinct kicks in, you know?’ (Study 1, Group 3, Practice Nurse).”(209) (Qualitative study)

“Despite all the bits of paper flying around and patients being asked to tick boxes and practice staff being asked to type them into computers, this may all be a wasteful distraction. Doctors don't find them useful. Instead, they listen to their patients, ask them how life is, and try to put everything back in context.”(242) (Grey literature blog)

PRIMARY HEALTH CARE PRACTITIONER ABILITIES

“A quarter of GPs and less than one in ten nurses felt that depression diagnosis was straightforward, a difference that was statistically significant.”(165) (Cross sectional survey)

“Most nurses reported that their professional role, until recently, had not included mental health and while they valued the recognition of its role in wider health, they required a better understanding of mental health to more effectively introduce screening to patients. ‘Because if you (nurse) don’t really know why you're doing it then you're not going to be able to gauge that question properly in order to get the most accurate answer. Because you want to say to people ‘this (diabetes/CHD) can affect your mental health and your mental wellbeing’ and you want to kind of give them an explanation of why you're asking them about this, not just ‘oh I have to ask this question’. . .’ (Study 2, Group 1b, Specialist nurse).”(70) (Qualitative study)

“Participants that reported that they had received training in depression detection within the past five years were significantly more positive about their role in the treatment of depression than those that had not received training. Specifically, we observed the following statistically significant differences in practitioners who had received training: felt confident in screening ($t = 13.17$, $p < 0.001$), using prompt questions ($t = 3.051$, $p < 0.002$)”(165) (Cross sectional survey)

“In other instances, the nurses’ own lack of confidence prevented them from challenging patients’ reluctance to seek help, thereby missing potential opportunities to intervene. This lack of confidence in dealing with the consequences of disclosure of mental health problems by patients made nurses feel vulnerable: emphasised their lack of skills, and was considered

unsatisfactory for patients who had made disclosures to then have their discussion curtailed. ‘It’s not like taking somebody’s blood pressure or measuring somebody’s weight. It’s like how to approach the subject and how to appropriately respond because [. . .] let’s suppose if a person comes up with something which you are not expecting at all, then you just sit there and think ‘oops, what am I supposed to say?’ [. . .] You do feel vulnerable and in order to approach a question for mental health determining whether your patients are mild or moderate or severely depressed, you need to have that much confidence to remove your vulnerability.’ (Study 1, Group 2, Practice Nurse).”(209) (Qualitative study)

"…if a GP is not very good at diagnosing it then they will not pick it up, (if the GP does not think about it they may not ask suitable open-ended questions)…the GP might not be very well trained about depression….the GP might have got enough cases…"(213) (Qualitative study)

“The lack of training preceding the implementation of screening may account for some of the failure of nurses to adopt mental health awareness and promotion as part of their role and to develop appropriate skills to engage effectively with patients. Indeed one nurse reported: ‘We’ve been floundering for a couple of years’ (Study 2, Group 3a, Specialist Nurse).”(209) (Qualitative study)

“Professional beliefs and abilities affected how case finding was undertaken. In conversation, professionals expressed uncertainty about how best to phrase and ask the questions, particularly nursing staff who told the researcher they sometimes felt insufficiently trained on how to manage patients with possible depression.”(215) (Qualitative study)

OPTIMISM

All quotes included in main text

BELIEFS ABOUT CONSEQUENCES

FUTILITY

“The emotional burden was exacerbated by the professional’s perception that regardless of the outcome of case finding, there would not be any change for the better for the patient. They perceived they were expending a great deal of emotional labour on something that did not improve patient care and this compounded their feelings. '[The nurse] said she screened a woman with COPD who then cried and cried and then refused help and said she would sort herself out. This woman refused support and refused to quit smoking. Then she screened a man who was overweight and she’d just told him how serious his weight was and he cried

about his weight and then she offered support with mood and weight loss and he said no. So she said most often it opens a can of worms, is demanding and difficult and rarely does anything come of it.' Field notes practice B."(215) (Qualitative study)

"Reservations were also voiced; these tended to relate to depression screening in general not just in CHD. Several participants, especially practice nurses, said that they avoided using them due to a fear of uncovering unmanageable problems. 'I'm bad at asking, in some ways I think, like lots of nurses, you don't want to open up something that you then, then can't deal with afterwards.' (practice nurse 11)" (214) (Qualitative study)

"It is thought that routine screening for depression in COPD does not necessarily help management of either the depression or the index condition. There is not ready access to the psychological support such patients need."(207) (Cross sectional survey)

"Some of the multifactorial barriers and perceptions of the GPs for the management of comorbid depression in patients with COPD. The most commonly reported from the free-text comments made by the GPs were lack of services or long waiting times for the psychological treatment for COPD patients with comorbid depression."(207) (Cross sectional survey)

ABILITY TO DETECT TREATABLE CASES

"GPs did regard the depression scales and screening questionnaires as having the advantage of being more reliable and agreed that if used routinely, they would probably increase the proportion of depression detected in primary care."(213) (Qualitative study)

"Patients with comorbid physical conditions and multiple medications may be reluctant to accept either treatment or referral, especially if their psychological problem has been detected by screening rather than presenting symptoms themselves. The acceptability of treatment in such circumstances is another area that needs researching, given the likely future continued rise in the prevalence of depression associated with physical diseases in older patients."(210) (Editorial)

"…you can sometimes think that you do not want to, as it were, act as a burden or of they are already on a list of medication, add something to that."(213) (Qualitative study)

"Dr Ian Johnstone, a GP in Musselburgh, East Lothian, and a member of the Lothian heart failure network, said screening through the QOF would 'probably be worthwhile' despite the increased workload."(219) (Grey literature news report)

“The committee was clear it didn't want to neglect depression and wanted to develop new assessments that didn't rely on questionnaires, and I would hope that will be developed soon. My personal view is that keeping these indicators in for the moment is good for people with depression because they are still being assessed and followed up. Having the current indicators is better than not having them at all.”(217) (Grey literature news report)

“And it is also clear that most people are not incapacitated by ‘depression' as diagnosed by such questionnaires. Indeed, true depression is relatively rare.”(242) (Grey literature blog)

“Studies have shown that most true cases of depression found at these ‘point in time' studies have a habit of finding their way in the future to appropriate diagnosis and treatment anyway.“(242) (Grey literature blog)

“My worst problem is that a lot of my oldest patients, or those who can't get about or exercise like they are used to, are frustrated by not being able to do things. But is this depression, or just opening a can of worms? Some of these questionnaires are very good, but they're only good if they refer to the right people – young people with chronic diseases, or otherwise physically sick people. Not people who are 94. Who knows in what population they devised the tool?”(220) (Grey literature new report)

“Whether it's worth the effort involved I don't know. But if you don't ask the questions, you can't make a diagnosis.”(220) (Grey literature news report)

“One Asian participant (P1) felt that South Asian patients conceptualise depression in somatic terms and that these instruments would not detect this. In contrast, another participant felt the instruments detected somatic symptoms which could be confused with depression. ‘Some of them [patients] misinterpret it [PHQ9] because, I mean some of them might/when they're older, they find they don't sleep quite so much and they expect to still sleep 12 hours a night. And you do find that a lot of them, do sort of say they have problems sleeping and there could be other factors that are influencing that more than because they are depressed.’"(214) (Qualitative study)

“I know NICE are planning on removing the DEP1 indicator, but if there is no screening for depression then what do you do? There's a sevenfold incidence in depression in patients with two or more long-term conditions, and a more holistic approach to assessment – increasing awareness in GP practices – would be beneficial for these patients.”(236) (Grey literature news report)

"We know that patients with diabetes and other long term conditions such as heart disease and COPD are more likely to have depression than the general population, and I think that the QOF questions are the best things GPs have got at the moment. You have to use them wisely, in that you need to follow them up with a longer interviews and a biopsychosocial assessment."(218) (Grey literature news report)

PHYSICAL CONSEQUENCES

"Screening those on the diabetes or CHD register for depression – using the standard two questions – can often be a lifesaver, as treating those with depression and diabetes improves glycaemic control. In CHD a trial published in January showed a 42% drop in death or recurrent MI in a sub group of those with CHD and depression, when they were treated with an SSRI."(233) (Grey literature descriptive account)

"Screening is worth doing…if you screen your diabetic patients, and treat the depressed third that you will find, then you can increase the number of diabetics with good control by over 40% , and cut misery and poor health, while also helping your income. You can save lives too, as a third of those who have an MI have depression in the year after, and the risk of death is three times higher than in post-MI patients who are not depressed."(234) (Grey literature descriptive account)

"…if we can detect depression not only will our patients benefit from treatment, but we may also make more impact with their diabetes care."(208) (Grey literature descriptive account)

"…it would be interesting to know what the outcomes, in terms of HbA1c etc., were in those found to actually have depression after they were treated."(221) (Grey literature news report)

"A positive screen does not aid in diabetes management as it is not associated with poorly controlled diabetes."(221) (Grey literature news report)

"When the very first antidepressant was developed in 1959, the manufacturers were disinclined to market it to doctors since the pharmaceutical company thought depression was an uncommon disorder and they were not likely to recoup the costs…All change. More than 40 million prescriptions for antidepressants – that's forty million – were written in the UK in 2010…The question now becomes: how likely is the routine use of depression screening questionnaires to help patients? And how much harm does their use cause?"(242) (Grey literature blog)

UNEASE

“Professionals…were wary of the risk of patient's emotional issues derailing routine review.”(215) (Qualitative study)

"…I do not use them myself…I think it is because to me it takes away, erm, it alters the dynamic of the consultation."(213) (Qualitative study)

“Patients think you have gone mad if you ask them about depression every time you see them!”(207) (Cross sectional survey)

“Dr Ashworth, a GP in Kennington, south London, is concerned simple questionnaires can reduce screening to the asking of 'token questions'. 'It concerns me doctors may get into the habit of checking boxes, to be able to say "yes, I've been there, done that".'”(2) (Grey literature news report)

“I fear it is one of the weakest QOF requirements, not least because people treat it as a tick box exercise and don't do it with any conviction”(76) (Grey literature news report)

IMPACT ON THE CONSULTATION

“The screening can be difficult because patients can look askance when you ask these questions and there are concerns about the effect on the doctor-patient relationship.”(235) (Grey literature news report)

“We started this system in the summer of 2006, so we have not achieved full points this year, but it does seem to work without unbalancing a busy diabetes clinic.”(241) (Grey literature mixed news report and descriptive account)

“Normal discourse between doctor and patient is relegated to second place behind the paperwork. The questionnaire-based screening for depression is capable of removing human understanding from the encounter between doctor or nurse and patient.”(242) (Grey literature blog)

“Patients seldom answered with a simple ‘yes’ or ‘no’ and brought up specific difficulties, such as bereavement. Following an initial acknowledgement, professionals then tended to move consultations on without discussing the effects of these life events on mood. Therefore, professionals prematurely shut down patient responses suggesting emotional problems to reduce the risk of extended consultations.

> Nurse: Are you alright, you haven’t been having little interest in doing things, or?
>
> Patient: No, no.
>
> Nurse: Are you fine, are you okay? That’s okay.

Patient: It's been 10 years since I've lost [woman's name].

Nurse: Is it, what, is that your wife?

Patient: Yes.

Nurse: 10 years? That's a long time, isn't it? Can I just check your tablets then, do you take aspirin, [lists medication]…"(215) (Qualitative study)

"Case finding often occurred within tightly structured and time-limited chronic illness reviews required to document QOF processes of care, and appeared to exacerbate existing discordance. This led to professionals disregarding attempts by patients to steer the consultation around to their own perceived needs."(215) (Qualitative study)

REINFORCEMENT

INCENTIVES FOR AND AGAINST CASE FINDING

"For most nurses, the inclusion of questions on emotional health at the end of a long list of physical health priorities minimised its importance. The resultant manner in which the questions were administered discouraged patients from disclosing any problems. 'You know, the evidence of mental health problems in people with chronic disease is very high, but we don't seem to pick up as many perhaps as we should be. And I think that's because the screening questions are just perhaps fired at people and they go, "Well fine, thanks very much . . . well, that's okay then"'. (Study 1, Group 1, GP)."(209) (Qualitative study)

"One GP commented that having the two questions built into annual reviews ensured that screening for depression was not forgotten: 'there's something there about you working with a template that prompts you to do it. . .' (Study 1, Group 4, GP)."(209) (Qualitative study)

USE OF WRITTEN INFORMATION AS REINFORCEMENT

"Our leaflet says: 'Up to a third of people who have a heart attack will develop depression, so you may be asked questions to see if this is the case – it is important that you are able to live as full a life as possible, and detecting and treating depression will help you to do this.'"(233) (Grey literature descriptive account)

"In my own practice we send the two screening questions, with a supporting letter of explanation, as part of the invitation to the diabetes clinic. The nurse records the response when the patient attends, and the letters are kept as documentary evidence."(241) (Grey literature mixed news report and descriptive account)

“One way we prepare our patients is to give everyone with CHD a leaflet about the care that they can expect, which includes a paragraph explaining about depression screening – so it does not come as a surprise to them.”(233) (Grey literature descriptive account)

INTENTIONS

PLAN FOR CASE FINDING DELIVERY

“Our practice nurses do most of the annual review of patients with COPD and in the course of that review, we need to ask about depression.”(207) (Cross sectional survey)

“We have added the depression screening tool questions onto our COPD template for management.”(207) (Cross sectional survey)

PRIORITY ACCORDED TO CASE FINDING

“Just over two-thirds of GPs and half of nurses that responded said that depression was a high priority during consultations with patients.”(165) (Cross sectional survey)

GOALS

PLANNING THE DELIVERY OF CASE FINDING

“I have always argued for practice diabetes care being structured around a practice nurse supported by a lead GP. My suggestion will be to include the questions in the invitation letter sent out to diabetes patients to encourage them to attend the clinic. Positive responders will get an appointment with the lead GP to discuss the possibility of depression separately from the diabetes clinic.”(208) (Grey literature descriptive account)

MEMORY, ATTENTION AND DECISION PROCESS

AIDING ATTENTION

"We try to do it in a less formal way, but I agree that having a formal tool may be more reliable."(213) (Qualitative study)

PERCEIVED IMPORTANCE OF CASE FINDING

“There is little value in routinely screening for depression in patients with COPD Strongly disagree/disagree 624 (72%) Neither agree nor disagree 163 (19%) Strongly agree/agree 76 (9%).”(207) (Cross sectional survey)

“Respondents’ views about the importance of identifying depression were generally positive.”(165) (Cross sectional survey)

“Over two-thirds of the GPs reported that depression exacerbated the symptoms of COPD, while the minority disagreed with this view. An overwhelming majority of the GPs (96%) believed that depression interferes with the self-management of COPD, and only 4% disagreed. In addition, 89% of the GPs reported that COPD patients with comorbid depression are more likely to experience increased physical difficulties and dependency on family and caregivers/friends for their daily activities.”(207) (Cross sectional survey)

“Eighty seven percent of the GPs reported that, in their experience, COPD patients are at a higher risk of developing depression, compared with the minority of GPs (9%) who are ‘uncertain’ of this risk and 5% who feel there is no increased risk. Nearly two-thirds of the GPs have observed that the severity of COPD was associated with increased risk of depression, compared with (21%) who were ‘uncertain’ and 15% who thought the severity of symptoms was not associated with increased risk.”(207) (Cross sectional survey)

ENVIRONMENTAL CONTEXT AND RESOURCES

TIME

“The evidence for this type of screening is sound. The problem is the practicality of including it in a diabetes review. These can already be medically complex consultations and a formidable amount of information must be recorded. Consultations to diagnose and initiate treatment for depression are often long and involved.”(208) (Grey literature descriptive account)

"…because time is at a premium very often depressive symptoms are swept to one side, partly because they are perceived as being more difficult to treat."(213) (Qualitative study)

“Community nurses expressed an alternative perspective on screening for depression in people with ‘long-term conditions’, and less concern about the integration of the screening questions into routine care. For example, a district nurse described more comfort in talking to patients about their mood, less pressure on time, and peer support: ‘... we go out and do the house-bound reviews, we do ask it but yet again, I think in a way we’ve perhaps got a little bit more time than what [the practice nurse] has ’cos we’re not set to set minutes or whatever and ... ummm especially as the majority of people with long-term conditions do have a depressive illness ... we’ve also got access to case managers and community matrons that step it up a little you know ...’ (district nurse FG1).”(212) (Qualitative study)

“Those in areas of higher deprivation felt there was a lack of time to ask the questions and deal with any responses that might indicate a problem with mood.”(215) (Qualitative study)

“Positive responses are not dealt with in the (diabetes) clinic – it would be too complicated. Instead, patients are invited to see their usual GP to discuss the responses further.”(241) (Grey literature mixed news report and descriptive account)

“Just because depression is more common in diabetics, it doesn't necessarily mean that we should screen for it. My gut feeling is that my time would be better spent on other aspects of their diabetes care.”(240) (Grey literature news report)

“It annoys me there is no evidence these patients are any more or less depressed than others with chronic ill-health – so why screen them? Asking us to spend time in working to earn QOF points which have little or no evidence base is very disruptive to general practice.”(237) (Grey literature news report)

LIMITED RESOURCES

“Field notes Practice A: [The nurse] referred to QOF as coming from ‘on high’ to tell her to incorporate it [case finding]. She felt depression screening was problematic as they had received ‘no training’ in mental health or in screening and they were very ‘stretched for time in the appointment.’”(215) (Qualitative study)

“A Pulse straw-poll of GPs revealed widespread discontent with the new indicators on depression. Of 18 GPs who responded, 80 per cent said resources were not sufficient to cope.”(237) (Grey literature news report)

“I wonder if we would have more success with our diabetes management if we were able to pursue patients with positive depression screening responses as intensively as the Simon et al study.”(241) (Grey literature mixed news report and descriptive account)

“Nurses also reported concerns about a lack of services or options available if people were identified as depressed. This suggests a lack of knowledge or confidence for both GPs and Nurses concerning the availability of resources to help manage depressed patients.”(209) (Qualitative study)

“Considerable effort is used reviewing large numbers of false positives. Resources may be better directed into other psychological areas such as assessing concordance.”(221) (Grey literature news report)

CLINICIAN RESPONSE TO LIMITATIONS ENCOUNTERED IN THE ENVIRONMENT

"What happens in an ideal situation and what happens in the heat of the consultation is not always the same."(207) (Cross sectional survey)

"This perceived burden led to the screening questions not being asked in full or being skipped. The practice nurses described concerns that if the questions were asked too early in the 'QOF' chronic disease-template-driven list of tasks, the patient might become distressed, which would impact on the rest of the consultation and leave insufficient time to complete the review. In an ethnically diverse population, where a telephone translation service was required, the problem was worse, as acknowledged by a practice nurse: 'Yeah but I never get anything else done! Yeah. But I do do, obviously it is at the top of my mind, and I do do it with the people that I know are going to be able to quite quickly brush over it ..., I know that's not good, but that's the pressures of practice nursing, what we've got at the moment with the allotted time that we've got ...' (practice nurse 1 FG1)."(212) (Qualitative study)

"It was hard to move the consultation onto the rest of the review. This often led to the questions being asked in a manner that made it difficult for the patient to answer 'yes', such as 'you have no problems coping, do you?' pre-empting any difficulties the questions may cause. 'Then Nurse 1 said 'it's a question that makes you sigh, makes your heart heavy, because you're there and you say 'you've been down and depressed?' and she said 'loads of them saying 'yes' and she's thinking 'no, you're not, you're not, depressed, depressed, you're just a bit down, a bit fed up, aren't we all!' So then she has to say 'Oh, why do you think that?' and it starts this 10 minute conversation that she really didn't want to be having, because she's had to do three blood pressure readings, loads of blood tests, trouble getting a vein, had to check their feet, loads of faffing around, she's only got 20 minutes. Field notes Practice F."(215) (Qualitative study)

"The only way we've been able to cope thus far is by cheating. Do I really screen them for depression? Are you insane? Hang on, that's the psychosis screening question. OK, no, I don't. Yes, it's just two questions. But it's almost inevitably a consulting non-sequitur that I don't need given that I have so much else to plough through, plus their presenting complaint, assuming I remember to address that. So long as I detect a flicker of a smile, or maybe a lip curl, then I'm happy that a) I've screened for depression and b) They're not depressed. Box ticked. Take me to the GMC if you must, but it's the only way to cope."(239) (Grey literature blog)

"…I think there is a place for asking people with chronic disease to routinely fill in self-rating scales before seeing the doctor. It saves the doctor a lot of time and you can focus on the problems."(213) (Qualitative study)

SOCIAL INFLUENCES

SOCIAL OR PEER INFLUENCES ON THE BEHAVIOUR OF THE PATIENT

“GPs suggested that patients may be reluctant to talk about feeling depressed or may feel guilty about complaining of depression, seeing it as a sign of weakness to admit they are depressed. Other GPs suggested such resistance might be because the patient does not want to feel they are 'ungrateful'. ‘…perhaps they feel guilty at mentioning the fact they, you know, ‘why should I get depressed?’ it might seem as though you are ungrateful for the help you have got.’”(213) (Qualitative study)

EMOTION

All quotes included in main text

BEHAVIOURAL REGULATION

AUDIT ACTIVITIES

“Prior to the introduction of the QOF, we screened a sample of our CHD patients using the HADS questionnaire. Of 93 patients screened, only four were identified as having unrecognised depression.”(231) (Grey literature descriptive account)

OTHER THEMES AND CONSTRUCTS WHICH DO NOT CORRESPOND TO THE FRAMEWORK

UNDERSTANDABLE LOW MOOD

“One third of attenders are known to be depressed, and that’s before they’ve seen me. Guess what, you’ve got diabetes and/or CHD too, feel like celebrating? Of course they’re depressed. I’m depressed. We’re all depressed.”(232) (Grey literature blog)

“The problem for screeners is that not all low mood is depression. Questionnaires, when done as a reflex adherence to protocol, do not account for the circumstances people find themselves in. Life is not a straight emotional arrow. Our mood can sink when we are faced with bad news, an undesirable change in our circumstances, even just a stretch of jet lag-broken sleep. Normal people have moods that change according to what is happening to them.

An enormous part of literature, art and music over the past few thousand years has been an attempt to understand and to share what life means through shared emotions. The advent of the protocol-based questionnaire removes all context from assessing patients' mental states. From the beginning, there is no option for patients to say that they are distressed because their dog has died or they are feeling awful because they have flu. Instead, the questionnaire is administered, high levels of distress recorded and then the doctor or nurse deals with the result."(242) (Grey literature blog)

"The participants reported difficulty distinguishing in general between 'distress' and depression needing treatment. They were aware that many patients with or without CHD experienced difficult social circumstances. It was therefore 'understandable' that they felt low. 'When they come to the clinics there is some level of depression. Whether it's due to their disease, it's difficult to say. I think there is a lot of other things in this area that cause that.'"(214) (Qualitative study)

"Depression in people with COPD is an understandable reaction to the difficulties people have in adjusting to the limitations of their physical disease Strongly disagree/disagree 34 (4%) Neither agree nor disagree 64 (7%) Strongly agree/agree 765 (89%)."(207) (Cross sectional survey)

"Before the instigation of the QOF, it was well known that screening for depression generally resulted in picking up low mood because of life events, and wasn't terribly helpful in finding new depression cases. In one study, researchers found that patients scoring high on questionnaires turned out not to be depressed when they interviewed them. The ongoing problem has been this misunderstood differentiation. Studies that look at levels of distress tend to find lots of unhappiness, and conclude that depression is therefore underdiagnosed."(242) (Grey literature blog)

"Rates of treatment were lower for older patients and for patients with comorbid physical illness, including coronary heart disease and diabetes, despite the QOF encouraging screening for depression among such patients. Family Physicians may have been concerned about the side effects of antidepressants affecting the comorbid physical problems, but referral for psychological treatments was also less likely among older patients."(210) (Editorial)

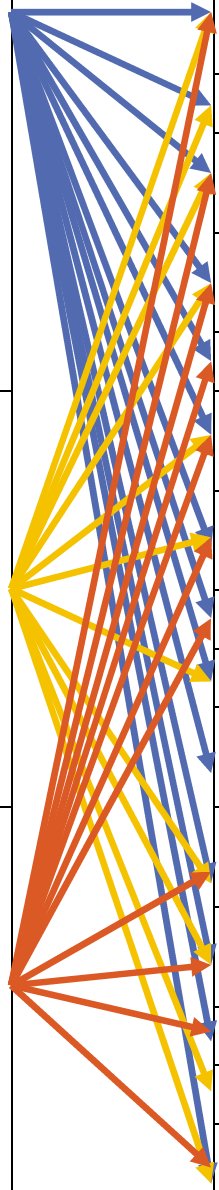
"Locally, there is a pulmonary rehab service, which is able to improve physical and secondary mental symptoms. The 'depression' label is only helpful if it is explained carefully."(207) (Cross sectional survey)

“It is not thought that depression *per se* exacerbates COPD, but it certainly makes the limitations/coping more difficult.”(207) (Cross sectional survey)

“In response to the question ‘Can you estimate the percentage of patients you see post-MI who are depressed?’ participants underestimated the prevalence of depression in this population. Compared with nurses, GPs were more accurate in their estimation (X2, $p < 0.01$) but still under estimated the prevalence of depression in this population... GPs estimated that around a quarter of the post-MI patients they saw had depression. This was more accurate than nurses who estimated that just under one in five were depressed a difference that was statistically significant...Practitioners who reported that they had had recent training in the management of depression were significantly more accurate (20.5 vs. 17.20; $t = 2.14$, $p = 0.033$) in their estimate of how common depression was in this population but still underestimated the true prevalence. Epidemiological research suggests the estimated one-year prevalence of depression after MI is around 45%. Compared with nurses, the mean prevalence estimate of GPS was more accurate at 23.69 (SD 18.52) vs. 17.71 (SD 20.29); $t = 2.86$, $p = 0.004$.”(165) (Cross sectional survey)

“In the authors’ clinical experience, depression is generally associated with an adjustment period when patients grieve for their loss of function.”(207) (Cross sectional survey)

APPENDIX 9

Source		TDF Domain or other theme	Sources coded to this domain
Peer reviewed research articles		Knowledge	Peer, grey and doctors.net
		Skills	Peer and grey
		Social/Professional Role and Identity	Peer, grey and doctors.net
		Beliefs about capabilities	Peer, grey and doctors.net
		Optimism	Peer and doctors.net
Grey literature articles		Beliefs about consequences	Peer, grey and doctors.net
		Reinforcement	Peer, grey and doctors.net
		Intentions	Peer and doctors.net
		Goals	Peer and grey
		Memory, Attention and Decision Process	Peer
doctors.net.uk posts		Environmental Context and Resources	Peer, grey and doctors.net
		Social Influences	Peer, grey and doctors.net
		Emotion	Peer and doctors.net
		Behavioural Regulation	Grey
		Other themes and constructs	Peer, grey and doctors.net

CHAPTER FOUR

A Q METHOD STUDY TO IDENTIFY AND DESCRIBE THE RANGE OF POSITIONS HELD BY PRIMARY HEALTHCARE PROFESSIONALS' ON CASE FINDING FOR DEPRESSION IN PATIENTS WITH LONG-TERM PHYSICAL CONDITIONS IN PRIMARY CARE

ABSTRACT

OBJECTIVES

To reveal a series of shared perspectives among participants which characterise the range of positions held by GPs and primary healthcare professionals on the role, implementation and value of case finding for depression in patients with long-term physical conditions.

DESIGN

Q method study

SETTING

West Yorkshire, UK

METHODS

An online Q sort of 39 text items derived from outputs of the interrupted time series analysis and systematic reviews which aimed to characterise shared positions and perspectives. These positions are grouped as 'factors' in the analysis. Data were analysed by principal component analysis and centroid factor analysis using varimax and by-hand rotation.

PARTICIPANTS

21 primary healthcare professionals, including general practitioners, practice nurses, senior practice nurse and advanced nurse practitioners recruited via snowball sampling.

RESULTS

Three distinct factors or positions were identified. Factor one described objections to the principle of case finding for depression. Factor two considered case finding for depression is worthwhile. Factor three described criticisms of the implementation of case finding for

depression. Demographic factors (e.g. job title, age, gender) appeared to have little association with the viewpoint likely to be held by a participant.

CONCLUSIONS

Each of these positions may influence how primary healthcare professionals implement, deliver and respond to case finding for depression in long-term physical conditions in primary care. Implementation is challenging if there is a spread of perspectives, and implementation strategies need to take account of these positions when promoting or revising approaches to case finding.

INTRODUCTION

BACKGROUND AND RATIONALE

Two earlier studies in this thesis considered PHCPs responses to case finding for depression. The first, an ITS, identified increased rates of new depression-related diagnoses in patients with both target and non-target conditions, plus an increase in the rate of antidepressant drug prescribing in patients with target conditions following QOF incentivisation.(274) The second, a systematic review, identified views which were sometimes contradictory and suggested that implementation of case finding would need to overcome a wide range of obstacles. In combination these beliefs created tensions between organisations and professional groups, particularly between GPs and nurses, and dilemmas within individuals about how to implement the initiative. Although the majority of PHCPs viewed themselves to be well placed and capable of delivering case finding, some resorted to modifying or trading case finding off against other clinical demands to cope in the context of limited resources and high demand, or to maximise practice income. Others modified or subverted case finding activity through the belief their clinical judgement was superior to case finding tools or mistrust of the initiative. Whilst these studies offer insights in to the effects of case finding and PHCPs' beliefs about the initiative, this third study examines PHCPs beliefs about case finding via a different approach; using Q method to characterise and describe the range of positions held by PHCPs on role and value of case finding for depression in long-term physical conditions.

Q method is recognised to do two things; first, go beyond simply identifying and grouping beliefs, to characterise and describe the range of positions held by participants. Second, move away from polarised for and against representations, to an understanding that there may be in-between or outside views.(275) Occasionally Q method indicates which groups hold particular views (e.g. men versus women) but more often demonstrates differentiation and

prediction are not possible. Q method achieves this by grouping people according to similarities in the way they complete the Q sort ranking exercise; the items ranked typically being opinions, beliefs, and attitudes. This process also clarifies consensus, items participants agree on and which do not require further consideration, and identifies key ideas which need to be understood to explain the viewpoint. These key ideas are termed discriminating items. This Q method study was designed and conducted in line with guidance published by Watts and Stenner.(276) Q methodology is a technique and methodology used to study subjectivity, or people's shared viewpoints, it was originally developed by William Stephenson through the modification of earlier R methodology factor analysis.(277) R methodology factor analysis aimed to reveal patterns of *association or differences between measured variables* (e.g. test scores or other items) using a sample of people, Q methodology inverted this by making people the variables and the other items the sample to *demonstrate associations of differences between people*.

This study builds on the ITS and open and integrative approach to the review by examining ongoing, routinely implemented, standardised case finding by PHCPs for patients with long-term physical conditions. It does not retrospectively consider QOF incentivised case finding alone.

RESEARCH QUESTION

Is it possible to identify and describe the perspectives of primary care health professionals' on the role, implementation and value of case finding for depression in patients with long-term physical conditions in primary care?

This study uses the NHS England definition for case finding, "a systematic or opportunistic process that identifies individuals from a larger population for a specific purpose."(46) Case finding for depression is suggested by NICE for those with diagnoses of long-term physical conditions who may be depressed, particularly where there is functional impairment.(33, 34) NICE state that assessment should be undertaken by asking PHQ2 questions, though other measures have been used in the past. There is no NICE guideline recommended frequency for case finding activity in these circumstances, though the retired QOF DEP1 incentive recommended case finding be undertaken every 15 months and some PHCPs may keep this practice in mind. Case finding for depression is also recommended during antenatal and postnatal care(156) and for carers(80) though these groups are not being considered in this study.

AIMS

To reveal a series of shared perspectives among participants which characterise the range of positions held by GPs and PHCPs on the role, implementation and value of case finding for depression in patients with long-term physical conditions.

To describe the common features of these perspectives and any features which discriminate between them, and to describe any characteristics shared by individuals who hold particular perspectives and consider what influences the holding of a particular perspective.

METHODS

AN ONLINE Q SORT WITH PRIMARY CARE PROFESSIONALS IN WEST YORKSHIRE

A Q method study requires a specific form of data collection; the Q sort. In the Q sort a pre-defined group of individuals who are likely to hold relevant or important viewpoints on a topic rank items from the first person perspective based on a clear question or statement, known as the *condition of instruction*. The Q sort can be conducted face to face or remotely. The items, a Q set, are derived from the concourse, a collection of statements or objects representing the topic being examined. Sampling of the Q set from the concourse is guided by the research question.

The Q technique has been successfully used in a variety of clinical settings to examine shared perspectives, including patient's understanding of depression associated with long-term physical conditions, (278) health seeking behaviour and perception of the quality of primary care services,(279) the perceived role of the healthcare provider in delivering vascular health checks,(280) the needs of primary care mental health service users,(281) post-pregnancy body image,(282) child attachment behaviour, (283) and healthcare informatics.(275)

PARTICIPANTS

This Q sort was a multiple participant design among two groups; GPs and primary care nurses. I considered recruiting primary care healthcare assistants and practice managers but believed the pool of potential participants with active experience and insights into case finding for depression in patients with chronic physical conditions would be small, and therefore the effort required to recruit these groups of primary care staff would outweigh the benefits.

SAMPLING

The difficulties of recruiting primary care staff to research are well recognised.(284) Therefore whilst a number of factors relevant to case finding for depression and sampling of participants

were considered, and an idealised purposive sampling frame drawn up, it was not anticipated that the stated number of participants would be recruited from each group; rather the frame was used to guide and balance the sample, serving as a basis for reflection on final sample characteristics.

THE IDEALISED PURPOSIVE SAMPLE

The purposive sampling aimed to recruit participants with a range of perspectives. Whilst some idealised participant criteria in this study were shared, others differed between GPs and primary care nurses. For example, considering gender, the Health and Social Care Information Centre, now known as NHS Digital, reported in 2015 that 47% of FTE GPs, and 98.1% of FTE nurses of all grades were women.(265) Therefore male nurse participants were not specified within the purposive sample but were not excluded from participation.

SHARED CRITERIA

Shared criteria were qualified GPs and nurses and clinicians representing a range of age groups.

Fully qualified GPs and nurses were chosen to avoid gaps in participant training or knowledge which may affect their beliefs about case finding. Participants with a spread of ages were sought in the belief that changes to medical and nursing training, e.g. from biomedical to biopsychosocial models,(285) might influence perspectives. Again approximately equal, arbitrary divisions were selected to represent clinicians in the early to mid and mid to later stages of their career. The divisions were based on the reported age of the UK general practice workforce in 2013(286)to ensure sufficient numbers of staff could be recruited in each group; those aged 45 years and under, and those over 45 years. In the UK only 10% of admissions to medical school are from graduate-entry programmes,(287) and whilst similar data for nursing staff were not available it was assumed these divisions would capture clinicians with varying length of service. This assumption was checked when collecting pre-sort information. The divisions were not intended to distinguish newly qualified PHCPs from those long established in primary care as it is recognised doctors and nurses can transition to a career in primary care at any stage of their professional life. It was not necessary for GPs and nurses to be paired or linked within practices, though recruiting GP and nurse participants from one practice was acceptable.

NURSE CRITERIA

As there is no formal entry qualification to primary care nursing any fully qualified nurse employed to undertake clinical duties within primary care was considered to be a practice nurse. This baseline criterion was not flexible and is in line with RCGP guidance which delineates between healthcare assistants, practice nurses and advanced nurse practitioners(ANPs) or nurse partners.(288) Whilst primary care nursing staff holding ANP or NP posts are in a significant minority, the additional training to masters level(289) and differing, more autonomous job role may influence their perspectives on case finding. No formal estimate of the proportion of ANPs or NPs in the primary care workforce was identified, for the purpose of this Q study an idealised 10% of nurse participants were sought to be ANPs or NPs.

GP CRITERIA

Any GP who had successfully completed vocational training was eligible to participate. This baseline criterion was not flexible. Within the UK GPs are most commonly identified as partners, salaried or locum. Clinical activity may vary according to this status due to influences such as FTE or responsibility for practice staff and income. BMA general practice workforce statistics from 2013 report 23% of UK GPs are salaried and this proportion is accepted to be increasing.(286) This study therefore sought to recruit an idealised one third salaried GPs and two thirds GP partners.

Primary care data from 2004-2014 from NHS DIgital describes that 22% of GPs qualified outside the UK.(290) The reason for disparity in HSCIC ethnicity reporting between nurses and doctors is not explained. As described earlier the country of qualification may influence PHCP perspectives on case finding, as such a target of 20% of GPs who qualified outside the UK was set, split between salaried and partner GPs.

The almost 50:50 split in FTE male and female GPs(265) may influence perspectives on case finding for depression in chronic physical conditions for personal, cultural or social reasons or influences of workload and the typical patient population served. For this reason an approximately equal split of male and female GP participants was sought.

IDEALISED SAMPLING FRAMES

TABLE 12, SAMPLING FRAME FOR ALL NURSE PARTICIPANTS

Practice Nurses		**Advanced Nurse Practitioners or Nurse Partners**	
Age (years)		Age (years)	
≤45	>45	≤45	>45
18	18	2	2

TABLE 13, SAMPLING FRAME FOR GP PARTNERS

GP Partners							
Qualified in UK				Qualified outside UK			
Age (years)				Age (years)			
≤45		>45		≤45		>45	
M	F	M	F	M	F	M	F
6	6	6	6	1	1	1	1

TABLE 14, SAMPLING FRAME FOR SALARIED GPS

Salaried GPs							
Qualified in UK				Qualified outside UK			
Age (years)				Age (years)			
≤45		>45		≤45		>45	
M	F	M	F	M	F	M	F
3	3	3	3	1	1	1	1

CRITERIA EXCLUDED FROM THE PURPOSIVE SAMPLE

Considering country of training, data from 2004-2014 indicate 19.6% of qualified nursing, midwifery and health visiting staff across the NHS identified as being from an ethnic minority group.(291) These ethnicity data do not include information on country of qualification or birth, factors which may also be influential on perspectives on case finding for depression with chronic physical conditions due to differences in culture and society,(292) or what proportion of these individuals are employed in primary care. As a consequence no sampling criteria considering ethnicity or country of qualification were applied to nurse participants.

Criteria concerning general practice population deprivation and QOF attainment (as a marker for quality of care) were considered, but not used, in purposive sampling.

Deprivation indices could be particularly pertinent when considering case finding, though are thought to contribute little to QOF attainment.(293, 294) Whilst high and low deprivation area practices were relevant to this study, those located in areas with higher levels of socioeconomic deprivation being found to have poorer uptake of preventative care, [5-7] it was not possible to maintain participant anonymity using the online platform if practice location or other demographic details were disclosed.

QOF incentivised case finding was associated with widespread high attainment; the English mean practice achievement was 86% in 2012-13, the final year of this indicator.(151) The practice characteristics associated with high QOF attainment (e.g. larger,(295, 296) group and training practices(295)) were not included in sampling criteria because QOF incentivised case finding was retired in 2013, and the time elapsed since retirement suggests this aspect of QOF is no longer likely to serve as a useful marker for quality of care.

Practice markers associated with overall quality of care include practice size,(297, 298) consultation length and team climate,(298)though it is acknowledged, "no single type of practice has a monopoly on high quality care."(298) When considering detection of depression, a suggested practice marker for likelihood of detection is fewer perceived limits to accessibility of mental health professionals.(299) For adherence to evidence based guidelines for depression no practice markers were identified, though professional characteristics including confidence in detecting depression and fewer perceived time limitations or barriers to guideline implementation were recognised.(300) Practice markers were therefore not included due to a lack of markers associated with overall quality of care, depression detection and adherence to guidelines identifiable at the sampling stage. The professional characteristics suggested were also not identifiable during sampling, though will be considered in the analysis.

CONDITION OF INSTRUCTION

This is the initial instruction text for participants:

A number of initiatives in primary care have encouraged case finding, for example, identifying patients at risk of unscheduled admission. It is also recommended by NICE that we undertake case finding for depression in patients with long-term physical conditions, particularly where there is functional impairment. You will be aware that case finding for depression in those with diagnoses of diabetes and/or heart disease was previously incentivised by QOF. This incentive was withdrawn in 2013.

NICE suggest those who may be depressed are identified by asking by asking two questions, though we are interested in any systematic process used for case finding for depression in patients with long-term physical conditions. The questions recommended by NICE are;

During the last month, have you often been bothered by feeling down, depressed or hopeless?

During the last month, have you often been bothered by having little interest or pleasure in doing things?

We acknowledge that case finding for depression in long-term physical conditions has proved contentious are therefore want to understand your viewpoint on the subject.

What do you think about the role and value of case finding for depression in long-term physical conditions in primary care? This includes ongoing case finding activity and that undertaken whilst incentivised by QOF.

In this Q sort we will present you with 39 statements, each of the statements offers a different viewpoint or position in relation to the public debate on this topic. Please sort the statements into three piles; agree, disagree and neutral, in order to best describe your position.

The research question and condition of instruction were decided before items for the Q sort were selected to ensure the Q set was well-defined and representative of the aims of the study. The question examines the perspective of the individual in their clinical setting and allows participants to impose their views on the Q set and self-categorise on the basis of the Q sort they produce. As expected in Q method no *a priori* hypothesis was generated. The understanding of individual positions and any associations with specific groups or factors were determined by factor analysis after Q sorts have been completed.

Q SET

A structured approach was taken to develop a representative and relevant Q set, to both illustrate the breadth of perspectives and provide examples of important or prominent beliefs on the implementation, role and value of case finding for depression in long-term physical conditions in primary care. To achieve this I iteratively condensed data from the concourse, the outputs and conclusions of the ITS and review data, to represent all the themes identified from these sources. Data from the review included direct quotes from peer-reviewed and grey literature, distinct statements generated from the superordinate themes developed during analysis and synthesis and descriptive summaries or syntheses of doctors.net.uk forum posts which it was agreed with James Quekett, Director of Educational Services and GP Advisor doctors.net.uk, would be anonymised and not reproduced verbatim. Data from the ITS comprised direct quotes and summaries of data. The Q set was derived from previous studies in the belief these data were the most appropriate to answer the research question and

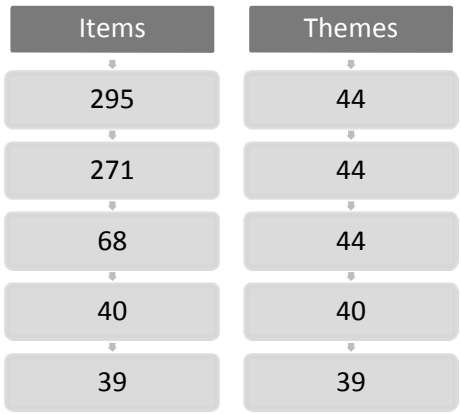
achieve the aim of linking outputs of the ITS, review and Q sort. It was also believed the topic is sufficiently unique, the practice having been incentivised then de-incentivised, not to require comparison or analogy, extension of themes or addition of items from other sources. This tailored approach is accepted in Q method.(301)

This process formed the basis of the Q set, resulting in 44 component themes. Q set items were then selected or generated according to these themes. This procedure is based on the balanced-block approach.(302, 303)

An initial, large set of 295 Q items (between one and 19 statements corresponding to each component theme from the concourse) was discussed with supervisors, AH and RF, who were familiar with the methods and findings of the ITS and review, as co-investigators and supervisors. Discussion about combining statements and removal of duplicate or redundant items formed a large part of the decision process. Whereas many questionnaires and interviews ask the same question more than once in slightly different ways to ensure the concept is adequately explored, Q method does not typically do this so care is required to ensure the choice of items is clear enough to capture the concept. Other issues covered included the balance of the positions expressed, refinement of themes and items, clarification of wording, ensuring items were succinct and consideration of alternative themes and items. During the course of discussion disagreements were resolved by reference to the Q study protocol and majority consensus.

Discussion resulted in the reduction of Q items from 295 to 39 and the 44 themes being condensed to 39. (Figure 8) Each component theme was represented by a Q item (APPENDIX 10). The resultant, structured 39 item Q set is close to the accepted standard of 40 to 80 items, (304) which aims to ensure the Q set provides comprehensive coverage without becoming too large or unmanageable for participants.

FIGURE 8, DEVELOPING THE Q SET



When the Q set was selected care was taken to use first person instruction to ensure items were ranked only from the individual perspective. To ensure concise and clear items were presented to participants each statement selected was between 7 and 23 words in length, also ensuring items were standardised and encouraging participants to respond to the content rather than variables such as item length. Items containing two or more propositions were avoided, e.g. "case finding is effective *due to X and Y"*, due to being difficult for participants to sort as they may agree with only one half of the statement. Similarly items with any associated conditions were not included, e.g. "I *frequently* omit case finding *because…"*, as it is not possible to accurately interpret participant disagreement which could be with the assertion omission is frequent, because the reason given is not recognised or due to both factors. Likewise, negatively expressed items were avoided, e.g. *"I do not think case finding is effective"*, this ensured participants who disagreed with the statement were not compelled to give a negative ranking to the item in order to introduce a double negative and negate the negatively expressed item. Expressing items positively provides the same outcome for the Q sort as a double negative, avoids ambiguity and facilitates accurate sorting of items by participants.

The structured approach carries the risk of creating an unrepresentative Q set if the component themes are repetitive, inadequate or ill-conceived. I sought to avoid this by basing the themes on outputs of a peer-reviewed, published ITS(274) and a comprehensive review of peer-reviewed and grey literature. An alternative, unstructured approach to developing a Q set involves treating the subject matter as a whole, aiming to produce a representative sample without defining component themes. It has been suggested an unstructured approach can provide a more flexible means of developing a Q set which avoids redundant or repetitive items being included.(276) Whist acknowledging this I believe a structured approach provided the foundation for a rigorous, balanced and representative Q set, and was advisable as this was my first Q sort.

MODE OF DELIVERY

An online Q sort using FlashQ software(305) was originally chosen and prepared, but alternative POET Q software was recommended by the University of Leeds Faculty of Medicine and Health Research Ethics Committee on the basis of superior data security. A switch was therefore made to POET Q software and the ethics application amended and resubmitted. This process added approximately two months to the study timeline.

This decision to conduct an online Q sort was made primarily for reasons of efficiency for both participants and researcher. An online platform ensured ease of access to the study and

transferred control of timing of participation in the study to clinicians. The online platform provided a more flexible and time efficient approach for me as a part-time researcher with clinical commitments in primary care, ensuring PHCPs were able to participate outside times I was available to visit their place of work.

POETQ was developed and paid for by researchers at the Health Service Management Centre (HSMC) University of Birmingham,(306) and was designed to study partnership relationships within health and social care. Dr Stephen Jeffares, manager of the software, did not charge for use of POET Q in doctoral research. This made an online Q sort using POET Q efficient in the context of limited PhD funding; removing the need for travel to deliver a face to face Q sort and negating the material cost of producing the Q set.

The majority of researchers experienced in Q method believe that face to face Q sorting is easier to do, better understood by participants, results in more unspoiled Q sets and provides richer data.(276) To address this POET Q, a well-regarded, established programme which includes clear instructions for participants and customisable pre and post-sort stages was chosen and the content carefully considered; maximising and enriching data collection. A wider benefit of the online Q sort was standardised presentation of items (e.g. size, colour and style) which may assist in ensuring participants respond only to the content of the items rather than being influenced by issues of presentation.

Step wise instructions and explanation of the Q sort were provided for participants via the POET Q package, mimicking the face to face Q sort process. In summary participants were asked to begin by sorting statements in to three, provisional groups; statements they most agreed with, least agreed with and were neutral about. Participants first entered statements they most agreed with in to the Q sort grid, followed by statements they least agreed with, before finally entering statements they were neutral about. After completing the sort participants were prompted to check the distribution of the Q sort to ensure they were satisfied with the arrangement of statements before saving the final result. The study question and condition of instruction were visible to participants throughout this process to ensure the focus remained clear. Screen shots of the process are included in APPENDIX 11.

It is stated it is the configuration of items resulting from a Q sort, rather than the choice of distribution, which is relevant to the factors emerging from a study.(276) Therefore, for convenience, the standard, symmetrical, normal distribution Q sort grid was selected. Although it is common practice to number the distribution from positive at one extreme to negative at the other, with zero at the midpoint, it has been noted that some participants assume zero indicates an average or neutral stance and encounter discomfort when sorting

items they agree with in to negative parts of the grid. Whilst this is not the case, the zero acting as a relative centre for their Q sort rather than indicating neutrality, the decision was made to remove numbering to avoid participant confusion or discomfort.

A 9 point distribution *(-4 to +4*, *1, 2, 5, 7, 9, 7, 5, 2, 1*) corresponding to the Q set of 39, was selected.(302) A shallower, normal distribution was chosen as all GP and nursing participants were assumed to be knowledgeable and experienced in case finding. The shallower distribution allowed for greater discrimination at the extremes of the grid and maximised gains from participants' in depth topic knowledge.(276, 302)

DATA SECURITY AND CONFIDENTIALITY

Reactive internet research, where participants interact with materials online, is distinct from other non-face to face methods (e.g. postal questionnaire). This is in part due to the level of complexity which can be achieved with online research methods, and also consideration of principles of research ethics such as confidentiality, valid consent, ability of participants to withdraw from the study and ensuring data security.(202)

To ensure participant confidentiality during online research, which poses a greater risk to confidentiality through the network hosting the study not being completely under the control of the researcher,(202) software hosted on a secure, password protected Virtual Private Server (VPS) was chosen, and a unique participant code used to identify the participant. No personally identifiable or sensitive information was sought. If it was found that any personally identifiable information had been entered by participants, despite instruction to the contrary, this was redacted and destroyed before data analysis.

To ensure valid consent was obtained a web page featuring a check box linked to explicit consent statements was included (APPENDIX 11). These statements had to be checked before the online Q sort was accessed. A briefer statement reminding the participant that by submitting their Q sort they were consenting to inclusion and analysis of data in the study was included on the final page, alongside the button to submit the Q sort (APPENDIX 11). Whilst pre and post-sort information were sought, the Q sort could be submitted if the participant chose to leave these items blank.

Participants were able to withdraw from the study by not completing the Q sort or emailing me after completion of the sort. It was made clear that any withdrawal of consent should be made before the planned start date of analysis (12 September 2017).

Data security of information entered online by participants was ensured using POET Q software hosted on a secure, password protected VPS allied to the University of Birmingham,

an establishment with a data security policy similar to that of the University of Leeds. Use of POET Q via this VPS was approved by Ben Grigor, Faculty of Medicine and Health IT Services Manager. Access to the secure POET Q VPS was password controlled. Password access was controlled by the manager of POET Q software, Dr Stephen Jeffares at the University of Birmingham, and was granted only to me and research supervisors.

Data security was maintained when exporting research data for analysis via statement and data files by accessing the secure VPS via University of Leeds servers. Statement and data files were saved to the secure drive of the University of Leeds. Once downloaded to the secure drive all other links or copies of the anonymous data (from the VPS) were deleted immediately. The POET Q study web page itself was deleted once data collection was complete.

Data stored on the secure drive of the University of Leeds will be retained for three years after the end of data collection.

PRE AND POST-SORT INFORMATION

PRE –SORT INFORMATION

Pre-sort information did not replace or inform the Q items, it was gathered to confirm targets for purposive sampling had been met, for use during analysis to allow comparison of levels of variables in the data and to compare emergent factors, or to validate conclusions after factor interpretation.

Identical pre-sort data were collected for GP and nurse Q sorts to facilitate second order analysis. Free text boxes were placed next to the pre-sort questions to allow participants freedom in their response, increasing the quality and personal detail of data provided, and to avoid inadvertently limiting their choice of response.(276)

TABLE 15, PRE-SORT QUESTIONS

Question
What is your age?
What is your gender?
In which year did you qualify as a doctor/nurse?
In what country did you qualify as a doctor/nurse?
In which year did you begin working as a GP/nurse in primary care?
What is your current job title? (Do not include the name or location of your practice)
Do you deliver case finding for depression to patients with long-term physical conditions?

Are you comfortable raising the issue of and talking about mood and emotions?
Did you complete a psychiatry or mental health post during your GP or nurse training?

POST-SORT INFORMATION

Post-sort interviews are customary following a face to face Q sort to gather more detailed information about what the participant understands of the topic and the meaning they ascribed to items during the sorting process. The responses are used in analysis and enrich the quality and understanding of data, make factor interpretation easier and consequently improve the quality of study findings.(276) Watts and Stenner suggest the majority of this information can be gleaned from an open ended questionnaire(276) and on this pragmatic basis it was decided to ask online participants a series of open questions, accompanied by free text boxes in which answers could be entered. Questions were framed to elicit statements about the meaning of items. The text and open ended questions were;

This is the final stage of the survey. You chose the following four as your most and least agreeable statements. Please can you take a couple of minutes to tell us why?

- *Why do you agree most with the statement: [relevant statement inserted]?*
- *Why do you agree least with the statement: [relevant statement inserted]?*
- *Do you have any other comments? Were there any statements you did not understand? Are any important ideas or beliefs about case finding for depression in patients with chronic physical conditions missing from this study?*

I considered brief, post-sort telephone interviews for a sub-section of participants who might construct unusual Q sort distributions but decided that it would be logistically challenging as a part-time researcher with clinical commitments in primary care to coordinate appointments with hard-to-reach primary care staff.

RECRUITMENT

Participants were recruited via snowball sampling,(307) a means to reach hard to recruit groups in an effective way. GP and primary care nurse contacts across West Yorkshire, known to me, academic and clinical colleagues were contacted in this way.

Potential participants were approached by me or a third party (academic or clinical colleague) who knew them. This could be face to face, by telephone or by email (email text APPENDIX 12). If they verbally agreed to receive participant information a standardised text was shared in

paper form or sent electronically, according to their preference (APPENDIX 13). Sharing standardised participant information ensured accurate and consistent information about the study was received by all potential participants.

Potential participants were also asked to share the participant information with their clinical contacts in primary care in the same way. This snowballing process of colleagues sharing participant information served to 'advertise' the research project, widening the pool of potential participants to individuals who were unknown to the research team. Individuals were asked to consider doing this whether they themselves participated or not. Additional paper copies of participant information were provided for this purpose, alternatively individuals were asked to forward the email containing electronic participant information to their contacts. This ensured email addresses were not shared with the research team without an individual's permission.

A request to circulate an electronic invitation, including participant information, was also submitted to salaried GP groups and Local Medical Committees operating in the area governed by the ten West Yorkshire Clinical Commissioning Groups.

Along with details of the project the participant information provided contact details for the research supervisors and I, inviting any questions about the project (text of invitation APPENDIX 14). The potential participant was invited to use these same details to initiate contact with the research team if they wished to participate in the study. Inviting potential participants to contact the research team if they wished to participate removed any obligation or risk of coercion associated with being asked to give an answer about participation to their colleague. No deadline for a decision on participation was set.

I initiated approaches to potential participants and other primary care staff during the course of day to day work and activities. No specific visits to or meetings with potential participants were suggested and the possibility of electronic sharing of participant information facilitates this.

Once a potential participant had agreed, in principle, to participate a personalised introductory email (APPENDIX 15) containing a unique participant code and link to the online portal containing the consent form and Q set were sent to an agreed email address. The participant code cipher was stored on the secure drive of the University of Leeds with access granted only to me and research supervisors RF and AH, a suggested deadline for completion (three calendar weeks) was stated and participants sent a second email one week before this date if they had failed to complete the study.

Incentives in the form of an optional £20 Amazon.co.uk or Marks and Spencer e.voucher for each participant were offered, with an opt-out check box included in the consent form. The e.voucher was sent to participants following receipt of a complete Q set. To enhance confidentiality, and limit sharing of personally identifiable information, the personalised participant code was used to identify the email address of the participant and forward the voucher to them electronically. Purchase of e.vouchers was funded by my University of Leeds Postgraduate Research Fund.

This decision to incorporate peer contact(308) which highlighted that others had responded,(309) was supported by reviews on the effectiveness of recruitment strategies by the Cochrane Methodology Review Group(309) and Pit et al.(308) Although these reviews considered postal and electronic surveys it was considered their conclusions, particularly concerning online administration, may have some relevance to recruiting participants to an online Q study. Other recruitment strategies included and influenced by these reviews were personalising the email link to the study(309) and providing a deadline for completion in email text.(309) The decision to offer monetary incentivisation in the form of an optional £20 e.voucher was also made on the basis of Pit et al who, unlike the Cochrane review, focused solely on response rates in primary care and concluded that monetary incentives had a modestly better effect than non-monetary incentives.(308) Consideration was given to non-monetary incentivisation through a certificate of involvement in research on University of Leeds headed paper which included a brief summary of the background and aims of this study. It was intended this certificate would be used as evidence of participation in quality improvement activity and count towards GP NHS appraisal and revalidation. Its applicability to nurse revalidation was uncertain which contributed to the decision to provide a monetary incentive ensuring all participants were treated equally.

As is the norm in Q method a minimum number of participants were not decided in advance by statistical calculation and the participant population was not large when considered alongside R methodology studies. Whilst R method seeks to maximise participants in order to ensure outcomes are representative and generalizable, Q method aims only to capture the range of perspectives which exist. The proportion of individuals holding these perspectives is not taken into consideration. As each participant becomes a variable in Q method analysis this also lends support to limiting the number of participants. In the UK it is typical for Q studies to have 40-60 participants, and certainly fewer participants than items in the Q set.(276)

PILOTING

The Q study materials; refined Q set displayed using the online platform and with standardised instructions, were piloted by supervisors, AH and RF. Both supervisors have experience in the area of case finding for depression in long-term physical conditions and experience of clinical practice in the NHS, meaning they were well placed to judge both the content of the Q set and the suitability of study materials for use by working PHCPs. I discussed completion of the pilot Q set with both supervisors, requesting comment on coverage, clarity and phrasing of Q items, including whether anything had been omitted.

One issue identified by West Yorkshire Research and Development Research Governance Team was 'cropping' of consent and pre-sort question text when the POET Q portal was accessed outside the University of Leeds computer network. Through sharing of textual descriptions and screen shots it was found a character limit, not identified during discussion with the creator of POET Q or apparent in the instructions on using the platform, was being applied. To address this consent statements and pre-sort questions were re-written and a non-substantial, category C amendment (an amendment that has no implications that require management or oversight by the participating NHS organisation) made via the Health Research Authority, which was communicated to the University of Leeds School Of Medicine Research Ethics Committee. A second non-substantial amendment was required to alter the date given on the initial consent form and patient information leaflets due to delays in gaining final approvals. These amendments were not communicated to study sites or participants as changes were made before recruitment began.

ANALYSIS

Data from POET Q were exported into PQMethod, a dedicated Q method analysis software.(310) PQMethod software was chosen due to being both freely available and well regarded by those experienced in Q study.(276) Analysis was guided by data but used abductive reasoning, seeking the simplest or most likely inference, based on the experience and findings of the ITS and systematic review.

As the Q sort was of multiple participant design between two groups, an identical sorting procedure followed by GPs and primary care nurses, it was planned the two groups would be analysed in isolation before being compared by second-order factor analysis.(311) The two factor arrays were to be used as data for a new, third Q sort, generating a set of super-factors revealing any significant associations or differences between the perspectives of GPs and primary care nurses. Unfortunately two group and second order factor analysis were

subsequently not possible due to limited responses; therefore GPs and nurses were analysed as one group of PHCPs.

PQMethod software was first used to conduct principal component analysis (PCA) followed by centroid factor analysis (CFA). The criteria that guided decisions about the final factor solution, and a summary of the stages of factor extraction, factor rotation, calculating factor estimates and creating factor arrays are described in the remainder of this section; *analysis.*

PRINCIPLES OF FACTOR EXTRACTION

Data derived from all Q sorts included in the study form the correlation matrix. Correlation measures the nature and extent of the relationship between any two Q sorts, the correlation matrix therefore reflects the nature and extent of the relationship between all Q sorts or perspectives in the study. High correlation indicates participants sorted the Q set in to similar configurations, low correlation indicating few similarities.

Factor analysis aims to explain the relationships and variance between all Q sorts by identifying areas of shared meaning. Study variance describes the full range of meaning and variability in data from the study. Study variance is considered to be of three types; common, specific and error variance.(311) Common variance describes the meaning or variability held in common with or by the group of Q sorts, specific variance is that specific to individual Q sorts, reflecting individuality, and error variance is introduced by the random error introduced by data gathering.(276) It is areas of common variance that form factors. Factors suggest the key perspectives held by participants. The extent to which each Q sort is typical of a factor is described as its factor saturation or factor loading, expressed as a correlation coefficient. The extent to which each Q sort can be understood by individual factors can then be calculated.

As each factor is extracted the amount of common variance in the remaining data reduces. The first factor is that with the most shared meaning, and common variance diminishes with each factor extracted. The nature and extent of further relationships between the Q sorts is described as the residual correlation matrix and subsequent factors are extracted from this residual matrix in a step wise manner until no more common variance, or factors, is identified.

During factor extraction PQMethod produces a table of factor loadings, communality, eigenvalues and variance estimates.

Factor loadings indicate the correlation between each Q set and factor, and communality describes what percentage of the variance in that Q set is accounted for by common variance. A high percentage of communality indicates the individual Q sort is representative of participants as a whole. A low percentage of communality indicates the Q sort has low

common variance and is not representative of the majority by virtue of having little association with the factors extracted; one exception to this is if the majority of the common variance of a Q sort is associated with an individual factor making the participant representative of that perspective.

Eigenvalues and percentage variance estimates relate to each factor rather than individual Q sorts, and indicate the statistical strength or explanatory power of each factor. High eigenvalues and variance estimates are desirable; suggesting the factor in question accounts for a large proportion of variability or relationships within the Q sorts. If the total of all factor percentage variants extracted equals or exceeds 35-40% this is considered a to be a sufficient number of factors, or a sound factor solution.(311)

DECIDING HOW MANY FACTORS TO INCLUDE

To decide how many factors should be extracted objective measures including the scree test(312) and Horn's parallel analysis(313) based on PCA, and Kaiser-Guttman criterion,(314, 315) the presence of two or more significantly loading Q sorts(302) and Humphrey's rule(302) based on CFA, were considered alongside Watts' and Stenner's pragmatic suggestion to extract one factor for every six to eight participants in the study.(276) The principles underlying the use of these objective measures are outlined.

The scree test(312) is performed on data following initial PCA extraction. It also calculates eigenvalues and plots them as a line graph. Scree test eigenvalues differ from those calculated from factors. The scree test indicates the number of factors to extract by the point at which the line changes slope.

Horn's parallel analysis(313)calculates the eigenvalues that would result from the entire data set if there was no common variance and no factors were present, or if all participants had sorted the Q in a random way. It does so by extracting eigenvalues from random data sets which contain parallel numbers of items and participants to study data.(316) Parallel analysis suggests factors extracted from the study with eigenvalues exceeding those generated from the random data should be extracted.

Using Kaiser-Guttman criterion(314, 315) eigenvalues of 1.00 are taken as a cut off for statistical strength of a single factor. Any factors with eigenvalues of less than 1.00 typically account for less study variance than a single Q sort and are discarded. This widely accepted method has been criticised for both leading to a large number of meaningless factors being

extracted from larger data sets,(311) and causing potentially significant factors with eigenvalues of less than one to be discarded.(302)

Factors with two or more significantly loading Q sorts are customarily accepted in analysis.(302) Factor loadings at the 0.01 level are calculated using the equation;

$$\textit{Significant factor loading} = 2.58 \times (1 / \sqrt{\textit{number of items in Q set}})$$

Humphrey's rule also uses factor loadings, stating that a factor is significant if "the cross-product of its two highest loadings (ignoring the sign) exceeds twice the standard error." Standard error is calculated as;(302)

$$\textit{Standard error} = 1 / (\sqrt{\textit{number of items in Q set}})$$

Use of the scree test, two or more significantly loading Q sorts and Humphrey's rule typically suggest fewer factors be extracted than Kaiser-Guttman criteria and parallel analysis. Considering these objective measures together, alongside the pragmatic advice of Watts and Stenner, therefore ensured no potentially significant factors were prematurely discarded before factor rotation. Throughout this process preference was shown to extracting factors rather than discarding them on the basis that Brown suggested more factors than expected may prove to be significant, and even if they are insignificant the limited variance they contain may improve factor loadings on the remaining major factors.(302)

FACTOR ROTATION

The principle of factor rotation is that unrotated Q sorts are initially plotted in a multidimensional, conceptual space in relation to factors which are represented by axes. Rotating the factors alone around the central axis point allows factors to come into closer alignment with the Q sorts plotted in the space and permits more faithful interpretation of the perspectives of participants who completed those Q sorts. The PQROT function in the PQMethod programme uses orthogonal rotation to achieve this, maintaining the existing relationships between factors and ensuring they remain statistically independent and zero correlated.(310)

Rotation using PQROT can be conducted by-hand, the researcher deciding the optimum position for rotation, or using varimax; the PQMethod programme rotating the factors according to statistical criteria to account for maximum common variance. This creates a solution that includes as many Q-sorts from the participants within the final solution as possible.

By-hand rotation is advocated by those who believe it is important the researcher is able to characterise specific Q sorts which despite being less common, may represent important perspectives. (302, 303)(e.g. PHCPs who did not participate in QOF incentivised case finding and whose perspective may therefore be pertinent). Varimax cannot achieve this as it rotates factors to characterise only the predominant perspectives, however it can be helpful in managing large data sets and guards against the researcher inadvertently rotating factors to represent their own perspective rather than that of participants. Both approaches to rotation were employed in this study, varimax being undertaken first.(276) The optimum rotation was selected on the basis of rotated factor loadings and study aims.(276, 302)

CALCULATING FACTOR ESTIMATES

Factor estimates provide a weighted score for each Q sort included in extracting that factor and the sort's component items (each item in the Q set). The higher the score the more typical the sort or item is, and the higher it is ranked in the factor being examined.

Factor estimates are prepared using a weighted averaging of all Q sorts that have significant factor loadings on that factor alone. Those Q sorts that load significantly on more than one factor are described as confounded and are generally not used in calculating factor estimates. Brown suggested factor estimates should be calculated using a minimum of two Q sorts to avoid interpreting factors associated with only one participant perspective and by employing objective measures when deciding the number of factors this was assured.(302)

As the number of Q sorts included in calculating factor estimates differs for each of the included factors, cross-factor comparisons cannot be made. To enable cross-factor comparison PQMethod is next used to calculate Z scores (normalised factor scores).(302) Z scores are standardised scores, "a mathematical expression of the difference between a particular absolute score and the mean average score of the measured sample."(276)

PREPARING FACTOR ARRAYS

The final step before interpretation of this analysis was to convert the Z scores for each item into a single factor array, an illustrative Q sort for that factor or perspective using the same 9 (-4 to +4) point distribution as in data collection. Correlations between each of the factor arrays were calculated using PQMethod. Any factors with significant correlations are considered to be too similar to interpret individually, and more likely represent different expressions of the same perspective. In the presence of significant correlations between factor arrays the factor solution is reconsidered and the number of factors reduced.

INTERPRETATION

The distinguishing items for each factor and consensus statements (those that do not distinguish between any pair of factors) generated by PQ Method were first considered, before beginning factor interpretation using the 'crib sheet' method described in Watts and Stenner.(276) This is an abductive and systematic approach to factor interpretation which ensures the interrelationship of each item in the factor array is considered, and considers the viewpoint of each factor relative to other factors.

The first crib sheet involves four categories; the highest ranking item in the factor, items ranked higher in this factor array than other factor arrays, items ranked lower in this factor array than other factor arrays and the lowest ranking item. A crib sheet is put together for each factor and the implication and placing of each factor considered to begin to form the account or viewpoint. The pre and post-sort information applicable to each factor is then considered alongside these crib sheets to clarify the account being created, and qualitative comments made by significantly loading participants included to improve understanding and enhance the interpretation.(317) Finally the factor array for each item is reconsidered alongside the account to identify any pertinent items which were omitted from the original crib sheet. The post-sort comments of significantly associated participants were also used to guide the addition of items. The items are added to the crib sheet and the final interpretation of the factor is formed and named. This interpretation aims to capture the feeling or experiencing associated with that viewpoint.(276)

RESEARCH GOVERNANCE AND ETHICS

Ethical approval for the Q study to be administered to NHS PHCPs was obtained from the University of Leeds (MREC15-136) and HRA (17/HRA/0485), with multiple site approval from the West Yorkshire Research and Development Team which oversees the ten West Yorkshire Clinical Commissioning Groups. The University of Leeds acted as study sponsor.

RESULTS

Recruitment ran for three months, from 12 June to 12 September 2016, and was closed to allow time for thesis completion. From 28 expressions of interest a total of 21 participants were recruited; 4 practice nurses, 3 ANPs, 6 GP partners and 8 salaried GPs. Six of the participants completed the sort after receiving a reminder email. Sample characteristics of participants as defined by the idealised sampling frames are summarised in tables 16-18, with the idealised number of participants given in brackets.

The seven potential participants who did not complete the Q sort received a reminder email to prompt them to participate, two of these individuals replied to say they would not be

completing the Q sort as the software was recurrently 'freezing'. Apologies were expressed and the issue communicated to Dr Jeffares, POET Q software developer.

FINAL SAMPLE CHARACTERISTICS

TABLE 16, RECRUITED NURSE PARTICIPANTS

Practice Nurses		**Advanced Nurse Practitioners or Nurse Partners**	
Age (years)		Age (years)	
≤45	>45	≤45	>45
1 (18)	3 (18)	1 (2)	2 (2)

TABLE 17, RECRUITED GP PARTNERS

GP Partners							
Qualified in UK				Qualified outside UK			
Age (years)				Age (years)			
≤45		>45		≤45		>45	
M	F	M	F	M	F	M	F
1 (6)	2 (6)	2 (6)	1 (6)	0 (1)	0 (1)	0 (1)	0 (1)

TABLE 18, RECRUITED SALARIED GPS

Salaried GPs							
Qualified in UK				Qualified outside UK			
Age (years)				Age (years)			
≤45		>45		≤45		>45	
M	F	M	F	M	F	M	F
2 (3)	5 (3)	1 (3)	0 (3)	0 (1)	0 (1)	0 (1)	0 (1)

Recruitment to all groups was below target. A total of 40-60 participants are typically included in a Q sort,(276) and this study therefore sought a total of 40 nurse participants and 44 GPs. These target numbers were greater than the number of items in the Q set which is atypical. The reason for this, and the minor difference in total number of participants sought in the nurse and GP groups, was to accommodate the number of participants with specific characteristics identified in the sampling frames (e.g. percentages of practice nurses, ANPs, GP partners and salaried GPs, UK and overseas medical graduates). The two large groups were

needed to facilitate analysis of each group in isolation, before comparison of the two using second-order factor analysis.

When the number of participants recruited to each group is compared to the idealised sample frame the sample is clearly not representative of English primary care. However, Q method primarily aims to capture the range of perspectives held, rather than describe a representative sample.

The groups not included in the final study population are GPs who qualified outside the UK and female salaried GPs aged over 45 years. This will be considered in analysis and discussion.

The process I worked through in analysing Q sort data is presented in APPENDIX 16. Presented here are results relating to the final factor solution I decided on.

THE FACTOR SOLUTION

A three factor by-hand rotated solution was accepted. During analysis two and three factor varimax and by-hand rotated solutions appeared reasonable (APPENDIX 16), and objective decision making criteria supported a two to four factor solution (table 19). The by-hand rotated solution (tables 22-24) was chosen in preference to the varimax (tables 20-21) due to the increased number of sorts this solution explained (*19 (by-hand) to 14 (varimax) of 21*). The three factor solution explained more variance (*48% three factor solution to 41% two factor solution*) (table 25) and the three factor, by-hand rotated solution ensured that Q sort 16, the sort associated with no significant factor loadings in a two factor solution, but the common variance of which tied to predominantly factor three in the communality matrix, was not discarded (table 26). Choosing the three factor solution also follows Brown's suggestion that more factors than expected may prove to be significant. (302)

TABLE 19, OBJECTIVE DECISION MAKING CRITERIA RESULTS

Measure	Suggested number of factors to extract
Scree test	**3**
Parallel analysis	**2**
Watts and Stenner estimate	**3-4**
Horst's calculation	**2**
Kaiser-Guttman criterion	**3**
Two or more significantly loading Q sorts	**3**
Humphrey's rule	**2**

TABLE 20, VARIMAX ROTATED FACTOR MATRIX (THREE FACTORS)

Sort	Factor		
	1	2	3
1	0.27	0.21	0.51*
2	0.15	0.53*	0.12
3	0.44*	0.7*	0.0
4	0.67*	-0.19	0.38
5	0.57*	0.11	0.15
6	0.23	0.52*	0.16
7	0.2	0.84*	0.10
8	0.57*	0.46*	-0.14
9	0.48*	0.15	0.45*
10	0.66*	0.15	0.21
11	0.54*	0.29	0.42*
12	0.34	0.72*	0.19
13	0.63*	0.16	0.34
14	0.55*	-0.5*	0.39
15	0.14	0.27	0.52*
16	0.12	-0.11	0.50*
17	0.19	0.42*	0.66*
18	0.65*	0.25	-0.2
19	0.62*	0.31	0.27
20	-0.13	0.48*	0.64*
21	0.49*	0.32	0.11

TABLE 21, SIGNIFICANTLY LOADING Q SORTS (THREE FACTORS VARIMAX ROTATION)

Factor	Q sort number
1	**3** 4 5 **8** **9** 10 **11** 13 **14** 18 19 21
2	2 **3** 6 7 **8** 12 **-14** **17** **20**
3	1 **9** **11** 15 16 **17** **20**

Q sorts with significant single factor loading ≥41 = ***1 2 4 5 6 7 10 12 13 15 16 18 19 21***

Confounded Q sorts = ***3 8 9 11 14 17 20***

Q sorts with no significant factor loadings ≥41 =nil

3 factors account for 14 of the 21 Q sorts

TABLE 22, ROTATING ANGLES (THREE FACTOR SOLUTION)

Factor #1	Factor #2	Angle
1	2	3° (clockwise)
1	3	6° (clockwise)
2	3	13° (clockwise)

TABLE 23, BY-HAND ROTATION OF THREE FACTOR SOLUTION

Sort	Factor		
	1	2	3
1	0.3361	0.2990	0.4197*
2	0.1874	0.5331*	-0.0186
3	0.4395*	0.0382	-0.0548
4	0.6944*	-0.1457	0.3537
5	0.5887*	0.0980	0.0653
6	0.2678	0.5261*	0.0176
7	0.1014	0.8340*	-0.1014
8	0.5806*	0.3732	-0.2895
9	0.5337*	0.2077	0.3639
10	0.6851*	0.1450	0.1093
11	0.5940*	0.3320	0.2890
12	0.3962	0.7129*	-0.0144
13	0.6729*	0.1850	0.2352
14	0.5872*	-0.0066	0.3419
15	0.2048	0.3681	0.4289*
16	0.1607	-0.0052	0.4991*
17	0.2784	0.5370*	0.5220*
18	0.6529*	0.1881	-0.1333
19	0.6600*	0.3171	0.1315
20	-0.0391	0.6223*	0.5230*
21	0.5183*	0.2956	-0.0154

TABLE 24, SIGNIFICANTLY LOADING Q SORTS (THREE FACTORS BY-HAND ROTATION)

Factor	Q sort number											
1	3	4	5	8	9	10	11	13	14	18	19	21
2	2	6	7	12	**17**	**20**						
3	1	15	16	**17**	**20**							

*Q sorts with significant single factor loading ≥41= **1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 21***

*Confounded Q sorts = **17 20***

Q sorts with no significant factor loadings ≥41 =nil

3 factors account for 19 of the 21 Q sorts

TABLE 25, EXPLANATORY VARIANCE (THREE FACTOR SOLUTION)

	Varimax factor			By-hand rotation factor		
	1	2	3	1	2	3
Explained Variance	21%	14%	13%	23%	16%	9%
Explained Q sorts	14 of 21			19 of 21		

TABLE 26, CUMULATIVE COMMUNALITIES MATRIX (THREE FACTOR SOLUTION)

Sort	Factor		
	1	2	3
1	0.3078	0.3258	0.3785
2	0.1865	0.2524	0.3197
3	0.1195	0.1901	0.1977
4	0.3243	0.5074	0.6285
5	0.2827	0.3603	0.3605
6	0.2518	0.2970	0.3488
7	0.2330	0.4996	0.7113
8	0.3208	0.3565	0.5602
9	0.4111	0.4163	0.4604
10	0.4172	0.5023	0.5023
11	0.5373	0.5393	0.5466
12	0.4817	0.5468	0.6655
13	0.4861	0.5327	0.5423

14	0.3121	0.3824	0.4617
15	0.2434	0.3157	0.3614
16	0.0764	0.0791	0.2750
17	0.4514	0.5901	0.6384
18	0.3243	0.4249	0.4794
19	0.5291	0.5506	0.5534
20	0.2228	0.6229	0.6623
21	0.3138	0.3280	0.3563
Cumulative % explained variance	33%	41%	48%

CREATING FACTOR ESTIMATES

Those Q sorts which loaded significantly on one factor and were not confounded were considered for inclusion in calculating factor estimates. In some Q studies the value of significance has been arbitrarily raised by researchers to ensure only those Q sorts more closely approximating the factor are accepted when calculating factor estimates.(282) Whilst this is an acceptable approach I chose to include all Q sorts with significant factor loadings in order to reduce error and increase reliability of the weighted average which provides the factor estimate.

Q sorts with significant single factor loading (*≥0.41*) in the by-hand rotation, three factor solution were flagged as detailed in tables 23-24. (*Factor one 3 4 5 8 9 10 11 13 14 18 19 21, factor two 2 6 7 12, factor three 1 15 16*). Each of the factor estimates generated met Brown's recommendation that the estimate should be the composite of at least two Q sorts.(302) The minimum in this study was three Q sorts.

Factor estimates are calculated using the weighted average of Q sorts, meaning sorts with higher factor loading contribute comparatively more to the factor.(276) To permit cross-factor comparisons, despite differing numbers of Q sets making up each factor, the weighted scores are converted to standardised, or Z, scores. As the Z score is a standardised total weighted score, the higher the score, the higher the value accorded to that item in the factor being considered.(276) Z scores for factors one through three are listed from most positive to most negative in tables 27-29.

TABLE 27, NORMALISED FACTOR SCORES AND Z SCORES FOR FACTOR ONE

Q sort Item Number	Statement	Z score	Factor one array
31	Attempts to implement case-finding widely usually result in 'tick box' tokenism	1.715	4
24	Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address	1.549	3
36	Many people have mixed feelings about case finding	1.512	3
9	Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'	1.437	2
35	There is a trade-off between case finding and other aspects of patient care	1.210	2
22	Case finding detects depression which might otherwise go undiagnosed	1.181	2
34	Case finding misses what is important in many cases	1.1158	2
4	Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing	1.134	2
26	Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so	0.906	1
10	Case finding questions don't need to be asked in a standardised way	0.722	1
28	Case finding questions can be asked in a way that discourages a positive response	0.670	1
14	Detecting depression by case finding can lead to improvements in patients' physical health problems	0.440	1
21	Case finding tools are simple to use	0.437	1
38	Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing	0.360	1
6	Case finding can result in patient's emotional issues de-railing the consultation	0.197	1

2	Case finding for depression is not as useful in day to day practice as research suggests it should be	0.194	0
29	Practices should monitor the impact of case finding	0.185	0
37	Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses	0.171	0
12	Case finding does not actually help improve patient outcomes	0.128	0
1	Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test	0.078	0
7	Case finding results in too many false positives	-0.057	0
11	Case finding questions are best asked by someone who knows the patient well	-0.114	0
3	Case finding questions intrude upon consultations with patients	-0.213	0
8	Case finding questions are not culturally sensitive	-0.268	0
33	Nurses feel that GPs impose case finding upon them	-0.320	-1
27	Asking case finding questions is emotionally challenging for the GP or nurse	-0.368	-1
19	Case finding questions work best if asked of selected patients rather than everyone	-0.516	-1
5	Resources would be better used to train practice staff in managing patients with existing depression	-0.517	-1
39	Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression	-0.581	-1
32	Case finding for depression has been unfairly imposed on primary care	-0.590	-1
25	Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression	-0.762	-1
15	Case finding for depression adds to the healthcare burden experienced by patients with long-term physical conditions	-0.783	-2
30	Case finding picks up low mood caused by life events and is not helpful in detecting new cases of	-0.793	-2

	depression		
17	The Quality and Outcomes Framework changed attitudes to case finding for depression for the better	-1.035	-2
13	Depression diagnosed following case finding is less severe than that identified during an unscripted consultation	-1.066	-2
20	Case finding is usually best delegated to nurse-led chronic disease reviews	-1.372	-2
16	Case finding undermines long-term relationships with patients	-1.613	-3
18	How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result	-1.708	-3
23	There are sufficient resources within primary care to manage case finding	-2.709	-4

TABLE 28, NORMALISED FACTOR SCORES AND Z SCORES FOR FACTOR TWO

Q sort Item Number	Statement	Z score	Factor two array
14	Detecting depression by case finding can lead to improvements in patients' physical health problems	2.507	4
22	Case finding detects depression which might otherwise go undiagnosed	1.925	3
9	Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'	1.667	3
27	Asking case finding questions is emotionally challenging for the GP or nurse	1.346	2
24	Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address	1.081	2
11	Case finding questions are best asked by someone who knows the patient well	1.000	2
25	Case finding eases the consultation by making it less awkward to ask the patient about symptoms	0.996	2

	of depression		
10	Case finding questions don't need to be asked in a standardised way	0.843	2
29	Practices should monitor the impact of case finding	0.824	1
28	Case finding questions can be asked in a way that discourages a positive response	0.761	1
17	The Quality and Outcomes Framework changed attitudes to case finding for depression for the better	0.585	1
8	Case finding questions are not culturally sensitive	0.583	1
4	Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing	0.582	1
19	Case finding questions work best if asked of selected patients rather than everyone	0.520	1
36	Many people have mixed feelings about case finding	0.411	1
31	Attempts to implement case-finding widely usually result in 'tick box' tokenism	0.344	0
35	There is a trade-off between case finding and other aspects of patient care		0
21	Case finding tools are simple to use	-0.009	0
5	Resources would be better used to train practice staff in managing patients with existing depression	-0.067	0
33	Nurses feel that GPs impose case finding upon them	-0.110	0
23	There are sufficient resources within primary care to manage case finding	-0.260	0
6	Case finding can result in patient's emotional issues de-railing the consultation	-0.265	0
1	Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test	-0.346	0
26	Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so	-0.406	0

37	Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses	-0.408	-1
18	How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result	-0.496	-1
38	Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing	-0.649	-1
30	Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression	-0.671	-1
7	Case finding results in too many false positives	-0.754	-1
13	Depression diagnosed following case finding is less severe than that identified during an unscripted consultation	-0.780	-1
2	Case finding for depression is not as useful in day to day practice as research suggests it should be	-0.826	-1
20	Case finding is usually best delegated to nurse-led chronic disease reviews	-1.035	-2
32	Case finding for depression has been unfairly imposed on primary care	-1.084	-2
3	Case finding questions intrude upon consultations with patients	-1.165	-2
39	Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression	-1.190	-2
12	Case finding does not actually help improve patient outcomes	-1.235	-2
15	Case finding for depression adds to the healthcare burden experienced by patients with long-term physical condition	-1.256	-3
34	Case finding misses what is important in many cases	-1.385	-3
16	Case finding undermines long-term relationships with patients	-1.750	-4

TABLE 29, NORMALISED FACTOR SCORES AND Z SCORES FOR FACTOR THREE

Q sort Item Number	Statement	Z score	Factor three array
31	Attempts to implement case-finding widely usually result in 'tick box' tokenism	2.075	4
9	Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'	1.697	3
39	Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression	1.537	3
7	Case finding results in too many false positives	1.362	2
28	Case finding questions can be asked in a way that discourages a positive response	1.244	2
10	Case finding questions don't need to be asked in a standardised way	1.202	2
38	Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing	0.838	2
22	Case finding detects depression which might otherwise go undiagnosed	0.768	2
29	Practices should monitor the impact of case finding	0.691	1
23	There are sufficient resources within primary care to manage case finding	0.650	1
14	Detecting depression by case finding can lead to improvements in patients' physical health problems	0.628	1
8	Case finding questions are not culturally sensitive	0.608	1
36	Many people have mixed feelings about case finding	0.475	1
30	Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression	0.371	1
37	Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses	0.371	1
11	Case finding questions are best asked by someone who knows the patient well	0.300	0

12	Case finding does not actually help improve patient outcomes	0.293	0
26	Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so	0.167	0
19	Case finding questions work best if asked of selected patients rather than everyone	0.063	0
33	Nurses feel that GPs impose case finding upon them	-0.077	0
35	There is a trade-off between case finding and other aspects of patient care	-0.126	0
24	Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address	-0.160	0
4	Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing	-0.196	0
1	Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test	-0.230	-1
21	Case finding tools are simple to use	-0.230	-1
5	Resources would be better used to train practice staff in managing patients with existing depression	-0.238	-1
17	The Quality and Outcomes Framework changed attitudes to case finding for depression for the better	-0.308	-1
32	Case finding for depression has been unfairly imposed on primary care	-0.475	-1
6	Case finding can result in patient's emotional issues de-railing the consultation	-0.490	-1
2	Case finding for depression is not as useful in day to day practice as research suggests it should be	-0.594	-1
34	Case finding misses what is important in many cases	-0.608	-1
20	Case finding is usually best delegated to nurse-led chronic disease reviews	-0.936	-2
13	Depression diagnosed following case finding is less severe than that identified during an unscripted consultation	-1.006	-2

3	Case finding questions intrude upon consultations with patients	-1.174	-2
15	Case finding for depression adds to the healthcare burden experienced by patients with long-term physical conditions	-1.299	-2
25	Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression	-1.425	-2
18	How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result	-1.467	-3
27	Asking case finding questions is emotionally challenging for the GP or nurse	-2.068	-3
16	Case finding undermines long-term relationships with patients	-2.235	-4

PREPARING FACTOR ARRAYS

The array scores were used to create a single factor array for each factor; using Q sorts with a viewpoint approximating and representing that factor's viewpoint.(276) Figures 9-11.

FIGURE 9, IDEAL FACTOR ARRAY ONE

-4	-3	-2	-1	0	1	2	3	4
23	16	15	33	2	26	9	24	31
	18	30	27	29	10	35	36	
		17	19	37	28	22		
		13	5	12	14	34		
		20	39	1	21	4		
			32	7	38			
			25	11	6			
				3				
				8				

FIGURE 10, IDEAL FACTOR ARRAY TWO

-4	-3	-2	-1	0	1	2	3	4
16	15	20	37	31	29	27	22	14
	34	32	18	35	28	24	9	
		3	38	21	17	11		
		39	30	5	8	25		
		12	7	33	4	10		
			13	23	19			
			2	6	36			
				1				
				26				

FIGURE 11, IDEAL FACTOR ARRAY THREE

-4	-3	-2	-1	0	1	2	3	4
16	18	20	1	11	29	7	9	31
	27	13	21	12	23	28	39	
		3	5	26	14	10		
		15	17	19	8	38		
		25	32	33	36	22		
			6	35	30			
			2	24	37			
			34	4				

Although the factors themselves are orthogonal and zero correlated, the factor arrays only approximate the factors and therefore intercorrelate. This approximation is clearly demonstrated in figure 11 (factor three) where the original Q sort distribution is changed from *1, 2, 5, 7, 9, 7, 5, 2, 1* to 1*, 2, 5, 8, 8, 7, 5, 2, 1* because the Z score of the 24th and 25th ranking items (1 and 21) are equal, placing them both in the -1 column. The correlations between factor scores for this study are given in table 30.

TABLE 30, CORRELATIONS BETWEEN FACTOR SCORES

Factor	1	2	3
1	1.0000	0.4093	0.4657
2	0.4093	1.0000	0.3261
3	0.4657	0.3261	1.0000

Factors one and three are significantly correlated (≥0.41). Factors one and two are highly correlated and are on the borderline of reaching statistical significance. Factors two and three are not intercorrelated.

This interpretation suggests that factors one and three are potentially too alike to interpret as separate factors, and could be different expressions of the same viewpoint. The factor solution could therefore be reconsidered and reduced to two factors. I decided against this because although the items making up the factor arrays for factors one and three both represent negative viewpoints about case finding for depression in long-term physical conditions, the focus of these viewpoints is qualitatively different suggesting both factors warrant interpretation. Objective statistical measures also offer support to a three factor solution.

INTERPRETATION

Each interpretation is presented in the following order: the demographic details of significantly associated participants; distinguishing statements; and factor viewpoint. Consensus statements, and the implications of these items, are then considered. The Q sort item number and position are given in the factor interpretation.

Crib sheets for factors one through three, including items added during interpretation, are available in APPENDIX 17. Post-sort quotes for each factor are contained in APPENDIX 18.

FACTOR ONE: OBJECTIONS TO THE PRINCIPLE OF CASE FINDING FOR DEPRESSION

DEMOGRAPHICS

Factor one has an eigenvalue of 6.8328 and explains 23% of the study variance. 12 participants are significantly associated with this factor; ten GPs (seven female all aged under 45 years (five described themselves as salaried GPs, one as a portfolio GP and two as GP partners) and three male; two under 45 (both salaried GPs), and one over 45 (self-described as a GP)), one female practice nurse aged over 45 and one female ANP aged over 45.

Of the ten GPs, half stated they delivered case finding to patients with long term physical conditions. Neither the practice nurse nor ANP delivered case finding. All participants associated with factor one described themselves as comfortable raising the issue of and talking about mood and emotions. One out of ten had completed a psychiatry or mental health post during GP training. The practice nurse had completed such a post, the ANP had not. The number of years since qualifying as a doctor ranged from six to 19 years (mean 13, median 12.5). The number of years working as a GP ranged from one to 16 years (mean 8, median 7). The practice nurse had been qualified for 16 years and working in primary care for eight years. The ANP had been qualified for 27 years and working in primary care for 13 years.

DISTINGUISHING STATEMENTS

TABLE 31, FACTOR ONE DISTINGUISHING STATEMENTS (SIGNIFICANCE AT P <0.01)

Q sort Item Number	Negative Ranking?	Statement
36		Many people have mixed feelings about case finding
35		There is a trade-off between case finding and other aspects of patient care
34		Case finding misses what is important in many cases
3	Yes	Case finding questions intrude upon consultations with patients
8	Yes	Case finding questions are not culturally sensitive
27	Yes	Asking case finding questions is emotionally challenging for the GP or nurse

23	Yes	There are sufficient resources within primary care to manage case finding

FACTOR VIEWPOINT

Although it is recognised many people have mixed feelings about case finding (36, +3), mainly negative aspects of the initiative are highlighted by PHCPs; the intrusion of case finding questions on the consultation (3, 0), resultant emotional issues de-railing the consultation (6, +1) and the process being less useful in practice than research suggests it should be (2, 0). Adverse consequences for the patient are also a focus, with case finding described as missing what is important (34, +2) and driving inappropriate prescribing when conducted in the absence of an agreed pathway for management (4, +2).

Item 36: Many people have mixed feelings about case finding

"I think it would strike most clinicians as another worthy idea that has been added to primary care workload. Any one of these ideas might seem sensible in isolation, but when taken in aggregate there is a clear opportunity cost since all the other requirements which have been imposed are significant and there is a limit to what can be achieved in a 10 minute consultation. In addition, in a context in which mental health services are not readily available and GP consultations are very limited it seems somewhat naive and to identify more cases of depression, when we lack the means to treat it effectively." Participant four, GP

Item four: Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing

"It is my suspicion that with improved access to psychological therapies and social support, many cases of antidepressant prescribing could be avoided." Participant 13, GP

When considered alongside other factors comparatively less consideration is given to asking case finding questions in a standardised way (10, +1), it being considered professional skill transcends the scripted PHQ.

Item ten: Case finding questions don't need to be asked in a standardised way

"Relationships and consultation skills mean you can deliver the questions in a personalised manner if needed." Participant 14, GP

Similarly, applying case finding according to the definition by asking only selected patients the questions (19, -1), monitoring the impact of case finding at practice level (29, 0) and knowing how to deal with responses that are more than just 'yes' or 'no' (9, +2), are accorded lower priority. This may suggest outputs of case finding are not considered important.

The influence of QOF on attitudes to case finding for depression is not viewed positively (17, -2) though the initiative is not judged to have disadvantaged other patient groups (39, -1) and there are few concerns about the ease of use (6, +1), the emotional challenge (27, -1) or cultural sensitivity of case finding questions (8, 0). It is not believed that case finding is usually best delegated to nurse-led chronic disease reviews (20, -2), or that GPs impose case finding on nurses (33, -1). In fact most GPs believe they have greater skill and experience in managing mental health problems and should therefore take responsibility for case finding.

Item 39: Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression

"From my practice, depression is treated similarly regardless whether it is identified through case finding or other means." Participant three, GP

Item 20: Case finding is usually best delegated to nurse-led chronic disease reviews

"Because nurses tend not to have any mental health training and are the least experienced clinicians in a practice in regards to mental health. Depression is complicated and should be dealt with by people who can manage it and are experienced at managing it." Participant nine, GP

The greatest concern about case finding for depression in long-term physical conditions is that attempts to implement the initiative usually result in tokenism (31, +4). This is primarily attributed to a global lack of resources within primary care (23, -4), with trade-offs (35, 0), where symptoms of depression are disregarded or downplayed in order to address more

pressing issues (24, +3), being acknowledged. This lack of resources both precludes case finding and limits the effectiveness of responses to positive case finding results; some suggest this makes the process futile.

Item 31: Attempts to implement case-finding widely usually result in 'tick box' tokenism

"(I) see it as a similar to when a PHQ-9 was required for every IAPT referral - it became a meaningless exercise which didn't change how I managed my depressed patients." Participant 19, GP

Item 23: There are sufficient resources within primary care to manage case finding

"General practice is overwhelmed with the demand it already has. Adding to that demand is not something GPs want to do. We know from data that actual vs theoretical prevalence is very different, particularly in deprived populations. To address this additional need/demand would take extra work by extra staff in the short to medium term. There is no extra resource for this at present." Participant eight, GP

Item 23: There are sufficient resources within primary care to manage case finding

"There is inadequate consultation time and then a lack of resources to help patients mange the problem that is uncovered - there needs to be time to help the patient in primary care by flexibility with appointment times and appropriate services e.g. cognitive behavioural therapy, supervised exercise programmes, help with diet and managing chronic disease for the patients to benefit." Participant 11, GP

Item 23: There are sufficient resources within primary care to manage case finding

"There is no point in case finding if we do not then have the resources to deal with it appropriately and safely." Participant 18, GP

Item 24: Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address

"The 10 minute appointment slots for GP consultations are mainly the issue here. GP's are forced to deal with the most pressing issue (generally medical) in a very short space of time. Discussing emotional issues can take up a lot of time." Participant ten, practice nurse

Despite a large number of concerns about the principle and foundation of case finding for depression in primary care, many professionals recognise the influence of colleagues on their use of case finding tools (26, +1).

Item 26: Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so

"It's such a powerful driver - what your colleagues do." Participant five, GP

FACTOR TWO: CASE FINDING FOR DEPRESSION IS WORTHWHILE

DEMOGRAPHICS

Factor two has an eigenvalue of 1.7874 and explains 16% of the study variance. Four participants are significantly associated with this factor; two male GPs; one aged under 45 years and one over 45, one female practice nurse aged under 45 and one female senior practice nurse aged over 45.

Both GPs stated they delivered case finding to patients with long term physical conditions. The senior practice nurse delivered case finding, the practice nurse did not. All participants associated with factor two described themselves as comfortable raising the issue of and talking about mood and emotions. One of the two GPs completed a psychiatry or mental health post during GP training. Neither the practice nurse nor senior practice nurse had completed such a post. The number of years since qualifying as a doctor were ten and 35 (mean and median 18 years). The number of years working as a GP were six and 21 (mean and median 13.5 years). The practice nurse had been qualified for 13 years and working in primary care for two years. The senior practice nurse had been qualified for 32 years and working in primary care for eight years.

DISTINGUISHING STATEMENTS

TABLE 32, FACTOR TWO DISTINGUISHING STATEMENTS (SIGNIFICANCE AT P <0.01)

Q sort Item Number	Negative Ranking?	Statement
14		Detecting depression by case finding can lead to improvements in patients' physical health problems
22		Case finding detects depression which might otherwise go undiagnosed
27		Asking case finding questions is emotionally challenging for the GP or nurse
25		Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression
31		Attempts to implement case-finding widely usually result in 'tick box' tokenism
18	Yes	How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result
38	Yes	Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing
12	Yes	Case finding does not actually help improve patient outcomes

FACTOR VIEWPOINT

Detecting depression by case finding can lead to improvements in patients' physical health problems (14, +4) without undermining long term relationships between PHCPs and patients (16, -4). In fact, it is believed case finding eases the consultation and makes it less awkward to ask about symptoms of depression (25, +2). The importance of the therapeutic relationship is further emphasised by the belief that case finding questions are best asked by someone who knows the patient well (11, +2) and don't need to be asked in a standardised way (10, +2), suggesting familiarity with the patient is perceived as more important that scripted questions.

The mode of delivery (on the telephone, face to face or in writing) is also believed to influence outcome (18, -1).

***Item 14*: Detecting depression by case finding can lead to improvements in patients' physical health problems**

"I believe in treating the whole person; holistic care…a patient with COPD whom may be depressed may be encouraged to attend and mix with others living with the same condition (e.g. pulmonary rehab). I have personally found that supporting a person's mental health can improve their perception of physical health and needs. Attention to mental health and well being can vastly improve a persons quality of life." Participant seven, practice nurse

Item 14: Detecting depression by case finding can lead to improvements in patients' physical health problems

"Psychological well-being is often linked to feelings of physical well-being, therefore case finding - and management - can lead to increase in physical health." Participant 12, GP

Many positive features of case finding are highlighted with beliefs that the process does not miss what is important (34, -3) and detects depression which might otherwise go undiagnosed (22, +3), without resulting in too many false positive results (7, -1) or increasing rates of new depression diagnoses (37, -1) and antidepressant prescribing (38, -1). Case finding is thought to help patient outcomes (12, -2) without adding to the healthcare burden experienced by patients with long-term physical conditions (15, -3). Indifference is expressed to the suggestion that attempts to implement case finding widely result in tokenism (31, 0).

Although the process and consequences of case finding are viewed favourably the case finding questions are not considered to be culturally sensitive (8, +1) and there is ambivalence regarding the ease of use (21, 0), with some highlighting the difficulties posed by the lack of integration into electronic records systems.

Item 21: Case finding tools are simple to use

"They could be more integrated in computer system." Participant two, GP

QOF incentivised case finding was perceived to be constructive in changing attitudes to case finding for the better (17, +1). It is not believed the initiative was unfairly imposed on primary care (32, -2) or disadvantaged other patient groups not included in the QOF target population (39, -2). In fact case finding directed at specific patient groups is supported (19, +1).

Only two objections to case finding are raised; that resources would be better used to train practice staff in managing patients with existing depression (5, 0) and that asking case finding questions is emotionally challenging for the GP or nurse (27, +2). This emotional impact may suggest professionals are more engaged with and believe in benefits of the process.

Item 27: Asking case finding questions is emotionally challenging for the GP or nurse

"It can be difficult to ask questions about mental health. Also can be difficult if clinician is suffering from stress and mood disturbance themselves." Participant two, GP

FACTOR THREE: CRITICISMS OF THE IMPLEMENTATION OF CASE FINDING FOR DEPRESSION

DEMOGRAPHICS

Factor three has an eigenvalue of 1.3897 and explains 9% of the study variance. Three participants are significantly associated with this factor; two GPs aged over 45 years; one female GP partner and one male sessional GP, and one female ANP aged over 45.

One GP stated they delivered case finding to patients with long term physical conditions. The ANP delivered case finding. All participants associated with factor two described themselves as comfortable raising the issue of and talking about mood and emotions and completed a psychiatry or mental health post during nurse or GP training. The number of years since qualifying as a doctor were 29 and 30 (mean and median 29.5 years). The number of years working as a GP were 16 and 23 (mean and median 19.5 years). The ANP had been qualified for 33 years and working in primary care for 17 years.

DISTINGUISHING STATEMENTS

TABLE 33, FACTOR THREE DISTINGUISHING STATEMENTS (SIGNIFICANCE AT P <0.01)

Q sort Item Number	Negative Ranking?	Statement
39		Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression
7		Case finding results in too many false positives
30		Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression
24		Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address
27	Yes	Asking case finding questions is emotionally challenging for the GP or nurse

FACTOR VIEWPOINT

Attempts to implement case finding widely usually result in tick-box tokenism (31, +4), though respondents are clear the programme does not undermine long-term relationships with patients (16, -4) and emotional issues do not derail the consultation (6, -1). Similarly, concerns about the principles or conditions underpinning case finding are not recognised (1, -1).

Item six: Case finding can result in patient's emotional issues de-railing the consultation

"Most clinicians are very experienced at asking these kind of questions, and dealing with the consequences Also emotional issues may be the most important things, so fine if derailed - sometimes it should be." Participant 15, GP

Item 16: Case finding undermines long-term relationships with patients

"This is just not my experience, but can be difficult if you really don't know the patient." Participant one, GP

Though the principle underlying case finding is respected, and adverse impacts on therapeutic relationships and the consultation are not noted, a number of concerns about the implementation of case finding are highlighted. Case finding tools are not considered simple to use (21, -1), culturally sensitive (8, +1) or believed to ease the consultation or facilitate talking about depression (25, -2). In fact it is agreed that case finding questions can be manipulated or framed in a way which discourages a positive response (28, +2).

Item 25: Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression

"There's nothing awkward about asking someone how they feel but the scripted statements are awkward." Participant 16, ANP

Case finding is judged to result in too many false positives (7, +2), pick up low mood caused by life events rather than detecting depression (30, +1), and increase new diagnoses of depression (37, +1) and rates of antidepressant prescribing (38, +2); though the need for an agreed pathway for managing patients with positive case finding results is not widely acknowledged (4, 0). The role of clinicians in rephrasing the questions (10, +2), carefully considering the mode of delivery (18, -3) and knowing how to deal with responses to case finding which are more than just 'yes' or 'no' to limit these perceived adverse effects (9, +2) is recognised.

Item 10: Case finding questions don't need to be asked in a standardised way

"Case finding can be valuable but needs to be done in a way appropriate for individuals standardised questions are too impersonal and do not work for everyone if the clinician knows a person well they can filter life events which may impose a label of depression onto someone who just needs support to deal with life changes . This highlights the need for good relationships with patients and person centred care." Participant 16, ANP

Item 9: Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'

"If you just go for yes no, you will miss a lot, duration, other life events etc., plus if you get a yes you have to do something." Participant one, GP

QOF incentivised case finding in particular is judged to disadvantage other groups of patients by leading to them receiving less adequate care for depression (39, +3) and it is seen to be important to monitor the impact of case-finding at practice level (29, +1).

Despite these concerns about the application of case finding the process is not felt to be emotionally challenging (27, -3) and respondents do not acknowledge disregarding or downplaying symptoms of depression because there are more pressing issues to address (24, 0). In fact it is particularly notable that it is considered there are sufficient resources within primary care to manage case finding (23, +1).

Item 23: There are sufficient resources within primary care to manage case finding

"Staff are skilled at doing this and it doesn't take long." Participant 15, GP

CONSENSUS STATEMENTS

TABLE 34, CONSENSUS STATEMENTS (NON-SIGNIFICANT AT P>0.05)

Q sort Item Number	Negative Ranking?	Statement
1	Factors 2 and 3	Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test
5	Factors 1 and 3	Resources would be better used to train practice staff in managing patients with existing depression
9		Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'
10		Case finding questions don't need to be asked in a standardised way

13	In all factors	Depression diagnosed following case finding is less severe than that identified during an unscripted consultation
15	In all factors	Case finding for depression adds to the healthcare burden experienced by patients with long-term physical conditions
20	In all factors	Case finding is usually best delegated to nurse-led chronic disease reviews
28		Case finding questions can be asked in a way that discourages a positive response
32	In all factors	Case finding for depression has been unfairly imposed on primary care
33	Factor 2	Nurses feel that GPs impose case finding upon them

Ten items included in factor interpretations are consensus statements and do not distinguish between any pair of factors, having been ranked similarly in each factor. This does not mean the statements have no meaning or value.

Items 13, 15, 20 and 32 are negatively ranked in all factors, indicating participants disagreed with the statements. Believing that case finding is not unfairly imposed on primary care (32), depression diagnosed after case finding is as severe as that identified in an unscripted consultation (13) and that case finding does not add to the healthcare burden experienced by patients with long-term physical conditions (15).

All factors indicate that case finding should not be delegated to nurse-led reviews (20). Participants from factor two, 'case finding for depression is worthwhile', do not consider nurses feel case finding is imposed on them by GPs (33). Conversely, those in factors one 'objections to the principle of case finding for depression' and three 'criticisms of the implementation of case finding for depression' think this may be the case. These opposing opinions are divided by broadly positive and negative viewpoints about case finding for depression and may indicate respondent's interest in participating in the process.

Items 9, 10 and 28 are positively ranked in all factors, suggesting agreement from participants that professional skills and therapeutic relationships mean that case finding questions do not need to be asked in a standardised way (10), but can also be manipulated or delivered in a way

that discourages a positive response (28). Universal agreement for knowing how to deal with responses that are more than just 'yes' or 'no' is also indicated (9).

The belief that resources would be better used to train practice staff in managing patients with existing depression is ranked positively in factor two, and negatively in factors one and three; again divided by broadly positive and negative viewpoints. This may suggest those who believe case finding is worthwhile place greater significance on the management of mental health care (5).

Only factor one ranked the idea that case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test positively (1). This reflects the overall interpretation that this factor indicates objection to the general principle or foundation of case finding for depression.

DISCUSSION

PRINCIPAL FINDINGS

Three distinct viewpoints were characterised by this Q method study; factor one 'objections to the principle of case finding for depression', factor two 'case finding for depression is worthwhile' and factor three 'criticisms of the implementation of case finding for depression'. The three factor solution was supported by objective statistical measures and qualitative interpretation of data and factor interpretations further reinforce this. Each of these positions may influence how PHCPs implement, deliver and respond to case finding for depression in long-term physical conditions in primary care.

Each factor had a mix of significantly associated participants; GPs, practice nurses, senior practice nurse or ANPs. In factor one the ratio of GPs to nurses was 5:1, factor two 1:1 and factor three 2:1. Factor three included older participants with the greatest time since qualification and most clinical experience. Factor three was also the only factor where all significantly associated participants had completed a psychiatry or mental health post during nurse or GP training. All participants describe themselves as comfortable raising the issue of and talking about mood and emotions. Overall, demographic factors appeared to have little association with the viewpoint likely to be held by a participant.

The interpretation details one positive (factor two) and two negative or opposing (factors one and three) viewpoints. The positive viewpoint characterised the process and consequences of case finding as worthwhile. The two negative viewpoints have distinct focus; principles underpinning case finding and the implementation of the process. Although some items were

ranked similarly, as expected in significantly correlated factors, the difference between the focus is illustrated by the placement of certain, distinguishing items.

Item 23 (*there are sufficient resources within primary care to manage case finding*) was ranked -4 in factor one and +1 in factor three, suggesting the objection to case finding is aimed at the foundation or basis for the process, in the context of a perceived lack of resources in primary care.

Conversely objections are directed at the specifics of implementing case finding in factor three. This is illustrated by ranking of items 6 (*case finding can result in patient's emotional issues de-railing the consultation*), 21 (*case finding tools are simple to use*)and 34 (*case finding misses what is important in many cases*);ranked positively in factor one and negatively in factor three, and items 39 *(incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression*) and 30 (*case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression*) ranked negatively in factor one and positively in factor three.

Distinguishing statements for each factor were explored in *results*. Only one item was identified as a distinguishing statement for all factors; item 27 (*asking case finding questions is emotionally challenging for the GP or nurse*). This item was ranked negatively in factors one and three and positively in factor two, supporting the interpretation that those who hold the factor two viewpoint are more engaged with and believe in benefits of the process.

As outlined in results, ten Q sort items were consensus statements and do not distinguish between any pair of factors, or viewpoints. Bipolar ranking of some consensus items was evident when cross factor comparisons were made (items one, five and 33); the implications of this were discussed in results. Other consensus items were ranked positively (9, 10, 28) or negatively (13, 15, 20, 32) in all factors.

The consensus items did not reflect one particular aspect of case finding, and were spread across a range of issues. This spread suggests that the items were not too similar in content, though the pattern of ranking broadly indicates general agreement about some aspects of delivery of case finding; questions should not be delegated to nurse led chronic disease clinics (20), do not need to be delivered in a standardised way (10), can be framed in a way which discourages a positive response (28) and that knowing how to deal with responses that are more than just 'yes' or 'no' is important (9). The three viewpoints also agreed on two outcomes of case finding; that depression identified by case finding was not less severe (13), and that case finding for depression does not add to the healthcare burden experienced by patients with long-term physical conditions (15). Disagreement in all factors to the statement

that case finding was unfairly imposed on primary care was perhaps unexpected, given the objections to, or criticisms of, case finding raised by factors one and three.

STRENGTHS AND WEAKNESSES IN RELATION TO OTHER STUDIES

I believe this is the first study to examine and describe the range of positions held by PHCPs on the role, implementation and value of case finding in patients with long-term physical conditions in primary care. The study included both GPs and nurses to capture a wider range of opinion and included only practicing clinicians.

When this account of PHCPs viewpoints on case finding is considered alongside other published Q sorts examining healthcare provider's viewpoints(280, 318) the smaller number of participants in this work is immediately apparent (21 participants in this study, compared with 52(280) and 41(318)). The results of this work therefore results should be seen as exploratory rather than definitive.

STRENGTHS AND WEAKNESSES OF THE STUDY

STRENGTHS

Two main strengths were identified. The first is the use of outputs from the ITS and systematic review of peer reviewed and grey literature to develop the Q set; the use of varied sources ensured the Q set was comprehensive and represented what is already known about PHCPs beliefs. Care was taken to represent themes and constructs lying outside the TDF, (183) used to guide analysis and interpretation of the review.

The second strength was employing varimax and by-hand rotation to develop a factor solution which explained more variance (48% to 41%) and an increased number of sorts (19 to 14 of 21). This created a solution that included as many Q-sorts from the participants within the final solution as possible.

WEAKNESSES

Five main weaknesses were identified; recruitment, participant demographics, use of online Q sort, exclusion of deprivation criteria and the use of objective measures for factor extraction.

First, fewer participants were recruited to this study than was planned. As the difficulties of recruiting primary care staff to research are well recognised,(284) reviews on the effectiveness of recruitment strategies by the Cochrane Methodology Review Group(309) and Pit et al (308) were consulted when planning the recruitment strategy. Techniques such as snowball sampling through peer contact, monetary incentivisation and personalised email links incorporated, but proved insufficient. If the study were repeated consideration would be given

to recruiting from a larger participant population by extending the geographical area, and to allowing a longer time frame for recruitment.

Second, due to the limited number of participants the final group did not represent the varied demographic profile of PHCPs in England. From the idealised sampling frame GPs who qualified outside the UK and female salaried GPs aged over 45 years were not represented. Q method is not intended to be representative and aims only to capture the range of perspectives which exist, though unintentionally omitting individuals with specific demographic features may lead to this aim not being met and the Q sort failing to fully capture diversity.

Third, although the online platform was the most efficient means of delivering the Q sort for both participants and researcher, the use of an online Q sort presented a number of difficulties. The POET Q software failed for at least two participants; further limiting retention. Restrictions were placed on obtaining during and post-sort information. This was acknowledged during the planning of the study, but the relatively limited information may have adversely affected the depth of understanding of individual participant and factor viewpoints and data security concerns associated with online research prevented identifiable information being entered into POET Q. This meant that information such as geographical location of the participant's practice could not be collected leading to the fourth weakness; excluding the collection of deprivation criteria. This may be relevant due to the known association between depression and social disadvantage, deprivation and poverty, (1, 7)and an insight into the practice demographics of participants may have improved contextualisation of their viewpoints (e.g. those working in more deprived areas may view case finding as worthwhile due to an increased prevalence of depression, or object to the principle of it on the basis of insufficient resources).

Finally the use of objective measures for factor extraction was criticised by Brown, "eigenvalues and total variance are relatively meaningless in Q-technique studies."(302) I believe that in this study objective measures were employed as an adjunct to qualitative approaches to interpretation of factors and associated viewpoints.

MEANING OF THE STUDY

IMPLICATIONS FOR RESEARCH

The factor interpretations characterise and describe the three positions held by PHCPs on case finding for depression in long-term physical conditions in primary care. Each of the viewpoints characterises case finding for depression differently; two negative viewpoints (one and three) oppose one positive viewpoint (factor two). The two negative viewpoints objected to the principle and implementation of case finding respectively, and the positive viewpoint saw the

process and consequences of case finding as worthwhile. Holding these viewpoints may influence how PHCPs implement, deliver and respond to case finding for depression in long-term physical conditions in primary care.

This adds to the findings of a study in to differences in the perceived role of the healthcare provider in delivering vascular health checks which suggested that healthcare professional's viewpoints may influence how they interact with patients during health check.(280)

Policy-makers and clinicians advocating inclusion of case finding in other clinical pathways could consider these study findings if they wish to avoid repeating some of the unintended implementation problems described. These problems will be considered further in chapter five, *synthesis of study findings.*

IMPLICATIONS FOR CLINICAL PRACTICE AND POLICY

Case finding instruments have been demonstrated to be valid and effective when used to identify which adult patients from an at-risk population are likely to be depressed and benefit from diagnostic assessment with an appropriately trained HCP.(59) Although there is no evidence that case finding for depression in adults, whether in the presence(73) or absence of coordinated care systems, (74, 75) improves patient outcomes. Despite this recommendations for case finding for depression persist for a range of long-term conditions and for carers, (33, 34, 80, 98) though QOF incentivisation of the process was withdrawn in 2013 because of doubts over benefits.(97)

By characterising and describing the range of positions held by PHCPs on the implementation, role and value of case finding a better understanding of the principled and practical obstacles to effectively implementing case finding for depression in primary care, and why the benefits of QOF incentivised case finding were doubted, is gained. This Q method study indicates that promoting case finding would require two approaches; promoting its value and tackling implementation challenges. The findings also contribute to the judgement on whether sustained promotion of case finding in guidelines is practicable or appropriate.

CONCLUSIONS

This study revealed and characterised three positions held by PHCPs on case finding for depression in long-term physical conditions in primary care. Of these three positions two were negative viewpoints (*objections to the principle of case finding for depression* and *criticisms of the implementation of case finding for depression*), and one positive (*case finding is worthwhile*). Each of these positions may influence how PHCPs implement, deliver and

respond to case finding for depression in long-term physical conditions in primary care. Implementation of any initiative is challenging if there is a spread of perspectives. Implementation strategies need to take account of the positions identified when promoting or revising approaches to guideline recommended case finding.

RESEARCH CONTRIBUTIONS

I was the principal investigator for this study. Support in managing, conducting and analysing the review was provided by supervisors Allan House, Professor of Liaison Psychiatry, and Robbie Foy, Professor of Primary Care. Comments on presentation of the analysis were provided by Louise Bryant, Associate Professor in Medical Psychology.

APPENDIX 10

STATEMENTS AND COMPONENT THEMES

RESULTS OF REVIEW

For each of the items I have taken the quotes from the review and reworded or reinterpreted them to reflect the results and findings.

RESULTS BY TDF DOMAIN

Knowledge

1. *Practical Knowledge*

Practical knowledge characterised by both accurate insights about case finding and misunderstanding

"Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test."

2. *Relevance of published evidence to practice*

Statements reflecting knowledge of the relevance of published evidence on case finding for depression, or application of case finding tools

"Case finding for depression is not as useful in day to day practice as research suggests it should be."

Skills

3. *Difficulty incorporating case finding*

Describing difficulty incorporating case finding, including a number of impediments identified by participants.

"Case finding questions intrude upon consultations with patients."

4. Employing case finding

Included comment and numeric data on frequency of enquiry about mood, and comment on the use of case finding tools and follow up of positive responses with depression severity scores.

(Incorporates #44, rates of new prescriptions for antidepressants exceeded those for depression-related diagnoses).

"Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing."

5. Alternative approaches

The suggestion it may be preferable for PHCPs to focus on the management of existing depression rather than case finding or detection of new cases.

"Resources would be better used to train practice staff in managing patients with existing depression."

Social/Professional Role and Identity

6. The impact of case finding on the consultation

This theme included competing views about the positive and negative impact of case finding on the consultation (interpersonal)

"Case finding can result in patient's emotional issues de-railing the consultation."

7. The wider impact of case finding

Describing positive and negative beliefs about the wider impact of case finding

(Incorporating #23, time; considered time limitations imposed by the structure of the primary care consultation, and the impact of case finding on clinician's time).

"Case finding results in too many false positives."

8. The PHQ2 Tool

Highlighting positive and negative features of the standardised measures

"Case finding questions are not culturally sensitive."

9. *Professionalism*

The theme of professionalism covered professional confidence and professional responsibility

"Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'."

Beliefs about Capabilities

10. How case finding was administered

Focusing on how clinicians use their own judgement on how best to administer case finding

"Case finding questions don't need to be asked in a standardised way."

11. Primary Health Care Practitioner abilities

Considers the influence of GP and PHCP knowledge, training, perceived competence and confidence on the mode of administration and outcomes of case finding

"Case finding questions are best asked by someone who knows the patient well."

Beliefs about Consequences

12. Futility

How positive case finding results, or depression diagnosed following case finding, were perceived to be left unmanaged

"Case finding does not actually help improve patient outcomes."

13. Ability to detect treatable cases

Views about the performance of case finding tools in patients with chronic physical conditions, whose depression might otherwise go undiagnosed

"Depression diagnosed following case finding is less severe than that identified during an unscripted consultation."

14. Physical consequences

Comment on the physical consequences of case finding for patients

"Detecting depression by case finding can lead to improvements in patients' physical health problems."

15. Unease

Comment on both PHCP and perceived patient discomfort with case finding

"Case finding for depression adds to the healthcare burden experienced by patients with long-term physical conditions."

16. Impact on the consultation

Effects beyond the immediate clinician:patient interaction.

"Case finding undermines long-term relationships with patients."

Reinforcement

17. Incentives for and against case finding

Descriptions of beliefs or strategies which positively or negatively reinforced case finding

"The Quality and Outcomes Framework changed attitudes to case finding for depression for the better."

Intentions

18. Plan for case finding delivery

Descriptions from professionals on how they introduce or deliver case finding1.

(Incorporating theme 22; use of written information as reinforcement).

"How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result."

19. Priority accorded to case finding

Examples of case finding being accorded high and low priority status

"Case finding should be part of routine clinical contacts."

20. Goals

How practices planned and considered the delivery or delegation of case finding, directing their activity to achieve their chosen outcome

"Case finding is usually best delegated to nurse-led chronic disease reviews."

Memory, Attention and Decision Process

21. Aiding attention

Outlining the potential benefits of using standardised case finding tools

"Case finding tools are simple to use."

22. Perceived importance of case finding

Whether professionals judged case finding for depression in patients with chronic physical conditions to be important

"Case finding detects depression which might otherwise go undiagnosed."

Environmental Context and Resources

23. Limited resources

Consequences of limited resources available to GP practices, and the impact of case finding activity on these resources

(Incorporates #18, financial consequence; the financial disincentive of using QOF recognised clinical codes to record depression as an influence on case finding behaviour and PHCP actions).

"There are sufficient resources within primary care to manage case finding."

24. Clinician responses to limitations in the environment;

Included descriptions of omitting case finding questions, or altering the delivery to discourage disclosure of active symptoms.

"Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address."

Social Influences

25. Social or peer influences on the behaviour of the patient

The belief that patients may be reluctant to disclose or complain about depression

"Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression."

26. Social or peer influences on the behaviour of the clinician

How GPs and PHCPs think about case finding and case finding tools can influence their feelings and behaviour when implementing the initiative

"Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so."

Emotion

27. Emotional challenge of case finding

Some PHCPs described case finding as emotionally challenging and that personal resilience was required to manage the process.

"Asking case finding questions is emotionally challenging for the GP or nurse."

28. Use of emotive language

The use of emotive language, or words describing emotions in PHQ2 questions, and the effect on the patient and their response to the questions

"Case finding questions can be asked in a way that discourages a positive response."

29. Behavioural Regulation

Measures taken to review the implementation or impact of case finding, e.g. audit activity

"Practices should monitor the impact of case finding."

Other themes and constructs which do not correspond to the TDF

30. Understandable low mood

GP and PHCP beliefs that low mood or depression are interrelated, or that depression is an understandable or expected consequence of a patient's chronic physical condition or the social sequelae of that condition

"Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression."

31. Cynicism

Contributors commented on and poked fun at PHQ2, finding irony in patients not needing to answer the case finding questions posed for the practice to earn QOF points, and discussing past patient responses in a churlish manner

Incorporates #21 optimism; optimistic or pessimistic views about case finding

"Attempts to implement case-finding widely usually result in 'tick box' tokenism."

32. Disquiet about delays to withdrawal of incentivised case finding

Suggestion of a political motive for the failure of NICE to end incentivisation as early as anticipated

"Case finding for depression has been unfairly imposed on primary care."

SUPERORDINATE THEMES

33. Contradictory beliefs about case finding

Between individuals

"Nurses feel that GPs impose case finding upon them."

34. Mistrust

Of case finding, case finding questions and QOF

"Case finding misses what is important in many cases."

35. Trade-offs

PHCPs described exercising their choice whether or not to implement case finding by prioritising this or other activities

"There is a trade-off between case finding and other aspects of patient care."

36. Dilemmas

Characterises the sometimes muddled, internal discourse presented by individuals when discussing their beliefs about case finding

"Many people have mixed feelings about case finding."

RESULTS OF INTERRUPTED TIME SERIES

37. *New diagnoses of depression increased in targeted and non-targeted populations*

"Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses."

38. QOF incentivised case finding disrupted rising trends in new prescriptions of antidepressants; these resumed following the introduction of incentivised case finding

"Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing."

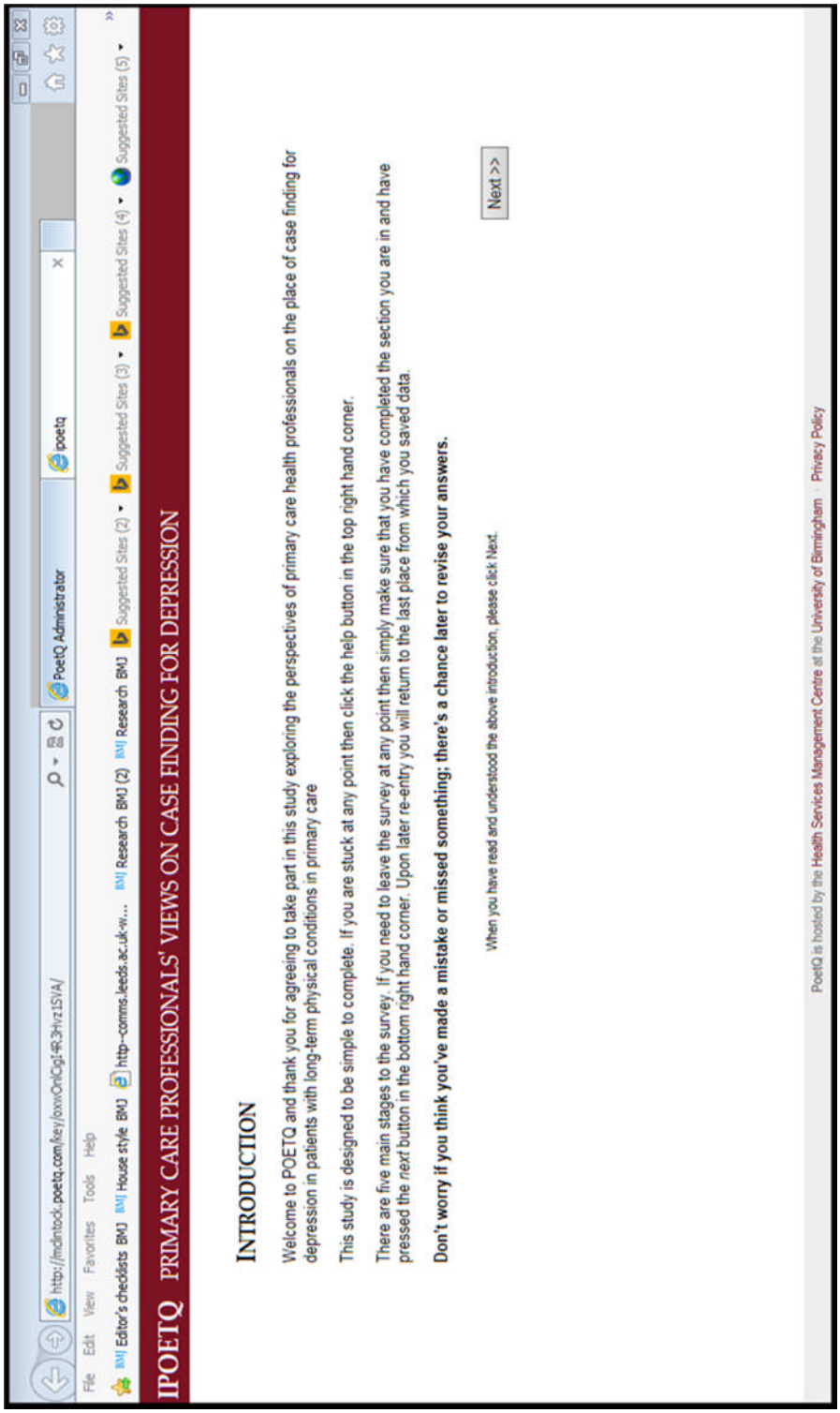
39. *There was a modest deceleration in antidepressant prescribing for non-targeted conditions*

“Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression.”

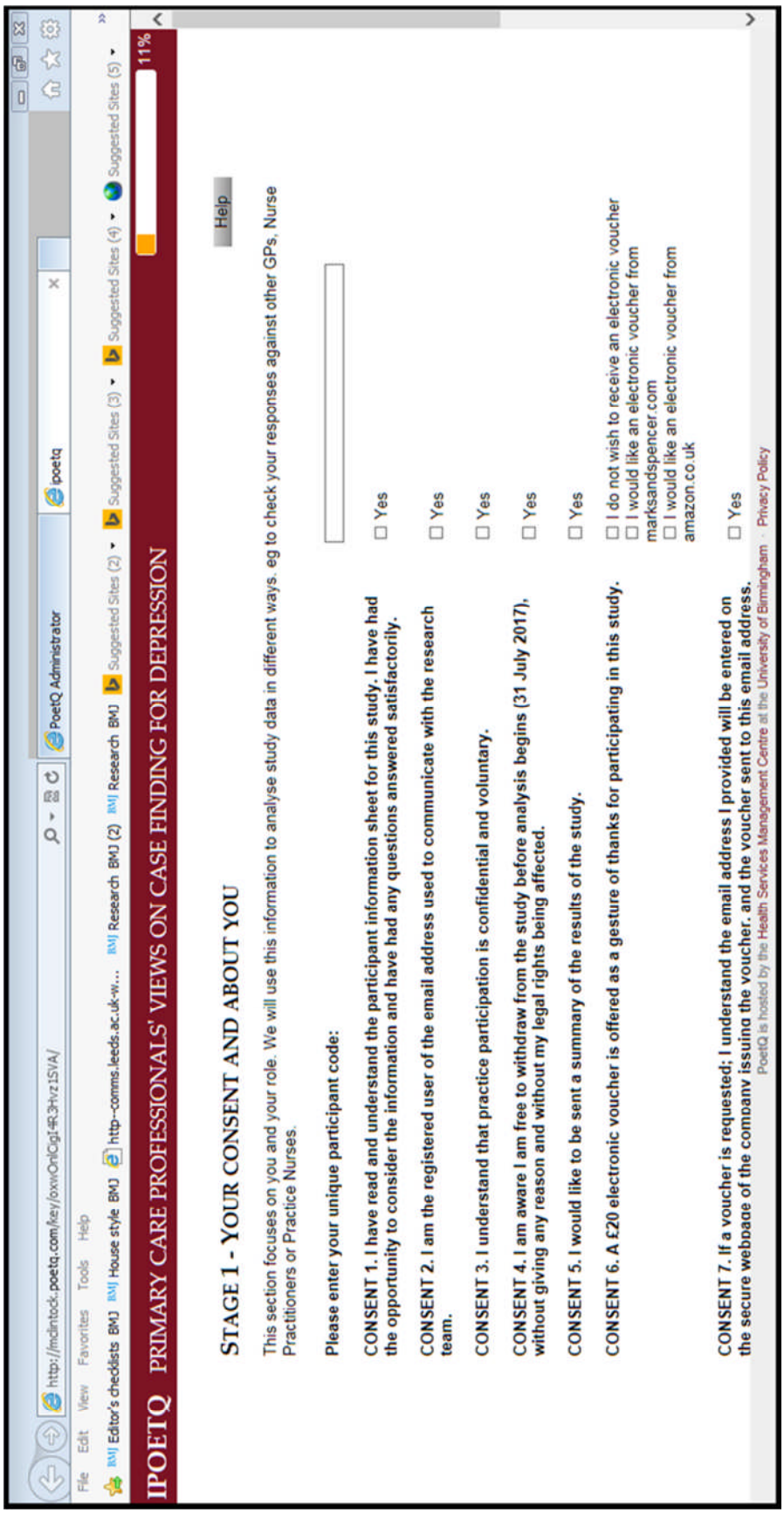
APPENDIX 11

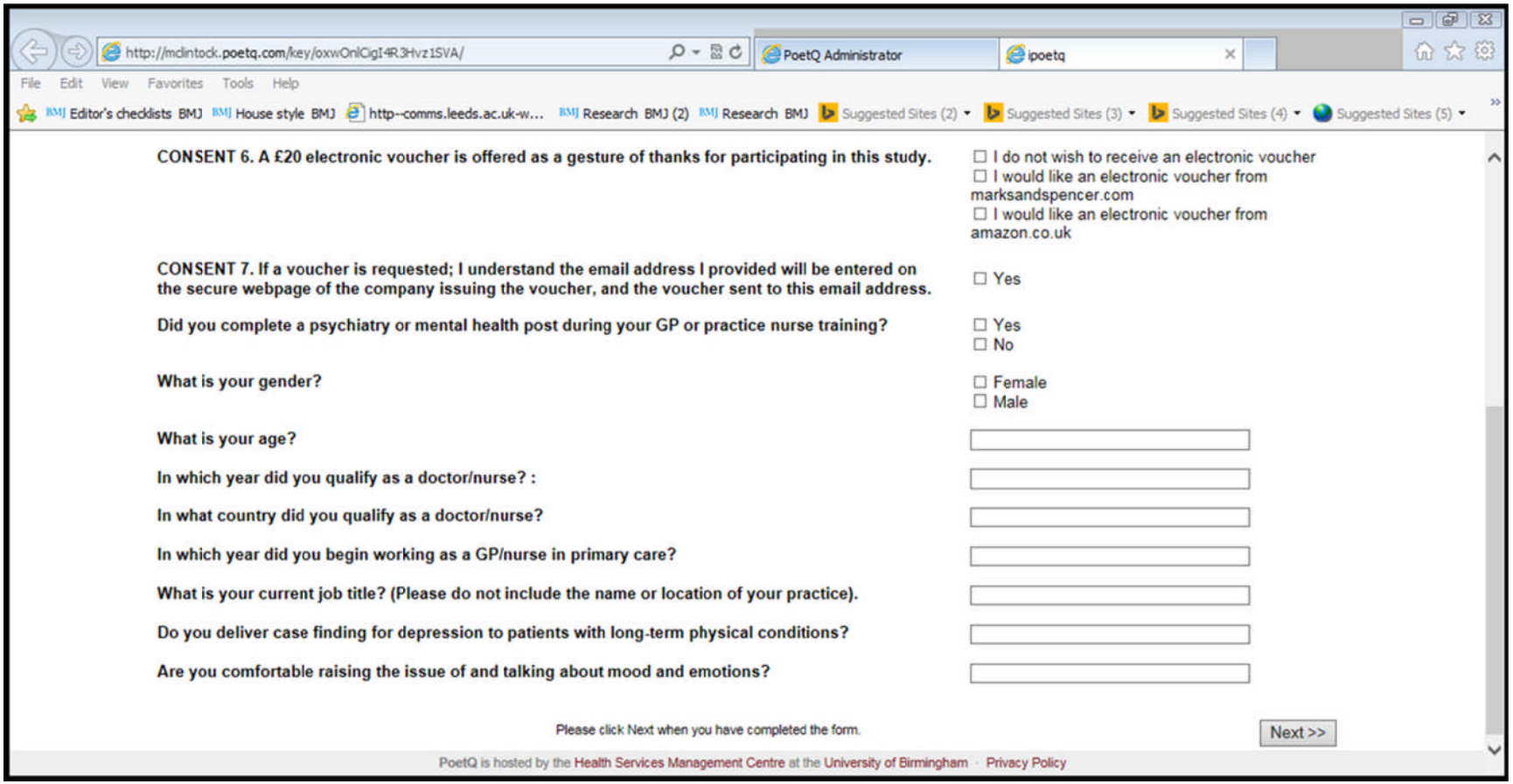
SCREEN SHOTS OF AN ILLUSTRATIVE, ON LINE Q SORT USING POET Q

INTRODUCTION

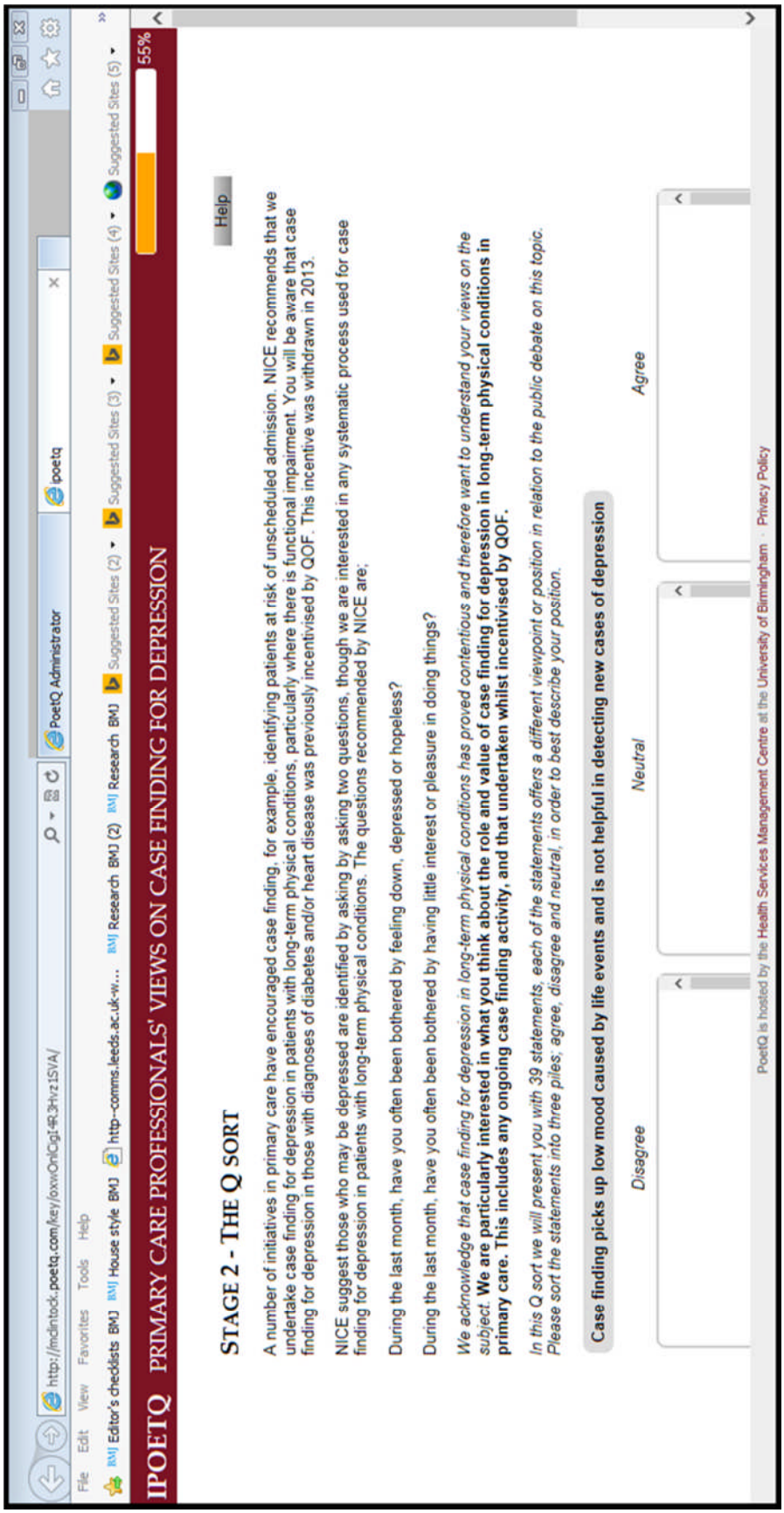


STAGE 1: CONSENT AND PRE-SORT QUESTIONS (TWO SCREEN SHOTS TO DISPLAY ENTIRE PAGE)

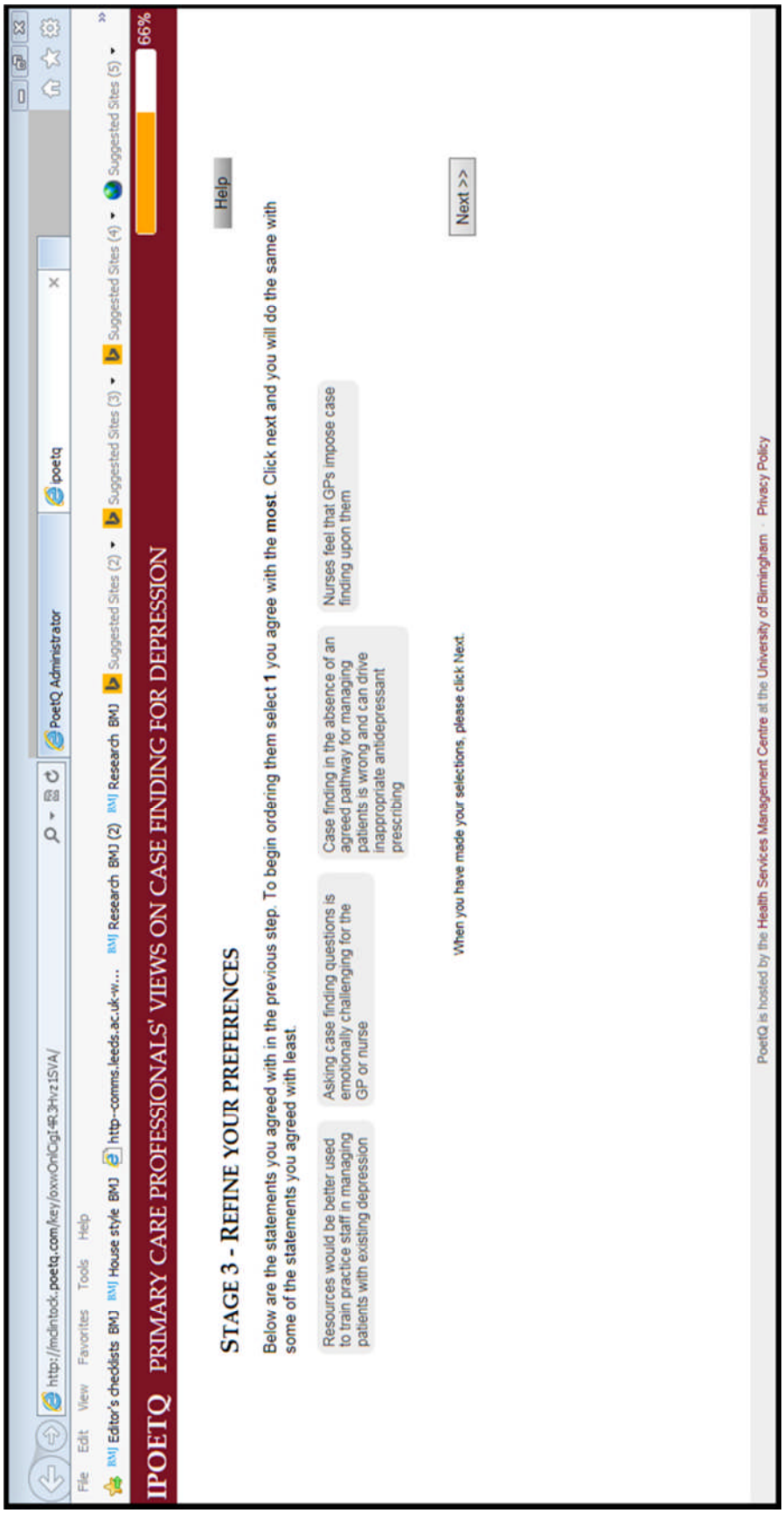


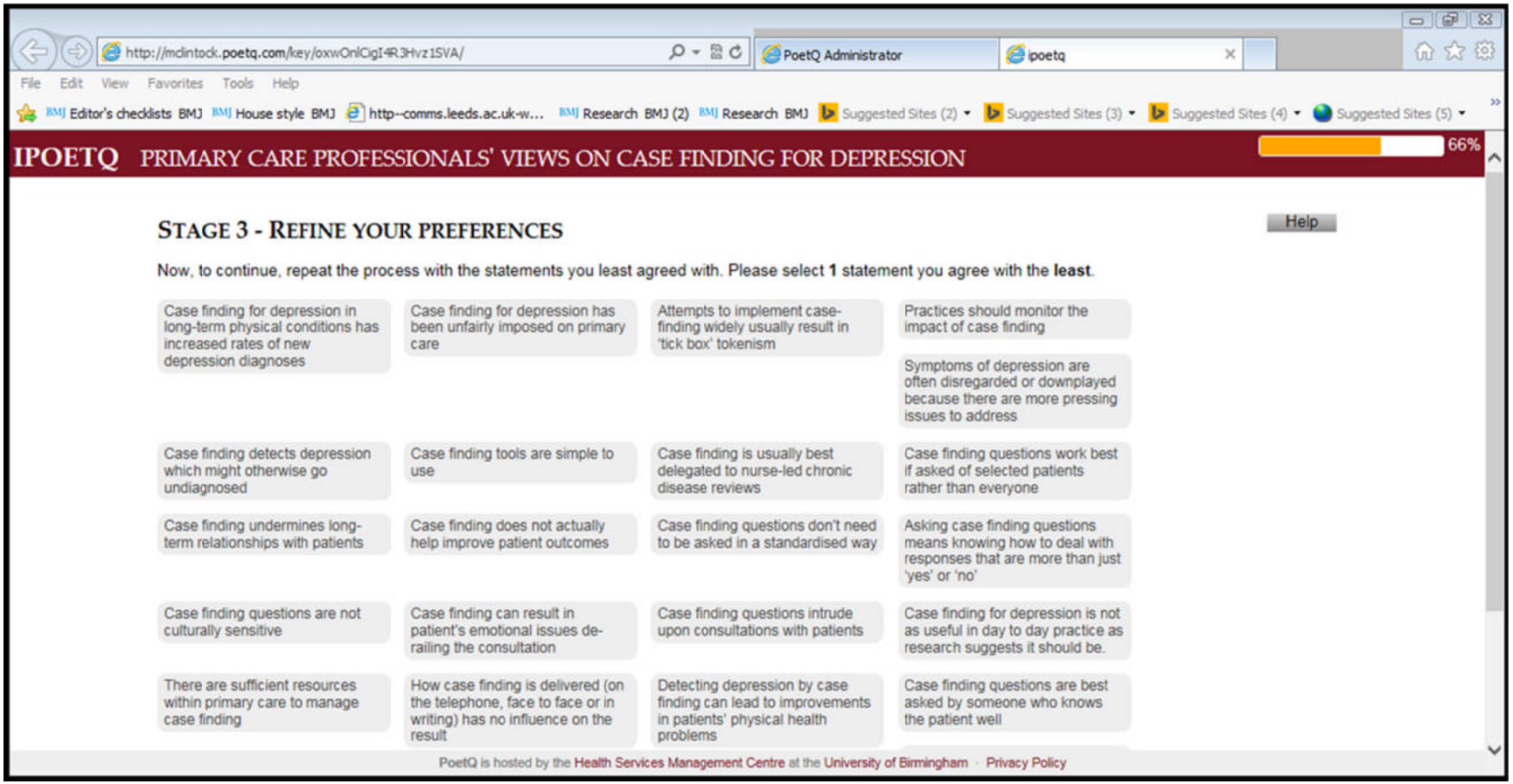

http://mclintock.poetq.com/key/oxwOnlCigI4R3Hvz1SVA/
PoetQ Administrator
ipoetq
File Edit View Favorites Tools Help
BMJ Editor's checklists BMJ BMJ House style BMJ http--comms.leeds.ac.uk-w... BMJ Research BMJ (2) BMJ Research BMJ Suggested Sites (2) Suggested Sites (3) Suggested Sites (4) Suggested Sites (5)
CONSENT 6. A £20 electronic voucher is offered as a gesture of thanks for participating in this study.
☐ I do not wish to receive an electronic voucher
☐ I would like an electronic voucher from marksandspencer.com
☐ I would like an electronic voucher from amazon.co.uk
CONSENT 7. If a voucher is requested; I understand the email address I provided will be entered on the secure webpage of the company issuing the voucher, and the voucher sent to this email address.
☐ Yes
Did you complete a psychiatry or mental health post during your GP or practice nurse training?
☐ Yes
☐ No
What is your gender?
☐ Female
☐ Male
What is your age?
In which year did you qualify as a doctor/nurse? :
In what country did you qualify as a doctor/nurse?
In which year did you begin working as a GP/nurse in primary care?
What is your current job title? (Please do not include the name or location of your practice).
Do you deliver case finding for depression to patients with long-term physical conditions?
Are you comfortable raising the issue of and talking about mood and emotions?
Please click Next when you have completed the form.
Next >>
PoetQ is hosted by the Health Services Management Centre at the University of Birmingham · Privacy Policy

STAGE 2: THE Q SORT



STAGE 3: REFINING PREFERENCES




http://mclintock.poetq.com/key/oxwOnlCigI4R3Hvz1SVA/
PoetQ Administrator
ipoetq
File Edit View Favorites Tools Help
IPOETQ PRIMARY CARE PROFESSIONALS' VIEWS ON CASE FINDING FOR DEPRESSION
66%
STAGE 3 - REFINE YOUR PREFERENCES
Help
Now, to continue, repeat the process with the statements you least agreed with. Please select 1 statement you agree with the least.
Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses
Case finding for depression has been unfairly imposed on primary care
Attempts to implement case-finding widely usually result in 'tick box' tokenism
Practices should monitor the impact of case finding
Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address
Case finding detects depression which might otherwise go undiagnosed
Case finding tools are simple to use
Case finding is usually best delegated to nurse-led chronic disease reviews
Case finding questions work best if asked of selected patients rather than everyone
Case finding undermines long-term relationships with patients
Case finding does not actually help improve patient outcomes
Case finding questions don't need to be asked in a standardised way
Asking case finding questions means knowing how to deal with responses that are more than just 'yes' or 'no'
Case finding questions are not culturally sensitive
Case finding can result in patient's emotional issues de-railing the consultation
Case finding questions intrude upon consultations with patients
Case finding for depression is not as useful in day to day practice as research suggests it should be.
There are sufficient resources within primary care to manage case finding
How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result
Detecting depression by case finding can lead to improvements in patients' physical health problems
Case finding questions are best asked by someone who knows the patient well
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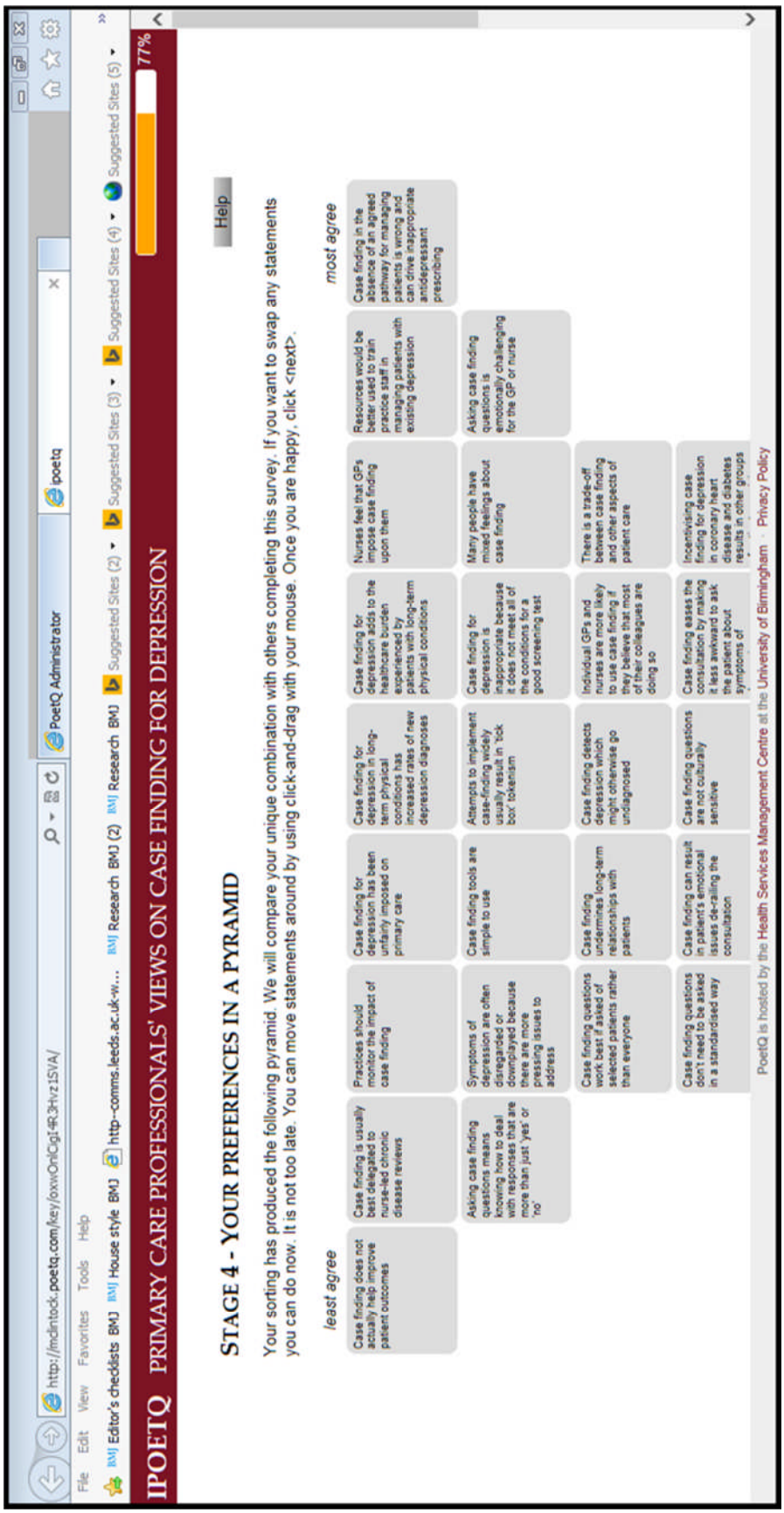
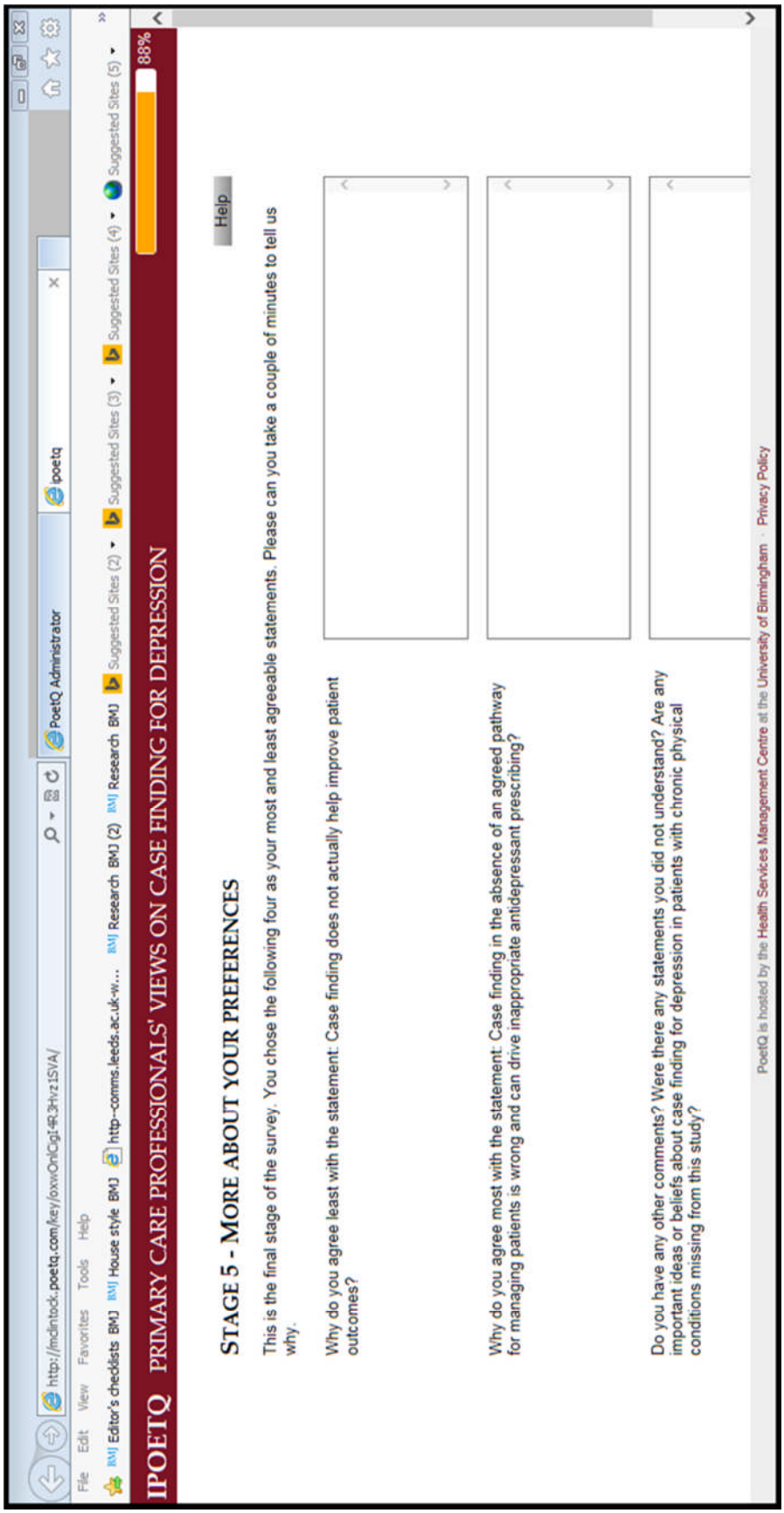
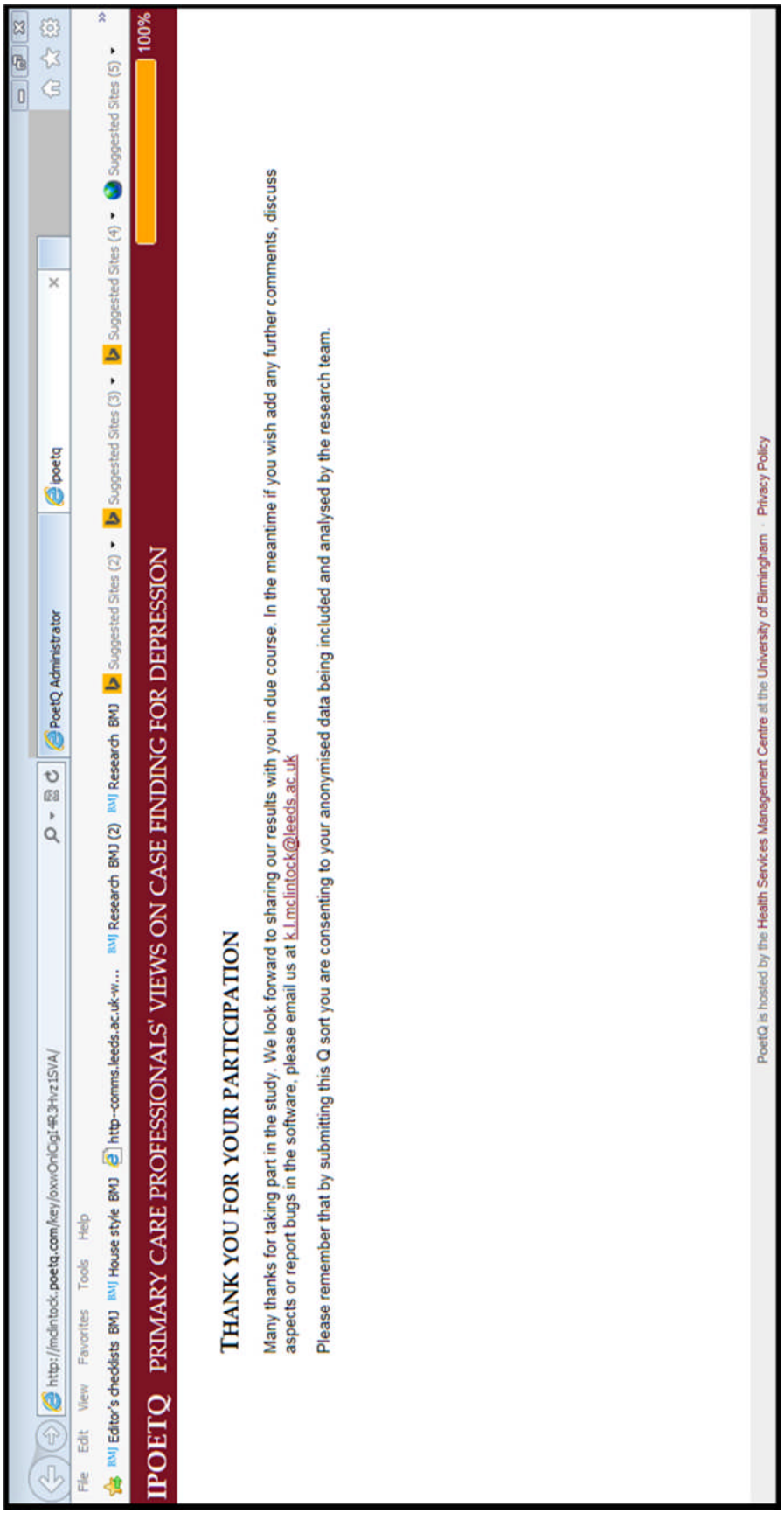
STAGE 4: DISPLAYING THE COMPLETED Q SORT IN THE -4 TO +4 GRID CONFIGURATION



STAGE 5: POST-SORT QUESTIONS



THANK YOU, WITH REMINDER ABOUT CONSENT



APPENDIX 12

TEXT: EMAIL OF INVITATION

UNIVERSITY OF LEEDS

Dear ******,

I am a GP studying for a PhD, and would like to invite you to take part in research which aims to understand what GPs and Nurses working in NHS general practice think about the role and value of case finding for depression.

Attached to this email is a participant information leaflet which explains why we are doing the research and what the study will involve. I would be grateful if you could take time to read this information. If you have any questions or would like to participate email me, or one the other members of the research team. A full list of our contact details is contained in the participant information leaflet.

If you do not want to participate, or are not able to, but know GP or nursing colleagues working in NHS general practice in West Yorkshire who might be interested please forward this email and attached participant information to them.

Kind regards,

Kate

Dr. Kate McLintock
Visiting Lecturer in Primary Care
Leeds Institute of Health Sciences
Charles Thackrah Building
University of Leeds
101 Clarendon Road
Leeds
LS2 9LJ

K.L.McLintock@leeds.ac.uk

APPENDIX 13

PARTICIPANT INFORMATION SHEET

Participant Information Sheet:

A Q method study to identify and describe the range of positions held by primary health care professionals' on the role, implementation and value of case finding for depression in patients with long-term physical conditions in primary care

Invitation We would like to invite you to take part in a research study, tell you why we are doing the research and what it would involve. *If you do not want to participate, or are not able to, but know GP or nursing colleagues working in NHS general practice in West Yorkshire who might be interested, please pass or forward this information to them.*

Why are we doing the study? This study is being undertaken for educational purposes, as part of a PhD by Dr Kate McLintock. It is recommended by NICE that we undertake case finding for depression in patients with long-term physical conditions. You will be aware that case finding for depression in those with diagnoses of diabetes and/or heart disease was previously incentivised by QOF. This incentive was withdrawn in 2013. We aim to understand what GPs and Nurses working in NHS general practice think about the role and value of case finding for depression in long-term physical conditions in primary care. We are interested in your viewpoints on any ongoing case finding activity and that undertaken whilst incentivised by QOF. All data used in this project will be anonymised.

How are we doing the study? We are using Q method, an established technique to study people's shared viewpoints. A form of data collection known as a Q sort will be used. This involves individuals who hold relevant or important viewpoints on a topic ranking statements

about that topic. When the individual does this they are indicating whether they agree, are indifferent or disagree with the statement.

Why am I being asked? Because you are a GP or qualified nurse working in NHS general practice in West Yorkshire. Through this role you hold viewpoints on the role, implementation and value of case finding which are important to us. You do not need to be currently involved in case finding or have special knowledge about case finding or depression to take part. We are not interested in evaluating your skills or practice.

Do I have to take part? No, it is voluntary. If you want to take part we will ask you to tick an electronic consent form to show you have agreed to take part. You can still change your mind without giving a reason. We would ask that you advise us you no longer want to take part before analysis of the study begins; this is expected to be in August 2017.z

What will I have to do if I take part? If you want to take part please email a member of the study team, our details are listed at the end of this information sheet. We will then send a unique, anonymised participant code and link to an on line portal back to you via email. The consent form and all study materials are on line. You will access the on-line portal on one occasion, to complete and submit the Q sort, you will also be asked to answer a small number of questions before and after the Q sort which help us better understand your responses. Only anonymised data will be requested. The whole process could take up to one hour in total, but is likely to take less time. After this you will not need to take any further action. You can access and complete the study at a time and place convenient to you. All data will be stored securely and analysed and reported anonymously.

Will I be paid? No cash payment is offered. You can choose to receive either a £20 Amazon.co.uk or £20 Marks and Spencer electronic voucher when you submit a completed Q sort, though you can refuse this benefit.

What are the possible benefits of taking part? Individually you do not stand to gain, but your contribution will help us to understand whether case finding could be more effectively implemented and incorporated in to primary care.

What are the possible disadvantages of taking part? No specific risks have been identified

Will my taking part in the study be kept confidential? Yes. Only anonymous data are requested and data collection methods have been approved by the University of Leeds. The on line portal password protected and the anonymous information we collect, along with the cipher for anonymised participant codes, will be kept securely at the University of Leeds. Only individuals named on this information sheet have access to these data and the on line portal. All are bound by the rules of confidentiality. If you enter any identifiable information in error, we will remove and destroy it.

What will happen to the results of the study? It will take about four months to complete the study. When it is finished we can send you a report of the results if you would like to receive them. We expect the results will also be presented at medical conferences and published in a medical journal. No confidential information will be used.

Who is organising the study? The principal investigator is Kate McLintock, a GP and PhD student from the University of Leeds. The other people involved are Professor Robbie Foy and Professor Allan House from the University of Leeds.

Who has reviewed the study? This study has been reviewed by the University of Leeds School of Medicine Research Ethics Committee. As NHS staff are invited to participate NHS Research and Development approval has been obtained via the West Yorkshire Research and Development Team hosted by NHS Bradford Districts Clinical Commissioning Group, working on behalf of the ten West Yorkshire Clinical Commissioning Groups.

What if I have a complaint? We think this is unlikely to happen, but if it does you can contact us at the email addresses below, or contact Clare Skinner, Faculty of Medicine and Health Head of Research Support and Innovation c.e.skinner@leeds.ac.uk

If you want to participate or discuss this project in further detail please contact us by email

Dr Kate McLintock e: K.L.McLintock@leeds.ac.uk

Professor Robbie Foy e: R.Foy@leeds.ac.uk

Professor Allan House e: A.O.House@leeds.ac.uk

If you prefer to talk to us directly, please give your contact details and one of the team will telephone at a time convenient to you

APPENDIX 14

TEXT OF INVITATION FOR SALARIED GP GROUPS AND LOCAL MEDICAL COMMITTEES

I am a GP studying for a PhD, and would like to invite you to take part in on line research which aims to understand what GPs and Nurses working in NHS general practice think about the use of simple questionnaires to identify depression.

You will be aware that NICE recommend we undertake case finding for depression in patients with long-term physical conditions, and that case finding for depression in those with diagnoses of diabetes and/or heart disease was incentivised by QOF until 2013. There has been lots of disagreement about the value of this approach and I am really interested in your views. All data used in this project will be anonymised.

By taking part you will contribute to understanding whether case finding could be more effectively implemented and incorporated in to primary care. Though no cash payment is offered you can choose to receive a £20 e.voucher if you complete the study.

If you would like to consider taking part, please email me (k.l.mclintock@leeds.ac.uk) and I will forward a study information leaflet which explains why I am doing the research and what the study will involve. Relevant ethical approval for this research has been granted (IRAS Project ID: 219797 REC reference number: 11/EM/0144).

If you do not want to participate, or are not able to, but know GP or nursing colleagues working in NHS general practice in West Yorkshire who might be interested, please forward this information to them.

Kind regards,

Kate McLintock

APPENDIX 15

TEXT: PARTICIPANT EMAIL

UNIVERSITY OF LEEDS

Dear ******,

Thank you very much for agreeing to participate in this research project. Please find your unique participant code and a link to the online portal below. All study materials, including the consent form, are available via the portal.

Unique Participant code: ******
Link to the on line portal: http://mclintock.poetq.com/IRAS219797

Please click on the link to the portal at a time convenient to you. Please transcribe or copy your unique participant code exactly.

We kindly ask that you complete the Q sort before (day, month, year) , we will send a reminder email one week before this date. If you choose to receive the electronic voucher offered as thanks for participating in this study this will be emailed to you within 28 days of a completed Q sort being received.

A copy of the participant information leaflet is attached.

If you have any difficulty accessing the portal or study materials please contact me.

Kind regards,

Kate

Dr. Kate McLintock
Visiting Lecturer in Primary Care
Leeds Institute of Health Sciences
Charles Thackrah Building
University of Leeds
101 Clarendon Road
Leeds
LS2 9LJ

K.L.McLintock@leeds.ac.uk

APPENDIX 16

ANALYSIS

PRINCIPAL COMPONENT ANALYSIS AND HOW MANY FACTORS TO EXTRACT

PQ Method was first used to perform PCA for the scree test.(310) The output is provided in table M.

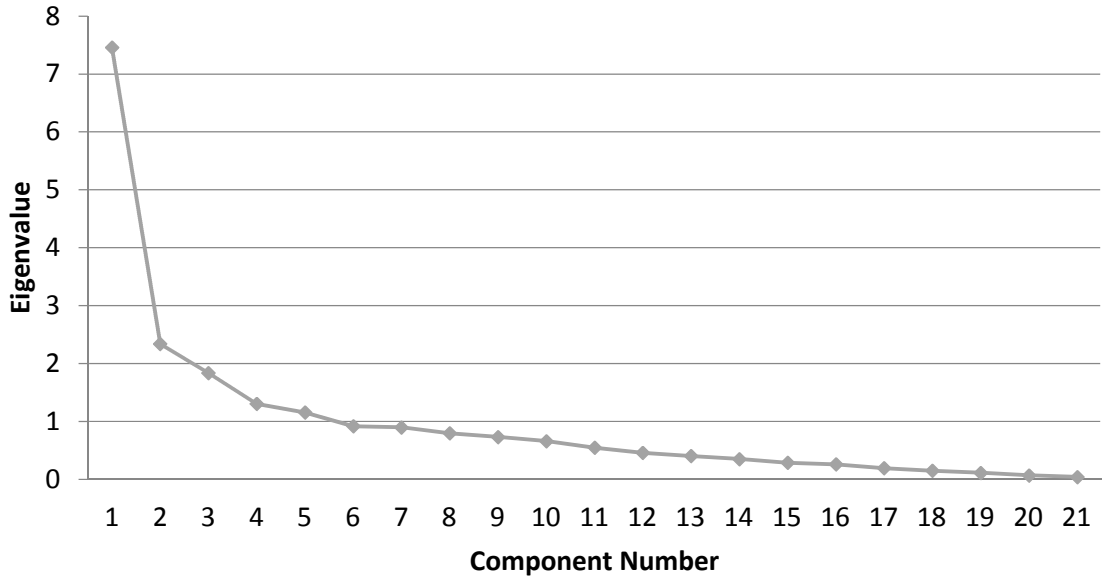
TABLE M, RESULTS OF PRINCIPAL COMPONENT ANALYSIS

Principal Component Analysis number	Eigenvalues	As Percentages	Cumulative Percentages
1	7.458	35.5143%	35.5143%
2	2.3396	11.1409%	46.6552%
3	1.8375	8.7500%	55.4051%
4	1.3068	6.2227%	61.6279%
5	1.1565	5.5070%	67.1349%
6	0.9182	4.3722%	71.5071%
7	0.8991	4.2817%	75.7888%
8	0.7983	3.8013%	79.5901%
9	0.7345	3.4974%	83.0876%
10	0.6618	3.1513%	86.2389%
11	0.5483	2.6110%	88.8499%
12	0.4603	2.1918%	91.0417%
13	0.4042	1.9248%	92.9665%
14	0.3516	1.6745%	94.6410%
15	0.2898	1.3801%	96.0211%
16	0.2612	1.2436%	97.2647%
17	0.1943	0.9251%	98.1898%

18	0.1499	0.7136%	98.9034%
19	0.1154	0.5494%	99.4528%
20	0.0711	0.3385%	99.7913%
21	0.0438	0.2087%	100.0000%

The scree test (312) (figure A)plots eigenvalues against variables. The scree plot for this study shows the line changing slope at the third PCA factor, suggesting three factors be extracted.

FIGURE A, SCREE PLOT OF EIGENVALUES



In order to carry out Horn's parallel analysis(313)a second PCA was completed using IBM SPSS Statistics 22,(319) with new syntax written by O'Connor, University of British Columbia, entered following PCA to run the parallel analysis.(316, 320) To decide how many factors to extract the raw data eigenvalue for each factor was compared with the 95th percentile eigenvalue from 1000 random data sets. If the observed eigenvalue exceeded the 95th percentile eigenvalue the chance that this value could be observed when there were no factors in the actual data was less than 5%.(276) Parallel analysis suggests that factors satisfying these criteria should be extracted; table N shows two factors in this study data met these requirements.

TABLE N, PARALLEL ANALYSIS

Factor	Observed Eigenvalue	Mean Eigenvalue of 1000 random data sets	95th percentile Eigenvalue of 1000 random data sets
1	7.458	2.626	2.954
2	2.3396	2.275	2.496
3	1.8375	2.020	2.197
4	1.3068	1.810	1.952
5	1.1565	1.627	1.759
6	0.9182	1.465	1.588
7	0.8991	1.317	1.434
8	0.7983	1.182	1.294
9	0.7345	1.056	1.159
10	0.6618	0.941	1.043
11	0.5483	0.835	0.929
12	0.4603	0.736	0.822
13	0.4042	0.641	0.724
14	0.3516	0.554	0.629
15	0.2898	0.474	0.546
16	0.2612	0.396	0.463
17	0.1943	0.328	0.393
18	0.1499	0.265	0.325
19	0.1154	0.205	0.258
20	0.0711	0.151	0.200
21	0.0438	0.098	0.140

CENTROID FACTOR ANALYSIS AND HOW MANY FACTORS TO EXTRACT

CFA was then performed using via PQ Method.(310) This software offers two methods of Centroid extraction described by Horst(321)and Brown.(302)

Horst's alternative method uses iterative solutions for communalities and also permits calculation of when the programme should stop extracting factors.(322) Horst proposed the limiting level of residual correlations be calculated by *average r2 < 1/NITEMS,(321)* for this Q sort the calculation suggests two factors should be extracted.

Brown's method(302) is customarily used and was followed for this analysis. it allows the researcher to choose the number of factors to be extracted and this decision was guided by the outputs of CPA (the scree plot and Horn's parallel analysis), Horst's calculation(321) and Watts and Stenner's pragmatic suggestion that CFA be starting by extracting one factor for every six to eight Q sorts in the study;(276)

21 participants = 21/8 = 2.6, rounded to 3

= 21/6 = 3.5, rounded to 4

= 3 – 4 factors

Using the PCA measures and pragmatic estimate the estimates to guide factor extraction ranged from two to four. CFA therefore proceeded by extracting five factors; this inclusive approach aimed to ensure no potentially significant factors were prematurely discarded before factor rotation. Kaiser-Guttman criterion, two or more significantly loading Q sorts and Humphrey's rule were then applied to the resultant unrotated factor matrix guide how many factors should be extracted for rotation.(302)

Significant factor loading at the 0.01 level = 2.58 x (1 / √number of items in Q set)

= 2.58 x (1 / √39)

= 2.58 x (1/6.24)

= 2.58 x 0.16

= 0.41

Factors with two or more significantly loading Q sorts are customarily accepted in analysis

Humphrey's rule states a factor is significant if "the cross-product of its two highest loadings (ignoring the sign) exceeds twice the standard error."; (302)

Standard error = 1 / (√number of items in Q set)

= 1 / (√39)

= 1 / (6.24)

= 0.16

Standard error x 2 =0.32

The unrotated factor matrix is detailed in table O. Two or more significantly loading Q sorts in a factor and significant eigenvalues are marked *, Humphrey's rule is calculated at the foot of each factor column with significance marked*.

TABLE O, UNROTATED FACTOR MATRIX; CFA OF FIVE FACTORS

Q Sort	Factors				
	1	2	3	4	5
1	0.5548	-0.1345	-0.2295	0.0298	0.1063
2	0.4319	-0.2567	0.2594	0.0693	-0.1311
3	0.3458	0.2656	0.0870	0.0548	0.1430
4	0.5695	0.4279	-0.3480	0.1937	0.3991
5	0.5317	0.2787	0.0126	0.0538	0.0496
6	0.5017	-0.2126	0.2277	0.0496	0.0752
7	0.4827	-0.5163*	0.4602*	0.2919	0.0681
8	0.5664	0.1891	0.4513*	0.1566	-0.1047
9	0.6412	0.0721	-0.2100	0.0260	-0.3029
10	0.6459	0.2918	-0.0017	0.0583	0.0683
11	0.7330*	0.0448	-0.0854	0.0054	-0.4642
12	0.6940	-0.2551	0.3445	0.1011	-0.1744
13	0.6972	0.2160	-0.0977	0.0373	0.1255
14	0.5586	0.2653	-0.2816	0.0899	-0.0326
15	0.4933	-0.2689	-0.2137	0.0516	0.3671
16	0.2764	-0.0526	-0.4425	0.1034	-0.2057
17	0.6719	-0.3724	-0.2197	0.0877	-0.0948
18	0.5695	0.3172	0.2335	0.1049	0.3014
19	0.7274*	0.1464	0.0526	0.0196	-0.2242
20	0.4720	-0.6325*	-0.1984	0.2416	0.0270
21	0.5602	0.1191	0.1683	0.0305	-0.0008
Eigenvalues	6.8328*	1.7874*	1.3897*	0.2768	0.9190
% study variance each factor explains	33	9	7	1	4
Humphrey's rule	0.533*	0.327*	0.208	0.070	0.185

SUMMARY OF OBJECTIVE DECISION MAKING CRITERIA

The guide to the number of factors to extract provided by objective decision making criteria is summarised in table P; the range remained 2-4 factors after CFA calculations were completed.

TABLE P, OBJECTIVE DECISION MAKING CRITERIA RESULTS

Measure	Suggested number of factors to extract
Scree test	3
Parallel analysis	2
Watts and Stenner estimate	3-4
Horst's calculation	2
Kaiser-Guttman criterion	3
Two or more significantly loading Q sorts	3
Humphrey's rule	2

VARIMAX FACTOR ROTATION

A decision was made to perform varimax factor rotation on CFA with five to two factors extracted. This was guided by the objective criteria and again ensured that no potentially significant factors were prematurely discarded.

Significant factor loading was used to judge which rotated Q sorts loaded significantly on a single factor, which were confounded (loading significantly on more than one factor) and which Q sorts were non-significant (no factor loadings above 0.41).

The rotated factor matrices and significantly loading Q sorts for extracted factors five to two are reproduced below (tables Q–X). Significant factor loadings are marked*. – indicates negative factor loading. Confounded Q sorts are shown in bold, red text.

TABLE Q, VARIMAX ROTATED FACTOR MATRIX (FIVE FACTORS)

Sort	Factor				
	1	2	3	4	5
1	0.27	0.16	0.29	-0.6*	0.45*
2	0.7*	0.55*	0.15	-0.4	0.11
3	0.46*	0.9*	0.3	-0.1	0.1
4	0.78*	-0.20	0.19	0.13	0.36
5	0.54*	0.14	0.22	-0.3	0.6*
6	0.22	0.49*	0.5*	-0.7*	0.24

7	0.5*	0.83*	-0.9*	0.13	0.30
8	0.49*	0.55*	0.12	0.2	-0.17
9	0.31	0.21	0.63*	-0.6*	0.13
10	0.63*	0.18	0.27	-0.4	0.11
11	0.29	0.38	0.72*	-0.10	0.3
12	0.23	0.75*	0.25	-0.6*	0.14
13	0.62*	0.16	0.30	-0.7*	0.25
14	0.49*	-0.2	0.45*	0.3	0.18
15	0.25	0.15	0.6*	-0.4	0.64*
16	0.2	-0.8*	0.50*	0.10	0.24
17	0.11	0.39	0.47*	-0.3	0.52*
18	0.71*	0.25	-0.5*	-0.1	0.8*
19	0.47*	0.38	0.48*	-0.10	0.3
20	-0.12	0.42*	0.27	0.14	0.66*
21	0.44*	0.34	0.18	-0.8*	0.5*

TABLE R, SIGNIFICANTLY LOADING Q SORTS (FIVE FACTORS)

Factor	Q sort											
1	2	3	4	5	7	8	10	13	14	18	19	21
2	2	3	6	7	8	12	-16	20				
3	6	-7	9	11	14	15	16	17	-18	19		
4	-1	-6	-9	-12	-13	-21						
5	1	5	15	17	20							

Q sorts with significant single factor loading ≥41 ***= 4 10 11***

Confounded Q sorts = ***1 2 3 5 6 7 8 9 12 13 14 15 16 17 18 19 20 21***

Q sorts with no significant factor loadings ≥41 =nil

2 of the 5 factors extracted account for 3 of the 21 Q sorts

TABLE S, VARIMAX ROTATED FACTOR MATRIX (FOUR FACTORS)

Sort	Factor			
	1	2	3	4
1	0.27	0.21	0.51*	0.8*
2	0.15	0.53*	0.12	0.5*
3	0.44*	0.8*	0.1	-0.1
4	0.68*	-0.16	0.41*	-0.14
5	0.57*	0.11	0.15	0.2
6	0.23	0.52*	0.16	0.8*
7	0.4	0.88*	0.11	-0.12
8	0.59*	0.47*	-0.13	-0.4
9	0.48*	0.14	0.45*	0.8*
10	0.66*	0.15	0.21	0.4
11	0.53*	0.28	0.41*	0.13
12	0.35	0.72*	0.18	0.8*
13	0.63*	0.16	0.34	0.7*
14	0.55*	-0.4	0.40	-0.2
15	0.14	0.27	0.52*	0.6*
16	0.12	-0.9*	0.51*	-0.6*
17	0.19	0.42*	0.65*	0.7*
18	0.65*	0.25	-0.1	-0.1
19	0.62*	0.30	0.26	0.11
20	-0.12	0.52*	0.65*	-0.9*
21	0.49*	0.31	0.10	0.7*

TABLE T, SIGNIFICANTLY LOADING Q SORTS (FOUR FACTORS)

Factor	Q sort number											
1	3	4	5	8	9	10	11	13	14	18	19	21
2	2	3	6	7	8	12	-16	17	20			
3	1	4	9	11	15	16	17	20				
4	1	2	6	9	12	13	15	-16	17	20	21	

Q sorts with significant single factor loading ≥41 ***= 5 7 10 14 18 19***

Confounded Q sorts = ***1 2 3 4 6 8 9 11 12 13 15 16 17 20 21***

Q sorts with no significant factor loadings ≥41 =nil

2 of the 4 factors extracted account for 6 of the 21 Q sorts

TABLE U, VARIMAX ROTATED FACTOR MATRIX (THREE FACTORS)

Sort	Factor		
	1	2	3
1	0.27	0.21	0.51*
2	0.15	0.53*	0.12
3	0.44*	0.7*	0.0
4	0.67*	-0.19	0.38
5	0.57*	0.11	0.15
6	0.23	0.52*	0.16
7	0.2	0.84*	0.10
8	0.57*	0.46*	-0.14
9	0.48*	0.15	0.45*
10	0.66*	0.15	0.21
11	0.54*	0.29	0.42*
12	0.34	0.72*	0.19
13	0.63*	0.16	0.34
14	0.55*	-0.5*	0.39
15	0.14	0.27	0.52*
16	0.12	-0.11	0.50*
17	0.19	0.42*	0.66*
18	0.65*	0.25	-0.2
19	0.62*	0.31	0.27
20	-0.13	0.48*	0.64*
21	0.49*	0.32	0.11

TABLE V, SIGNIFICANTLY LOADING Q SORTS (THREE FACTORS)

Factor	Q sort number
1	3 4 5 8 9 10 11 13 14 18 19 21
2	2 3 6 7 8 12 -14 17 20
3	1 9 11 15 16 17 20

Q sorts with significant single factor loading ≥41 ***= 1 2 4 5 6 7 10 12 13 15 16 18 19 21***

Confounded Q sorts = ***3 8 9 11 14 17 20***

Q sorts with no significant factor loadings ≥41 =nil

3 factors account for 14 of the 21 Q sorts

TABLE W, VARIMAX ROTATED FACTOR MATRIX (TWO FACTORS)

Sort	Factor	
	1	2
1	0.33	0.46*
2	0.16	0.48*
3	0.44*	0.3
4	0.71*	0.5*
5	0.58*	0.14
6	0.24	0.49*
7	0.3	0.71*
8	0.55*	0.23
9	0.53*	0.37
10	0.68*	0.20
11	0.58*	0.45*
12	0.36	0.65*
13	0.67*	0.29
14	0.60*	0.16
15	0.20	0.53*
16	0.17	0.22
17	0.26	0.72*
18	0.64*	0.13
19	0.65*	0.37
20	-0.6*	0.79*
21	0.50*	0.28

TABLE X, SIGNIFICANTLY LOADING Q SORTS (TWO FACTORS)

Factor	Q sort number
1	3 4 5 8 9 10 11 13 14 18 19 -20 21
2	1 2 4 6 7 11 12 15 17 20

Q sorts with significant single factor loading ≥41 ***= 1 2 3 5 6 7 8 9 10 12 13 14 15 17 18 19 21***

*Confounded Q sorts = **4 11 20***

*Q sorts with no significant factor loadings ≥41 =**16***

2 factors account for 18 of the 21 Q sorts

The three and two factor varimax solutions appeared reasonable and an output file recording these solutions was generated to demonstrate the unrotated factor eigenvalues plus percentage variance the rotated factors explained.

TABLE Y, EIGENVALUES AND EXPLANATORY VARIANCE (THREE FACTOR SOLUTION)

	Factor		
	1	2	3
Eigenvalues	6.8328	1.7874	1.3897
Explained Variance	21%	14%	13%
Explained Q sorts		14 of 21	

TABLE Z, EIGENVALUES AND EXPLANATORY VARIANCE (TWO FACTOR SOLUTION)

	Factor	
	1	2
Eigenvalues	6.8328	1.7874
Explained Variance	23%	18%
Explained Q sorts	18 of 21	

The varimax rotated three factor solution explained 48% of variance and 14 of the 21 Q sorts. The varimax rotated two factor solution 41% of variance and 18 of 21 Q sorts. All unrotated eigenvalues were significant. I decided to by-hand rotate both the three and two factor solutions to try to improve the variance and viewpoints captured by the solution.

BY-HAND ROTATION

The by-hand rotation was continued from varimax rotation in PQ Method using the PQROT function displaying the relative positons of selected factors to visually guide the by-hand rotation.(310) The rotating angles used between factors and the adjusted solutions are summarised in tables AA-FF. Significant factor loadings are marked*. – indicates negative factor loading. Confounded Q sorts are shown in red text.

TABLE AA, ROTATING ANGLES (THREE FACTOR SOLUTION)

Factor #1	Factor #2	Angle
1	2	3° (clockwise)
1	3	6° (clockwise)
2	3	13° (clockwise)

TABLE BB, BY-HAND ROTATION OF THREE FACTOR SOLUTION

Sort	Factor		
	1	2	3
1	0.3361	0.2990	0.4197*
2	0.1874	0.5331*	-0.0186
3	0.4395*	0.0382	-0.0548
4	0.6944*	-0.1457	0.3537
5	0.5887*	0.0980	0.0653
6	0.2678	0.5261*	0.0176
7	0.1014	0.8340*	-0.1014
8	0.5806*	0.3732	-0.2895
9	0.5337*	0.2077	0.3639
10	0.6851*	0.1450	0.1093
11	0.5940*	0.3320	0.2890
12	0.3962	0.7129*	-0.0144
13	0.6729*	0.1850	0.2352
14	0.5872*	-0.0066	0.3419
15	0.2048	0.3681	0.4289*
16	0.1607	-0.0052	0.4991*
17	0.2784	0.5370*	0.5220*
18	0.6529*	0.1881	-0.1333
19	0.6600*	0.3171	0.1315
20	-0.0391	0.6223*	0.5230*
21	0.5183*	0.2956	-0.0154

TABLE CC, SIGNIFICANTLY LOADING Q SORTS (THREE FACTORS BY-HAND ROTATION)

Factor	Q sort number
1	3 4 5 8 9 10 11 13 14 18 19 21
2	2 6 7 12 17 20
3	1 15 16 17 20

Q sorts with significant single factor loading ≥41 = ***1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 19 21***

Confounded Q sorts = **17 20**

Q sorts with no significant factor loadings ≥41 =nil

3 factors account for 19 of the 21 Q sorts

TABLE DD, ROTATING ANGLES (TWO FACTOR SOLUTION)

Factor #1	Factor #2	Angle
1	2	4° (clockwise)

TABLE EE, BY-HAND ROTATION OF TWO FACTOR SOLUTION

Sort	Factor	
	1	2
1	0.3631	0.4404*
2	0.1915	0.4644*
3	0.4360*	0.0050
4	0.7123*	0.0006
5	0.5925*	0.0960
6	0.2738	0.4711*
7	0.0763	0.7027*
8	0.5665*	0.1886
9	0.5562*	0.3270
10	0.6918*	0.1541
11	0.6133*	0.4039
12	0.4021	0.6205*
13	0.6873*	0.2455
14	0.6061*	0.1230
15	0.2333	0.5112*
16	0.1895	0.2079

17	0.3140	0.7011*
18	0.6459*	0.0880
19	0.6698*	0.3193
20	-0.0019	0.7892*
21	0.5196*	0.2408

TABLE FF, SIGNIFICANTLY LOADING Q SORTS (TWO FACTOR BY-HAND ROTATION)

Factor	Q sort number
1	3 4 5 8 9 10 11 13 14 18 19 21
2	1 2 6 7 12 15 17 20

Q sorts with significant single factor loading ≥41 **= 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 17 18 19 20 21**

Confounded Q sorts = nil

*Q sorts with no significant factor loadings ≥41 =**16***

2 factors account for 20 of the 21 Q sorts

TABLE GG, EXPLANATORY VARIANCE (THREE FACTOR SOLUTION)

	Varimax factor			By-hand rotation factor		
	1	2	3	1	2	3
Explained Variance	21%	14%	13%	23%	16%	9%
Explained Q sorts		14 of 21			19 of 21	

TABLE HH, EXPLANATORY VARIANCE (TWO FACTOR SOLUTION)

	Varimax factor		By-hand rotation factor	
	1	2	1	2
Explained Variance	23%	18%	24%	17%
Explained Q sorts		18 of 21		20 of 21

Eigenvalues were unchanged following by-hand rotation. The process did not improve the explained variance in either solution, remaining at 48% for the three factor solution and 41% for the two factor solution, though there was minor change in distribution between the factors; the varimax solution offering a more equal distribution. By hand rotation improved explanation of the Q sorts; increasing from 14 to 19 in the three factor solution and 18 to 20 in the two factor solution.

As all eigenvalues were significant and the total of all factor percentage variants extracted exceeded 35-40%, both solutions could be considered sound factor solutions. To discriminate between the two solutions tables of communalities were considered, exploring the representativeness of the Q sort or association of that Q sort with the factors extracted. Only one cumulative communalities matrix is presented for each factor solution (tables II-JJ) as the communality calculation is not influenced or changed following varimax or by-hand rotation.

TABLE II, CUMULATIVE COMMUNALITIES MATRIX (THREE FACTOR SOLUTION)

Sort	Factor		
	1	2	3
1	0.3078	0.3258	0.3785
2	0.1865	0.2524	0.3197
3	0.1195	0.1901	0.1977
4	0.3243	0.5074	0.6285
5	0.2827	0.3603	0.3605
6	0.2518	0.2970	0.3488
7	0.2330	0.4996	0.7113
8	0.3208	0.3565	0.5602
9	0.4111	0.4163	0.4604
10	0.4172	0.5023	0.5023
11	0.5373	0.5393	0.5466
12	0.4817	0.5468	0.6655
13	0.4861	0.5327	0.5423
14	0.3121	0.3824	0.4617
15	0.2434	0.3157	0.3614
16	0.0764	0.0791	0.2750
17	0.4514	0.5901	0.6384
18	0.3243	0.4249	0.4794
19	0.5291	0.5506	0.5534
20	0.2228	0.6229	0.6623
21	0.3138	0.3280	0.3563
Cumulative % explained variance	33%	41%	48%

TABLE JJ, CUMULATIVE COMMUNALITIES MATRIX (TWO FACTOR SOLUTION)

Sort	Factor	
	1	2
1	0.3078	0.3258
2	0.1865	0.2524
3	0.1195	0.1901
4	0.3243	0.5074
5	0.2827	0.3603
6	0.2518	0.2970
7	0.2330	0.4996
8	0.3208	0.3565
9	0.4111	0.4163
10	0.4172	0.5023
11	0.5373	0.5393
12	0.4817	0.5468
13	0.4861	0.5327
14	0.3121	0.3824
15	0.2434	0.3157
16	0.0764	0.0791
17	0.4514	0.5901
18	0.3243	0.4249
19	0.5291	0.5506
20	0.2228	0.6229
21	0.3138	0.3280
Cumulative % explained variance	33%	41%

The communality matrices demonstrate that in both three and two factor solutions factor one is associated with the majority of common variance (18 of 21 sorts in the three factor solution, 19 of 21 in the two factor solution). In the three factor solution the majority of common variance for sorts 7 and 20 was associated with factor two; in sort 16 the majority was associated with factor three. In the two factor solution the majority of common variance for sorts 7 and 20 was associated with factor two.

APPENDIX 17

CRIB SHEETS

FACTOR ONE CRIB SHEET

HIGHEST RANKING ITEM

31 Attempts to implement case-finding widely usually result in ‘tick box’ tokenism

ITEMS RANKED HIGHER IN THIS FACTOR ARRAY THAN OTHER FACTOR ARRAYS

2 Case finding for depression is not as useful in day to day practice as research suggests it should be

3 Case finding questions intrude upon consultations with patients

4 Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing

6 Case finding can result in patient’s emotional issues de-railing the consultation

21 Case finding tools are simple to use

24 Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address

26 Individual GPs and nurses are more likely to use case finding if they believe that most of their colleagues are doing so

34 Case finding misses what is important in many cases

35 There is a trade-off between case finding and other aspects of patient care

36 Many people have mixed feelings about case finding

ITEMS RANKED LOWER IN THIS FACTOR ARRAY THAT OTHER FACTOR ARRAYS

8 Case finding questions are not culturally sensitive

9 Asking case finding questions means knowing how to deal with responses that are more than just ‘yes’ or ‘no’

10 Case finding questions don’t need to be asked in a standardised way

17 The Quality and Outcomes Framework changed attitudes to case finding for depression for the better

19 Case finding questions work best if asked of selected patients rather than everyone

29 Practices should monitor the impact of case finding

30 Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression

33 Nurses feel that GPs impose case finding upon them

LOWEST RANKING ITEM

23 There are sufficient resources within primary care to manage case finding

ITEMS ADDED DURING INTERPRETATION

39 Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression

20 Case finding is usually best delegated to nurse-led chronic disease reviews

27 Asking case finding questions is emotionally challenging for the GP or nurse

FACTOR TWO CRIB SHEET

HIGHEST RANKING ITEM

14 Detecting depression by case finding can lead to improvements in patients' physical health problems

ITEMS RANKED HIGHER IN THIS FACTOR ARRAY THAN OTHER FACTOR ARRAYS

5 Resources would be better used to train practice staff in managing patients with existing depression

11 Case finding questions are best asked by someone who knows the patient well

17 The Quality and Outcomes Framework changed attitudes to case finding for depression for the better

19 Case finding questions work best if asked of selected patients rather than everyone

22 Case finding detects depression which might otherwise go undiagnosed

25 Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression

27 Asking case finding questions is emotionally challenging for the GP or nurse

ITEMS RANKED LOWER IN THIS FACTOR ARRAY THAT OTHER FACTOR ARRAYS

7 Case finding results in too many false positives

12 Case finding does not actually help improve patient outcomes

15 Case finding for depression adds to the healthcare burden experienced by patients with long-term physical condition

32 Case finding for depression has been unfairly imposed on primary care

34 Case finding misses what is important in many cases

37 Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses

38 Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing

39 Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression

LOWEST RANKING ITEM

16 Case finding undermines long-term relationships with patients

ITEMS ADDED DURING INTERPRETATION

8 Case finding questions are not culturally sensitive

10 Case finding questions don't need to be asked in a standardised way

18 How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result.

21 Case finding tools are simple to use

31 Attempts to implement case-finding widely usually result in 'tick box' tokenism

FACTOR THREE CRIB SHEET

HIGHEST RANKING ITEM

31 Attempts to implement case-finding widely usually result in ‘tick box’ tokenism

ITEMS RANKED HIGHER IN THIS FACTOR ARRAY THAN OTHER FACTOR ARRAYS

7 Case finding results in too many false positives

23 There are sufficient resources within primary care to manage case finding

28 Case finding questions can be asked in a way that discourages a positive response

30 Case finding picks up low mood caused by life events and is not helpful in detecting new cases of depression

37 Case finding for depression in long-term physical conditions has increased rates of new depression diagnoses

38 Case finding for depression in long-term physical conditions has increased rates of anti-depressant prescribing

39 Incentivising case finding for depression in coronary heart disease and diabetes results in other groups of patients receiving less adequate care for depression

ITEMS RANKED LOWER IN THIS FACTOR ARRAY THAT OTHER FACTOR ARRAYS

1 Case finding for depression is inappropriate because it does not meet all of the conditions for a good screening test

4 Case finding the absence of an agreed pathway for managing patients is wrong and can drive inappropriate antidepressant prescribing

6 Case finding can result in patient’s emotional issues de-railing the consultation

21 Case finding tools are simple to use

24 Symptoms of depression are often disregarded or downplayed because there are more pressing issues to address

25 Case finding eases the consultation by making it less awkward to ask the patient about symptoms of depression

27 Asking case finding questions is emotionally challenging for the GP or nurse

LOWEST RANKING ITEM

16 Case finding undermines long-term relationships with patients

ITEMS ADDED DURING INTERPRETATION

8 Case finding questions are not culturally sensitive

9 Asking case finding questions means knowing how to deal with responses that are more than just ‘yes’ or ‘no’

10 Case finding questions don’t need to be asked in a standardised way

18 How case finding is delivered (on the telephone, face to face or in writing) has no influence on the result

29 Practices should monitor the impact of case finding

APPENDIX 18

POST-SORT QUOTES LISTED BY ITEM NUMBER

POST-SORT QUOTES: FACTOR ONE

4 “The number of prescriptions for antidepressants in the UK has, by some estimates, doubled over the last decade. Whilst it may be that we are picking up more cases as a result of case finding and decreased stigmatisation of mental illness, we lack the resources to appropriately deal with the increased number of diagnoses in primary care. It is my suspicion that with improved access to psychological therapies and social support, many cases of antidepressant prescribing could be avoided.” Participant 13, GP

5 “All patients should have their mental health status/issues addressed equally.” Participant 21, ANP

9 “Because depression is a complex issue and the person asking has to be able to deal with the response and discuss this with the patient.” Participant nine, GP

9 “These questions should not be asked by staff who do not know how to deal with the fallout. If someone answers the questions in such a way that this suggest they may have depression it is no good then saying 'ok, you need to see the GP' - the opportunity to talk to the patient at the time is really important in affirming their disclosure and helping them seek appropriate help. This is particularly important for men who are less likely to present to the GP. “ Participant 11, GP

10 “Relationships and consultation skills mean you can deliver the questions in a personalised manner if needed.” Participant 14, GP

12 “Identifying depression in chronic disease does not appear to improve either physical or mental health outcomes or reduce the increased mortality associated with co-morbidity.” Participant three GP

16 “I can't see how this would be unless the questions are asked in a very insensitive manner at a very inappropriate moment, but most healthcare professionals would be sensitive to this.” Participant five, GP

18 “Without eye contact and a clear clinical context I would be apprehensive that case finding over phone would strike the patient as a scripted obligation (such as a questionnaire from the bank) which would seem crass and likely to discourage open responses.” Participant four, GP

20 “Because nurses tend not to have any mental health training and are the least experienced clinicians in a practice in regards to mental health. Depression is complicated and should be dealt with by people who can manage it and are experienced at managing it.” Participant nine, GP

20 “I don't think this is just something to pass on to nurses- it should include all the clinical team. If the evidence supports case-finding and improves outcomes then it should be the whole team's responsibility.” Participant 19, GP

22 “There is often so much to deal with in a 10 or 15 min consultation that the professional and patiently not get the chance to ask about depression. It makes sense to me that case finding would give an opportunity for those who are 'suffering in silence' to let their GP/nurse know.” Participant 18, GP

23 “General practice is overwhelmed with the demand it already has. Adding to that demand is not something GPs want to do. We know from data that actual vs

theoretical prevalence is very different, particularly in deprived populations. To address this additional need/demand would take extra work by extra staff in the short to medium term. There is no extra resource for this at present." Participant eight, GP

23 "There are insufficient resources for most things in primary care these days" Participant ten, practice nurse

23 "There is inadequate consultation time and then a lack of resources to help patients mange the problem that is uncovered - there needs to be time to help the patient in primary care by flexibility with appointment times and appropriate services e.g. CBT, supervised exercise programmes, help with diet and managing chronic disease for the patients to benefit." Participant 11, GP

23 "The NHS is underfunded. There has been no increase in spending on the health service since 2010 (OECD data) and the service has had to cope with the largest scale reform in its history as a result of the Health and Social Care Act, 2012. Primary Care receives around 8-9% of the total NHS budget, despite undertaking 90% of the workload. Practices are currently struggling to meet the existing needs of patients and many are struggling to remain viable in the current financial climate." Participant 13, GP

23 "Many GPs and nurses struggle to meet basic demands of the job in a safe way due to lack of resources. There is no point in case finding if we do not then have the resources to deal with it appropriately and safely." Participant 18, GP

23 "The resources are incredibly limited and there is no output for identified cases of mental health problems." Participant 14, GP

24 "The 10 minute appointment slots for GP consultations are mainly the issue here. GP's are forced to deal with the most pressing issue (generally medical) in a very short space of time. Discussing emotional issues can take up a lot of time." Participant ten, practice nurse

24 “Time constraints during consultation.” Participant 21, ANP

26 “It's such a powerful driver - what your colleagues do.” Participant five, GP

27 “Keeping to time is already a challenge in today's general practice. Demand is very high and GPs and nurses do not get breaks in their day. Adding to that already very high burden of demand is antithetical to good timekeeping. Mental health consultations take longer, and if people admit to depression, it often takes 10-15 minutes minimum to discuss that further. In an 18 patient surgery of 10 minute back-to-back appointments, that's not possible. GPs and nurses are already stressed and find it difficult to deal with the difficult emotions of their patients as a result. It is depressing to talk about depression.” Participant eight, GP

31 “See it as a similar to when a PHQ-9 was required for every IAPT referral - it became a meaningless exercise which didn't change how I managed my depressed patients.” Participant 19, GP

36 “I think it would strike most clinicians as another worthy idea that has been added to primary care workload. Any one of these ideas might seem sensible in isolation, but when taken in aggregate there is a clear opportunity cost since all the other requirements which have been imposed are significant and there is a limit to what can be achieved in a 10 minute consultation. In addition, in a context in which mental health services are not readily available and GP consultations are very limited it seems somewhat naive and to identify more cases of depression, when we lack the means to treat it effectively.” Participant four, GP

39 “From my practice, depression is treated similarly regardless whether it is identified through case finding or other means. If anything it has been harder to get CBT or talking therapies for co-morbid depression.” Participant three, GP

POST-SORT QUOTES: FACTOR TWO

14 “Depression may be impacting on the patient`s physical wellbeing; e.g. lack of motivation due to low mood can result in weight gain, lack of exercise etc. This will impact on other health issues e.g. diabetic control becoming worse. By improving mood/depression will have opposite affect.” Participant six, senior practice nurse

14 “Case finding can be extremely beneficial in patients, once identified and steps taken to improve outcomes I have found that the physical health of the patient can be significantly improved. I believe in treating the whole person; holistic care…a patient with COPD whom may be depressed may be encouraged to attend and mix with others living with the same condition (e.g. pulmonary rehab). I have personally found that supporting a person’s mental health can improve their perception of physical health and needs. Attention to mental health and well being can vastly improve a persons quality of life.” Participant seven, practice nurse

14 “Psychological well-being is often linked to feelings of physical well-being, therefore case finding - and management - can lead to increase in physical health.” Participant 12, GP

20 “Nurses have probably not had the training - or judgement- to be able to ask questions sensitively and in a way that suits the individual patients. One size does not fit all.” Participant 12, GP

21 “They could be more integrated in computer system.” Participant two, GP

27 “It can be difficult to ask questions about mental health. Also can be difficult if clinician is suffering from stress and mood disturbance themselves.” Participant two, GP

24 “I disagree because I feel that any form of case finding for depression is much better for the patient than potentially ignoring the elephant in the room. We must care holistically for patients rather than seeing the separate paradigms. I believe case finding opens up channels of conversation that will lead to what is important. I can however see the Time constraints of dealing with thorough and effective case finding given pressures on staffing and resources.” Participant seven, practice nurse

39 “Feel it is not just these 2 areas where depression can occur.” Participant six, senior practice nurse

POST-SORT QUOTES: FACTOR THREE

6 “Most clinicians are very experienced at asking thee kind of questions, and dealing with the consequences Also emotional issues may be the most important things, so fine if derailed - sometimes it should be.” Participant 15, GP

9 “If you just go for yes no, you will miss a lot, duration, other life events etc., plus if you get a yes you have to do something.” Participant one, GP

10 “Case finding can be valuable but needs to be done in a way appropriate for individuals standardised questions are too impersonal and do not work for everyone if the clinician knows a person well they can filter life events which may impose a label of depression onto someone who just needs support to deal with life changes . This highlights the need for good relationships with patients and person centred care.” Participant 16, ANP

16 “This is just not my experience, but can be difficult if you really don't know the patient.” Participant one, GP

23 “Staff are skilled at doing this and it doesn't take long.” Participant 15, GP

25 “There's nothing awkward about asking someone how they feel but the scripted statements are awkward.” Participant 16, ANP

CHAPTER FIVE

SYNTHESIS OF STUDY FINDINGS FROM INTERRUPTED TIME SERIES ANALYSIS, SYSTEMATIC REVIEW AND Q METHOD STUDIES

PRINCIPAL FINDINGS

This work focused on the process of case finding for depression in long-term, physical conditions in primary care. The three component studies of the thesis considered what primary health care professionals did when case finding was incentivised by QOF (interrupted time series, chapter two), what primary health care professionals say publicly about case finding (systematic review, chapter three) and whether there were any shared perspectives amongst primary health care professionals that characterised recognizable viewpoints (Q method study, chapter four). Examining the process of case finding adds to the understanding of how case finding, and the policy of its incentivisation, were implemented; such studies also offer pointers to how future case finding programmes should be planned.

The interrupted time series described clinician behaviour: incentivised case finding increased new depression-related diagnoses, and the establishment of the QOF system disrupted rising trends in new prescriptions of antidepressants, which resumed following the introduction of the specific QOF programme of incentivised case finding. Prescribing trends were of concern as prescriptions for people with mild to moderate depression (who are unlikely to respond to such treatment) almost certainly increased.

The systematic review identified clinician publicly-stated views about case finding. All included data could be categorised into four superordinate themes; contradictory beliefs about case finding, mistrust, trade-offs and dilemmas. Together these themes demonstrated conflict and tensions within and between organisations, professional groups and individuals. These tensions suggest significant influences on the perception and implementation of case finding beyond direct barriers and enablers. They offer one explanation, from the perspective of primary care staff, of the difficulty in implementing effective case finding for depression in long-term physical conditions.

The Q method study demonstrated how the opinions identified in the review came together to produce three recognisable positions, or factors, adopted by clinicians. Factor one described objections to the principle of case finding for depression. Factor two considered case finding

for depression is worthwhile. Factor three described criticism of the implementation of case finding for depression. Demographic factors appeared to have little predictive value on the viewpoint likely to be held by a participant. Each of the positions identified may influence how primary health care professionals implement, deliver and respond to case finding for depression in long-term physical conditions in primary care.

Convergence between study findings is present. The contradictory beliefs about case finding evident throughout the review are reflected in Q method results. This may be expected as Q items were largely generated from the review, but these distinct positive or negative viewpoints also persisted at a higher level, following study analysis, when divergent or contradictory views were characterised.

Q sort items generated from the TDF domains were often ranked at the extremes of the Q sort, indicating strong participant agreement or disagreement. The same items were also used to distinguish between factors in the Q study, (for example, environmental context and resources and item 23 *there are sufficient resources within primary care to manage case finding*, and beliefs about consequences and item 6 *case finding can result in patient's emotional issues de-railing the consultation*). Agreement that primary health care professionals modify or subvert case finding, and believe their professional or clinical judgements are superior to case finding tools, were also themes in both the review and Q study.

Three of the superordinate themes identified in the review, mistrust, trade-offs and dilemmas, represented by items 34, 35 and 36 in the Q sort, became distinguishing statements for factor one in the Q study (*objections to the principle of case finding for depression*). Item 34 (*case finding misses what is important in many cases*) was also used to distinguish between negative viewpoints expressed in factors one and three; ranking positively in factor one (*objections to the principle of case finding for depression*) and negatively in factor three (*criticisms of the implementation of case finding for depression*). This suggests participants recognised the new themes to be authentic and representative of their experience of case finding.

Divergent findings were also evident, some related to study methods, for example the quantitative approach of the interrupted time series compared to the qualitative review and Q study resulted in distinct outputs, though differences in views expressed and categorised in the review and Q method were also noted.

Given that the interrupted time series demonstrated a marked increase in prescribing following introduction of the incentive scheme, it is interesting that concerns about overprescribing of antidepressant drugs were prominent in the Q method, but featured little in

the review where the main worry was about the adverse effects of antidepressant drugs on the physical health of patients with long-term conditions. This might suggest while clinicians are able to see the disadvantages of prescribing when considered in abstract, in day-to-day practice they found prescribing the most acceptable or appropriate management option, or that prescribing represented a convenient way of coping with the volume of work generated by positive case finding results.

The biggest discrepancy between the review and Q study concerned the issue of delegation of case finding to nursing staff. Review findings suggested this was common, whereas contributors to the Q study agreed case finding questions should not be delegated to nurse-led chronic disease clinics. The difference in opinion could be the result of contributors feeling able to offer more candid opinions in publications quoted in the systematic review (for example, grey literature and doctors.net forum), or the time delay between the two studies allowing clinicians to reflect on the implementation of incentivised and non-incentivised case finding.

STRENGTHS AND WEAKNESSES OF THE THESIS

The thesis was composed of three studies, each designed with attention to relevant methodological guidelines or quality criteria. The strengths and weaknesses of individual studies were discussed in full in Chapters Two to Four and are summarised here, before considering strengths and weaknesses of the thesis as a whole.

The interrupted time series was conducted in line with recognised quality criteria.(110) Strengths included making full use of existing, routine clinical data and considering a number of long-term physical conditions not targeted by QOF incentivised case finding to examine the wider effects of the initiative. Weaknesses relating to two quality criteria were identified; the decision not to pre-specify the shape of intervention effect, and data collection via computing systems which may have influenced observed trends and be associated with variation in practice performance. The 'noise' associated with use of this routinely available data may also have diminished the magnitude of observed effects. Four other limitations are apparent: first, the inability to examine patient outcomes; second, incomplete (58%) participation of general practices in Leeds; third, residual confounding resulting from the likelihood those patients in the target population had a greater number of comorbidities than non-targeted patients, and consequently an increased risk of depression; fourth, a non-intervention control group would have enhanced the internal validity but was not feasible given the near-universal uptake of QOF.

The strength of the systematic review came from combining data from qualitative, quantitative and grey literature sources. The main limitations are: a broad review question resulting in expansive results and discussion; one reviewer coding the majority of review data alone; difficulty in unambiguously assigning data items to the TDF in the analysis, and the use of 'best fit' framework synthesis in preference to a theory or model. The choice of the TDF as the organising framework to underpin the 'best fit' framework synthesis of the systematic review was questioned in chapter three. The use of a different theoretical framework based more upon organisational than individual influences on policy-uptake might have led to greater insight into why primary healthcare professionals held particular beliefs about case finding for depression in long-term physical conditions, and could potentially have improved the results and utility of this study by better explaining or predicting clinician practice. Despite this the openness of a broad organising framework was valuable in the integrative review by avoiding the influence of interpretive constructs.

The Q method study used a comprehensive Q set developed from varied sources and employed varimax and by-hand rotation to improve the final solution to the study. Limitations included lower than planned recruitment with participants who were not representative of the varied demographic profile of primary healthcare professionals in England, the use of objective measures for factor extraction which some Q specialists disagree with, and the online Q sort limiting retention of participants and restricting the collection of pre and post-sort information. The study may have been enhanced, and meaning ascribed during the sorting process better understood, had the sort been conducted face-to-face allowing a participant commentary to be recorded, or face-to-face post-sort interviews included. Overall the Q method study findings require cautious interpretation given lower than hoped for recruitment.

Although these study choices were suitable to answer the research questions posed, the addition of a qualitative interview study could have been valuable. Interviews may have allowed me to build on the results of the systematic review, extend the concourse for the Q method study and contextualise the interrupted time series, though these aims were largely achieved by Alderson's ethnography, included in the review, on which I was a co-investigator.(134)

Considering the thesis as a whole the major strength was the combined use of methods. The different methods identified diverging views of similar case finding experiences, expanded the depth and breadth of the work, recognised contradictions in findings from different studies and allowed later studies to clarify or interpret the results from earlier work.(323, 324)

Four main limitations are acknowledged.

The first relates to the long timeline of this PhD. The period of study included a number of changes to policy and practice which changed the focus of the PhD, from QOF incentivised to guideline recommended case finding. Comparing the timelines of NHS endorsement of case finding and the PhD, case finding was recommended by NICE depression guidelines from 2009 (33, 34) and remains guideline recommended by NICE and others, including the RCGP.(79, 80) QOF rewarded case finding for depression in all patients with a diagnosis of CHD or diabetes over 2006-13. In contrast this PhD was registered December 2008. The application for RfPB funding for the interrupted time series began 2010 and the study ran 2011-13. The systematic review first began 2009 and was repeated 2013-15 following return from maternity leave when policy and practice had changed. The Q study ran 2016-17. Therefore the PhD was conceived after the start of QOF incentivised case finding, the interrupted time series planned and completed during the time of QOF and NICE recommended case finding, and the review and Q study completed whilst case finding is guideline recommended. It is possible that the positions characterised may have differed if the Q method study had been completed before the end of incentivised case finding, with positions adopted by clinicians on incentivised case finding possibly being different to those on the policy of case finding.

Studying case finding for depression against this background of changing policy and practice brought challenges, such as change influencing primary health care professionals' perceptions of case finding and its relevance. Despite this the evolving context could be viewed as an advantage, demonstrating the underlying and incompletely resolved challenge faced by primary healthcare professionals approaching the still-relevant challenge of how to implementing case finding.

Second, the thesis did not seek to identify links between observed behaviours in the interrupted time series analysis and primary healthcare professionals characterised in the Q method study. Understanding these links may have explained whether any difference exists in the clinical behaviours of clinicians adopting negative positons on case finding; for example, whether delivery of case finding, or follow up and treatment of case finding detected depression, varied between the two groups who objected to the principle of case finding or criticised the implementation of case finding.

Third, all studies in this work looked at processes of case finding rather than outcomes. In doing this it identified problems which were not addressed before case finding was

recommended or incentivised, but did not consider the effectiveness of case finding or clinical outcomes.

Fourth, although the interrupted time series had formal patient and public involvement, limited participant advice in the remaining studies may be considered a weakness. Patient and public involvement has been acknowledged to increase study recruitment, improve researcher understanding and insight into the area of study and enhance implementation and dissemination of study results.(325-327) As this research focuses on clinician perspectives their views were sought in a less formal way, for example when piloting the Q sort, though this consultation processes could have been expanded and formalised. This work was also linked to a wider body of work, including the ethnography,(134) which explored patient perspectives and experiences.

IMPLICATIONS OF THE PhD FINDINGS

IMPLICATIONS FOR CASE FINDING FOR DEPRESSION

It is widely accepted that it is important to detect and manage depression in long-term physical conditions, but it is not known how to detect it effectively. This thesis described what a group of primary healthcare professionals did at a time when case finding was recommended in official guidelines and QOF incentivised, described what primary healthcare professionals in general thought about the process, and considered whether any shared perspectives could be characterised.

It is recognised that standardised case finding tools have acceptable validity to identify patients with long-term physical conditions who would benefit from further assessment to consider a diagnosis of depression. These tools were introduced to clinical practice without understanding how they would be incorporated into routine work by GPs or how they would influence treatment decisions. This work highlighted that primary healthcare professionals had mixed feelings about the case finding process. Clinicians accepted the logic of the scheme made sense (a positive case finding result leading to diagnostic interview, PHQ9 and management of any diagnoses of depression), but largely judged the process to be undesirable or support for implementation to be inadequate. This discussion will integrate the findings of this PhD with other work, to conclude that case finding is inherently flawed and problematic to implement.

Although this thesis did not examine patient outcomes following case finding, there is no evidence from the wider literature that case finding improves patient outcomes whether in the presence or absence of coordinated care systems,(73-75) suggesting that this approach to

detecting depression is inherently flawed. Parallels can be drawn between case finding for depression and other case finding strategies which had a lower than expected impact, such as limited uptake of the NHS Health Check in England.(328)

The logic model inherent in policy and guideline recommendations for case finding for depression infers 'something' must be done about the burden of depression in long-term physical conditions. If there is no change to current policy and recommendations on case finding, the initiative will remain controversial. Based on the shared perspectives described in the Q study, groups of primary healthcare professionals will advocate or resist the process, creating potential conflict and tensions within and between organisations, professional groups and individuals, and possibly disparities in care provided to patients according to practitioner beliefs. US data describe unequal rates of case finding based on patient and professional factors; increased rates for those who have diabetes and a past history of depressive illness, despite those with no history of depression presenting with more active symptoms of depression,(329) and lower rates in African-Americans and the elderly.(72) Primary healthcare professionals using electronic health records are known to be more likely to ask case finding questions.(72) It is possible that other professional factors, such as personal beliefs, could also influence the decision whether to include case finding questions in busy, day to day practice.

Disparities in care may already be emerging. It is acknowledged that performance levels decline when financial incentives are withdrawn(135) and it is likely the current rates of case finding for depression do not reflect those reported in the interrupted time series. A retrospective analysis examining withdrawal of QOF indicators found some evidence of reduced quality of care, though each indicator studied was indirectly incentivised by other QOF targets and the effect of complete withdrawal of a QOF indicator (such as case finding for depression) is not known.(154) Non-QOF data from US studies suggest a significant decline in performance when incentives are completely withdrawn. (330, 331) The disparities in care which can accompany withdrawal of incentives are likely to widen existing health inequalities in the detection and management of depression. Proponents of QOF argue it "force(s) GPs to take a step back from individual patient needs to deliver more equitable care at a population level."(332) QOF incentivised case finding was intended to address the poorer clinical outcomes of patients with coronary heart disease and/or diabetes and comorbid depression. Whilst a lack of benefits from case finding has been shown, the issues of disparities in care and outcomes for patients with comorbid depression and long-term physical conditions remain important. Other approaches need to be considered to address these problems.

What effect has the withdrawal of QOF incentivised case finding had on current recommendations or endorsements for case finding for depression?(34, 79, 80, 82, 98) Dominant concerns from primary healthcare professionals in each study may be translated in to doubts about the validity of case finding; mistrust of the process potentially representing perceived poor construct or face validity, trade-offs suggesting clinicians question prognostic validity when aiming to maximise clinical outcomes, and concerns about inappropriate prescribing invoking doubts about the predictive validity of case finding. The Q method study also suggests polarisation of positions on case finding persist. Further, QOF incentivised case finding was derided(232, 332) and the lack of evidence from the wider literature that the initiative improves patient outcomes has been highlighted.(333) Unless exploratory work suggesting low rates of case finding were associated with a reduction in all cause mortality and vascular events(334) can be replicated, and the process proved to have a tangible outcome, case finding is likely to remain a low priority for many clinicians and unlikely to be re-incentivised at local or national level despite policy recommendations.

Having reflected on the findings of this thesis I consider that there is insufficient evidence for case finding for depression in long-term physical condition to be recommended or incentivised, because underpinning evidence and logic are flawed and because of problems in implementation. This thesis consistently demonstrated a mixed view of case finding amongst primary healthcare professionals, with both the principles and implementation proving unacceptable to many, leading to potential conflict, tensions and disparities in clinical care. This does not mean that the detection and treatment of unidentified depression is unimportant or a low priority. Case finding might be effective within properly resourced managed care arrangements and within defined pathways of care. However, based on available evidence and within the current context of English general practice, without well understood pathways and in face of competing clinical priorities, it seems unlikely that it will have beneficial effects. Case finding could therefore be considered an inappropriate use of finite resources.

Although identification of patients who may be depressed can be challenging, (37) discussion and exploration of symptoms and experiences can replace scripted case finding questions. This belief was emphasised by clinicians in the systematic review and Q method study. Any primary healthcare professional who believes a patient may be depressed can assess that individual, or refer them to a clinician with the appropriate skills to do so. In the long term the lack of benefits of case finding for depression may be addressed by a properly planned and communicated care pathway that includes thresholds to manage the volume of work –

analogous to managing malnutrition via the Malnutrition Universal Screening Tool, (335) or obesity according to body mass index and comorbidities.(336) Until well delineated care pathways are developed efforts to raise awareness of mental health issues, tackle stigma and increase funding for mental health services (337-341) may aid the detection process by encouraging previously reluctant patients to disclose symptoms and accept diagnoses of mental health problems.

WIDER LESSONS FOR CHANGING CLINICAL BEHAVIOUR

It could be suggested that primary healthcare professionals' beliefs about implementing case finding are not exceptionally different from those expressed about other clinical behaviours: concerns about increasing or unnecessary prescribing of antidepressant drugs identified in this thesis and parallel concerns about the prescription of opioids for non-cancer pain.(342) This work can therefore be used to inform wider efforts to effect changes in clinical behaviour. Three key recommendations are identified; the importance of engaging clinicians when developing and disseminating initiatives, attributes of targeted behaviour which increase the likelihood of successful implementation and the impact of competing demands on clinicians in primary care.

First, it is possible that not consulting with those implementing an initiative leads to a loss of downstream effect. *Developing NICE Guidelines: The Manual* (343)acknowledges the importance of involving key stakeholders in the guideline development process, particularly those who will be directly affected by guidance or policy changes. Such collective decision making emphasises that anyone who is affected by a decision should be allowed to participate in and influence deliberations about that decision.(344) As recognised in a King's Fund report,(345) involving clinicians in the process of developing new practices and policies could lead to success in achieving sustained quality improvement.

The importance of clinicians in reinforcing and disseminating information on guideline-recommended behaviours was brought out in this work; for example the roles of formal and informal networks between clinicians were noted in both the systematic review and Q method study. Effective use of these 'mindlines'(346, 347) and other clinician-centred approaches to sharing information on behaviour change initiatives should be explored, alongside extending the use of more democratic approaches to national and local target setting to enhance clinician engagement.

Second, despite the challenges in successfully changing clinical behaviour some practices have been effectively incentivised; for example long-acting reversible contraception use was

successfully incentivised by QOF(105) and cervical screening has almost halved cervical cancer rates in England since introduction in 1988.(348) It is known the success of implementation strategies depends in part on the nature of the targeted behaviour. One observational study identified key attributes of guidelines which were more likely to be followed; that the recommendations were non-controversial, clearly defined, did not involve a change in clinical practice and evidence based.(349) Although long-acting reversible contraception use and cervical screening required a change in clinical practice they meet the remainder of these criteria. When comparing these behaviours to case finding for depression it could also be suggested the processes cannot be modified by the clinician and that the behaviour achieves an 'end product' rather than being part of an interrupted process of assessment. Primary healthcare professionals may also believe the practices are more worthwhile as a result of their non-controversial evidence base. The medical media also influence primary health care professionals' perceptions and behaviours – for example 'low mood' was included in the BMJ *Too Much Medicine* series, a campaign to highlight "the threat to human health posed by overdiagnosis and the waste of resources on unnecessary care."(350) This campaign emphasised that "depression is more likely to be overdiagnosed than under diagnosed in primary care"(351) potentially reinforced the perception that recommending or incentivising case finding is unimportant.

The economic concept of 'crowding out' is also relevant.(352, 353) 'Crowding out' describes the paradox that incentives do not always bring about the expected response from clinicians; for example, the size of the incentive does not have a linear association with impact,(354) or evidence of moral drivers in professional behaviour such as significant clinician engagement with a quality improvement programme despite the cost to the practice being greater than the financial reward for participating.(355) Two proposed explanations for the 'crowding out' phenomena are that incentives may impair self determination and lead to a loss of professional autonomy, or lead to the perception amongst clinicians that their professionalism is no longer valued.(352) Both of these ideas featured in the systematic review. In comparison, if clinicians have a sense of control, agency or partnership in an incentivised activity this can enhance internal motivation.

Third, the promotion and incentivisation of case finding for depression in long-term physical conditions had unintended but not unpredictable consequences. Introducing what appears to be a relatively simple intervention can create more work than initially envisaged and have unintended consequences by introducing competing demands. These pitfalls are seen not only with case finding for depression, but other 'simple' interventions such as collecting data on

patient's sexual orientation (356) and managing hypoglycaemic medications in type two diabetes (357) - service pressures and workload in primary care often necessitating trade-offs. Those planning new initiatives for primary care should consider 'one in, one out;' clinicians cannot keep adding activities and cope with increasing demands on primary care without modifying or revising their practice and clinical behaviours.

This issue of competing demands is likely to remain relevant to clinicians and policymakers, particularly in the context of limited resources during a time of increasing workload, change in primary care and the wider NHS and increasing tensions in healthcare.(266-268, 358) Concerns about the obligations placed on primary care to implement policies of doubtful benefit, and with low patient and professional acceptability, have been expressed in response to other initiatives. Identifying frailty raises a number of similar issues to case finding, notably "helpful but imperfect tests for possible use"(359) and the precept that "the existence of a problem …does not presuppose the existence of an effective solution—or even a flawed one."(359)

FURTHER RESEARCH QUESTIONS

Whilst I consider that there is insufficient evidence for case finding for depression in long-term physical condition to be recommended or incentivised, the detection and management of patients with depression, and the aims of reducing associated morbidity and mortality, remain important. Despite evidence of the statistical validity of case finding tools when compared to diagnostic interviews, the logical sequence of case finding, detection and treatment of individuals to improve physical and mental health outcomes did not work as intended.

The next step may be to rethink the process of case finding and ensure any new or suggested approaches to the intervention are refined and rigorously evaluated, building a more robust evidence base. Ideally this evidence base would link case finding and diagnosis to clear treatment pathways and thereby to tangible patient outcomes – thus gaining the confidence of primary healthcare professionals and policy makers. This could be achieved using a structured framework, such as the iterative development-evaluation-implementation process advocated in the Medical Research Council Complex Interventions Framework.(360)

Clearly defined pathways are acknowledged to be an effective means of communicating clinical guidelines.(361) Linking diagnostic thresholds to specific management options in a guideline or pathway is an established means of managing patients safely and effectively, and of moderating workload.(335, 336) NICE advises a 'stepped-care' approach to the treatment of depression in primary care, (33, 34) seeking to avoid overtreatment and to tailor care to the individual patient. 'Stepped-care' could be linked to patient assessment with a clinical tool

following a diagnosis of depression, including diagnoses resulting from a positive case finding result assessment. Care driven by a 'stepped-care' pathway may improve patient outcomes, addressing concerns about the perceived inefficacy of case finding and overprescribing of antidepressant drugs. In turn this may resolve the mixed views about case finding expressed by primary healthcare professionals and improve implementation of the initiative. Iterative development of the pathway may produce a process of clinical management which is suitable for testing using a randomised trial, to provide the missing evidence that case finding improves patient outcomes.

CONCLUSION

This thesis aimed to examine the impact and consequences of case finding for depression in patients with long-term physical conditions in primary care from the perspective of primary health care professionals. It achieved this aim through three studies. An interrupted time series which described the effects of QOF incentivised case finding for depression - increasing diagnoses and driving antidepressant treatment of depression. A systematic review which described the contradictory beliefs held by primary healthcare professionals, and the mistrust, dilemmas and trade-offs these clinicians experience that might undermine the implementation of case finding for depression. A Q method study which identified three distinct positions held by primary healthcare professionals about case finding; two negative, objecting to the principles and implementation of case finding, and one positive, considering case finding to be worthwhile. This spread of perspectives increases the challenge of successfully implementing case finding.

These findings, considered alongside the absence of evidence that case finding improves clinical outcomes, indicate that case finding for depression in long-term physical conditions should not be recommended or incentivised until more robust evidence of improved patient outcomes resulting from the changes case finding is likely to drive, especially in prescribing, and acceptability to professionals becomes available. There is also a more general need for caution when introducing seemingly 'simple' interventions into complex clinical practice due to the unintended consequences of introducing competing demands.

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