UK National Screening Committee

Screening for depression in adults

External review against programme appraisal criteria for the UK National Screening Committee

Version: Final publication document

Author: Solutions for Public Health

Date: August 2020

The UK National Screening Committee secretariat is hosted by Public Health England.

About the UK National Screening Committee (UK NSC)

The UK NSC advises ministers and the NHS in the 4 UK countries about all aspects of population screening and supports implementation of screening programmes. Conditions are reviewed against evidence review criteria according to the UK NSC's evidence review process.

Read a complete list of UK NSC recommendations.

UK NSC, Floor 5, Wellington House, 133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/uknsc
Twitter: @PHE_Screening Blog: phescreening.blog.gov.uk

For queries relating to this document, please contact: phe.screeninghelpdesk@nhs.net

Published September 2020

Contents

Plain English summary

Depression is a common mental health condition and the one of the leading causes of disability worldwide. It can have a serious impact on a person's life, particularly more severe depression.

A national screening programme would identify depression in the general adult population. It would aim to prevent the development of depression of greater severity.

Some people have a higher risk of developing depression. This could include people who have gone through traumatic life events or have a serious illness. This review is about screening for undetected depression in the general population. It does not include people who are already known to have depression or are already known to be at high risk.

The UK NSC last looked at screening for depression in 2014. The UK NSC decided not to recommend screening for depression. There was insufficient evidence that screening the general population would be beneficial.

This review is looking for new evidence about screening for depression. It focuses on 3 key questions. The first question looks at the effect of treating milder depression to reduce the future development of more severe depression. The second question explores if screening adults for depression reduces the negative impact that depression has in their life. The last question aims to see how people with depression in the UK are identified at the moment and if their care is managed well.

The review found a lack of evidence to answer these questions. It is not clear that treating milder depression reduces the development of more severe depression in the longer term (beyond 2 years). It is uncertain if screening reduces the negative impact of depression. It is also uncertain how well depression is identified and managed in the UK at present.

In conclusion, there is not enough new evidence for the UK NSC to change its position. This means that screening for depression in the UK is still not recommended.

Executive summary

Purpose of the review

This evidence summary reviews population screening for depression against selected UK National Screening Committee (UK NSC) criteria and updates key gaps identified in the previous UK NSC review in 2014.

Background

Depression is a common mental health condition and the leading cause of disability worldwide. Depression can result from the interaction of social, psychological and biological factors and can have a serious impact on the affected person, particularly when long-lasting and of more severe intensity. The severity of depression is determined by the number and severity of symptoms and the extent of functional impairment.

The 2014 Adult Psychiatric Morbidity Survey reported a UK prevalence of depression amongst people aged 16 to 64 years of 3.8%. The prevalence of depression amongst people aged 65 years or older is higher at an estimated 8.7%.

Some people have a higher risk of developing depression, such as people who have gone through adverse or traumatic life events or have a serious and/or long standing physical or mental health condition. This review concerns screening for depression in the general population. It therefore excludes people who already have a diagnosis of depression or are already known to be at high risk.

The 2014 UK NSC screening review considered the evidence for questionnaires designed to detect depression. The Patient Health Questionnaire (PHQ) was identified as the most commonly studied depression screening tool with a reported sensitivity and specificity of 89% and 88% respectively for the 9-item PHQ-9. However, the 2014 UK NSC review concluded that, due to the low positive predicative values associated with questionnaire-based screening tests for depression would generate a substantial number of false positive results.

There is national guidance from the National Institute of Health and Care Excellence (NICE) on recommended treatments for depression, with the treatment recommended depending on the severity of depression diagnosed and how individuals respond to treatment. The UK NSC has previously considered the effectiveness of treatment for depression and concluded that the effectiveness of drugs and psychological interventions is established.

However, the 2014 UK NSC review noted that population screening would identify milder cases of depression with some uncertainty about whether treatment of milder depression would prevent the condition becoming more severe in the longer term.

Focus of the review

This evidence summary includes studies published between April 2014 and August 2019. It considers 3 key questions exploring the longer term (beyond 2 years) outcomes of interventions to treat milder forms of depression, evidence from randomised controlled trials (RCT) on the effect of screening for depression and whether the clinical detection and management of depression is currently well implemented in the UK.

The current review builds on the findings of the 2014 UK NSC review. It does not revisit all areas previously considered. For example, it does not revisit the effectiveness of questionnaire-based screening tests or the effectiveness of treatment for depression.

Recommendation under review

The current UK NSC policy is that a systematic population screening programme for depression is not recommended. The previous UK NSC review on screening for depression was conducted in 2014.

Findings and gaps in the evidence of this review

The current review found that the volume, quality and direction of new evidence published up to August 2019 is insufficient to change the conclusions of the 2014 UK NSC review. Remaining areas of uncertainty are:

- a lack of evidence about the longer term impact (beyond 2 years) of treating milder forms of depression in reducing the likelihood of more severe depression
- uncertainty about whether screening adults for depression reduces mortality and morbidity
- uncertainty about whether the clinical management of depression is optimised in the UK.

Recommendations on screening

The current recommendation not to introduce a systematic population screening programme for depression should be retained.

Limitations

This rapid review process was conducted over a condensed period of time (approximately 12 weeks). Searching was limited to peer reviewed literature and did not include grey literature sources. Studies not available in the English language, abstracts and poster presentations, were not included.

Evidence uncertainties

This review found a lack of evidence to address the key questions explored in this review. In particular, there were no studies assessing the longer term (beyond 2 years) outcomes of interventions to treat milder forms of depression. There was also a lack of good quality evidence assessing the effectiveness of screening for depression or the current clinical detection and management of depression in the UK.

Introduction and approach

This evidence summary reviews population screening for depression against selected UK National Screening Committee (UK NSC) criteria and updates key gaps identified in the previous review in 2014[1].

Background

Depression in a common mental health condition and is the leading cause of disability worldwide[2]. Depression can be a serious health condition, particularly when it is long-lasting and of more severe intensity[2]. It can have a serious impact on the affected person and can affect their ability to function[2]. It can lead to a loss enjoyment and interest in life with lowered confidence and self-esteem. Some people will also have suicidal thoughts and may attempt suicide[3]. Typical behavioural and physical symptoms include irritability, tearfulness, social withdrawal, exacerbation of existing pains, lack of libido, fatigue and diminished activity and impact on sleep patterns and appetite. Typical cognitive changes include poor concentration and recurrent negative thoughts[3].

Depression can result in significant demands on health and social systems. Depression can exacerbate the pain, distress and disability experienced from physical health problems and negatively impact outcomes[3]. Wider social effects can include social impairment affecting communication and relationships, reduced ability to work effectively and increased dependence on welfare and benefits[3]. One study estimated that by 2026, healthcare service costs associated with depression in England will have risen to £3 billion and lost employment costs to £9.2 billion[4].

The 2014 Adult Psychiatric Morbidity Survey of Mental Health and Wellbeing in England reported the prevalence of depression amongst people aged 16 to 64 years as 3.8%. This was an increase from the 2007 survey which reported a prevalence of 2.6%[5]. The prevalence of depression has been reported to be higher in older people aged 65 years or older with 1 UK study estimating this at 8.7%[6].

Depression can result from the interaction of social, psychological and biological factors[2]. Some people are at a higher risk of developing depression, such as people who have gone through adverse or traumatic life events or have a serious and/or long standing physical or mental health condition. This review concerns screening for depression in the general population. It therefore excludes people who already have a diagnosis of depression or are already known to be at high risk.

The classification of depression is determined by its severity and persistence and on the extent of functional and social impairment. Classification systems used in the formal diagnosis of depression include the International Statistical Classification of Diseases and Related Health Problems (ICD)-10[7] and the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV[8].

The terminology used to describe the severity of depression can vary. The current guidance from the National Institute of Health and Care Excellence (NICE)[3] uses the following definitions of depression, adapted from the DSM-IV classification. These are provided for information and may not directly correspond to similar terms in older or international studies or reports:

- subthreshold depressive symptoms: fewer than 5 symptoms of depression*
- mild depression: few, if any, symptoms in excess of the 5 required to make the diagnosis, and the symptoms result in only minor functional impairment
- moderate depression: symptoms of functional impairment are between 'mild' and 'severe'
- severe depression: most symptoms, and the symptoms markedly interfere with functioning.

NICE describe subthreshold depressive symptoms as falling below the diagnostic criteria for 'major' depression[3]. In DSM-IV, the criteria for a diagnosis of a 'major depressive episode' includes 5 or more symptoms that are present for at least 2 weeks[9].

The natural history of depression is variable. Many people have their first episode of depression in childhood or adolescence, but a first episode of depression can occur at any age[1]. At least 50% of people have 1 or more further episodes of depression after the first episode. The risk of relapse increases to 70% and 90% respectively after a second or third episode[3]. Depression can resolve within a few months. However, studies have shown that 50% of patients still had a diagnosis of depression after 1 year[3].

The purpose of screening for depression in adults is to detect undiagnosed cases of depression, of any severity, with the aim of preventing progression to depression of greater severity. Moreover, screening could provide an opportunity for health professionals to start a discussion on other health issues or underlying causes of depression symptoms.

---

* In DSM-IV symptoms of depression disorders include depressed mood, markedly diminished interest or pleasure in most or all activities, significant weight loss (or poor appetite) or weight gain, insomnia or hypersomnia, psychomotor retardation, fatigue or loss of energy, feelings of worthlessness or excessive or inappropriate guilt, diminished ability to think or concentrate or indecisiveness, recurrent thoughts of death (not just fear of dying), or suicidal ideation, plan or attempt (Connor EA, Whitlock EP, Gaynes B et al. Screening for depression in adults and older adults in primary care: an updated systematic review. Agency for Healthcare Research and Quality, Evidence Synthesis No. 75, 2009)

However, previous studies of depression in primary care populations have often reported high levels of previous history of prior depressive episodes[10,11] or have included people at higher risk of depression such as older populations[12] or people with a high number of comorbidities[13].

There are a number of questionnaires which have been designed to detect depression. The 2014 UK NSC screening review considered the evidence for these questionnaires [1]. The Patient Health Questionnaire (PHQ) was identified as the most commonly studied depression screening tool[1]. The most common versions of this tool are the 9-item PHQ-9 and 2-item PHQ-2. On the PHQ-9 a threshold score of 10 or more is considered to indicate mild depression. A score of 15 or more indicates depression of moderate severity and a score of 20 or more indicates severe depression[1]. The 2014 UK NSC review provided a summary of the diagnostic accuracy of the PHQ-9 using a cut off score of 10. Separate results were provided for adults (aged 16 to 74) and older people (aged ≥65).

Table 1. Summary of the diagnostic accuracy of PHQ-9[1]

	Prevalence	Sensitivity	Specificity	PPV	NPV
Adults	2.6%†	89.0%	88.0%	16.5%	99.7%
Older people	8.7%	89.0%	88.0%	41.4%	98.8%

NPV – negative predictive value; PPV – positive predictive value

The PHQ-2 was reported to have a sensitivity of 86% and specificity of 78% at a cut off score of 2 and a sensitivity of 61% and specificity of 92% at a cut off score of 3[1].

The 2014 review concluded that the positive predicative values associated with questionnaire-based screening tests for depression in a general population would generate a substantial number of false positive test results[1].

In high risk populations the prevalence of depression, and therefore the positive predictive values, would be higher. For example, a depression prevalence of 23% has been reported in people with 2 or more chronic physical health problems[14]. This prevalence would equate to a positive predictive value or 68.9%‡. Therefore, targeted case finding in high risk populations, such as people with a past history of depression or a chronic physical health problem, would reduce the number of false positive test results.

There is national guidance from NICE on recommended treatments for depression, with the treatment recommended depending on the severity of depression diagnosed and how

† The higher prevalence of 3.8% reported by the more recent Adult Psychiatric Morbidity Survey would equate to a PPV of 22.7% and an NPV of 99.5% (calculated by SPH)
‡ Calculated by SPH

individuals respond to treatment[3]. The latest NICE guideline refers to the stepped-care model as a framework to organise the provision of services and support identification and access to the most effective interventions. The stepped-care model starts with the least intrusive most effective interventions with progression to the next step if the patient declines or does not benefit[3]. The Improving Access to Psychological Therapies (IAPT) initiative was introduced from 2006 to support the implementation of NICE guidelines for people with depression and anxiety disorders[3]. The stepped-care framework was used as the organising principle for the provision of IAPT services[3].

The UK NSC has previously considered the effectiveness of treatment for depression and concluded that the effectiveness of drugs and psychological interventions is established[1]. However, the 2014 review noted that population screening would be likely to identify undetected cases of depression of milder severity with some uncertainty about whether treatment of milder depression would prevent the condition becoming more severe in the longer term[1]. The 2014 UK NSC review identified studies that found that intervention for subthreshold depression can reduce the likelihood of more severe depression compared to usual care in the short to medium-term (ie up to 12 months). However, only 1 of the studies identified looked at outcomes beyond 12 months, so longer term benefits were uncertain[1].

Current policy context and previous reviews

The current UK NSC policy is that a systematic population screening programme for depression is not recommended. The previous UK NSC review on screening for depression was conducted in 2014[1].

The 2014 review focused on 3 areas. These were the performance of questionnaire-based screening tests, whether interventions to prevent depression of milder severity (which screening would be likely to identify) from developing into severe depression were effective, and evidence of the effectiveness of collaborative care approaches which would help optimise the management of depression as part of the current health care provision.

The last UK NSC review in 2014 found that key criteria were unmet:

- the natural history of this condition was not fully understood
- the PPVs suggested that, when used in a general population, the screening test would result in a high number of people receiving false positive test results
- there was a lack of randomised controlled trials assessing the ability of screening for depression in the general population to reduce mortality or morbidity
- there was a limited amount of literature surrounding evidence on follow-up and benefit of early intervention for subthreshold or milder depression in preventing the onset of more severe depression.

The 2014 review did not include antenatal and postnatal depression (which are covered by separate UK NSC policies[15]) or groups identified as being at high risk of depression. For example, people with pre-existing long term medical or mental health conditions, drug users, people who have experienced domestic abuse or violence and people who are institutionalised (eg prisoners, people living in care homes).

Responses to the public consultation for the UK NSC 2014 review of screening for depression agreed with the recommendation not to screen for depression in the general population. Moreover, the stakeholders were concerned that the review focused on the general population rather than on subsets of the population where there is a higher prevalence of depression. One stakeholder organisation thought it premature to be looking at the case for screening for depression in the general population as the health service is not achieving good detection in high risk groups[16].

The latest guidance from NICE sought to shift the emphasis in their statements about the identification of depression by re-naming sections on 'screening' to 'case identification'[3]. NICE's latest recommendation on case finding and recognition is that professionals should: *"be alert to possible depression (particularly in people with a past history of depression or a chronic physical health problem with associated functional impairment) and consider asking people who may have depression 2 questions, specifically:*

- *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*?"

NICE do not make any recommendations on systematic screening for depression in the general population[3].

Objectives

The current review builds on the findings of the previous UK NSC review. It does not revisit all areas previously considered. For example, it does not revisit the effectiveness of questionnaire-based screening tests or the effectiveness of treatment for depression.

The aim of the current review is to search the literature for evidence which can address key gaps identified in the previous review. These are evidence for longer term (beyond 2 years) outcomes of interventions to treat subthreshold and milder forms of depression and RCT evidence on the effect of screening for depression. The current review also considers

whether the clinical detection and management of depression is currently well managed in the UK.

The review excludes antenatal and postnatal depression (as these topics are reviewed separately under the psychiatric illness in pregnancy and postnatal depression policies[15]). The review looks at outcomes within the general population, stratified by age where possible.

The key questions and the UK NSC criteria that they relate to are presented in Table 2.

Table 2. Key questions for the evidence summary, and relationship to UK NSC screening criteria

	Criterion	Key questions	Studies Included
	THE INTERVENTION		
9	There should be an effective intervention for patients identified through screening, with evidence that intervention at a pre-symptomatic phase leads to better outcomes for the screened individual compared with usual care. Evidence relating to wider benefits of screening, for example those relating to family members, should be taken into account where available. However, where there is no prospect of benefit for the individual screened then the screening programme shouldn't be further considered.	Do interventions for mild or subthreshold depression reduce the likelihood of major[§] depression in the longer term (beyond 2 years)?	3
	THE SCREENING PROGRAMME		
11	There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality or morbidity. Where screening is aimed solely at providing information to allow the person being screened to make an "informed choice" (eg. Down's syndrome, cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk. The information that is provided about the test and its outcome must be of value and readily understood by the individual being screened.	Does screening adults for depression reduce mortality and morbidity?	2
	IMPLEMENTATION CRITERIA		
15	Clinical management of the condition and patient outcomes should be optimised in all health care providers prior to participation in a screening programme.	Is clinical detection and management of depression currently well implemented in the UK?	4

[§] 'The term 'major' depression is used to indicate progression from milder to more severe forms of depression

Methods

The current review was conducted by Solutions for Public Health (SPH), in keeping with the UK NSC evidence review process. Database searches were conducted on the 5th August 2019 with a supplementary search on the 15th August 2019 to identify studies relevant to the questions detailed in Table 2.

Eligibility for inclusion in the review

The following review process was followed:

1. each title and abstract was reviewed against the inclusion/exclusion criteria by 1 reviewer. Where the applicability of the inclusion criteria was unclear, the article was included at this stage in order to ensure that all potentially relevant studies were captured
2. full-text articles required for the full-text review stage were acquired
3. each full-text article was reviewed against the inclusion/exclusion criteria by 1 reviewer, who determined whether the article was relevant to 1 or more of the review questions
4. any queries at the abstract or full-text stage were resolved through discussion with a second reviewer
5. the review was quality assured by a second senior reviewer, not involved with the writing of the review in accordance with SPH's quality assurance process.

Eligibility criteria for each question are presented in Table 3 below.

The searches identified a total of 11,206 unique references. After initial sifting by an information scientist, an SPH reviewer assessed 472 titles and abstracts for appraisal and possible inclusion in the final review.

Overall, 51 studies were identified as possibly relevant during title and abstract sifting and were further assessed at full text. Appendix 2 contains a full PRISMA flow diagram (Figure 1), along with a table of the included publications and details of which questions these publications were identified as being relevant to (Table 13).

Table 3. Inclusion and exclusion criteria for the key questions

Key question	Inclusion criteria					Exclusion criteria	
	Population	**Target condition**	**Intervention**	**Comparator**	**Outcome**	**Study type**	
1. Do interventions for mild or subthreshold depression reduce the likelihood of major depression in the longer term (beyond 2 years)?	General adult population, excluding high risk groups such as people with pre-existing long term physical or mental health conditions, drug users, people who have experienced domestic abuse or violence and people who are institutionalised (eg prisoners, people living in care homes)	Depression	• non-pharmacological interventions (eg psychosocial interventions, cognitive behavioural therapy, physical activity) • pharmacological intervention • combination of the above	No comparator, no intervention, placebo, alternative non-pharmacological or pharmacological intervention	• severity of depression • resolution of depression or subthreshold depressive symptoms • study reported outcomes for interventions • outcomes stratified by age, sex and ethnicity	RCTs, cohort studies	Case series, case reports
2. Does screening adults for depression reduce mortality and morbidity?	General adult population, excluding high risk groups such as people with pre-existing long term physical or mental health conditions, drug users, people who have experienced domestic abuse or violence and	Depression	Screening followed by depression care options: • pharmacological intervention • non-pharmacological interventions • combination of the above	No screening or alternative screening method and treatment	Study reported outcomes including: • depression symptoms eg measures of functionality • severity of depression eg mild, moderate, moderately	RCTs which meet the following criteria as stated by Thombs and Ziegelstein[21] and highlighted by the UK NSC 2014 external rapid review	Cohort studies, case control studies, case series, case reports

	people who are institutionalised (eg prisoners, people living in care homes)				• severe or severe chronic depression • quality of life measures • mortality • reported rate of depression	should be prioritised**	
3. Is clinical detection and management of depression currently well implemented in the UK?	Adult population	Depression	Current clinical management in the UK	For outcome 1: Disease known prevalence For outcomes 2 to 4: N/A	• proportion of depression detected • proportion of adults with depression referred for intervention • proportion of people attending/ complying with depression interventions • user experiences	Audit data, cross-sectional studies, cohort studies (prospective and retrospective), systematic review of above	Non-UK studies, non-systematic reviews, case studies

RCT – Randomised Controlled Trial

** Determining eligibility and randomising patients before screening; excluding patients already known to have depression or already being treated for depression; providing similar depression care options to patients in both trial arms, whether they are identified as depressed by screening or via other methods, such as self-report or unaided clinical diagnosis

Appraisal for quality/risk of bias tool

The following tools were used to assess the quality and risk of bias of each study included in the review:

- RCTs: Revised Cochrane Risk of Bias Tool for Randomized Trials (RoB 2.0)
- cohort studies: Critical Appraisal Skills Programme (CASP) Cohort Study Checklist
- qualitative studies: CASP Qualitative Research Checklist.

Databases/sources searched

Systematic searches of 4 databases (Medline, Embase, PsycINFO and Cochrane) were conducted to identify studies relevant to the questions detailed in Table 2. The main searches were conducted on 5th August 2019. A supplementary search for question 3 was conducted on 15th August 2019. The search strategy is presented in Appendix 1.

Question level synthesis

Criterion 9

There should be an effective intervention for patients identified through screening, with evidence that intervention at a pre-symptomatic phase leads to better outcomes for the screened individual compared with usual care. Evidence relating to wider benefits of screening, for example those relating to family members, should be taken into account where available. However, where there is no prospect of benefit for the individual screened then the screening programme shouldn't be further considered.

Question 1 – Do interventions for mild or subthreshold depression reduce the likelihood of major depression in the longer term (beyond 2 years)?

NB: Studies in screen-detected populations with a follow-up period beyond 2 years were sought first. When no such studies were identified, studies with a follow-up period of 1 year or more were reported.

The UK NSC have previously concluded that the effectiveness of medication and psychological interventions for depression is established and forms the basis of evidence-based guidelines[1]. Therefore, this evidence base is not revisited in this review.

The 2014 UK NSC review considered whether intervention in screen-detected depression, or the treatment of milder depression, could prevent progression to more severe depression. The 2014 UK NSC review identified studies suggesting that intervention for subthreshold depression can reduce the likelihood of more severe depression compared to usual care in the short to medium term (ie up to 12 months). However, these were small studies and only 1 study looked at outcomes beyond 1 year. The 2014 UK NSC review concluded that in order for this criterion to be met, studies were required that assess longer term outcomes for the treatment of depression that is detected on screening and was previously unrecognised[1].

Eligibility for inclusion in the review

Population: General adult population, excluding high risk groups such as people with pre-existing long term physical or mental health conditions, drug users, people who have experienced domestic abuse or violence, and people who are institutionalised (eg prisoners, people living in care homes).

Interventions:

- non-pharmacological interventions (eg psychosocial interventions, cognitive behavioural therapy, physical activity)
- pharmacological intervention
- combination of the above.

Comparator: No comparator, no intervention, placebo, alternative non-pharmacological or pharmacological intervention.

Outcomes: Severity of depression, resolution of depression or subthreshold depressive symptoms, study reported outcomes for interventions. Outcomes stratified by age, sex and ethnicity.

Study design: RCTs, cohort studies.

Date and language: English language published since 1st April 2014.

Description of the evidence

Database searches yielded 472 results, of which 35 were judged to be relevant to this question following abstract and title review. After review of the 35 full texts, 3 studies met the criteria for inclusion for this key question. The remaining studies were excluded because their population included participants with moderate/ severe depression rather than mild or subthreshold depression, as they included high risk groups or their follow-up was less than 12 months. Publications excluded after review of full-text articles are listed in Appendix 2.

Discussion of findings

A study-level summary of data extracted from each included publication is presented in the summary and appraisal of individual studies in Appendix 3 (Tables 15 to 17). In Appendix 3 publications are stratified by question.

Only 1 of the included studies had a follow-up period of 2 years[19]. However, all 3 studies included screened populations with mild or subthreshold depression and had follow-up of at least 1 year. Table 4 summarises key details from these studies. In Table 4, only longer term (12 months or more) depression outcomes are included. The quality of the studies was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). Key areas of bias for the individual studies are summarised in Table 4. Further details of these studies are provided in Appendix 3.

Table 4. Summary of included studies

	Gilbody et al (2017)[17] (also published as Lewis et al 2017[18])	van Beljouw et al (2015)[19]	Zhang et al (2014)[20]
Study design	RCT	RCT	RCT
Study aim	To assess whether collaborative care reduces depressive symptoms and prevents more severe depression in older people with low severity depression	To determine whether an integrated stepped-care programme is more effective than usual care in reducing depressive symptoms and loneliness in community-dwelling older adults	To assess the effectiveness of stepped-care to prevent the onset of major depressive disorder and generalised anxiety disorder among Chinese people with subthreshold anxiety and depression symptoms
Population	Adults aged ≥65 years with subthreshold depression (n=705) (UK)	Community-dwelling adults aged ≥65 years scoring ≥6 on the PHQ-9†† (mean 7.8) (n=263) (The Netherlands)	Adults aged ≥18 years with subthreshold depression or anxiety‡‡ (n=240) (Hong Kong)
Recruitment	People registered with 38 primary care centres received a postal questionnaire including a 2-item case-finding tool to detect depression (Whooley questions). The MINI diagnostic interview was used to diagnose subthreshold depression	People registered with 18 primary care centres or a home care facility were invited to complete the PHQ-9	People attending 6 general outpatient clinics in public primary care centres were invited to complete a questionnaire including the CES-D and HADS-A
Intervention	Collaborative care§§ (n=344)	Stepped-care***. Participants were divided into 4 groups based on when they received the intervention: • group 1 immediately (n=81) • group 2 after 3 months (n=56) • group 3 after 6 months (n=54) • group 4 after 12 months (n=72)	Stepped-care††† (n=121)
Comparator	Usual care (n=361)	Participants received usual care whilst waiting to receive the intervention	Usual care (n=119)

†† On the PHQ-9 a threshold score of ≥10 is used as the cut off for mild depression[1]

‡‡ A Center for Epidemiological Studies Depression Scale (CES-D) score of ≥16 or a Hospital Anxiety and Depression Scale – Anxiety (HADS-A) score of ≥6

§§ Collaborative care included behavioural activation coordinated by a case manager who assessed functional impairments relating to mood symptoms. Participants completed an average of 6 (of 8) weekly sessions

*** Stepped-care in van Beljouw et al consisted of (1) 3 months watchful waiting, (2) guided self-help or physical exercise programme, (3) problem-solving treatment or life review, (4) referral to general practitioner. Eligibility for a subsequent step (PHQ-9 ≥6) was assessed every 3 months

††† Stepped-care in Zhang et al consisted of (1) 3 months watchful waiting, (2) telephone counselling – self-help instruction, (3) face-to-face problem-solving therapy, (4) referral to primary care doctor. Eligibility to a subsequent step (CES-D ≥16 or HADS-A ≥6) was assessed every 3 months. The authors reported that 73% of participants were not eligible to progress to step 2 after 3 months watchful waiting as their depressive or anxiety symptoms had improved

	Gilbody et al (2017)[17] (also published as Lewis et al 2017[18])	van Beljouw et al (2015)[19]	Zhang et al (2014)[20]
Outcomes	**Proportion of participants meeting the criteria for depression (PHQ-9 ≥10) at 12 months follow-up** • statistically significantly lower for collaborative care (15.7%) than usual care (27.8%) (difference -12.1%, 95%CI -19.5 to -5.1; RR 0.65, 95%CI 0.46 to 0.91, p=0.013) **Mean difference in PHQ-9 scores at 12 months follow-up** • statistically significantly lower for collaborative care than usual care (-1.33, 95%CI -2.10 to -0.55, p=0.001)	**Change in depression severity at 24 months follow-up** • no significant difference between baseline and follow-up (p=0.144) Scores over the 24 month follow-up were only displayed graphically. Mean score at 24 months (across groups) was approximately 6 No comparison with usual care was reported	**Cumulative probability of developing major depressive disorder and/or generalised anxiety disorder** • at 12 months: stepped-care 14.2%, usual care 12.7% • at 15 months stepped-care 23.1%, usual care 20.5% **Change in depression** • no significant difference from baseline to 15 months follow-up between stepped-care and usual care (-0.58, 95%CI -1.54 to 0.38, p=0.24) • no significant difference from baseline to 15 months follow-up for stepped-care (-0.51, 95%CI -1.70 to 0.67, p=0.40) Difference from baseline not reported for usual care
Quality appraisal	Key areas of high risk of bias: • loss to follow-up at 12 months was higher for collaborative care (32%) than usual care (21%). This may have biased the study outcomes if the participants who withdrew had different outcomes to the participants who continued with the study‡‡‡ • blinding could not be applied to participants and health professionals. Assessors were blinded to treatment group however, outcomes were self-reported and could have been biased by knowledge of treatment group	Key areas of high risk of bias: • differences between the groups at baseline for several demographic measures and a measure of activities of daily living suggests a problem with the randomisation process • adherence to intervention was low (the proportion of participants attending ≥1 intervention session ranged from 48% to 57% across the 4 groups) • loss to follow-up was high (the proportion of participants completing the planned follow-up ranged from 41% to 67% across the 4 groups) • blinding could not be applied to participants and health	Key areas of high risk of bias: • a high proportion of patients (73%) improved without intervention during the watchful waiting phase of the stepped-care programme reducing the number of participants receiving active intervention. The study may not have been adequately powered to detect a difference between groups • blinding could not be applied to participants and health professionals. Assessors were blinded to treatment group however, outcomes were self-reported and could have been biased by knowledge of treatment group

‡‡‡ Intention-to-treat analysis was used

	Gilbody et al (2017)[17] (also published as Lewis et al 2017[18])	van Beljouw et al (2015)[19]	Zhang et al (2014)[20]
		professionals. It is not clear if assessors were blinded to treatment group	

CES-D - Center for Epidemiological Studies Depression Scale; CI – Confidence Intervals; HADS-A – Hospital Anxiety and Depression Scale – Anxiety; MINI – Mini International Neuropsychiatric Interview; PHQ – Patient Health Questionnaire; RCT – Randomised Controlled Trial; RR – Relative Risk

Three studies were identified on interventions for subthreshold or mild depression with outcomes to 12 months or more. These were all small studies with sample sizes ranging from 240 to 705. There was a lack of consistency in the outcomes reported between the studies. For example, In 1 study, (Gilbody et al 2017)[17] the proportion of participants meeting the criteria for depression at 12 months follow-up (a score of 10 or more on the PHQ-9) was statistically significantly lower in the collaborative care group (15.7%) than the usual care group (27.8%). However, Zhang et al (2014)[20] reported similar cumulative probabilities for developing major depressive disorder and/or generalised anxiety disorder at 12 months (14.2% and 12.7%) and 15 months (23.1% and 20.5%) for stepped-care and usual care. Zhang et al (2014)[12] did not report results separately for depression only and did not report a statistical comparison between the groups. The third study (van Beljouw et al 2015)[19] reported no statistically significant difference in change in depression severity from baseline to 24 months follow-up but provided limited information to interpret the meaningfulness of this result.

Several areas of high risk of bias were identified for these studies (see Table 4) limiting confidence in the results. The applicability of the studies to population screening in the UK is unclear. Two of the 3 studies were conducted in the UK and the Netherlands but only included older adults. The third study was conducted in Hong Kong.

Gilbody et al (2017)[17] and van Beljouw et al (2015)[19] included adults aged 65 years or older. Zhang et al (2014)[20] included adults aged 18 years or older. None of the studies reported results stratified by age, sex or ethnicity.

Summary of Findings Relevant to Criterion 9: Criterion not met[§§§]

Three small studies explored outcomes for people with mild or subthreshold depression at baseline who were recruited through a screening exercise to identify eligible participants. However, only 1 of the 3 studies had a follow-up of 2 years and a number of areas of high risk of bias reduce confidence in their results. The applicability of the studies to population screening in the UK is unclear.

[§§§] **Met** -for example, this should be applied in circumstances in which there is a sufficient volume of evidence of sufficient quality to judge an outcome or effect which is unlikely to be changed by further research or systematic review.
Not Met - for example, this should be applied in circumstances where there is insufficient evidence to clearly judge an outcome or effect or where there is sufficient evidence of poor performance.
Uncertain -for example, this should be applied in circumstances in which the constraints of an evidence summary prevent a reliable answer to the question. An example of this may be when the need for a systematic review and meta-analysis is identified by the rapid review.

The studies do not provide any evidence about the longer term impact (beyond 2 years) of treating mild or subthreshold depression in reducing the likelihood of progression to more severe depression. This criterion is therefore not met.

Criterion 11

There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality or morbidity. Where screening is aimed solely at providing information to allow the person being screened to make an "informed choice" (eg. Down's syndrome, cystic fibrosis carrier screening), there must be evidence from high quality trials that the test accurately measures risk. The information that is provided about the test and its outcome must be of value and readily understood by the individual being screened.

Question 2 –Does screening adults for depression reduce mortality and morbidity?

NB: Where possible outcomes were stratified by age, sex and ethnicity.

The previous 2014 UK NSC review[1] reported a lack of consistency in the evidence base regarding RCTs on screening for depression. The 2014 UK NSC review cited a publication by Thombs and Ziegelstein (2014)[21] which assessed RCTs of screening for depression. Thombs and Ziegelstein concluded that none of the RCTs met their criteria for a test of depression screening. These criteria were:

- determining eligibility and randomising patients before screening
- excluding patients already known to have depression or already being treated for depression
- providing similar depression care options to patients in both trial arms, whether they are identified as depressed by screening or via other methods, such as self-report or unaided clinician diagnosis.

The 2014 UK NSC review concluded that there was a lack of RCTs assessing the ability of screening for depression in the general population to reduce mortality or morbidity.

Eligibility for inclusion in the review

Population: General adult population, excluding high risk groups such as people with pre-existing long term physical or mental health conditions, drug users, people who have experienced domestic abuse or violence, and people who are institutionalised (eg prisoners, people living in care homes).

Interventions: Screening followed by depression care options:

- pharmacological intervention
- non-pharmacological interventions
- combination of the above.

Comparator: No screening or alternative screening method and treatment.

Outcomes: Study reported outcomes including:

- depression symptoms eg measures of functionality
- severity of depression eg mild, moderate, moderately severe or severe
- chronic depression
- quality of life measures
- mortality
- reported rate of depression.

Study design: RCTs which meet the criteria stated by Thombs and Ziegelstein (2014)[21] and highlighted by the UK NSC 2014 review should be prioritised.

Date and language: English language published since 1st April 2014.

Description of the evidence

Database searches yielded 472 results, of which 4 were judged to be relevant to this question following abstract and title review. After review of the 4 full texts, 2 studies met the criteria for inclusion for this key question. The remaining studies were excluded because the population included a range of mental health conditions and high risk groups or because the study assessed the effectiveness of an intervention rather than of screening. Publications excluded after review of full-text articles are listed in Appendix 2.

Discussion of findings

A study-level summary of data extracted from each included publication is presented in the summary and appraisal of individual studies in Appendix 3. In Appendix 3 publications are stratified by question.

The 2 RCTs were conducted in Japan[22] and Canada[23]. The quality of the studies was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). Key areas of bias for the individual studies are summarised in Table 5. Further details of these studies are provided in Appendix 3 (Tables 18 to 19).

Table 5. Summary of included studies

	Oyama et al 2014[22]	Silverstone et al 2017[23]
Study design	RCT	RCT
Study aim	To investigate changes in depressive symptoms after the implementation of universal screening for depression and subsequent care support	To assess whether active treatments after a positive screening test would lead to lower depression scores at 12 weeks. A secondary aim was to assess the impact of screening
Population	Residents aged 40-64 years living in 1 of 10 districts in Japan between 2004 and 2009 (n=approximately 2,400)	Consecutive attendees at 2 primary care centres in Canada between November 2013 and December 2014 (n=1,489)
Screening test	Zung Self-Rating Depression Scale**** with a cut off score of 48 received by residents in intervention districts by post. Participants with a positive screening test were offered a telephone interview based on the MINI diagnostic interview	PHQ-9 with a cut off score of 10 completed by all participants in the primary care centre waiting room
Intervention	4 districts (n=900) received an educational programme (2005 to 2009) and an invitation to depression screening (2007 to 2008)	There were 3 intervention groups: 1. screening + usual care (n=426) 2. screening +usual care + signposting to online CBT (n=440) 3. screening + stepped-care†††† (n=191)
Comparator	6 control districts (n=approximately 1,500) received an educational programme (2005 to 2009) (no screening)	Control group (n=432): Screening results were not shared with participants or family care physicians
Outcome: screening	• 443 (49.2%) returned screening questionnaires • 80 (18.1%) residents had a positive screening test • 79 (98.8%) took part in a Mini International Neuropsychiatric Interview (MINI) • 16 were diagnosed with a recent depressive episode	Number (%) of participants with a positive screen test: • screening + usual care: 62 (15%) • screening + CBT: 47 (11%) • screening + stepped-care: 32 (17%) • control: 54 (13%)
Outcome: change from baseline	Depression levels in the study districts was assessed by 2 cross-sectional population surveys conducted at baseline (2004) (n=1,516) and follow-up (2009) (n=1,596) Mean adjusted‡‡‡‡ difference from baseline to follow-up: Total CES-D§§§§ score • statistically significant improvement in the intervention area (1.40, 95%CI 0.53 to 2.27, p=0.002) • no significant difference in the control area (0.38, 95%CI -0.28 to 1.05, p =0.26)	Change in mean ± SD PHQ-9 score from baseline (n=1,1489) to 12-week follow-up (n=889) for all participants: • statistically significant improvement for screening + usual care (4.8 ± 4.9 vs 4.3 ± 4.7, p<0.05) • no significant difference for screening + CBT (4.1 ± 4.4 vs 3.6 ± 4.4, p=0.06) • no significant improvement for screening + stepped-care (4.8 ± 5.5 vs 4.1 ± 4.9, p=0.27)

**** A validated screening measure of adult depression severity in the Japanese population

†††† Participants with a PHQ-9 score of 10-14 had an initial 4 week 'watchful waiting' period and targeted self-management information. Participants with a score of ≥15 had additional visits, self-management information, medication prescribed according to guidelines, outside referral options including referral to psychiatry if they had no response to medication within 6 weeks

‡‡‡‡ Adjusted for age and gender

§§§§ A 20-item questionnaire consisting of 4 subscales. The total score is scored from 0 to 60. The subscale score ranges are: depressive affect (0 to 21), somatic symptoms (0 to 21), positive affect (0 to 12) and interpersonal problems (0 to 6)

	Oyama et al 2014[22]	Silverstone et al 2017[23]
	Depressive affect subscale • statistically significant improvement in the intervention area (0.51, 95%CI 0.11 to 0.92, p=0.014) • no significant difference in the control area (0.05, 95%CI -0.25 to 0.39, p =0.74) Somatic symptoms subscale • statistically significant improvement in the intervention area (0.50, 95%CI 0.07 to 0.93, p=0.024) • no significant difference in the control area (-0.04, 95%CI -0.35 to 0.29, p =0.81) Positive affect subscale • no significant difference in the intervention area (0.10, 95%CI -0.26 to 0.47, p =0.60) • statistically significant improvement in the control area (0.33, 95%CI 0.07 to 0.59, p=0.0013) Interpersonal problems • statistically significant improvement in the intervention area (0.21, 95%CI 0.08 to 0.34, p=0.001) • no significant difference in the control area (0.02, 95%CI -0.08 to 0.12, p =0.73)	• statistically significant improvement for control (4.6 ± 5.4 vs 3.6 ± 4.3, p<0.001) Change in mean ± SD score from baseline (n=195) to 12-week follow-up (n=135) for participants with a positive screen test: • statistically significant improvement for screening + usual care (15.5 ± 3.9 vs 4.6 ± 3.0, p<0.001) • statistically significant improvement for screening + CBT (15.4 ± 3.8 vs 3.4 ± 2.7, p<0.001) • statistically significant improvement for screening + stepped-care (15.3 ± 3.6 vs 5.4 ± 2.8, p<0.05) • statistically significant improvement for control (15.3 ± 4.2 vs 4.0 ± 2.6, p<0.001)
Outcome: comparison between groups	Adjusted‡‡‡‡ difference between change in mean score over time: Total CES-D score • no significant difference between intervention and control (1.02, 95%CI -0.14 to 2.18, p =0.085) Depressive affect subscale • statistically significantly better in the intervention area vs control (0.47, 95%CI 0.02 to 0.96, p=0.045) Somatic symptoms subscale • statistically significantly better in the intervention area vs control (0.54, 95%CI 0.07 to 1.07, p=0.032) Positive affect subscale • no significant difference between intervention and control (-0.23, 95%CI -0.66 to 0.20, p =0.17) Interpersonal problems • statistically significantly better in the intervention area vs control (0.20, 95%CI 0.05 to 0.36, p=0.008)	The authors reported no significant difference in change from baseline between groups (p not reported)
Quality appraisal	Key areas of high risk of bias: • it is not clear what treatment interventions were received by individuals with depression in either the screening or control districts	Key areas of high risk of bias: • limited details about participants were reported resulting in uncertainty about whether differences between groups at baseline may have impacted results

	Oyama et al 2014[22]	Silverstone et al 2017[23]
	• effectiveness was assessed through general population surveys rather than an assessment of outcomes for individuals who received screening. Approximately half the residents in the intervention area had taken up the offer of screening • the outcome measure was self-reported and response rates for the population surveys were approximately 65%. Outcomes for people who responded to the surveys may not be applicable to the whole population • blinding could not be applied to participants and health professionals. Assessors conducting the population surveys were blinded to district allocation status	• no details were provided about whether a diagnosis of depression was confirmed for participants who had a positive screening test. • limited details were provided about the interventions received by individual participants and no details about the usual care received were provided • uptake of the offered online CBT was very low so the actual intervention received by this group was similar to usual care • loss to follow-up was high (this ranged from 38% to 67% across study groups) • blinding could not be applied to participants and health professionals. It is not clear if assessors were blinded to study group

CBT – Cognitive Behavioural Therapy; CES-D - Center for Epidemiological Studies Depression Scale; MINI - Mini International Neuropsychiatric Interview; PHQ - Patient Health Questionnaire; RCT – Randomised Controlled Trial; SD – Standard Deviation

The 2 RCTs identified used different approaches to assess the impact of screening for depression.

The RCT by Silverstone et al (2017)[23] assessed the impact of screening plus different interventions compared to a control group where participants completed a screening test but were not notified of the result. In this RCT, statistically significant improvements from baseline in mean depression scores were reported. However, this applied to both the screening plus intervention groups and the control group. The authors reported no significant differences between any of the groups. The RCT therefore did not report any advantage for screening. In contrast, the RCT by Oyama et al (2014)22 reported statistically significant improvements from baseline in mean depression scores in the district areas in which a screening programme had taken place but not in the control areas. When comparing between the intervention and control areas there was no significant difference in total score on the depression scale used, although statistically significant improvements favouring the screening districts were seen on some subscales. The effect sizes reported for statistically significant results were very small. The results of this RCT should be treated with caution as the cross-sectional design introduces uncertainty about the extent to which any improvements observed can be attributed to the screening programme.

Several areas of high risk of bias were identified for these studies (see Table 5) limiting confidence in the results. Neither study met all of the criteria specified by Thombs and Ziegelstein (2014)[21] as it is unclear if people already known to have depression or already being treated for depression were excluded. In both studies it is not explicitly stated whether the same treatment options were available to participants in intervention and control groups.

The applicability of the studies to population screening in the UK is unclear. The RCT by Silverstone et al (2017)[23] was conducted in a primary care setting in Canada but no demographic or clinical information was provided about the participants and no exclusion criteria were stated. The RCT by Oyama et al (2014)[22] was conducted in Japan in adults aged 18 to 64 years. This study also did not report demographic information about participants or specify any exclusion criteria. In both studies it is not clear if participants belonging to a high risk groups were excluded. Oyama et al (2014)[22] reported that the prevalence of self-reported, clinically significant depressive symptoms varies between 9% and 14% among middle-aged Japanese. This is higher than the prevalence (approximately 4%) for depression reported by UK population surveys.

Oyama et al (2014)[22] included adults aged 18 to 64 years. Silverstone et al (2017)[23] included adults but did not collect any information on participant's age. Neither study reported results stratified by age, sex or ethnicity.

Summary of Findings Relevant to Criterion 11: Criterion not met*****

Two small studies considered the effectiveness of screening for depression. The studies used different approaches to assess the impact of screening for depression and there was a lack of consistency in their conclusions. Both studies had a number of areas of high risk of bias which reduces confidence in their results. There is also uncertainty about the applicability of the studies to UK population screening.

It is uncertain whether screening adults for depression reduces mortality and morbidity. This criterion is therefore not met.

***** **Met** -for example, this should be applied in circumstances in which there is a sufficient volume of evidence of sufficient quality to judge an outcome or effect which is unlikely to be changed by further research or systematic review.
Not Met - for example, this should be applied in circumstances where there is insufficient evidence to clearly judge an outcome or effect or where there is sufficient evidence of poor performance.
Uncertain -for example, this should be applied in circumstances in which the constraints of an evidence summary prevent a reliable answer to the question. An example of this may be when the need for a systematic review and meta-analysis is identified by the rapid review.

Criterion 15

Clinical management of the condition and patient outcomes should be optimised in all health care providers prior to participation in a screening programme.

Question 3 – Is clinical detection and management of depression currently well implemented in the UK?

Sub-question: What proportion of depression remains undiagnosed?

This question aims to describe the available evidence exploring how well clinical detection, referral and treatment of depression are currently managed in the UK. For the purposes of this review, data relating to practice within the last 10 years is considered 'current'.

The previous UK NSC review did not report any evidence relating to the detection and management of depression in the UK[1].

Clinical guidance from NICE recommends that professionals should be alert to possible depression and includes a range of management and treatment recommendations based on the severity and duration of the depression[3].

The Improving Access to Psychological Therapies (IAPT) initiative was designed "to improve access to evidence-based talking therapies for people with common psychiatric conditions such as depression". It originally targeted working age adults but opened to older adults in 2010[24].

Eligibility for inclusion in the review

Population: Adult population.

Intervention: Current clinical management in the UK.

Comparator:

- for outcome 1: disease known prevalence
- for outcomes 2 to 4: N/A.

Outcomes:

1. proportion of depression detected
2. proportion of adults with depression referred for intervention
3. proportion of people attending/ complying with depression interventions

4. user experiences.

Study design: Audit data, cross-sectional studies, cohort studies (prospective and retrospective), systematic reviews of above.

Date and language: English language published since 1st April 2014.

Description of the evidence

Database searches yielded 472 results, of which 12 were judged to be relevant to this question following abstract and title review. After review of the 12 full texts, 4 studies met the criteria for inclusion for this key question. The remaining studies were excluded because they were not based in a UK setting. Publications excluded after review of full-text articles are listed in Appendix 2.

Discussion of findings

A study-level summary of data extracted from each included publication is presented in the summary and appraisal of individual studies in Appendix 3. In Appendix 3 publications are stratified by question.

Of the 4 studies included, 3 analysed national or local audit data, of which 1 also included a survey of service users. The fourth study was a qualitative study exploring GP perceptions. Table 6 summarises key details from these studies. The outcomes are summarised in the tables below focusing on key outcomes relating to the detection of depression and access to and compliance with intervention (Table 7) and user experiences (Table 8). Further details of these studies are provided in Appendix 3 (Tables 20 to 23).

Table 6. Summary of included studies

Reference	Design	Study aim	Population
Chaplin et al (2015)[25]	Analysis of national audit data and survey of service users	To assess relative access to psychological services for working age adults and older adults (aged ≥65 years). To assess experiences of treatment	• 220 NHS-funded services in England and Wales that provide psychological therapies to adults in the community (primary and secondary care). 131 (60%) were IAPT services • audit: 122,740 patients who completed therapy between July and October 2012. 93.6% working age adults, 6.4% older adults • survey: 14,425 returned surveys between April 2012 and January 2013. 91% working age adults, 9% older adults
Collins and Corna (2018)[24]	Qualitative study	To explore why GPs did not routinely refer older patients to local IAPT services	8 GPs practising in a "a home county of London" (year of data collection not stated)
Petite et al (2017)[26]	Analysis of national survey and local IAPT service data	To estimate differences in referral and access rates to IAPT services and compare pathway through treatment across age bands	• adult Psychiatric Morbidity Survey: English adults aged 18 to 74 years. Data collected in 2007 • audit: 76,734 patients accessing IAPT services commissioned by the South West Strategic Health Authority from 2010 to 2011
Shastri et al (2019)[27]	Retrospective cohort study	To assess the proportion of older adults diagnosed with depression during treatment in an acute hospital, how often referrals and treatments for depression were initiated and the quality of liaison between secondary and primary care following discharge	766 hospital records from 27 sites. Patients were aged ≥65 years, had an unplanned admission to an acute hospital and were discharged after 1st April 2017

GP – General Practitioner; IAPT - Improving Access to Psychological Therapies

Table 7. Summary of key outcomes on detection, referral and compliance

Reference	Detection/ access/ referral	Compliance
Chaplin et al (2015)[25]	The proportion of older adults in the audit sample was 6.4%. This was: • lower than the 20.9% expected from the proportion of older adults in the population (OR 3.90, 95%CI 3.81 to 3.99) • lower than the 13.0% expected from age adjusted psychiatric morbidity figures (OR 2.20, 95%CI 2.14 to 2.26)	• significantly more older adults (59.6%) completed therapy than working age adults (48.6%) (OR 1.56, 95%CI 1.49 to 1.63) • significantly fewer older adults (12.5%) dropped out of therapy than working age adults (24.6%) (OR 2.19, 95%CI 2.04 to 2.34)

Reference	Detection/ access/ referral	Compliance
Petite et al (2017)[26]	Proportion of referrals to IAPT services against estimated cases of common mental health problems (by age group): • 18-19 years: 10.1% • 20-24 years: 23.0% • 25-29 years: 20.7% • 30-34 years: 18.6% • 35-39 years: 15.2% • 40-44 years: 13.9% • 45-49 years: 13.3% • 50-54 years: 10.7% • 55-59 years: 9.3% • 60-64 years: 8.2% • 65-69 years: 9.7% • 70-74 years: 6.0%	Attendance as a proportion of referrals (by age group): • 18-19 years: 57.6% • 20-24 years: 57.3% • 25-29 years: 60.8% • 30-34 years: 64.3% • 35-39 years: 67.2% • 40-44 years: 68.7% • 45-49 years: 72.0% • 50-54 years: 72.9% • 55-59 years: 76.8% • 60-64 years: 77.0% • 65-69 years: 76.4% • 70-74 years: 74.4% Completers (attending ≥2 sessions) as a proportion of attenders (by age group): • 18-19 years: 33.2% • 20-24 years: 40.3% • 25-29 years: 40.2% • 30-34 years: 40.4% • 35-39 years: 42.2% • 40-44 years: 42.6% • 45-49 years: 42.6% • 50-54 years: 43.9% • 55-59 years: 46.0% • 60-64 years: 45.8% • 65-69 years: 44.9% • 70-74 years: 45.5%
Shastri et al (2019)[27]	• the 12.7% of patients with a recorded diagnosis of depression was lower than expected from the prevalence reported in other UK studies (ranging from 8% to 35%) • 82.3% had no record of the presence or absence of depression or depressive symptoms in their notes Patients referred to psychiatric liaison services • 75% newly diagnosed patients • 23% of patients with an existing diagnosis • 1.2% of patients with no recorded diagnosis No patients with a new or existing diagnosis were referred to psychological services	Not reported

CI – Confidence Interval; IAPT - Improving Access to Psychological Therapies; OR – Odds Ratio

Table 8. Summary of key outcomes on user experience

Reference	Service users	Healthcare professionals
Chaplin et al (2015)[25]	• significantly higher proportion of older adults (77.9%) satisfied with waiting times than working age adults (65.6%) (OR 1.85, 95%CI 1.61 to 2.12) • so significant difference in proportion of older (89.1%) and working age adults (88.7%) that felt that therapy had helped them understand their difficulties (p=0.50) • no significant difference in proportion of older (83.9%) and working age adults (82.7%) that felt that therapy had helped them cope with their difficulties (p=0.30) • significantly higher proportion of older adults (70.1%) felt they were receiving the right number of sessions than working age adults (67.3%) (OR 1.14, 95%CI 1.01 to 1.30) • no significant difference in proportion of older (82.2%) and working age adults (83.3%) that would have therapy again if they had similar difficulties in the future (p=0.24)	Not reported
Collins and Corna (2018)[24]	Not reported	• GPs believed that older adult depression was an inevitable consequence of aging and therefore more difficult to treat with CBT • IAPT assessment processes were seen as inflexible, insensitive and potentially traumatising for older adults • some GPs appeared to feel that older, more frail, depressed patients were less likely to benefit from or access CBT

CBT – Cognitive Behavioural Therapy; GP – General Practitioner; IAPT - Improving Access to Psychological Therapies; OR – Odds Ratio

The small number of studies identified focused on specific aspects of UK practice and do not provide a full picture of the clinical detection and management of depression in the UK. However, the studies suggest that the proportion of adults receiving specific services was lower than might be expected. In one study (Petite et al 2017)[26] referrals to IAPT services were between 6% and 23% of estimated cases across age groups. In other studies the proportion of older adults receiving psychological therapies or having a recorded diagnosis of depression in hospital notes was lower than the estimated need (Chaplin et al 2015, Shastri et al 2019)[25,27]. One very small qualitative study (n=8) suggested some reasons why GPs were reluctant to refer older adults to psychological services. These included doubts about the appropriateness and effectiveness of therapy in older adults (Collins and Corna 2018)[24].

One study suggested that attendance at IAPT services ranged from 57% to 77% of patients referred across age groups and that between 33% and 46% of patients who attended were considered to have completed their treatment (Petite et al 2017)[26]. Studies also suggested that compliance was higher for older adults (Chaplin et al 2015, Petite et al 2017)[25,26]. One survey (Chaplin et al 2015)[25] suggested that older patients were more satisfied than working age adults with some aspects of psychological services received such as waiting times and number of sessions received. However, there was no difference in perceptions of the value of therapy.

The studies were assessed using the CASP checklist for cohort studies or the CASP checklist for qualitative research. A limitation of the evidence available is the fact that much of the data relates to IAPT services which encompass common mental health problems and are not specific to depression.

Another limitation is that 3 of the 4 studies related to specific services in 1 region of the UK. Their findings may not be transferrable to other areas.

When stated, the year of data collection ranged from 2011 to 2017. The applicability of the results in reflecting current UK practice is unclear.

Summary of Findings Relevant to Criterion 15: Criterion not met†††††

The small number of studies identified have uncertain applicability and are insufficient to assess whether the clinical detection and management of depression is currently well implemented in the UK. However, in these studies the proportion of patients receiving psychological therapies was lower than might be expected and compliance with treatment was variable and fairly low overall.

There is uncertainty about whether the clinical management of depression is optimised in the UK. Therefore, this criterion is not met.

††††† **Met** -for example, this should be applied in circumstances in which there is a sufficient volume of evidence of sufficient quality to judge an outcome or effect which is unlikely to be changed by further research or systematic review.
Not Met - for example, this should be applied in circumstances where there is insufficient evidence to clearly judge an outcome or effect or where there is sufficient evidence of poor performance.
Uncertain -for example, this should be applied in circumstances in which the constraints of an evidence summary prevent a reliable answer to the question. An example of this may be when the need for a systematic review and meta-analysis is identified by the rapid review.

Review summary

Conclusions and implications for policy

The aim of a national screening programme targeting depression in the general adult population would be to prevent depression developing into more severe depression with its associated adverse outcomes. This report is an update review on screening for depression against selected UK NSC criteria for appraising the viability, effectiveness and appropriateness of a screening programme. This review assesses 3 key questions to determine whether new evidence published since 2014 suggests that reconsideration of the current recommendation for screening for depression in the UK is required.

The 3 key questions in this review considered the longer term outcomes of interventions to treat subthreshold and milder forms of depression, RCT evidence on the effect of screening for depression and whether the clinical detection and management of depression is currently well implemented in the UK.

On the basis of the current evidence available about the 3 key questions, a national screening programme cannot be recommended. Important areas of uncertainty remain:

- a lack of evidence about the longer term impact (beyond 2 years) of treating mild or subthreshold depression in reducing the likelihood of more severe depression
- uncertainty about whether screening adults for depression reduces mortality and morbidity
- uncertainty about whether the clinical management of depression is optimised in the UK.

The current recommendation not to introduce a systematic population screening programme for depression in the UK should be retained.

Limitations

A limitation for this review is the lack of studies meeting the inclusion criteria for this review to answer the key questions. In particular, there were no studies assessing the longer term (beyond 2 years) outcomes of interventions to treat subthreshold and mild forms of depression. There was also a lack of good quality evidence assessing the effectiveness of screening for depression or the current clinical detection and management of depression in the UK.

This rapid review process was conducted over a condensed period of time (approximately 12 weeks). Searching was limited to peer reviewed literature and did not include grey literature sources. The review was guided by a protocol developed a priori. The literature search and first appraisal of search results were undertaken by 1 information scientist, and further appraisal and study selection by 1 reviewer. Any queries at both stages were resolved through discussion with a second reviewer. Studies not available in the English language, abstracts and poster presentations were not included.

Appendix 1 — Search strategy

Electronic databases

The search strategy included searches of the databases shown in Table. The main search was conducted on the 5th August 2019. A supplementary search for question 3 was conducted on 15th August 2019.

Table 9. Summary of electronic database searches and dates

Database	Platform	Searched on date	Date range of search
MEDLINE: Ovid MEDLINE® Pub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE®	Ovid SP	5th August 2019 15th August 2019	1st April 2014 to 15th August 2019
Embase	Ovid SP	5th August 2019 15th August 2019	1st April 2014 to 15th August 2019
PsycINFO	Ovid SP	5th August 2019 15th August 2019	1st April 2014 to 15th August 2019
The Cochrane Library: Cochrane Database of Systematic reviews Cochrane Central Register of Controlled trials	Wiley Online	5th August 2019	1st April 2014 to 5th August 2019

Search Terms

Search terms included combinations of free text and subject headings (Medical Subject Headings [MeSH] for MEDLINE, and Emtree terms for Embase).

Search terms for questions 1 and 2 for MEDLINE, Embase and PsycINFO are shown in Table 3. Search terms for question 3 are shown in Table 4. Search terms for the Cochrane Library databases (all questions) are shown in Table 5. The dates on which the individual searches were conducted are indicated.

Table 10. Search strategies for questions 1 and 2 for MEDLINE, Embase and PsycINFO

	Search terms	Results
Medline (5th August 2019)		
1	Mass Screening/	98420
2	Early Diagnosis/	24694
3	(screen* or test or tests or testing or detect*).ti,ab.	4454148
4	(early adj3 diagnos*).ti,ab.	105153

5	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	5142
6	1 or 2 or 3 or 4 or 5	4548644
7	Depression/	110622
8	depressive disorder/ or dysthymic disorder/	71670
9	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	59979
10	depress*.ti.	140861
11	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	3727
12	7 or 8 or 9 or 10 or 11	256709
13	6 and 12	54975
14	exp Antidepressive Agents/	145158
15	Exercise Therapy/	37830
16	exp Behavior Therapy/	70889
17	Counseling/	34388
18	Patient navigation/	591
19	(antidepress* or anti-depress*).ti.	22553
20	((antidepress* or anti-depress*) adj2 (agent? or drug? or therap* or prescri*)).ti,ab.	15193
21	((cogntive or behav* or relaxation) adj2 (therap* or treatment or intervention?)).ti,ab.	43929
22	(counsel?ing or motivational interview* or brief intervention?).ti,ab.	93136
23	mindfulness.ti,ab.	6090
24	((management or therap* or treatment) adj (program* or intervention?)).ti,ab.	90136
25	(early adj3 intervention?).ti,ab.	30220
26	collaborative care.ti,ab.	2061
27	clinical management.ti,ab.	30640
28	((patient or care) adj2 navigat*).ti,ab.	1229
29	social prescri*.ti,ab.	92
30	"Outcome Assessment (Health Care)"/	68538
31	*treatment outcome/	7063
32	((health or treatment or patient) adj2 outcome?).ti,ab.	186853
33	or/14-32	755338
34	12 and 33	64290
35	Depression/dh, dt, th	26853
36	Depressive Disorder/dh, dt, th	27374
37	34 or 35 or 36	83488
38	6 and 37	16080
39	limit 38 to "systematic review"	397
40	randomized controlled trial.pt.	486565
41	controlled clinical trial.pt.	93190
42	randomized.ab.	451209
43	placebo.ab.	199859
44	clinical trials as topic.sh.	187852
45	randomly.ab.	316037
46	trial.ti.	202942
47	40 or 41 or 42 or 43 or 44 or 45 or 46	1231558
48	exp animals/ not humans.sh.	4605115
49	47 not 48	1132764

50	13 and 49	6921
51	exp cohort studies/	1882276
52	cohort$.tw.	528063
53	Epidemiologic Studies/	8036
54	((follow up or observational or longitudinal or prospective) adj stud*).ti,ab.	367819
55	51 or 52 or 53 or 54	2266244
56	exp animals/ not humans.sh.	4605115
57	55 not 56	2231812
58	38 and 57	2819
59	50 or 58	8922
60	(comment or editorial or letter or news or "review" or case report).pt. or case report.ti,ab.	4691203
61	59 not 60	8314
62	39 or 61	8676
63	limit 62 to (english language and yr="2014 -Current")	3583
64	(adolescent/ or child/) not (exp adult/ and (adolescent/ or exp child/))	1198823
65	63 not 64	3425
Embase (5th August 2019)		
1	screening/ or mass screening/ or screening test/	289145
2	Early Diagnosis/	101074
3	(screen* or test or tests or testing or detect*).ti,ab.	5872796
4	(early adj3 diagnos*).ti,ab.	150514
5	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	8819
6	1 or 2 or 3 or 4 or 5	6026133
7	*depression/ or *dysthymia/ or minor depression/ or subsyndromal depression/	137851
8	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	85614
9	depress*.ti.	175169
10	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	5750
11	7 or 8 or 9 or 10	262130
12	6 and 11	63212
13	exp *antidepressant agent/	185297
14	*kinesiotherapy/	13320
15	exp *behavior therapy/ or exp cognitive behavioral therapy/ or exp *cognitive therapy/ or *mindfulness/ or *relaxation training/	44329
16	(antidepress* or anti-depress*).ti.	29967
17	((antidepress* or anti-depress*) adj2 (agent? or drug? or therap* or prescri*)).ti,ab.	21060
18	((cogntive or behav* or relaxation) adj2 (therap* or treatment or intervention?)).ti,ab.	60699
19	(counsel?ing or motivational interview* or brief intervention?).ti,ab.	131850
20	mindfulness.ti,ab.	8320
21	((management or therap* or treatment) adj (program* or intervention?)).ti,ab.	128223
22	(early adj3 intervention?).ti,ab.	45425
23	collaborative care.ti,ab.	2817
24	clinical management.ti,ab.	43274
25	((patient or care) adj2 navigat*).ti,ab.	2285
26	social prescri*.ti,ab.	101

27	*outcome assessment/	26729
28	*treatment outcome/	21767
29	((health or treatment or patient) adj2 outcome?).ti,ab.	278737
30	or/13-29	918391
31	11 and 30	63215
32	*depression/dm, dt, th or *dysthymia/dm, dt, th or minor depression/dm, dt, th or subsyndromal depression/dm, dt, th	42736
33	31 or 32	81277
34	6 and 33	16854
35	limit 34 to "reviews (maximizes specificity)"	553
36	randomized controlled trial/	563258
37	single blind procedure/ or double blind procedure/	198097
38	crossover procedure/	60176
39	random*.tw.	1440807
40	(((singl* or doubl*) adj (blind* or mask*)) or crossover or cross over or factorial* or latin square or assign* or allocat* or volunteer*).ti,ab.	1007289
41	36 or 37 or 38 or 39 or 40	2139128
42	(exp animals/ or nonhuman/) not human/	6313689
43	41 not 42	1864407
44	12 and 43	9728
45	Cohort analysis/	492516
46	cohort$.tw.	895376
47	Prospective study/	540233
48	((follow up or observational or longitudinal or prospective) adj stud*).ti,ab.	532063
49	45 or 46 or 47 or 48	1691779
50	(exp animals/ or nonhuman/) not human/	6313689
51	49 not 50	1655275
52	34 and 51	1706
53	44 or 52	11031
54	(editorial or letter or note or "review" or conference*).pt. or case report.ti,ab. or case report/	1.1E+07
55	53 not 54	7452
56	35 or 55	7872
57	limit 56 to (english language and yr="2014 -Current")	3145
58	(exp adolescent/ or exp child/) not (exp adult/ and (exp adolescent/ or exp child/))	2038157
59	57 not 58	2957
PsycINFO (5th August 2019)		
1	screening/ or exp screening tests/	14986
2	(screen* or test or tests or testing or detect*).ti,ab.	761167
3	(early adj3 diagnos*).ti,ab.	6013
4	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	2914
5	1 or 2 or 3 or 4	767294
6	exp "Depression (Emotion)"/	25021
7	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	54842
8	depress*.ti.	108547

9	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	2823
10	6 or 7 or 8 or 9	148102
11	5 and 10	31183
12	exp Antidepressant Drugs/	37468
13	exp cognitive behavior therapy/ or exp cognitive techniques/ or exp counseling/ or mindfulness-based interventions/ or exp relaxation therapy/	112148
14	exp behavior therapy/	19673
15	(antidepress* or anti-depress*).ti.	11099
16	((antidepress* or anti-depress*) adj2 (agent? or drug? or therap* or prescri*)).ti,ab.	8147
17	((cogntive or behav* or relaxation) adj2 (therap* or treatment or intervention?)).ti,ab.	56530
18	(counsel?ing or motivational interview* or brief intervention?).ti,ab.	83617
19	mindfulness.ti,ab.	11345
20	((management or therap* or treatment) adj (program* or intervention?)).ti,ab.	44879
21	(early adj3 intervention?).ti,ab.	17751
22	collaborative care.ti,ab.	1218
23	clinical management.ti,ab.	3269
24	((patient or care) adj2 navigat*).ti,ab.	391
25	social prescri*.ti,ab.	58
26	treatment outcomes/ or psychotherapeutic outcomes/	37006
27	((health or treatment or patient) adj2 outcome?).ti,ab.	50577
28	or/12-27	360249
29	11 and 28	5880
30	random*.ti,ab,hw,id.	190416
31	trial*.ti,ab,hw,id.	174638
32	controlled stud*.ti,ab,hw,id.	11865
33	placebo*.ti,ab,hw,id.	39326
34	((singl* or doubl* or trebl* or tripl*) and (blind* or mask*)).ti,ab,hw,id.	28232
35	(cross over or crossover or factorial* or latin square).ti,ab,hw,id.	29258
36	(assign* or allocat* or volunteer*).ti,ab,hw,id.	158253
37	treatment effectiveness evaluation/ or mental health program evaluation/	25208
38	exp experimental design/	55795
39	(clinical trial or treatment outcome).md.	42787
40	30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39	508320
41	11 and 40	6194
42	cohort analysis/ or followup studies/ or exp longitudinal studies/	29678
43	cohort$.tw.	72014
44	((follow up or observational or longitudinal or prospective) adj stud*).ti,ab.	79314
45	42 or 43 or 44	162905
46	29 and 45	464
47	41 or 46	6489
48	(chapter or column opinion or comment reply or dissertation or editorial or interview or letter or "review book" or "review media" or "review software other").dt. or case report.ti,ab. or (book or dissertation abstract or edited book).pt.	1287008
49	47 not 48	5801
50	limit 11 to "reviews (maximizes specificity)"	1077

51	49 or 50	6490
52	((adolescence 13 17 yrs or childhood birth 12 yrs) not ((adolescence 13 17 yrs or childhood birth 12 yrs) and adulthood 18 yrs older)).ag.	490664
53	51 not 52	6136
54	limit 53 to (english language and yr="2014 -Current")	2197

Table 11. Search strategies for question 3 for MEDLINE, Embase and PsycINFO

	Search terms	Results
Medline 1 (5th August)		
1	Mass Screening/	98464
2	Early Diagnosis/	24717
3	(screen* or test or tests or testing or detect*).ti,ab.	4452144
4	(early adj3 diagnos*).ti,ab.	105112
5	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	5138
6	1 or 2 or 3 or 4 or 5	4546640
7	Depression/	110709
8	depressive disorder/ or dysthymic disorder/	71695
9	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	59959
10	depress*.ti.	140833
11	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	3731
12	7 or 8 or 9 or 10 or 11	256700
13	health planning/ or health plan implementation/	26736
14	exp "Quality of Health Care"/	6582061
15	"Referral and Consultation"/	63519
16	Prevalence/	272713
17	exp "Treatment Adherence and Compliance"/	229698
18	implement*.ti,ab.	443260
19	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	402652
20	(undiagnos* or under diagnos*).ti,ab.	21496
21	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	207786
22	(screen* adj5 (positive or negative)).ti,ab.	19578
23	audit*.ti,ab.	137861
24	((patient? or client? or user? or consumer?) adj5 (experience* or satisfaction)).ti,ab.	208835
25	((treatment or therap*) adj5 (experience* or satisfaction)).ti,ab.	59539
26	((patient? or client? or user? or consumer?) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	60071
27	((treatment or therap*) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	47579
28	13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27	7474388
29	6 and 12 and 28	36400
30	(comment or editorial or letter or news or "review" or case report).pt. or case report.ti,ab.	4689555

31	29 not 30	33698
32	limit 29 to ("systematic review" or systematic reviews as topic or "reviews (maximizes specificity)")	1088
33	31 or 32	34418
34	(adolescent/ or child/) not (exp adult/ and (adolescent/ or exp child/))	1199288
35	33 not 34	32196
36	exp United Kingdom/	354719
37	(national health service* or nhs*).ti,ab,in.	175717
38	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	92129
39	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	1950091
40	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	50947
41	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	194980
42	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	23967
43	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	1306684
44	36 or 37 or 38 or 39 or 40 or 41 or 42 or 43	2513807

45	(exp africa/ or exp americas/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp oceania/) not (exp great britain/ or europe/)	2733024
46	44 not 45	2376913
47	35 and 46	3868
48	limit 47 to (english language and yr="2014 -Current")	1625
Medline 2 (5th August 2019)		
1	*Diagnosis/	13274
2	Early Diagnosis/	24725
3	(screen* or test* or detect* or manag*).ti.	1286196
4	(case? adj3 finding).ti,ab.	6954
5	(depress* adj3 manag*).ti,ab.	3912
6	((clinical or care) adj3 (plan* or develop* or manage*)).ti,ab.	185070
7	1 or 2 or 3 or 4 or 5 or 6	1467322
8	*Depression/	67313
9	*depressive disorder/ or *dysthymic disorder/	53230
10	depress*.ti.	140896
11	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	3733
12	8 or 9 or 10 or 11	175363
13	7 and 12	11370
14	depressive disorder/di or dysthymic disorder/di	21297
15	13 or 14	30558
16	health planning/ or health plan implementation/	26736
17	"Quality of Health Care"/	70059
18	"Referral and Consultation"/ and exp "Quality of Health Care"/	36457
19	Prevalence/	272850
20	prevalence.ti.	124885
21	implement*.ti.	48007
22	((service or program*) adj5 (design* or develop* or implement* or plan*)).ti,ab.	146931
23	(prevalence adj5 depress*).ti,ab.	10099
24	(undiagnos* or under diagnos*).ti,ab.	21514
25	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	207906
26	((number? or proportion or case? or percentage*) adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend*)).ti,ab.	16364
27	(audit* adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend or diagnos* or test* or screen* or detect*)).ti,ab.	12876
28	16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27	864581
29	15 and 28	4361
30	(comment or editorial or letter or news or "review" or case report).pt. or case report.ti,ab.	4692708
31	29 not 30	3678
32	limit 29 to ("systematic review" or systematic reviews as topic or "reviews (maximizes specificity)")	144
33	31 or 32	3786
34	(adolescent/ or child/) not (exp adult/ and (adolescent/ or exp child/))	1199539
35	33 not 34	3515

36	exp United Kingdom/	354753
37	(national health service* or nhs*).ti,ab,in.	175898
38	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	92156
39	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	1951338
40	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	50994
41	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	195119
42	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	23990
43	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	1307727
44	36 or 37 or 38 or 39 or 40 or 41 or 42 or 43	2515282
45	(exp africa/ or exp americas/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp oceania/) not (exp great britain/ or europe/)	2733767
46	44 not 45	2378331
47	35 and 46	442
48	limit 47 to (english language and yr="2014 -Current")	101
Medline 3 (15th August 2019)		
1	Depressive Disorder/di [Diagnosis]	20919

2	*Depressive Disorder/	52650
3	depress*.ti.	141027
4	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	3737
5	(iapt or "improving access to psychological therapies").ti,ab.	189
6	1 or 2 or 3 or 4 or 5	162811
7	exp Health Services Accessibility/	105525
8	Health Plan Implementation/	5466
9	"delivery of health care"/ or "delivery of health care, integrated"/	97084
10	Healthcare Disparities/	14811
11	"Referral and Consultation"/	63551
12	Quality Improvement/	20977
13	implement*.ti,ab.	444359
14	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	403341
15	(undiagnos* or under diagnos*).ti,ab.	21542
16	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	208059
17	(screen* adj5 (positive or negative)).ti,ab.	19617
18	audit*.ti.	52922
19	((service or care or health* or quality) adj5 improv*).ti,ab.	304974
20	((service or care or health*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	35607
21	((diagnos* or detect* or screen* or refer*) adj5 improv*).ti,ab.	101984
22	((diagnos* or detect* or screen* or refer*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	2731
23	7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22	1640069
24	(survey* or questionnaire* or audit*).mp.	1323694
25	(routine* adj3 data).mp.	9141
26	((electronic or medical or patient) adj3 record?).mp.	211368
27	24 or 25 or 26	1515925
28	6 and 23 and 27	5631
29	exp United Kingdom/	354826
30	(national health service* or nhs*).ti,ab,in.	176164
31	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	92193
32	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	1952933
33	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	51046
34	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	195310
35	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	24018

36	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	1309111
37	29 or 30 or 31 or 32 or 33 or 34 or 35 or 36	2517229
38	(exp africa/ or exp americas/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp oceania/) not (exp great britain/ or europe/)	2734886
39	37 not 38	2380184
40	28 and 39	808
41	(adolescent/ or child/) not (exp adult/ and (adolescent/ or exp child/))	1199840
42	40 not 41	774
43	limit 42 to (english language and yr="2014 -Current")	332
Embase 1 (5th August 2019)		
1	screening/ or mass screening/ or screening test/	289180
2	Early Diagnosis/	101169
3	(screen* or test or tests or testing or detect*).ti,ab.	5878537
4	(early adj3 diagnos*).ti,ab.	150710
5	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	8837
6	1 or 2 or 3 or 4 or 5	6031989
7	*depression/ or *dysthymia/ or minor depression/ or subsyndromal depression/	137907
8	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	85695
9	depress*.ti.	175328
10	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	5757
11	7 or 8 or 9 or 10	262355
12	health care planning/	93976
13	exp health care quality/	2995428

14	patient referral/	104309
15	Prevalence/	660459
16	patient attendance/ or patient dropout/ or patient satisfaction/ or exp treatment refusal/ or exp patient compliance/	291044
17	implement*.ti,ab.	581096
18	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	621735
19	(undiagnos* or under diagnos*).ti,ab.	33925
20	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	314526
21	(screen* adj5 (positive or negative)).ti,ab.	33365
22	audit*.ti,ab.	194196
23	((patient? or client? or user? or consumer?) adj5 (experience* or satisfaction)).ti,ab.	326607
24	((treatment or therap*) adj5 (experience* or satisfaction)).ti,ab.	87818
25	((patient? or client? or user? or consumer?) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	104297
26	((treatment or therap*) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	79161
27	12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26	5175390
28	6 and 11 and 27	21461
29	(editorial or letter or note or "review" or conference*).pt. or case report.ti,ab. or case report/	11109750
30	28 not 29	13272
31	limit 28 to "reviews (maximizes specificity)"	741
32	30 or 31	13728
33	(exp adolescent/ or exp child/) not (exp adult/ and (exp adolescent/ or exp child/))	2039568
34	32 not 33	12943
35	exp Great Britain/	26475
36	(national health service* or nhs*).ti,ab,in.	267286
37	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	39568
38	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	2965295
39	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	93780
40	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	318358
41	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	42458
42	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or	2299454

	"chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	
43	35 or 36 or 37 or 38 or 39 or 40 or 41 or 42	3519745
44	(exp africa/ or exp asia/ or exp "australia and new zealand"/) not (exp Great Britain/ or exp europe/)	1356613
45	43 not 44	3403652
46	34 and 45	2183
47	limit 46 to (english language and yr="2014 -Current")	862
Embase 2 (5th August 2019)		
1	*Diagnosis/	61113
2	Early Diagnosis/	101163
3	(screen* or test* or detect* or manag*).ti.	1508834
4	(case? adj3 finding).ti,ab.	9145
5	(depress* adj3 manag*).ti,ab.	5207
6	((clinical or care) adj3 (plan* or develop* or manage*)).ti,ab.	261735
7	1 or 2 or 3 or 4 or 5 or 6	1855059
8	*Depression/	136187
9	*dysthymia/ or minor depression/ or subsyndromal depression/	2632
10	depress*.ti.	175370
11	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	5761
12	8 or 9 or 10 or 11	219836
13	7 and 12	14573
14	depression/di or dysthymiadi/ or minor depression/di or subsyndromal depression/di	29453
15	13 or 14	41165
16	health care planning/	94052
17	health care quality/	233479
18	patient referral/ and exp health care quality/	37739
19	Prevalence/	661071
20	prevalence.ti.	166896

21	implement*.ti.	64717
22	((service or program*) adj5 (design* or develop* or implement* or plan*)).ti,ab.	193190
23	(prevalence adj5 depress*).ti,ab.	14872
24	(undiagnos* or under diagnos*).ti,ab.	33948
25	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	314597
26	((number? or proportion or case? or percentage*) adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend*)).ti,ab.	28708
27	(audit* adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend or diagnos* or test* or screen* or detect*)).ti,ab.	19259
28	16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27	1606089
29	15 and 28	7397
30	(editorial or letter or note or "review" or conference*).pt. or case report.ti,ab. or case report/	11115768
31	29 not 30	5151
32	limit 29 to "reviews (maximizes specificity)"	190
33	31 or 32	5267
34	(exp adolescent/ or exp child/) not (exp adult/ and (exp adolescent/ or exp child/))	2039907
35	33 not 34	4942
36	exp Great Britain/	26562
37	(national health service* or nhs*).ti,ab,in.	267532
38	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	39594
39	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	2966575
40	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	93812
41	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	318431
42	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	42478
43	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new	2300159

	south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	
44	36 or 37 or 38 or 39 or 40 or 41 or 42 or 43	3521240
45	(exp africa/ or exp asia/ or exp "australia and new zealand"/) not (exp Great Britain/ or exp europe/)	1356701
46	44 not 45	3405151
47	35 and 46	806
48	limit 47 to (english language and yr="2014 -Current")	194
49	from 48 keep 1-194	194
Embase 3 (15th August 2019)		
1	depression/di or minor depression/di or subsyndromal depression/di	29453
2	*depression/ or *minor depression/ or *subsyndromal depression/	136338
3	depress*.ti.	175546
4	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	5769
5	(iapt or "improving access to psychological therapies").ti,ab.	255
6	1 or 2 or 3 or 4 or 5	228220
7	health care access/	57574
8	total quality management/	58306
9	health care quality/	233561
10	health care disparity/	13887
11	patient referral/	104585
12	health care delivery/	166339
13	implement*.ti,ab.	582731
14	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	623180
15	(undiagnos* or under diagnos*).ti,ab.	34014
16	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	315085
17	(screen* adj5 (positive or negative)).ti,ab.	33436
18	audit*.ti.	66784
19	((service or care or health* or quality) adj5 improv*).ti,ab.	434464
20	((service or care or health*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	42108
21	((diagnos* or detect* or screen* or refer*) adj5 improv*).ti,ab.	147072
22	((diagnos* or detect* or screen* or refer*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	3691
23	7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22	2392192
24	(survey* or questionnaire* or audit*).mp.	2344332

25	(routine* adj3 data).mp.	12923
26	((electronic or medical or patient) adj3 record?).mp.	408013
27	24 or 25 or 26	2704943
28	6 and 23 and 27	9103
29	exp Great Britain/	26706
30	(national health service* or nhs*).ti,ab,in.	268298
31	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	39670
32	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	2969760
33	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	93931
34	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	318796
35	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	42534
36	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	2302913
37	29 or 30 or 31 or 32 or 33 or 34 or 35 or 36	3525227
38	(exp africa/ or exp asia/ or exp "australia and new zealand"/) not (exp Great Britain/ or exp europe/)	1358370
39	37 not 38	3408964

40	28 and 39	1603
41	(exp adolescent/ or exp child/) not (exp adult/ and (exp adolescent/ or exp child/))	2041909
42	40 not 41	1487
43	limit 42 to (english language and yr="2014 -Current")	575
PsycINFO 1 (5th August 2019)		
1	screening/ or exp screening tests/	14997
2	(screen* or test or tests or testing or detect*).ti,ab.	761881
3	(early adj3 diagnos*).ti,ab.	6020
4	(Patient health questionnaire or PHQ-9 or PHQ-2).ti,ab.	2921
5	1 or 2 or 3 or 4	768015
6	exp "Depression (Emotion)"/	25026
7	((dysthymic or depress* or mood*) adj2 (disorder? or illness*)).ti,ab.	54915
8	depress*.ti.	108695
9	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	2828
10	6 or 7 or 8 or 9	148279
11	health care delivery/ or "quality of care"/ or exp mental health programs/	41586
12	treatment compliance/ or client participation/ or treatment dropouts/ or treatment refusal/ or treatment withholding/	19558
13	exp Client Satisfaction/	5286
14	implement*.ti,ab.	163903
15	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	134106
16	(undiagnos* or under diagnos*).ti,ab.	2740
17	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	13852
18	(screen* adj5 (positive or negative)).ti,ab.	3896
19	audit*.ti,ab.	72708
20	((patient? or client? or user? or consumer?) adj5 (experience* or satisfaction)).ti,ab.	46993
21	((treatment or therap*) adj5 (experience* or satisfaction)).ti,ab.	22059
22	((patient? or client? or user? or consumer?) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	10669
23	((treatment or therap*) adj5 (complian* or comply or concord* or adhere* or refus* or noncompl* or nonadher*)).ti,ab.	14900
24	11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23	487883
25	5 and 10 and 24	4532
26	(chapter or column opinion or comment reply or dissertation or editorial or interview or letter or "review book" or "review media" or "review software other").dt. or case report.ti,ab. or (book or dissertation abstract or edited book).pt.	1287663
27	25 not 26	3849
28	limit 25 to "reviews (maximizes specificity)"	133
29	27 or 28	3859
30	((adolescence 13 17 yrs or childhood birth 12 yrs) not ((adolescence 13 17 yrs or childhood birth 12 yrs) and adulthood 18 yrs older)).ag.	490989
31	29 not 30	3609
32	(national health service* or nhs*).ti,ab,in.	23005

33	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	94202
34	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	443971
35	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	17933
36	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	42333
37	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	5596
38	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	342277
39	32 or 33 or 34 or 35 or 36 or 37 or 38	585846
40	31 and 39	694
PsycINFO 2 (5th August 2019)		
1	*Diagnosis/	28512
2	(screen* or test* or detect* or manag*).ti.	205507
3	(case? adj3 finding).ti,ab.	904
4	(depress* adj3 manag*).ti,ab.	2630
5	((clinical or care) adj3 (plan* or develop* or manage*)).ti,ab.	36512
6	1 or 2 or 3 or 4 or 5	263426
7	exp *"Depression (Emotion)"/	19481

8	depress*.ti.	108695
9	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	2828
10	7 or 8 or 9	115391
11	6 and 10	8052
12	health care delivery/ or "quality of care"/ or exp mental health programs/	41586
13	prevalence.ti.	18091
14	implement*.ti.	17704
15	((service or program*) adj5 (design* or develop* or implement* or plan*)).ti,ab.	88286
16	(prevalence adj5 depress*).ti,ab.	6815
17	(undiagnos* or under diagnos*).ti,ab.	2740
18	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	13852
19	((number? or proportion or case? or percentage*) adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend*)).ti,ab.	4973
20	(audit* adj5 (referred or referral? or nonrefer* or attended or attending or attendance? or nonattend or diagnos* or test* or screen* or detect*)).ti,ab.	7953
21	12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20	189242
22	11 and 21	1091
23	(chapter or column opinion or comment reply or dissertation or editorial or interview or letter or "review book" or "review media" or "review software other").dt. or case report.ti,ab. or (book or dissertation abstract or edited book).pt.	1287663
24	22 not 23	919
25	limit 22 to "reviews (maximizes specificity)"	52
26	24 or 25	928
27	((adolescence 13 17 yrs or childhood birth 12 yrs) not ((adolescence 13 17 yrs or childhood birth 12 yrs) and adulthood 18 yrs older)).ag.	490989
28	26 not 27	887
29	(national health service* or nhs*).ti,ab,in.	23005
30	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	94202
31	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	443971
32	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	17933
33	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	42333
34	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	5596
35	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or	342277

	"chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	
36	29 or 30 or 31 or 32 or 33 or 34 or 35	585846
37	28 and 36	177
PsycINFO 3 (15th August 2019)		
1	exp *"Depression (Emotion)"/	19481
2	depress*.ti.	108695
3	((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) adj2 depress*).ti,ab.	2828
4	(iapt or "improving access to psychological therapies").ti,ab.	259
5	1 or 2 or 3 or 4	115609
6	health care delivery/	20239
7	implement*.ti,ab.	163903
8	(referred or referral? or nonrefer* or attended or attending or attendance? or nonattend).ti,ab.	134106
9	(undiagnos* or under diagnos*).ti,ab.	2740
10	((number? or proportion or case?) adj5 (diagnos* or detect*)).ti,ab.	13852
11	(screen* adj5 (positive or negative)).ti,ab.	3896
12	audit*.ti.	24601
13	((service or care or health* or quality) adj5 improv*).ti,ab.	68455
14	((service or care or health*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	14740
15	((diagnos* or detect* or screen* or refer*) adj5 improv*).ti,ab.	10499
16	((diagnos* or detect* or screen* or refer*) adj5 (disparit* or equit* or inequit* or equalit* or inequalit*)).ti,ab.	1076
17	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16	416936
18	(survey* or questionnaire* or audit*).mp.	773180
19	(routine* adj3 data).mp.	1206
20	((electronic or medical or patient) adj3 record?).mp.	17590
21	18 or 19 or 20	787366

22	5 and 17 and 21	4227
23	(national health service* or nhs*).ti,ab,in.	23005
24	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.	94202
25	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k." or united kingdom* or (england* not "new england") or northern ireland* or northern irish* or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in.	443971
26	(bangor or "bangor's" or cardiff or "cardiff's" or newport or "newport's " or st asaph or "st asaph's" or st davids or swansea or "swansea's").ti,ab,in.	17933
27	(aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia*) or ("perth's" not australia*) or stirling or "stirling's").ti,ab,in.	42333
28	(armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in.	5596
29	(bath or "bath's" or ((Birmingham not alabama*) or ("birmingham's" not alabama*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle* or "carlisle's" or (cambridge not (massachusetts* or boston* or harvard*)) or ("cambridge's" not (massachusetts* or boston* or harvard*)) or (canterbury not zealand*) or ("canterbury's" not zealand*) or chelmsford or "chelmsford's" or chester or "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina* or nc)) or ("durham's" not (carolina* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds* or leicester or "leicester's" or (lincoln not nebraska*) or ("lincoln's" not nebraska*) or (liverpool not (new south wales* or nsw)) or ("liverpool's" not (new south wales* or nsw)) or ((london not (ontario* or ont or toronto*)) or ("london's" not (ontario* or ont or toronto*)) or manchester or "manchester's" or (newcastle not (new south wales* or nsw)) or ("newcastle's" not (new south wales* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts* or boston* or harvard*)) or ("worcester's" not (massachuse tts* or boston* or harvard*)) or (york not ("new york*" or ny or ontario* or ont or toronto*)) or ("york's" not ("new york*" or ny or ontario* or ont or toronto*))))).ti,ab,in.	342277
30	23 or 24 or 25 or 26 or 27 or 28 or 29	585846
31	22 and 30	731
32	((adolescence 13 17 yrs or childhood birth 12 yrs) not ((adolescence 13 17 yrs or childhood birth 12 yrs) and adulthood 18 yrs older)).ag.	490989
33	31 not 32	689
34	limit 33 to (english language and yr="2014 -Current")	280

Table 12. Search strategy for the Cochrane Library (questions 1 to 3)

	Search terms	Results
1	MeSH descriptor: [Mass Screening] this term only	2982
2	MeSH descriptor: [Early Diagnosis] this term only	529
3	(screen* or test or tests or testing or detect*):ti,ab,kw OR (early NEAR/3 diagnos*):ti,ab,kw OR (“Patient health questionnaire” or PHQ-9 or PHQ-2):ti,ab,kw	383131
4	#1 or #2 or #3	383131
5	MeSH descriptor: [Depression] explode all trees	10396
6	MeSH descriptor: [Depressive Disorder] this term only	6796
7	MeSH descriptor: [Dysthymic Disorder] explode all trees	168
8	(((dysthymic or depress* or mood*) NEAR/2 (disorder* or illness*))):ti,ab,kw OR (depress*):ti OR (((subclinical or subsyndromal or subthreshold or subdiagnostic or sub-clinical or sub-syndromal or sub-threshold or sub-diagnostic or mild*) NEAR/2 depress*)):ti,ab,kw	34694
9	#5 or #6 or #7 or #8	39048
10	#4 and #9	10446

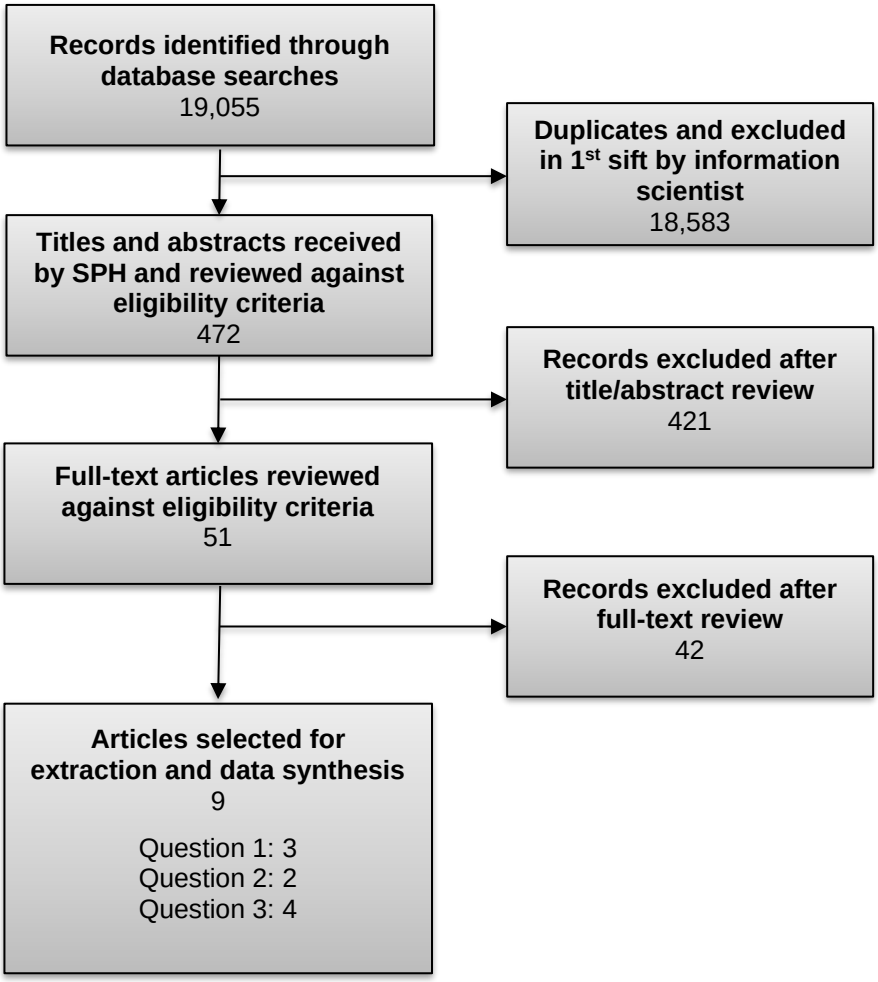
Results were imported into EndNote and de-duplicated.

Appendix 2 — Included and excluded studies

PRISMA flowchart

Figure 1 summarises the volume of publications included and excluded at each stage of the review. 51 publications were ultimately judged to be relevant to 1 or more review questions and were considered for extraction. Publications that were included or excluded after the review of full-text articles are detailed below.

Figure 1. Summary of publications included and excluded at each stage of the review



Publications included after review of full-text articles

The 9 publications included after review of full-texts are summarised in Table 13 below.

Studies were prioritised for extraction and data synthesis. It was planned *a priori* that the following approach would be taken to prioritise studies for extraction:

1. systematic reviews and meta-analyses would be considered the highest quality of evidence if any were found
2. studies in screen detected populations with a follow-up period beyond 2 years would be prioritised for question 1 if any were found
3. RCTs meeting the 'Thombs and Ziegelstein criteria' would be prioritised for question 2 if any were found.

In addition, the following criteria were applied after assessing the overall volume of evidence identified in the review:

4. studies in screen detected populations with mild or subthreshold depression with a follow-up period of at least 12 months were prioritised for question 1
5. studies using UK audit/ service data from within the last 10 years were prioritised for question 3.

Publications reviewed at full text but not selected for extraction and data synthesis are clearly detailed in Table 14 below.

Table 13. Summary of publications included after review of full-text articles, and the question(s) each publication was identified as being relevant to

Study	The intervention	The screening programme	Implementation criteria
Chaplin et al (2015)[25]			X
Collins and Corna (2018)[24]			X
Gilbody et al (2017)[17]/ Lewis et al (2017)[18]ǂǂǂǂǂ	X		
Oyama et al (2014)[22]		X	
Pettit et al (2017)[26]			X
Shastri et al (2019)[27]			X
Silverstone et al (2017)[23]		X	
van Beljouw et al (2015)[19]	X		
Zhang et al (2014)[20]	X		

ǂǂǂǂǂ These papers report results from the same RCT (CASPER)

Publications excluded after review of full-text articles

Of the 51 publications included after the review of titles and abstracts, 41 were ultimately judged not to be relevant to this review. These publications, along with reasons for exclusion, are listed in Table 14.

Table 14. Publications excluded after review of full-text articles

Reference	Reason for exclusion
Question 1	
Ali S. Rhodes L. Moreea O. et al. How durable is the effect of low intensity CBT for depression and anxiety? Remission and relapse in a longitudinal cohort study. Behaviour Research & Therapy 2017, 94: 1-8.	Population includes range of mental health conditions, high risk groups and moderate depression
Angstman KB. Oberhelman S. Rohrer JE. et al. Depression remission decreases outpatient utilization at 6 and 12 months after enrolment into collaborative care management. Population Health Management 2014, 17(1): 48-53.	Population includes high risk groups and moderate/ severe depression
Aragones E. Caballero A. Pinol JL. Lopez-Cortacans G. Persistence in the long term of the effects of a collaborative care programme for depression in primary care. Journal of Affective Disorders 2014, 166: 36-40.	Population includes high risk groups and moderate/ severe depression
Arevian AC. Jones F. Tang L. et al. Depression Remission From Community Coalitions Versus Individual Program Support for Services: Findings From Community Partners in Care, Los Angeles, California, 2010-2016. American Journal of Public Health 2019, 109(S3): S205-S13.	Population includes high risk groups and moderate/ severe depression
Brabyn S. Araya R. Barkham M. et al. The second Randomised Evaluation of the Effectiveness, cost-effectiveness and Acceptability of Computerised Therapy (REEACT-2) trial: does the provision of telephone support enhance the effectiveness of computer-delivered cognitive behaviour therapy? A randomised controlled trial. Health Technology Assessment (Winchester, England) 2016, 20(89): 1-64.	Population includes high risk groups and moderate/ severe depression
Breed C. Bereznay C. Treatment of Depression and Anxiety by Naturopathic Physicians: An Observational Study of Naturopathic Medicine Within an Integrated Multidisciplinary Community Health Center. Journal of Alternative & Complementary Medicine 2017, 23(5): 348-54.	Population includes moderate/ severe depression
Bruce ML. Raue PJ. Reilly CF. et al. Clinical effectiveness of integrating depression care management into medicare home health: the Depression CAREPATH Randomized trial. JAMA Internal Medicine 2015, 175(1): 55-64.	Population includes high risk groups. Severity unclear
Chung B. Ong M. Ettner SL. et al. 12-month outcomes of community engagement versus technical assistance to implement depression collaborative care: a partnered, cluster, randomized, comparative effectiveness trial. Annals of Internal Medicine 2014, 161(10 Suppl): S23-34.	Population includes high risk groups and moderate/ severe depression
Conejo-Ceron S. Moreno-Peral P. Rodriguez-Morejon A. et al. Effectiveness of Psychological and Educational Interventions to Prevent Depression in Primary Care: A Systematic Review and Meta-Analysis. Annals of family medicine 2017, 15(3): 262-71.	Includes a range of populations and follow-up. Any eligible individual studies separately considered

Cuijpers P. Koole SL. Van Dijke A. Roca M. Li J. Reynolds CF. Psychotherapy for subclinical depression: Meta-analysis. British Journal of Psychiatry 2014, 205(4): 268-74.	Studies included high risk groups. Individual studies not eligible as all published before 2014
Ebert DD. Buntrock C. Lehr D. et al. Effectiveness of Web- and Mobile-Based Treatment of Subthreshold Depression With Adherence-Focused Guidance: a Single-Blind Randomized Controlled Trial. Behavior therapy 2018, 49(1): 71-83.	Follow-up < 12 months
Fish MT. Russoniello CV. O'Brien K. The Efficacy of Prescribed Casual Videogame Play in Reducing Symptoms of Anxiety: A Randomized Controlled Study. Games for Health Journal 2014, 3(5): 291-5.	Follow-up < 12 months
Garrison GM. Angstman KB. O'Connor SS. Williams MD. Lineberry TW. Time to Remission for Depression with Collaborative Care Management (CCM) in Primary Care. Journal of the American Board of Family Medicine: JABFM 2016, 29(1): 10-7.	Population includes high risk groups and moderate/ severe depression
Gilbody S. Littlewood E. Hewitt C. et al. Computerised cognitive behaviour therapy (cCBT) as treatment for depression in primary care (REEACT trial): large scale pragmatic randomised controlled trial. BMJ 2015, 351: h5627.	Population includes high risk groups and moderate/ severe depression
Härter M. Watzke B. Daubmann A.et al. Guideline-based stepped and collaborative care for patients with depression in a cluster-randomised trial. Scientific Reports 2018, 8(1): 9389.	Population includes high risk groups and moderate/ severe depression
Helgadottir B. Forsell Y. Hallgren M. Moller J. Ekblom O. Long-term effects of exercise at different intensity levels on depression: A randomized controlled trial. Preventive Medicine 2017, 105: 37-46.	Population moderate/ severe depression
Iglesias-Gonzalez M. Aznar-Lou I. Penarrubia-Maria MT. et al. Effectiveness of watchful waiting versus antidepressants for patients diagnosed of mild to moderate depression in primary care: A 12-month pragmatic clinical trial (INFAP study). European Psychiatry: the Journal of the Association of European Psychiatrists 2018, 53: 66-73.	Population includes high risk groups and moderate depression
Janssen N. Huibers MJH. Lucassen P. et al. Behavioural activation by mental health nurses for late-life depression in primary care: a randomized controlled trial. BMC Psychiatry 2017, 17(1): 230.	Population includes moderate/ severe depression
Klein JP. Spath C. Schroder J. et al. Time to remission from mild to moderate depressive symptoms: One year results from the EVIDENT-study, an RCT of an internet intervention for depression. Behaviour Research & Therapy 2017, 97: 154-62.	Population includes high risk groups
Knekt P. Heinonen E. Harkapaa K. et al. Randomized trial on the effectiveness of long- and short-term psychotherapy on psychosocial functioning and quality of life during a 5-year follow-up. Psychiatry research 2015, 229(1-2): 381-8	Population includes range of mental health conditions, high risk groups and moderate/ severe depression
Littlewood E. Duarte A. Hewitt C. et al. A randomised controlled trial of computerised cognitive behaviour therapy for the treatment of depression in primary care: the Randomised Evaluation of the Effectiveness and Acceptability of Computerised Therapy (REEACT) trial. Health Technology Assessment (Winchester, England) 2015, 19(101): viii, xxi-171.	Population includes high risk groups and moderate/ severe depression
Newcomb RD. Steffen MW. Breeher LE. et al. Screening for depression in the occupational health setting. Occupational medicine (Oxford, England) 2016, 66(5): 390-3.	Population moderate/ severe depression
Parsaik AK. Mascarenhas SS. Hashmi A. et al. Role of botulinum toxin in depression. Journal of Psychiatric Practice 2016, 22(2): 99-110.	All included studies < 12 months follow-up

Richards DA. Ekers D. McMillan D. et al. Cost and Outcome of Behavioural Activation versus Cognitive Behavioural Therapy for Depression (COBRA): a randomised, controlled, non-inferiority trial. Lancet 2016, 388(10047): 871-80.	Population includes high risk groups and moderate/ severe depression
Richards DA. Rhodes S. Ekers D. et al. Cost and Outcome of BehaviouRal Activation (COBRA): a randomised controlled trial of behavioural activation versus cognitive-behavioural therapy for depression. Health Technology Assessment (Winchester, England) 2017, 21(46): 1-366.	Population includes high risk groups and moderate/ severe depression
Richards DA. Bower P. Chew-Graham C. et al. Clinical effectiveness and cost-effectiveness of collaborative care for depression in UK primary care (CADET): a cluster randomised controlled trial. Health Technology Assessment (Winchester, England) 2016, 20(14): 1-192.	Population includes high risk groups and moderate/ severe depression
Stiles-Shields C. Kwasny MJ. Cai X. Mohr DC. Therapeutic alliance in face-to-face and telephone-administered cognitive behavioral therapy. Journal of Consulting & Clinical Psychology 2014, 82(2): 349-54.	Population includes high risk groups and moderate/ severe depression
Titov N. Dear BF. Ali S. et al. Clinical and cost-effectiveness of therapist-guided internet-delivered cognitive behavior therapy for older adults with symptoms of depression: a randomized controlled trial. Behavior Therapy 2015, 46(2): 193-205.	Population includes high risk groups and moderate depression
Viksveen P. Relton C. Nicholl J. Depressed patients treated by homeopaths: a randomised controlled trial using the "cohort multiple randomised controlled trial" (cmRCT) design. Trials 2017, 18(1): 299.	Population includes high risk groups and moderate/ severe depression
Wikberg C. Westman J. Petersson EL. et al. Use of a self-rating scale to monitor depression severity in recurrent GP consultations in primary care - does it really make a difference? A randomised controlled study. BMC Fam Pract 2017, 18(1): 6.	Population moderate depression
Zagorscak P. Heinrich M. Sommer D. Wagner B. Knaevelsrud C. Benefits of Individualized Feedback in Internet-Based Interventions for Depression: A Randomized Controlled Trial. Psychotherapy & Psychosomatics 2018, 87(1): 32-45.	Population moderate depression
Zhan GL. Li CH. Zhao LY. Li J. Wu Y. Effects of community mental health services on depression, anxiety, and happiness of the elderly. Journal of shanghai jiaotong university (medical science) 2015, 35(6): 839-42.	Full text not published in English
Question 2	
Gidding LG. Spigt M. Winkens B. Herijgers O. Dinant GJ. PsyScan e-tool to support diagnosis and management of psychological problems in general practice: a randomised controlled trial. British Journal of General Practice 2018, 68(666): e18-e27.	Population includes a range of conditions and high risk groups
Picardi A. Lega I. Tarsitani L. et al. A randomised controlled trial of the effectiveness of a program for early detection and treatment of depression in primary care. Journal of Affective Disorders 2016, 198: 96-101.	RCT of intervention not screening
Question 3	
Di Capua P. Wu B. Sednew R. Ryan G. Wu S. Complexity in redesigning depression care: Comparing intention versus implementation of an automated depression screening and monitoring program. Population Health Management 2016, 19(5): 349-56.	Not a UK setting
Frost R. Bhanu C. Walters K. Beattie A. Ben-Shlomo Y. Management of depression and referral of older people to psychological therapies: A systematic review of qualitative studies. British Journal of General Practice 2019, 69(680): E171-E81.	Includes a range of countries. Any UK studies separately considered
Henfrey H. The Management of Patients with Depression In Primary Care: an Audit Review. Psychiatria Danubina 2015, 27 Suppl 1: S201-4.	Conference paper on awareness raising exercise in 2 GP practices

Larvin H. Peckham E. Prady SL. Case-finding for common mental disorders in primary care using routinely collected data: a systematic review. Social Psychiatry & Psychiatric Epidemiology 2019, 12: 12.	Includes a range of countries. Any UK studies separately considered
Overbeck G. Davidsen AS. Kousgaard MB. Enablers and barriers to implementing collaborative care for anxiety and depression: a systematic qualitative review. Implementation Science 2016,11(1): 165.	Includes a range of countries. Any UK studies separately considered
Taylor AK. Gilbody S. Bosanquet K. et al. How should we implement collaborative care for older people with depression? A qualitative study using normalisation process theory within the CASPER plus trial. BMC Family Practice 2018, 19: 116.	Perceptions of an intervention assessed in an RCT
Tiemstra JD. Fang K. Depression Screening in an Academic Family Practice. Family Medicine 2017, 49(1): 42-5.	Not a UK setting
Wood E. Ohlsen S. Ricketts T. What are the barriers and facilitators to implementing Collaborative Care for depression? A systematic review. Journal of Affective Disorders 2017, 214: 26-43.	Includes a range of countries. Any UK studies separately considered

Appendix 3 — Summary and appraisal of individual studies

Data Extraction

Studies relevant to criterion 9, key question 1: *Do interventions for mild or subthreshold depression reduce the likelihood of major depression in the longer term (beyond two years)?*

Table 15. Gilbody et al (2017)[17]

Publication	Gilbody S. Lewis H. Adamson J. Atherton K. Bailey D. et al. Effect of collaborative care vs usual care on depressive symptoms among older adults with subthreshold depression: the CASPER randomized clinical trial. JAMA 2017, 317(7): 728-37 (Study also published as Lewis H. Adamson J. Atherton K. Bailey D. Birtwistle J. et al. Collaborative care and active surveillance for screen-positive elders with subthreshold depression (CASPER): a multicentred randomised controlled trial of clinical effectiveness and cost-effectiveness. Health Technology Assessment 2017, 21(8): 1-196)
Study details	RCT
Study objectives	To assess whether collaborative care is an effective method to reduce depressive symptoms and prevent more severe depression in older people with low severity depression
Inclusions	Participants aged ≥65 years reporting depressive symptoms on a 2-item case-finding tool (the Whooley questions) and with a diagnosis of subthreshold depression using the Mini International Neuropsychiatric Interview (MINI) and DSM-IV criteria. Participants receiving antidepressants were eligible for inclusion
Exclusions	Known alcohol dependency, psychosis, recent suicidal risk, significant cognitive impairment, recent bereavement, terminal illness. Participants receiving psychological therapy were excluded
Population	705 participants aged ≥65 years with subthreshold depression in 38 UK primary care centres between May 2011 and November 2014 37,134 people registered with 38 primary care centres were invited to participate by letter; 6,693 provided information about depressive symptoms and 2,434 had a positive screening test and were assessed by the MINI diagnostic interview. 705 had subthreshold depression and were randomised. Other diagnostic outcomes included no criteria for depression (1,558) and major depressive disorder (n=171) Participants were 58% female and 99% white British with a mean (SD) age of 77 (7.1) Individual participants were randomised 1:1 without stratification
Intervention	Collaborative care including behavioural activation was coordinated by a case manager who assessed functional impairments relating to mood symptoms. Participants completed an average of 6 (of 8) weekly sessions (n=344)
Comparator	Usual care (n=361)
Outcomes	Groups were similar at baseline for PHQ-9 score and prescription rates for antidepressants (collaborative care 10% vs usual care 14%) The primary outcome was PHQ-9 score at 4 months. Participants were followed-up for 12 months

Depression outcomes

Self-reported depression was assessed at 4 and 12 months using PHQ-9. Participants were included in the analysis if they had baseline PHQ-9 and SF-12§§§§§ physical component scores and PHQ-9 data at 4 or 12 months follow-up

		Collaborative care	Usual care
Mean PHQ-9 score	Baseline (n=705)	7.8 (SD 4.71)	7.8 (SD 4.64)
	4 months (n=586)	5.36 (95%CI 4.89 to 5.83)	6.67 (95%CI 6.24 to 7.10)
	12 months (n=519)	5.93 (95%CI 5.35 to 6.50)	7.25 (95%CI 6.73 to 7.77)
Participants meeting criteria for depression (PHQ-9 ≥10)	4 months (n=586)	45/262 (17.2%)	76/324 (23.5%)
	12 months (n=519)	37/235 (15.7%)	79/284 (27.8%)

- statistically significantly lower mean PHQ-9 scores for collaborative care than usual care at 4 months (-1.31, 95%CI -1.95 to -0.67, p<0.001)
- statistically significantly lower mean PHQ-9 scores for collaborative care than usual care at 12 months (-1.33, 95%CI -2.10 to -0.55, p=0.001)
- no significant difference in the proportion of participants meeting the criteria for depression at 4 months between collaborative care and usual care (difference -6.3%, 95%CI -12.8 to 0.2; RR 0.83, 95%CI 0.61 to 1.27, p=0.247)
- statistically significantly lower proportion of participants meeting the criteria for depression at 12 months for collaborative care than usual care (difference -12.1%, 95%CI -19.5 to -5.1; RR 0.65, 95%CI 0.46 to 0.91, p=0.013)

Other outcomes at 12 months

- no significant difference in antidepressant prescriptions between collaborative care (9.8%) and usual care (15.7%) (RR 0.84, 95%CI 0.60 to 1.19, p=0.327)
- statistically significantly better mean SF-12 physical component scores for collaborative care (37.8) than usual care (36.1) (-1.67, 95%CI -3.06 to -0.27, p=0.02)
- statistically significantly better mean SF-12 mental health component scores for collaborative care (46.8) than usual care (44.6) (-2.15, 95%CI -3.70 to -0.59), p=0.007)
- statistically significantly lower mean anxiety (GAD-7) scores for collaborative care (4.18) than usual care (5.20) (-1.01, 95%CI -1.61 to -0.42), p=0.001)

Although 23 participants died during follow-up, none of these deaths were attributed to the intervention or control treatment

Quality appraisal	The study was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). There were no concerns with the randomisation process. Although blinding could not be applied to participants and health professionals, assessors were blinded to treatment group. There was high risk of bias from high loss to follow-up. The study authors had allowed for 25% loss to follow-up in their power calculation. However, loss to follow-up was higher in the collaborative care group than usual care at both 4 months (24% vs 10%) and 12 months (31.7% vs 21.3%). This may have biased the study outcomes if the participants who withdrew had different outcomes to the participants who continued with the study.

§§§§§ A measure of quality of life

	Intention-to-treat analysis was reported. Outcomes were self-reported and could have been biased by knowledge of treatment group, despite assessors being blinded. The primary outcome was pre-specified. However, other outcomes were described as secondary exploratory outcomes and no adjustment for multiple testing was applied. This introduces a risk of reporting bias in the selection of results to report. Participants with an existing prescription of anti-depressants were included. However, these represented a minority of the study population. The population were identified for intervention through a screening exercise and were described as having subthreshold depression. The study reported significant differences between collaborative care and usual care up to 12 months follow-up. However, small effect sizes and high loss to follow-up limit confidence in the results. The study was conducted in the UK but only included older adults. The applicability to a wider screening population is unclear. The study does not provide any evidence about the longer term impact (beyond 2 years) of treating mild or subthreshold depression in reducing the likelihood of progression to more severe depression. The 2 papers, Gilbody et al (2017) and Lewis et al (2017), report results from the same trial. Gilbody et al was used as the primary source for data extraction. Lewis et al also reported results of a cost effectiveness analysis which is beyond the scope of this review and is not reproduced. The qualitative study reported by Lewis et al (also published as Taylor et al 2018) was considered for inclusion against the criteria for question 3.

CI – Confidence Interval; DSM – Diagnostic and Statistical Manual of Mental Disorders; GAD - Generalised Anxiety Disorder; MINI - Mini International Neuropsychiatric Interview; PHQ – Patient Health Questionnaire; RCT – Randomised Controlled Trial; RR – Relative Risk; SD – Standard Deviation; SF-12 – Short Form-12

Table 16. van Beljouw et al (2015)[19]

Publication	van Beljouw IMJ. van Exel E. van de Ven PM. Joling KJ. Dhondt TDF. et al. Does an outreaching stepped-care program reduce depressive symptoms in community-dwelling older adults? A randomized implementation trial. American Journal of Geriatric Psychiatry 2015, 23(8): 807-17
Study details	RCT
Study objectives	To determine whether implementation of an integrated stepped-care intervention programme (Lust for Life) is more effective than usual care in reducing depressive symptoms and loneliness in community-dwelling older adults
Inclusions	Community-dwelling adults aged ≥65 years
Exclusions	Severe cognitive disability or an insufficient mastery of Dutch language
Population	People aged ≥65 years, registered at 18 general practices or a home care facility in The Netherlands between December 2010 and May 2012 (n=9,662). All were invited to complete the PHQ-9 and 4,661 (48.2%) responded. People who scored ≥6 (n=758, 16.3%) were eligible for the intervention. 263 participants agreed to participate and were randomised General practices were randomised into 4 groups, stratified by region and practice size. Individuals recruited through the home care facility were randomised individually: • group 1 received the programme immediately (n=81) • group 2 started receiving the programme after 3 months (n=56) • group 3 started receiving the programme after 6 months (n=54) • group 4 started receiving the programme after 12 months (n=72)

	71% of participants were female and the mean age was 75.3 ± 60.7. Ethnicity was not reported People with a current or past diagnosis of depression were included and made up 19.8% and 22.4% of the population respectively
Intervention	If symptoms persisted participants were offered clinical interventions, delivered by trained mental health care nurses and home care nurses, in incremental steps (with 2 options for steps 2 and 3): • step 1: 3 months watchful waiting • step 2: Guided self-help course or physical exercise programme • step 3: Problem-solving treatment or life review (reminiscence intervention) • step 4: Referral to general practitioner Eligibility to a subsequent step was assessed every 3 months (using a cut off of ≥6 on the PHQ-9) Participants with severe depression (PHQ-9 >20) at any point during the study were referred to their general practitioner
Comparator	Usual care whilst waiting to receive the intervention
Outcomes	There were significant differences between the groups at baseline for age, education, urban dwelling place and a measure of activities of daily living. PHQ-9 scores were similar at baseline Participants were followed-up for up to 2 years with outcomes (PHQ-9) assessed every 3 months. All groups were followed-up for at least 12 months. 9 participants were excluded from this analysis as no PHQ-9 scores were available (5 from group 1, 3 from group 2 and 1 from group 3) Adherence to the intervention and follow-up was low across all groups:

	Group 1	**Group 2**	**Group 3**	**Group 4**
Attended ≥1 intervention session	46 (56.8%)	27 (48.2%)	27 (50.0%)	37 (51.4%)
Completed planned follow-up	38 (46.9%)	23 (41.1%)	33 (61.1%)	48 (66.7%)

	The authors reported that the programme improved depression severity but that the difference was only statistically significant in the first 3 months after implementation (pre-implementation PHQ-9 mean 9.34 standard error (SE) 0.61 compared to mean 7.83 SE 0.51 at 3 months, p=0.002) The difference over 24 months was only displayed graphically with a mean PHQ-9 of approximately 6 at 24 months. The difference from baseline to 24 months was not statistically significant (p=0.144) The authors did not report an analysis of the programme (intervention) vs usual care (control)
Quality appraisal	The study was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). This study had a high risk of bias in a number of areas. There were significant differences between the groups at baseline introducing potential risk of bias arising from the randomisation process. There were differences in the intervention received by participants reflecting the stepped-care nature of the intervention and the provision of a choice of interventions at 2 of the 4 steps. Adherence to the intervention and to follow-up was low across the 4 groups. The authors stated that blinding of participants and assessors was not possible.

	The pre-specified outcome measurement was the same across all groups. The authors stated that they used intention-to-treat analysis. However, only an analysis of depression over time was reported following intervention. No comparison between intervention and usual care was reported. Participants with existing mental health conditions were included. However, these represented a minority of the study population. The population were identified for intervention through a screening exercise and were described as having mostly mild depression. The study did not demonstrate a significant improvement in depression beyond 3 months but the results should be interpreted with caution due to the limitations of the study. The study was conducted in The Netherlands and only included older adults. The applicability to a UK screening population is unclear. The study does not provide any evidence about the longer term impact (beyond 2 years) of treating mild or subthreshold depression in reducing the likelihood of progression to more severe depression.

PHQ – Patient Health Questionnaire; RCT – Randomised Controlled Trial; SE – Standard Error

Table 17. Zhang et al (2014)[20]

Publication	Zhang DX. Lewis G. Araya R. Tang WK. Mak WWS. et al. Prevention of anxiety and depression in Chinese: a randomized clinical trial testing the effectiveness of a stepped-care program in primary care. Journal of Affective Disorders 2014, 169: 212-220
Study details	RCT
Study objectives	To assess the effectiveness of a stepped-care programme to prevent the onset of major depressive disorder and generalised anxiety disorder among Chinese people with subthreshold anxiety and depression symptoms in primary care
Inclusions	Age ≥18 years with a Center for Epidemiological Studies Depression Scale (CES-D) score ≥16 or a Hospital Anxiety and Depression Scale – Anxiety section (HADS-A) score of ≥6
Exclusions	Meeting the DSM-IV criteria for major depression and/ or clinical anxiety disorders, insufficient mastery of Chinese language, unwilling or unable to give informed consent
Population	People attending 6 general outpatient clinics in public primary care clinics in Hong Kong were invited to complete a questionnaire between January and April 2011. Eligible participants were randomised 1:1 to intervention or control (n=240) 75% and 73% of participants were female in the intervention and control groups respectively. Participant age was reported by year band for each group (18-44 30% and 33%, 45-54 37% and 30% and 55-74 33% and 37%). Ethnicity was not reported
Intervention	Stepped-care programme (n=121) If symptoms persisted participants were offered clinical interventions, by a trained social worker, in incremental steps: • step 1: 3 months watchful waiting • step 2: Telephone counselling – self-help instruction • step 3: Face-to-face problem solving therapy • step 4: Referral to primary care doctor Eligibility to a subsequent step was assessed every 3 months (using a cut off of ≥16 on the CES-D or ≥6 on the HADS-A) Participants meeting the DSM-IV criteria for major depression and/ or clinical anxiety disorders at any stage were referred to a primary care doctor
Comparator	Usual care (n=119)
Outcomes	The authors reported that the groups were similar at baseline

Participants were followed-up every 3 months for up to 15 months. The primary outcome was incidence of major depressive disorder and/or generalised anxiety disorder at 12 and 15 months. Participants without follow-up data were excluded from the analysis (stepped-care n=8, usual care n=8)

Adherence
The authors reported that 73% of participants were not eligible to progress to step 2 after 3 months watchful waiting as their depressive or anxiety symptoms had improved. The number of participants who were offered and accepted intervention at each subsequent step was:

	Offered intervention	Accepted intervention
Step 2 (telephone counselling)	35	24 (69%)
Step 3 (problem solving therapy)	6	3 (50%)
Step 4 (referral)	1	1 (100%)

Attrition rate was 14.2% (34/240) at 15 months. This was similar between groups (14% and 15% for stepped-care and usual care respectively)

Outcomes

Cumulative probability of developing major depressive disorder and/or generalised anxiety disorder:

	Stepped-care	Usual care
12 months	14.2%	12.7%
15 months	23.1%	20.5%

No comparison between groups reported

Change in depression, anxiety and quality of life:

		Stepped-care mean (SD)	Usual care mean (SD)
Baseline	CES-D	15.34 (7.39)	15.88 (7.94)
	HADS-A	7.89 (2.67)	7.45 (2.61)
	SF-12 PCS	39.51 (6.40)	38.09 (6.41)
	SF-12 MCS	43.48 (10.24)	46.77 (9.35)
12 months follow-up	CES-D	8.35 (7.77)	8.49 (7.80)
	HADS-A	3.00 (3.39)	2.2 (2.83)
	SF-12 PCS	38.77 (6.51)	38.18 (6.70)
	SF-12 MCS	51.11 (9.09)	50.51 (10.05)
15 months follow-up	CES-D	10.30 (10.48)	10.07 (9.51)
	HADS-A	3.45 (3.73)	3.33 (3.90)
	SF-12 PCS	40.10 (5.46)	40.21 (6.67)
	SF-12 MCS	48.17 (10.74)	48.54 (11.85)

- no significant difference in CES-D change from baseline between stepped-care and usual care (-0.58, 95%CI -1.54 to 0.38, p=0.24)
- no significant difference in depressive symptoms (change in CES-D score from baseline to follow-up) for stepped-care (-0.51, 95%CI -1.70 to 0.67, p=0.40)
- no significant difference in HADS-A change from baseline between stepped-care and usual care (-0.03, 95%CI -0.62 to 0.56, p=0.92)
- no significant difference in anxiety symptoms (change in HADS-A score from baseline to follow-up) for stepped-care (-0.03, 95%CI -0.49 to 0.43, p=0.90)
- no significant difference in change in quality of life from baseline between stepped-care and usual care for SF-12 PCS (0.17, 95%CI -0.60 to 0.93, p=0.67) or SF-12 MCS (0.90, 95%CI -0.88 to 2.69, p=0.32)

	• no significant change in quality of life from baseline for stepped-care (SF12 PCS 0.28, 95%CI -0.47 to 1.02, p=0.47; SF-12 MCS 0.82, 95%CI -0.42 to 2.07, p=0.20) Difference from baseline not reported for usual care Disease free survival time: • stepped-care group: 465 days (95%CI 445 to 485) • usual care group: 491 days (95%CI 473 to 510) Absence from work At baseline 24.0% of the stepped-care group and 26.9% of the usual care group had time absent from work due to ill health in the previous 6 months. At follow-up this was 14.0% and 22.7% respectively with no significant difference between the groups.
Quality appraisal	The study was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). There were no concerns with the randomisation process. Although blinding could not be applied to participants and health professionals, assessors were blinded to treatment group. Intention-to-treat analysis was reported and loss to follow-up was similar between groups. The authors concluded that there was no evidence of benefit for stepped-care compared to usual care. However, the authors also noted that a high proportion of participants improved without intervention during the watchful waiting phase reducing the number of participants receiving active intervention. The study may not have been adequately powered to detect a difference between groups. Outcomes were self-reported and could have been biased by knowledge of treatment group, despite assessors being blinded. Primary and secondary outcomes were pre-specified. Participants meeting the DSM-IV criteria for major depression and/ or clinical anxiety disorders were excluded. Participants were recruited from people attending primary care clinics and were screened for eligibility. Participants were described as having subthreshold depression and/or anxiety. The study was conducted in Hong Kong and included a range of adult age groups. The study assessed depression and/or anxiety. Separate results for depression were not reported for every outcome. The applicability to a UK screening population is unclear. The study does not provide any evidence about the longer term impact (beyond 2 years) of treating mild or subthreshold depression in reducing the likelihood of progression to more severe depression.

CI – Confidence Interval; CES-D - Center for Epidemiological Studies Depression Scale; DSM – Diagnostic and Statistical Manual of Mental Disorders; HADS-A - Hospital Anxiety and Depression Scale – Anxiety section; RCT – Randomised Controlled Trial; SF-12 MCS – Short Form-12 Mental Component Score; SF-12 PCS – Short Form-12 Physical Component Score

Studies relevant to criterion 11, key question 2: *Does screening adults for depression reduce mortality and morbidity?*

Table 18. Oyama et al (2014)[22]

Publication	Oyama H. Sakashita T. Differences in specific depressive symptoms among community-dwelling middle-aged Japanese adults before and after a universal screening intervention. Social Psychiatry and Psychiatric Epidemiology 2014, 49: 251-258
Study details	RCT

Study objectives	To investigate changes in depressive symptoms after the implementation of universal screening for depression and subsequent care support
Inclusions	All residents in the study area aged 40 to 64 years Questionnaires with ≤2 items missing on the depression scale where eligible for inclusion
Exclusions	None stated
Population	Residents aged 40-64 years living in 1 of 10 districts in Japan between 2004 and 2009 (n=approximately 2,400) Approximately 50% of participants were female and the mean age was 52.5 ± 6.1 and 52.8 ± 6.3 in the intervention and control districts. Ethnicity was not reported Randomisation was conducted at a district level
Intervention	4 districts (n=900) received an educational programme (2005 to 2009), an invitation to 2-stage depression screening (2007 to 2008) and subsequent care support for all residents • residents received a screening questionnaire by post including the Zung Self-rating Depression Scale[******] using a cut off score of 48. All participants received written feedback on the screening results • screen-positive residents were offered a telephone interview based on the major depressive episodes module of the Mini-International Neuropsychiatric Interview (MINI) and using ICD-10 diagnostic criteria • the 4 year educational programme implemented before, during and after the screening period, was delivered through local public newsletters, 3 to 4 times a year. This was designed to increase awareness of depression and help avoid any stigma related to it. Information was also provided on the symptoms and treatment of depression, ways to access local mental health services and emphasis on the effectiveness of screening for depression
Comparator	6 control districts (n=approximately 1,500) received an educational programme (2005 to 2009) for all residents. See above for details of the educational programme
Outcomes	Gender, age distribution and baseline depression scores were similar between the groups at baseline (p>0.10) The primary outcome was change in severity of self-reported, overall score and specific depressive symptom subscale scores from baseline to follow-up assessed through 2 independent cross-sectional population surveys. The survey included the Center for Epidemiologic Studies Depression Scale (CES-D)[††††††] (Japanese version) **Screening participation and outcome** • 443 residents retuned screening questionnaires, a participation rate of 49.2% • 80 (18.1%) residents had a positive screening test • 79 (98.8%) took part in a second stage MINI telephone interview • 16 residents were diagnosed with a recent depressive episode and received care support. This included contacts by health professionals (n=8) or referral to a psychiatrist or ongoing treatment (n=8) **Population surveys**

[******] A validated screening measure of adult depression severity in the Japanese population
[††††††] A 20-item questionnaire consisting of 4 subscales. The total score is scored from 0 to 60. The subscale score ranges are: depressive affect (0 to 21), somatic symptoms (0 to 21), positive affect (0 to 12) and interpersonal problems (0 to 6)

		Intervention areas	Control areas
Baseline (2004)	Surveys sent out	864	1,518
	Surveys returned	543 (63%)	973 (64%)
	Age (mean ± SD)	52.5 ± 6.1	52.8 ± 6.3
	CES-D total mean (SD)	14.9 (7.6)	14.8 (7.3)
	CES-D depressive affect subscale mean (SD)	2.8 (3.5)	2.7 (3.4)
	CES-D somatic symptoms subscale mean (SD)	3.6 (3.7)	3.4 (3.6)
	CES-D positive affect subscale mean (SD)	7.7 (3.0)	8.0 (2.9)
	CES-D interpersonal problems subscale mean (SD)	0.7 (1.2)	0.6 (1.1)
Follow-up (2009)	Surveys sent out	889	1,515
	Surveys returned	586 (66%)	1,010 (67%)
	Age (mean ± SD)	54.4 ± 6.5	54.2 ± 6.4
	CES-D total mean (SD)	13.6 (7.1)	14.4 (7.9)
	CES-D depressive affect subscale mean (SD)	2.3 (3.1)	2.7 (3.5)
	CES-D somatic symptoms subscale mean (SD)	3.1 (3.4)	3.4 (3.7)
	CES-D positive affect subscale mean (SD)	7.7 (3.1)	7.7 (3.0)
	CES-D interpersonal problems subscale mean (SD)	0.4 (1.0)	0.6 (1.1)

Mean adjusted‡‡‡‡‡‡ difference from baseline to follow-up was reported for both groups

Total CES-D score

- significant improvement in the intervention area (1.40, 95%CI 0.53 to 2.27, p=0.002)
- no significant difference in the control area (0.38, 95%CI -0.28 to 1.05, p =0.26)

Depressive affect subscale

- significant improvement in the intervention area (0.51, 95%CI 0.11 to 0.92, p=0.014)
- no significant difference in the control area (0.05, 95%CI -0.25 to 0.39, p =0.74)

Somatic symptoms subscale

- significant improvement in the intervention area (0.50, 95%CI 0.07 to 0.93, p=0.024)
- no significant difference in the control area (-0.04, 95%CI -0.35 to 0.29, p =0.81)

Positive affect subscale

- no significant difference in the intervention area (0.10, 95%CI -0.26 to 0.47, p =0.60)
- significant improvement in the control area (0.33, 95%CI 0.07 to 0.59, p=0.0013)

Interpersonal problems

- significant improvement in the intervention area (0.21, 95%CI 0.08 to 0.34, p=0.001)
- no significant difference in the control area (0.02, 95%CI -0.08 to 0.12, p =0.73)

Adjusted‡‡‡‡‡‡ difference between change in mean score over time for intervention and control groups:

Total CES-D score

- no significant difference between intervention and control (1.02, 95%CI -0.14 to 2.18, p =0.085)

Depressive affect subscale

‡‡‡‡‡‡ Adjusted for age and gender

	• significantly better in the intervention area vs control (0.47, 95%CI 0.02 to 0.96, p=0.045) *Somatic symptoms subscale* • significantly better in the intervention area vs control (0.54, 95%CI 0.07 to 1.07, p=0.032) *Positive affect subscale* • no significant difference between intervention and control (-0.23, 95%CI -0.66 to 0.20, p =0.17) *Interpersonal problems* • significantly better in the intervention area vs control (0.20, 95%CI 0.05 to 0.36, p=0.008)
Quality appraisal	The study was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). Randomisation was conducted at a district level and there was no evidence of a difference between the areas at baseline. The study area included 10 adjacent districts which were described as being comparable in economy, health-services accessibility and other aspects. Rates of immigration and emigration (including death) during the study period were similar for the intervention and control districts. No exclusion criteria were specified. It is not clear if residents who were offered screening had previously received a diagnosis of or treatment for depression. It is not clear how many of the residents might be considered to belong to a high risk group. Participants could not be blinded due to the nature of the study. However, researchers conducting the population surveys did not have any information about the allocation status of the districts. The effectiveness of the screening programme was assessed through general population surveys rather than an assessment of outcomes for individuals who received screening. Approximately half of the residents in the intervention area had taken up the offer of screening. The outcome measure used was self-reported and the response rates for the survey were approximately 65%. The outcomes for people who responded to the survey may not be applicable to the whole population. The results should be interpreted with caution as the cross-sectional design of the study introduces uncertainty about whether the effects seen can be attributed to the screening programme. The effect sizes reported for statistically significant results were very small. It is not clear what treatment interventions were received by individuals with depression in either the screening or control districts. The RCT does not meet all of the Thombs and Ziegelstein (2014)[21] criteria specified in the PICO for this question as it is unclear if patients already known to have depression or already being treated for depression were excluded. It is possible, but not explicitly stated, that the same treatment options were available to participants in the control districts. The study was conducted in Japan. No demographic or clinical information was provided about the participants. However, the study authors reported that the prevalence of self-reported, clinically significant depressive symptoms varies between 9% and 14% among middle-aged Japanese. The applicability of the results of this study to a UK screening population is unclear.

CI – Confidence Interval; CES-D - Center for Epidemiological Studies Depression Scale; ICD – International Statistical Classification of Diseases and Related Health Problems; MINI - Mini International Neuropsychiatric Interview; RCT – Randomised Controlled Trial; SD – Standard Deviation

Table 19. Silverstone et al (2017)[23]

Publication	Silverstone PH. Rittenbach K. Suen VYM. Moretzsohn A. Cribben I. Bercov M. et al. Depression outcomes in adults attending family practice were not improved by screening, stepped-care or online CBT during a 12-week study when compared to controls in a randomized trial. Frontiers in Psychiatry 2017, 8: 32
Study details	RCT
Study objectives	To assess whether active treatments for patients who had a positive screening test for depression would lead to lower scores at 12 weeks compared to usual care or controls. A secondary aim was to assess the impact of screening
Inclusions	Adults attending primary care centres between November 2013 and December 2014
Exclusions	None stated
Population	Consecutive attendees at 2 primary care centres in Canada were offered the opportunity of completing the PHQ-9 in the waiting room (n=1,489) All participants were screened using the PHQ-9 with a cut off score of 10 No information on age, sex or ethnicity was collected Randomisation was carried out at a centre and day level (ie all participants attending a centre on the same day were randomised to the same group)
Intervention	There were 3 intervention groups: 1. usual care (n=426) 2. usual care plus signposting to online CBT programme (n=440) 3. stepped-care pathway§§§§§§ (n=191) Only 1 of the 2 primary care centres was able to offer the stepped-care pathway
Comparator	Control group (n=432): PHQ-9 screening results were not shared with participants or family care physicians
Outcomes	PHQ-9 scores were reported to be similar between groups at baseline (p not reported) PHQ-9 scores for all participants (mean ± SD) were:

Group	Baseline (n=1,489)	12-week follow-up (n=889)	Change from baseline
Screening + usual care	4.8 ± 4.9 (n=426)	4.3 ± 4.7 (n=286)	p<0.05*
Screening + CBT	4.1 ± 4.4 (n=440)	3.6 ± 4.4 (n=255)	p=0.06
Screening + stepped-care	4.8 ± 5.5 (n=191)	4.1 ± 4.9 (n=73)	p=0.27
Control	4.6 ± 5.4 (n=432)	3.6 ± 4.3 (n=275)	p<0.001*

*A statistically significant improvement from baseline was reported for the screening plus usual care and control groups

PHQ- 9 scores for participants with a positive screening test at baseline (mean ± SD) were:

Group	Baseline (n=195)	12-week follow-up (n=135)	Change from baseline
Screening + usual care	15.5 ± 3.9 (n=62)	4.6 ± 3.0 (n=48)	p<0.001

§§§§§§ Participants with a PHQ-9 score of 10-14 had an initial 4 week 'watchful waiting' period and targeted self-management information. Participants with a score of ≥15 had additional visits, self-management information, medication prescribed according to guidelines, outside referral options including referral to psychiatry if they had no response to medication within 6 weeks

Screening + CBT	15.4 ± 3.8 (n=47)	3.4 ± 2.7 (n=29)	p<0.001
Screening + stepped-care	15.3 ± 3.6 (n=32)	5.4 ± 2.8 (n=15)	p<0.05
Control	15.3 ± 4.2 (n=54)	4.0 ± 2.6 (n=43)	p<0.001

All groups showed a statistically significant improvement from baseline for participants with a positive screening test. There was no significant difference in change from baseline between groups (p not reported)

The authors concluded that there was no evidence that screening enhanced depression outcomes above usual care or that the specific interventions assessed were better than usual care

Quality appraisal	The study was assessed using the Cochrane risk of bias tool for randomised trials (RoB 2.0). Randomisation took place at a centre and day level rather than an individual patient level. However, randomisation took place before screening and although all participants completed the screening test no results were released for the control group. There were no differences in PHQ-9 scores between groups at baseline. However, no other details about participants were reported so there is an uncertainty about whether differences between groups at baseline may have impacted results. The stepped-care pathway was only available at 1 of the participating centres. Therefore, this group had a lower number of participants. No exclusion criteria were specified. The authors stated that they did not know whether participants were already known to have depression which suggests that patients with depression may have been included. No details are provided about whether a diagnosis of depression was confirmed for participants who had a positive screening result. Blinding of participants and physicians would not have been possible. It is not clear if PHQ-9 assessors were blinded to participant group. Limited details were provided about the interventions received by individual participants. The authors noted that uptake of the offered online CBT was very low so the actual intervention received by this group was similar to usual care. No details were provided about the 'usual care' received and this could have been influenced by the physician's participation in the RCT. It is unclear if deviation from the intended interventions could have impacted results. The pre-specified outcome measurement was the same across all groups. There is a high risk of bias from the fact that only 60% of participants completed the PHQ-9 at follow-up. The percentage of participants lost from each group ranged from 38% to 67%. The power calculation estimated that 450 participants would be required for each group. The actual recruitment was lower suggesting that the study may have been underpowered to detect a difference between groups The effectiveness of screening was assessed as a secondary outcome in this trial. The RCT does not meet all of the Thombs and Ziegelstein (2014)[21] criteria specified in the PICO for this question as it is not known if patients already known to have depression or already being treated for depression were excluded. It is possible, but not explicitly stated, that the same treatment options would have been available to participants in the usual care and control groups. The study was conducted in Canada. No demographic or clinical information was provided about the participants. The applicability to a UK screening population is unclear.

CBT – Cognitive Behavioural Therapy; PHQ – Patient Health Questionnaire; RCT – Randomised Controlled Trial; SD – Standard Deviation

Studies relevant to criterion 15, key question 3: *Is clinical detection and management of depression currently well implemented in the UK?* Sub-question: *What proportion of depression remains undiagnosed?*

Table 20. Chaplin et al (2015)[25]

Publication	Chaplin R. Farquharson L. Clapp M. Crawford M. Comparison of access, outcomes and experiences of older adults and working age adults in psychological therapy. International Journal of Geriatric Psychiatry 2015, 30: 178-184
Study details	Retrospective analysis of data from the National Audit of Psychological Therapies and a survey of service users
Study objectives	To assess the relative access of older adults (aged ≥65 years) to psychological services in comparison to working age adults and against population and morbidity estimates. To assess experiences of treatment
Inclusions	All English and Welsh NHS-funded services that provide psychological therapies to adults in the community (primary and secondary care) were eligible to take part in the audit
Exclusions	None stated
Population	220 services, of which 131 (60%) were IAPT services 122,740 patients who completed therapy between 1st July and 31st October 2012 were included in the audit including: • 114,946 working age adults (93.6%) • 7,794 older adults (6.4%) 14,425 service users returned questionnaires between April 2012 and January 2013 (a 20% response rate) including: • 13,101 working age adults (90.8%) • 1,324 older adults (9.2%) 69% of survey respondents were female and 88% were of white British ethnicity
Intervention	Audit and survey of people's experiences of services, preferences and priorities Depression was assessed on the PHQ-9 using a cut off ≥10 Anxiety was assessed on the Generalised Anxiety Disorder Assessment (GAD-7) using a cut off ≥8 to identify 'clinical caseness'
Comparator	Population estimates (for referrals)
Outcomes	**Diagnoses of patients included in the audit** • no significant difference in the diagnosis of depressive disorders between older (32.2%) and working age (32.5%) adults (p not reported) • no significant difference in the diagnosis of mixed anxiety and depressive disorders between older (27.3%) and working age (29.0%) adults (p not reported) • a significantly higher proportion of older adults (15.9%) were diagnosed with anxiety than working age adults (12.0%) (p<0.0001) **Access** The authors calculated that the proportion of older adults referred for therapy in the audit sample was lower than expected based on the proportion of older adults in the general population (6.4% vs 20.9%) (OR 3.90, 95%CI 3.81 to 3.99) The authors calculated that the proportion of older adults referred for therapy in the audit sample was lower than expected from a morbidity adjusted sample (6.4% vs 13.0%) (OR 2.20, 95%CI 2.14 to 2.26) **Completing therapy** • a significantly higher proportion of older adults (59.6%) completed therapy than working age adults (48.6%) (OR 1.56, 95%CI 1.49 to 1.63)

	• a significantly lower proportion of older adults (12.5%) dropped out of therapy than working age adults (24.6%) (OR 2.19, 95%CI 2.04 to 2.34) **User experience** • a significantly higher proportion of older adults (77.9%) were satisfied with waiting times than working age adults (65.6%) (OR 1.85, 95%CI 1.61 to 2.12) • no significant difference in the proportion of older (89.1%) and working age adults (88.7%) that felt that therapy had helped them understand their difficulties (p=0.50) • no significant difference in the proportion of older (83.9%) and working age adults (82.7%) that felt that therapy had helped them cope with their difficulties (p=0.30) • a significantly higher proportion of older adults (70.1%) felt that they were receiving the right number of sessions than working age adults (67.3%) (OR 1.14, 95%CI 1.01 to 1.30) • no significant difference in the proportion of older (82.2%) and working age adults (83.3%) reporting that they would have therapy again if they had similar difficulties in the future (p=0.24)
Quality appraisal	The study was assessed using the Critical Appraisal Skills Programme (CASP) tool for cohort studies. There were no concerns with the design of the study. 60% of the service data related to IAPT services which encompass other common mental health problems and are not specific to depression. The most recent data source used in this study was from 2013. It is not clear if the results are still applicable to current UK practice. Outcomes relating to the nature of the treatment received or its effectiveness (eg proportion 'recovered') are not reproduced for this question

CI – Confidence Interval; GAD - Generalised Anxiety Disorder; IAPT - Improving Access to Psychological Therapies; PHQ – Patient Health Questionnaire; OR – Odds Ratio

Table 21. Collins and Corna (2018)[24]

Publication	Collins N. Corna L. General practitioner referral of older patients to improving access to psychological therapies (IAPT): an exploratory qualitative study. British Journal Psychological Bulletin 2018, 42: 115-118.
Study details	Qualitative study
Study objectives	To explore why GPs did not routinely refer older patients to local IAPT services
Inclusions	The study used purposive sampling of GPs from "a variety of backgrounds"
Exclusions	None stated
Population	8 GPs practising in "a home county of London". All GPs invited to interview agreed to participate
Intervention	IAPT
Comparator	N/A
Outcomes	3 main themes were identified using a grounded theory analysis framework (deeming older people ineligible for CBT, concern regarding appropriateness of IAPT assessment and treatment and preferential use of alternative to IAPT referral: The authors summarised their findings as: • a belief that older adult depression was an inevitable consequence of aging and therefore more difficult to treat with CBT • IAPT assessment processes were seen as inflexible, insensitive and potentially traumatising for older adults • some GPs appeared to feel that older, more frail, depressed patients were less likely to benefit from or access CBT

Quality appraisal	The study was assessed using the Critical Appraisal Skills Programme (CASP) tool for qualitative research. One interviewer conducted semi-structured interviews. The role of the interviewer and their own experience was discussed and actions were taken to mitigate the risk of this affecting the research. The authors reported that a larger sample size was intended but that data saturation was achieved by 7 interviews. IAPT services encompass other common mental health problems and are not specific to depression. The year of data collection was not stated. The study only related to 1 local IAPT service which was reported as only offering CBT-based therapies. The findings may not be applicable to practice in other areas or to current UK practice.

CBT – Cognitive Behavioural Therapy; GP – General Practitioner; IAPT - Improving Access to Psychological Therapies

Table 22. Pettit et al (2017)[26]

Publication	Pettit S. Qureshi A. Lee W. Stirzaker A. Gibson A. et al. Variation in referral and access to new psychological therapy services by age: an empirical quantitative study. British Journal of General Practice 2017, 67(660): e453-e9
Study details	Retrospective analysis of data from the Adult Psychiatric Morbidity Survey and IAPT services
Study objectives	To estimate differences in referral and access rates to IAPT services and compare the pathway through treatment across age bands
Inclusions	Data from the 2007 Adult Psychiatric Morbidity Survey and from IAPT services in 13 Primary Care Trusts from 2010 to 2011
Exclusions	The survey excluded people in care homes
Population	The survey collected data from English adults aged 18 to 74 years. The IAPT services included were those commissioned by the South West Strategic Health Authority (76,734 patients)
Intervention	IAPT
Comparator	N/A
Outcomes	**Referrals** Referrals to IAPT services against estimated cases of common mental health problems were:

Age (years):	**18-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**
Estimated cases	35,001	44,942	49,269	51,344	63,188	72,673
Referrals (% of estimated cases)	3,527 (10.1%)	10,313 (23.0%)	10,199 (20.7%)	9,568 (18.6%)	9,582 (15.2%)	10,071 (13.9%)

Age (years) continued:	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**
Estimated cases	66,849	62,190	55,179	43,676	23,892	20,270
Referrals (% of estimated cases)	8,885 (13.3%)	6,681 (10.7%)	5,152 (9.3%)	3,595 (8.2%)	2,321 (9.7%)	1,217 (6.0%)

Attendance
Attenders as a proportion of referrals were:

Age (years):	**18-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**
Attenders (% of referrals)	2,033 (57.6%)	5,913 (57.3%)	6,205 (60.8%)	6,155 (64.3%)	6,438 (67.2%)	6,916 (68.7%)

Age (years) continued:	45-49	50-54	55-59	60-64	65-69	70-74
Attenders (% of referrals)	6,400 (72.0%)	4,868 (72.9%)	3,954 (76.8%)	2,767 (77.0%)	1,774 (76.4%)	905 (74.4%)

Completion
Completers (attending ≥2 sessions) as a proportion of attenders were:

Age (years):	18-19	20-24	25-29	30-34	35-39	40-44
Completers (% of attenders)	675 (33.2%)	2,384 (40.3%)	2,492 (40.2%)	2,486 (40.4%)	2,716 (42.2%)	2,949 (42.6%)

Age (years) continued:	45-49	50-54	55-59	60-64	65-69	70-74
Completers (% of attenders)	2,723 (42.6%)	2,139 (43.9%)	1,819 (46.0%)	1,266 (45.8%)	797 (44.9%)	412 (45.5%)

Quality appraisal	The study was assessed using the Critical Appraisal Skills Programme (CASP) tool for cohort studies. There were no concerns with the study design. The source data was briefly described. However, no information was provided on the number of respondents in the Adult Psychiatric Morbidity Survey used. The estimates calculated relate to services in the South West of England and may not be applicable to other areas of the UK. The service data only relates to IAPT services and does not include patients using other primary or secondary care services. The estimates may therefore underestimate the proportion of estimated cases receiving support or intervention. IAPT services encompass other common mental health problems and are not specific to depression. The most recent data source used in this study was from 2011. It is not clear if the results are still applicable to current UK practice. Outcomes relating to the effectiveness of treatment (eg proportion achieving a 'reliable improvement') are not reproduced for this question.

IAPT - Improving Access to Psychological Therapies

Table 23. Shastri et al (2019)[27]

Publication	Shastri A. Aimola L. Tooke B. Quirk A. Corrado O. et al. Recognition and treatment of depression in older adults admitted to acute hospitals in England. Clinical Medicine 2019, 19(2): 114-118
Study details	Retrospective cohort study
Study objectives	To assess the proportion of older adults diagnosed with depression during their treatment in an acute hospital, how often referrals and treatments for depression were initiated and the quality of liaison between secondary and primary care following discharge
Inclusions	Older adults admitted to acute hospitals in England for ≥1 night
Exclusions	Patients with a coexisting diagnosis of dementia or slowly resolving delirium. Patients were also excluded if they died during their admission
Population	766 hospital records from 27 sites. Participating hospitals audited the discharge summary of a consecutive sample of patients (median 30, range 14 to 30) aged ≥65 years who had an unplanned admission to an acute hospital and were discharged after 1st April 2017. Patients were 54% female, 84% white British and mean age was 79 years (range 65 to 99)
Intervention	N/A
Comparator	N/A
Outcomes	**Diagnosis**

	• patients with a diagnosis of depression in their clinical records when they were admitted or discharged from hospital: 98 (12.7%, 95%CI 10.6 to 15.3). 8 (1%, 95%CI 0.5 to 2.0) of these diagnoses were made during admission • patients with a new or existing diagnosis of depression recorded in their discharge notes/ letters: 50/98 (51.0%, 95%CI 41.2 to 60.6) • patients with no record of the presence or absence of depression or depressive symptoms in their notes: 668 (82.3%, 95%CI 79.5 to 84.9) • patients with documented evidence of a discussion about depressive symptoms without a diagnosis: 37 (4.8%, 95%CI 3.5 to 6.5) The authors stated that the 12.7% of patients with a diagnosis of depression was lower than expected from the prevalence reported in other UK studies (ranging from 8% to 35%) **Referral/ treatment** • new diagnosis patients prescribed antidepressants: 8 (100%, 95%CI 67.5 to 100) • existing diagnosis patients prescribed antidepressants: 76 (84.4%, 95%CI 75.5 to 90.5) • patients with no recorded diagnosis of depression prescribed antidepressants: 47 (7%, 95%CI 5.3 to 9.2) • patients referred to psychiatric liaison services: 35. Including 6 (75%) of 8 newly diagnosed patients, 21 (23%) of 90 patients with an existing diagnosis and 8 (1.2%) of 668 patients with no recorded diagnosis of depression • no patients with a new or existing diagnosis were referred to psychological services
Quality appraisal	The study was assessed using the Critical Appraisal Skills Programme (CASP) tool for cohort studies. There were no concerns with the design of the study or recruitment of participants. Participating hospitals had responded to a request for participants sent to all NHS trusts who had previously participated in a 2017 National Audit of Dementia and advertised through the Psychiatric Liaison Accreditation Network. The audit focused on evidence from recorded patient notes. It is possible that discussions of depression or depressive symptoms took place but were not documented. No indication was given about the severity of depression. The audit only concerns the diagnosis and treatment of depression in older patients with an unplanned admission to acute care. The results may not be applicable to a wider adult screening population.

CI – Confidence Interval

Appendix 4 – UK NSC reporting checklist for evidence summaries

All items on the UK NSC Reporting Checklist for Evidence Summaries have been addressed in this report. A summary of the checklist, along with the page or pages where each item can be found in this report, is presented in Table.

Table24. UK NSC reporting checklist for evidence summaries

	Section	Item	Page no.
1.	TITLE AND SUMMARIES		
1.1	Title sheet	Identify the review as a UK NSC evidence summary.	Title page
1.2	Plain English summary	Plain English description of the executive summary.	5
1.3	Executive summary	Structured overview of the whole report. To include: the purpose/aim of the review; background; previous recommendations; findings and gaps in the evidence; recommendations on the screening that can or cannot be made on the basis of the review.	6
2.	INTRODUCTION AND APPROACH		
2.1	Background and objectives	Background – Current policy context and rationale for the current review – for example, reference to details of previous reviews, basis for current recommendation, recommendations made, gaps identified, drivers for new reviews	9
		Objectives – What are the questions the current evidence summary intends to answer? – statement of the key questions for the current evidence summary, criteria they address, and number of studies included per question, description of the overall results of the literature search.	13
		Method – briefly outline the rapid review methods used.	15
2.2	Eligibility for inclusion in the review	State all criteria for inclusion and exclusion of studies to the review clearly (PICO, dates, language, study type, publication type, publication status etc.) To be decided *a priori*.	15
2.3	Appraisal for quality/risk of bias tool	Details of tool/checklist used to assess quality, e.g. QUADAS 2, CASP, SIGN, AMSTAR.	18

3.	SEARCH STRATEGY AND STUDY SELECTION (FOR EACH KEY QUESTION)		18 and Appendix
3.1	Databases/ sources searched	Give details of all databases searched (including platform/interface and coverage dates) and date of final search.	Appendix 1
3.2	Search strategy and results	Present the full search strategy for at least one database (usually a version of Medline), including limits and search filters if used. Provide details of the total number of (results from each database searched), number of duplicates removed, and the final number of unique records to consider for inclusion.	Appendix 1
3.3	Study selection	State the process for selecting studies – inclusion and exclusion criteria, number of studies screened by title/abstract and full text, number of reviewers, any cross checking carried out.	15
4.	STUDY LEVEL REPORTING OF RESULTS (FOR EACH KEY QUESTION)		
4.1	Study level reporting, results and risk of bias assessment	For each study, produce a table that includes the full citation and a summary of the data relevant to the question (for example, study size, PICO, follow-up period, outcomes reported, statistical analyses etc.). Provide a simple summary of key measures, effect estimates and confidence intervals for each study where available. For each study, present the results of any assessment of quality/risk of bias.	Appendix 3
5.	QUESTION LEVEL SYNTHESIS		
5.1	Description of the evidence	For each question, give numbers of studies screened, assessed for eligibility, and included in the review, with summary reasons for exclusion.	20,27,34
5.2	Combining and presenting the findings	Provide a balanced discussion of the body of evidence which avoids over reliance on one study or set of studies. Consideration of four components should inform the reviewer's judgement on whether the criterion is 'met', 'not met' or 'uncertain': quantity; quality; applicability and consistency.	20,27,34
5.3	Summary of findings	Provide a description of the evidence reviewed and included for each question, with reference to their eligibility for inclusion. Summarise the main findings including the quality/risk of bias issues for each question.	24,32,39

		Have the criteria addressed been 'met', 'not met' or 'uncertain'?	
6.	REVIEW SUMMARY		
6.1	Conclusions and implications for policy	Do findings indicate whether screening should be recommended? Is further work warranted? Are there gaps in the evidence highlighted by the review?	40
6.2	Limitations	Discuss limitations of the available evidence and of the review methodology if relevant.	40

References

[1] Allaby M. Pittam G. Appraisal of screening for depression: a report for the UK National Screening Committee, August 2014
[2] World Health Organization. Depression. Available at https://www.who.int/news-room/fact-sheets/detail/depression (Accessed September 2019)
[3] National Institute of Health and Care Excellence. Depression in adults: recognition and management. Clinical Guideline 90, last updated April 2018
[4] McCrone P. Dhanasiri S. Patel A. Knapp A. Lawton-Smith S. Paying the price. The cost of mental health care in England to 2026. King's Fund, 2008
[5] McManus S. Bebbington P. Jenkins R. Brugha T. (Eds). Mental health and wellbeing in England: Adult Psychiatric morbidity Survey 2014. Leeds: NHS Digital, 2016
[6] McDougall FA. Kvall K. Matthews FE. et al. Prevalence of depression in older people in England and Wales: the MRC CFA study. Psychological Medicine 2007, 37(12): 1787-95
[7] International Statistical Classifciation of Diseases and Related Health Problems 10th Revision. 2016. Available from https://icd.who.int/browse10/2016/en#F32.0 (Accessed November 2019)
[8] American Psychiatric Association. Diagnostic and statistical manual of mental disorders (4th edition, text revision). Washington DC, 2000
[9] Connor EA. Whitlock EP. Gaynes B. et al. Screening for depression in adults and older adults in primary care: an updated systematic review. Agency for Healthcare Research and Quality, Evidence Synthesis No. 75, 2009
[10] Aragones E. Caballero A. Pinol JL. Lopez-Cortacans G. Persistence in the long term of the effects of a collaborative care programme for depression in primary care. Journal of Affective Disorders 2014, 166: 36-40
[11] Adler DA. Bungay KM. Wilson IB. et al. The impact of a pharmacist intervention on 6 month outcomes in depressed primary care patients. Gen Hosp Psychiatry 2004 May;26(3):199-209. PMID: 15121348
[12] Unutzer J. Katon W. Callahan CM. et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. JAMA 2002, 288(22): 2836-45
[13] Iglesias-Gonzalez M. Aznar-Lou I. Penarrubia-Maria MT. et al. Effectiveness of watchful waiting versus antidepressants for patients diagnosed of mild to moderate depression in primary care: A 12-month pragmatic clinical trial (INFAP study). European Psychiatry: the Journal of the Association of European Psychiatrists 2018, 53: 66-73
[14] National Institute of Health and Care Excellence. Depression in adults with a chronic physical health problem: treatment and management. Clinical Guideline 91, 2010
[15] UK NSC. Screening for antenatal and postnatal mental health problems recommendation summary, April 2019
[16] UK NSC. Screening for depression in adults: briefing note, 2019
[17] Gilbody S. Lewis H. Adamson J. Atherton K. Bailey D. et al. Effect of collaborative care vs usual care on depressive symptoms among older adults with subthreshold depression: the CASPER randomized clinical trial. JAMA 2017, 317(7): 728-37
[18] Lewis H. Adamson J. Atherton K. Bailey D. Birtwistle J. et al. Collaborative care and active surveillance for screen-positive elders with subthreshold depression (CASPER): a multicentred randomised controlled trial of clinical effectiveness and cost-effectiveness. Health Technology Assessment 2017, 21(8): 1-196
[19] van Beljouw IMJ. van Exel E. van de Ven PM. Joling KJ. Dhondt TDF. et al. Does an outreaching stepped care program reduce depressive symptoms in community-dwelling older adults? A randomized implementation trial. American Journal of Geriatric Psychiatry 2015, 23(8): 807-17
[20] Zhang DX. Lewis G. Araya R. Tang WK. Mak WWS. et al. Prevention of anxiety and depression in Chinese: a randomized clinical trial testing the effectiveness of a stepped care program in primary care. Journal of Affective Disorders 2014, 169: 212-220

[21] Thombs BD, Ziegelstein RC. Does depression screening improve depression outcomes in primary care? BMJ February 2014, 348
[22] Oyama H. Sakashita T. Differences in specific depressive symptoms among community-dwelling middle-aged Japanese adults before and after a universal screening intervention. Social Psychiatry and Psychiatric Epidemiology 2014, 49: 251-258
[23] Silverstone PH. Rittenbach K. Suen VYM. Moretzsohn A. Cribben I. Bercov M. et al. Depression outcomes in adults attending family practice were not improved by screening, stepped-care or online CBT during a 12-week study when compared to controls in a randomized trial. Frontiers in Psychiatry 2017, 8: 32
[24] Collins N. Corna L. General practitioner referral of older patients to improving access to psychological therapies (IAPT): an exploratory qualitative study. British Journal Psychological Bulletin 2018, 42: 115-118
[25] Chaplin R. Farquharson L. Clapp M. Crawford M. Comparison of access, outcomes and experiences of older adults and working age adults in psychological therapy. International Journal of Geriatric Psychiatry 2015, 30: 178-184
[26] Pettit S. Qureshi A. Lee W. Stirzaker A. Gibson A. et al. Variation in referral and access to new psychological therapy services by age: an empirical quantitative study. British Journal of General Practice 2017, 67(660): e453-e9
[27] Shastri A. Aimola L. Tooke B. Quirk A. Corrado O. et al. Recognition and treatment of depression in older adults admitted to acute hospitals in England. Clinical Medicine 2019, 19(2): 114-118