National Institute for Health and Care Excellence

Final Draft

Overweight and obesity management: preventing, assessing and managing overweight and obesity

[D] Evidence reviews for identifying overweight and obesity in children, young people and adults

NICE guideline NGXX

Evidence reviews underpinning recommendations 1.1.1 to 1.1.5, 1.8.1 to 1.8.3, 1.9.1 to 1.9.4, 1.10.1, 1.11.5 to 1.11.11 and research recommendations in the NICE guideline

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Final draft

These evidence reviews were developed by Guideline development Team

Disclaimer

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

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ISBN:

Contents

1 Identifying overweight and obesity in children, young people

1.1 Review questions

What approaches are effective and cost-effective in identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups?

What are the barriers and facilitators to identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups?

1.1.1 Introduction

Overweight, obesity and central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some type of cancer in children and young people. Currently, people who are overweight, or living with obesity are identified through the healthcare system opportunistically. NICE 2014 guidance on obesity identification, assessment, and management (CG189) recommends using clinical judgement to decide when to measure a person's height and weight. Opportunities include registration with a general practice, consultation for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks.

During the surveillance process, topic experts highlighted that relying on opportunistic identification, rather than active case finding, increases the likelihood that conditions such as type 2 diabetes will be under-diagnosed in black, Asian and other minority groups whose risk of these conditions is increased at a lower BMI than the general population. Topic expert feedback also indicated that a proactive approach of informing people of their BMI is needed. The experts also advised that instructions to clinicians, especially GPs, to measure BMI should be firmer to further support NICE quality standard QS127.

Based on this, review questions were drafted to explore the effectiveness, barriers, and facilitators of identification of overweight and obesity in children and young adults.

The review exploring the effectiveness, barriers, and facilitators of identification of overweight and obesity in adults is in section 2.

1.1.2 Summary of the protocol

Table 1 summarises the protocol for the review of effective and cost-effective interventions. Table 2 summarises the qualitative evidence synthesis for barriers and facilitators of identification.

Table 1: PICO table effectiveness of approaches in identifying overweight and obesity in children and young people

Population	• Children and young people aged under 18 years
	Where possible, evidence will be stratified by ethnicity:
	  ○ White
	  ○ Black African/ Caribbean
	  ○ Asian (South Asian, Chinese, any other Asian background)
	  ○ Other ethnic groups (Arab, any other ethnic group)
	  ○ Multiple/mixed ethnic group
	• Parents and carers
	• Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.

Intervention	• Opportunistic identification, including but not confined to:
	  ○ When registering with GP
	  ○ When receiving consultation for health conditions (e.g., chronic health conditions)
	  ○ During routine check-up/ annual check-up (delivered by GPs, nurses or pharmacists, social care staff)
	  ○ During medication check (e.g., contraception pill check)
	  ○ During vaccination appointments
	  ○ Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments)
	• Active case finding (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to:
	  ○ Review of medical records
	  ○ Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers)
	  ○ audits of other services (e.g. disability services or endocrinology services)
	• Self-identification or referral
	• Parent/ carer-initiated identification or referral
	• School nurse/ teacher / health visitor / social services-initiated identification or referrals

Comparator	• No intervention/usual care • Comparison of interventions

Outcomes	Primary outcomes
	• Number of children and young people identified as overweight or obese
	• Referral to weight management service
	• Health-related quality of life
	Secondary outcomes
	• Adverse events:
	  ○ Eating disorders or disordered eating
	  ○ Stigma (including self-stigma and negative body image as defined in studies)

Study type	Quantitative review • Systematic reviews of included study designs • RCTs • Observational studies (cohort studies) • Mixed methods studies (quantitative evidence that matches the above study designs only)

Table 2: SPIDER table for barriers and facilitators for identifying overweight and obesity in children and young people

Sample	• Children and young people aged under 18 years
	Where possible, evidence will be stratified by ethnicity:
	  ○ White
	  ○ Black African/ Caribbean
	  ○ Asian (South Asian, Chinese, any other Asian background)
	  ○ Other ethnic groups (Arab, any other ethnic group)
	  ○ Multiple/mixed ethnic group
	• Parents and carers
	• Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.

Phenomenon of interest	Barriers and facilitators to the identification and engagement of overweight and obese children and young people. These may include: • Thoughts, views and perceptions of individuals, parents or carers

	• Thoughts, views and perceptions of staff undertaking identification of children and young people who are living with overweight and obesity • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities
Design	• Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Thematic synthesis
Research type	Qualitative and qualitative elements of mixed methods studies

1.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. This is described further in the methods chapter. Methods specific to this review question are described in the review protocol in appendix A.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

1.1.4 Effectiveness and qualitative evidence

1.1.4.1 Included studies

A combined search was conducted for review questions on identification and uptake in children, young people and adults. Results were uploaded into EPPI Reviewer version 5 and deduplicated before title and abstract screening. A total of 19,477 studies were identified in the search which explored both quantitative and qualitative evidence. The search was re-run in May 2023 to find newly published references prior to consultation and identified a further 1,630 studies.

Quantitative evidence

Following title and abstract screening 55 studies were identified as being potentially relevant in children and young people. These studies were reviewed against the inclusion criteria as described in review protocol (Appendix A). Overall, 3 studies were included; 1 RCT, 1 cluster RCT, and 1 cluster controlled trial. These studies covered the child measurement programs in schools as the basis for identification.

Qualitative evidence

Following title and abstract screening 69 studies were identified as being potentially relevant. These studies were reviewed against the inclusion criteria as described in review protocol (Appendix A). Overall, 13 studies were included which used interviews and focus groups. These studies covered the following groups:

- 5 studies from the UK which focused on the national child measurement programme
- 8 from other countries which covered identification in other settings

Two of these qualitative studies were added following an updated search in May 2023. One UK study and one non-UK study.

See appendix E for evidence tables and the reference list in section 1.1.14. For information on included studies in adult population see section 2.1.4.

1.1.4.2 Excluded studies

See appendix K for the list of studies excluded at the full text stage with reasons for their exclusion.

1.1.5 Summary of studies included in the effectiveness and qualitative evidence

1.1.5.1 Quantitative Evidence

Table 3: Quantitative evidence included in the review of effectiveness of approaches in identifying overweight and obesity in children and young people

Study and study design	Country	Setting	Population and number of participants	Intervention(s)	Comparator	Follow-up	Outcomes
Bailey-Davis 2017 Cluster-controlled trial utilising a random subsample of parents	Pennsylvania, USA	Convenience sample of schools	Children 5-10 years old (USA school grades 1, 3, and 5) n= 1,469	**Advanced active case finding: SBMIS+ (n=738)** SBMIS+ reports enhanced with education that included an online link for parents to self-assess and learn about strategies to reduce the risk of childhood obesity	**Active case finding alone: SBMIS (n=731)** SBMIS, for the purpose of providing parents with annual assessments of their child's weight status with an explanation of the results, recommended follow-up actions, and education on healthy eating and active living.	Surveys sent 4-6 weeks after the parents received the SBMIS or SBMIS+ reports	• Referral to weight management service
Chomitz 2003 RCT	Cambridge, USA	4 elementary schools	Children 5-14 years old n= 1,396	**Advanced active case finding: PI (n=481)** **Active case finding alone: GI (n=451)** For PI and GI groups:	**Usual care (n=464)** Usual care group did not receive a report card until after outcomes were assessed	Phone call within 6 weeks of receiving the report card	• Number of children and young people identified as overweight • Referral to weight management service

Study and study design	Country	Setting	Population and number of participants	Intervention(s)	Comparator	Follow-up	Outcomes
				• Tips for healthy living via reduced television/video screen time, 1 hour of physical activity, and 5 servings of fruits and vegetables. • Directory of physical activity options available to families in the locality. The PI group also received the personalized health report card of the children's height, weight, and weight status, fitness test results, and interpretive information. The materials referred parents with children outside the healthy weight range to follow up with their primary health care			
Madsen 2021	USA	79 schools in California, USA	Children 8-13 years old (USA school grades 3, 5, and 7)	**Advanced active case finding: screening and reporting (n=10,041**)	**Usual care (n=8159)** No BMI screening	2 year study. follow-up surveys	• Adverse events: ○ Peer teasing ○ Peer weight talk

Study and study design	Country	Setting	Population and number of participants	Intervention(s)	Comparator	Follow-up	Outcomes
Cluster randomised controlled trial			N= 28,641	**Active case finding– screening only: (n=10,441)** School staff assessed BMI each spring among students in both intervention groups. Parents of students in the active case finding + group were sent a BMI report each in Autumn during the 2 year study		were sent 6 to 9 months after BMI assessments (and 1-2 months after BMI reports were sent)	○ Teacher weight talk ○ Family weight teasing ○ Family encourages dieting ○ Family weight talk
SBMIS – School-based body mass index screenings PI – Personal information intervention GI – General information intervention							

1.1.5.2 Qualitative Evidence

Table 4: Qualitative evidence included in the review of effectiveness of approaches in identifying overweight and obesity in children and young people

Study	Design and analysis	Country	Setting	Population and sample size	Objective
UK studies					

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Dam (2019)	Focus groups using Ellis and Hogard's three-pronged "trident" model.	UK	Schools	18 parents/guardians; 11 healthcare/school staff	To investigate how effectively CHAMP (Children's Health and Monitoring Programme) engaged parents and supported reductions in childhood obesity, with a view to building an evidence base for parent-only, online feedback interventions
Gainsbury (2018)	Focus groups and Semi-structured interviews using a critical realist perspective	UK	Schools	18 parents/guardians	To develop a descriptive account of parents' experiences of written feedback from the National Child Measurement Programme (NCMP), based on primary data collected from semi-structured focus groups.
Syrad (2015)	Semi-structured interviews using theory of planned behaviour	UK	Schools	52 parents/guardians	To explore parental perceptions of overweight children and associated health risks after receiving National Child Measurement Programme (NCMP) weight feedback
Turner (2016)	Focus Groups, Semi-structured interviews, and open ended questionnaires with no specified analysis framework	UK	Schools	26 healthcare/school staff	To explore the practice of school health professionals in addressing childhood obesity at school entry, with a view to explaining potential reasons for low referral rates and understanding how the role of school health professionals can be optimised to address childhood obesity at an early age.
Coupe 2022	Semi-structured interviews with no specified analysis framework	UK	Primary schools	23 primary school teachers	To understand the utility of child weight related conversations with parents through exploring educators' experiences and perspectives
International studies					
Avis (2016)	Semi-structured interviews with no specified analysis framework	Canada	Primary Care	19 healthcare professionals	To pilot-test a mixed methods approach to evaluate tools and resources (TRs) that healthcare providers (HCPs) use for preventing childhood obesity in primary care, and report a preliminary descriptive assessment of commonly-used TRs
Hardy (2019)	Interviews with no specified analysis framework	Australia	Primary care	10 parents/guardians	To explore parents' experiences when discussing child over weight issues with the Maternal and Child Health nurse

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Jachyra (2018)	Interviews using an interpretive phenomenological analysis (IPA) approach	Canada	Children's rehabilitation hospital	8 children; 8 parents/guardians; 5 healthcare professionals	to examine the perspectives and experiences of children with ASD, their care givers, and HCPs around discussing weight-related topics in healthcare consultations
Jones (2014)	Semi-structured interviews with no specified analysis framework	Australia	Primary care	10 GPs; 12 families (5 with children present)	To explore perceptions and experiences of treating childhood obesity of (i) GPs, (ii) families involved in a childhood obesity study in general practice' and (iii) families not involved in the project, but who had concerns about childhood obesity.
McPherson (2018)	Interviews using a relativist ontologic approach	Canada	Paediatric hospitals	18 children; 21 parents/guardians	To present the findings of a recent scoping review to children with and without disabilities and their caregivers for their reactions; and to explore the experiences and perceptions of the children and their caregivers regarding weight-related communication best practices
Sjunnestrand (2019)	Interviews using a realist approach	Sweden	Child health care centres	17 nurses	To explore CHC (child health care) nurses' perceptions of speaking to parents about children's overweight/obesity and of their role in referring children to treatment for overweight/ obesity
Toftemo (2013)	Interviews with no specified analysis framework	Norway	Well child clinics	11 parents/guardians	To explore parents' views and experiences when health professionals identify their preschool child as overweight.
Eli 2022	Semi-structured interviews using a realist approach	Sweden	Primary care	17 parents	To shed light on the experiences of parents of preschoolers with overweight or obesity, following conversations about their child's weight with a CHC (child health care) nurse

See appendix E for full evidence tables.

1.1.6 Summary of the effectiveness and qualitative evidence

1.1.6.1 Quantitative Evidence

Table 5: Advanced active case finding (report card with personal information intervention) versus active case finding (report card with general information intervention)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)				
1 (Chomitz 2003)	1,396	RR 1.08 (0.72 to 1.62)	Very low	Evidence could not differentiate between arms
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)				
1 (Chomitz 2003)	1,396	RR 3.64 (1.39 to 9.5)	Very low	**Favours advanced active case finding**

Table 6: Advanced active case finding (report card with personal information intervention) versus usual care (no report card)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)				
1 (Chomitz 2003)	1,396	RR 1.95 (1.16 to 3.28)	Very low	**Favours advanced active case finding**
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)				
1 (Chomitz 2003)	1,396	RR 2.91 (1.19 to 7.08)	Very low	**Favours advanced active case finding**

Table 7: Active case finding (report card with general information intervention) versus usual care (no report card)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)				
1 (Chomitz 2003)	1,396	RR 1.8 (1.08 to 3)	Very low	**Favours active case finding**
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)				
1 (Chomitz 2003)	1,396	RR 0.8 (0.26 to 2.5)	Very low	Evidence could not differentiate between arms

Table 8: All Active case finding (screening with parent report and no parent report) versus usual care (no screening)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Adverse events: peer teasing (follow-up 1 years; measured with: Peer weight teasing index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 higher (0.02 lower to 0.04 higher)	Low	Evidence could not differentiate between arms
Adverse events: peer teasing (follow-up 2 years; measured with: Peer weight teasing index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.02 lower (0.07 lower to 0.03 higher)	Low	Evidence could not differentiate between arms
Adverse events: peer talk (follow-up 1 years; measured with: Peer weight talk index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.05 higher (0.01 to 0.09 higher)	Low	**Favours no screening**
Adverse events: peer talk (follow-up 2 years; measured with: Peer weight talk index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)				

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
1 (Madsen 2021)	28,641 (79 schools)	MD 0.00 (0.07 lower to 0.07 higher)	Low	Evidence could not differentiate between arms
Adverse events: teacher weight talk (follow-up 1 years; measured with: "Teachers talk about my weight or size": 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 lower (0.03 lower to 0.01 higher)	Low	Evidence could not differentiate between arms
Adverse events: teacher weight talk (follow-up 2 years; measured with: "Teachers talk about my weight or size": 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.00 lower (0.04 lower to 0.04 higher)	Low	Evidence could not differentiate between arms

Table 9: Advanced active case finding (screening with parent report) versus active case finding (screening with no parent report) or usual care (no screening)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Adverse events: family weight teasing (follow-up 1 years; measured with: My family teases or makes fun of me because of my weight. 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 lower (0.04 lower to 0.02 higher)	Low	Evidence could not differentiate between arms
Adverse events: family weight teasing (follow-up 2 years; measured with: My family teases or makes fun of me because of my weight. 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 lower (0.06 lower to 0.04 higher)	Low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves as underweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.03 higher (0.07 lower to 0.13 higher)	Very low	Evidence could not differentiate between arms

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Adverse event: family encourages dieting in children who consider themselves as underweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 higher (0.15 lower to 0.17 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves as about the right weight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.05 lower (0.12 lower to 0.02 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves as about the right weight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.07 higher (0.03 lower to 0.17 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves as somewhat overweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.03 higher (0.08 lower to 0.14 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves as somewhat overweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.11 lower (0.28 lower to 0.06 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves very overweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.14 higher (0.08 lower to 0.36 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family encourages dieting in children who consider themselves very overweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.44 higher (0.66 to 0.82 higher)	Low	**Favours no reporting**

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Adverse event: family weight talk in children who consider themselves as underweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.07 higher (0.01 to 0.13 higher)	Low	**Favours no reporting**
Adverse event: family weight talk in children who consider themselves as underweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.05 higher (0.05 lower to 0.15 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family weight talk in children who consider themselves as about the right weight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.01 lower (0.06 lower to 0.04 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family weight talk in children who consider themselves as about the right weight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.02 lower (0.09 lower to 0.05 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family weight talk in children who consider themselves as somewhat overweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.04 lower (0.11 lower to 0.03 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family weight talk in children who consider themselves as somewhat overweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.06 higher (0.05 lower to 0.17 higher)	Very low	Evidence could not differentiate between arms
Adverse event: family weight talk in children who consider themselves as very overweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.13 higher (0.01 to 0.25 higher)	Low	**Favours no reporting**

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Adverse event: family weight talk in children who consider themselves as very overweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)				
1 (Madsen 2021)	28,641 (79 schools)	MD 0.24 lower (0.47 to 0.01 lower)	Low	**Favours reporting**

Table 10: Advanced active case finding (report enhanced with education) versus active case finding alone (report alone)

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Referral to weight management service (follow-up 0-8 weeks; assessed with: "Report prompted you to visit a healthcare provider or registered dietitian about your child's weight status")				
1 (Bailey- Davies 2017)	1469 (31 schools)	0R: 0.8 (95%CI not reported)	Very low	Evidence could not differentiate between arms*
*Based on p-value reported in paper (p value= 0.16)				

See appendix G for full GRADE tables.

1.1.6.2 Qualitative Evidence

Table 11: Summary of the barriers and facilitators to identification in children and young people

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
Barriers in the UK NCMP					
Parents were offended by the identification In the UK and internationally: • Many were angry or upset to receive feedback • They felt like they were being judged and assumptions were being made about their parenting. • They objected to terminology such as 'obese' and 'overweight'. • There was concern about stigmatising the child by labelling them as overweight. • They felt their children were happy as they were and should not be burdened with this concern until they've grown. In the UK only: • They felt that people who did not know their child had no right to comment	Dam 2019 Gainsbury 2018 Coupe 202	Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Toftemo 2013	"As a parent, if there's something that you feel like that you are not doing, if your child is not where they should be, it can give you feelings that you are failing as a parent" UK Parent "How dare somebody tell me that my child is overweight" UK Parent "I've been to some [HCPs] where they're just, really almost nasty … very judgmental and … they just make you feel worse than you already feel … you shouldn't have to be treated in that way" International parent	International group was downgraded once for minor concerns about methodological limitations and relevance.	UK group: High International group: Moderate

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
Parents ignored the identification In the UK only: • They saw it as irrelevant information • They discussed it with other parents and the consensus was to ignore it • Some parents had other priorities so were not interested in their child's weight • Many parents felt it was intended for other parents, whom they judged as having unhealthy lifestyles that required intervention.	Gainsbury 2018 Syrad 2015 Turner 2016	Hardy 2019 Jones 2014	"after talking to other parents whose children were also obese or whatever, you sort of realise that it wasn't something that we could take seriously … I didn't follow it up in any way I just sort of let it go.'" UK Parent "It's being targeted at parents who isn't giving them fruit and veg and just doing the cheap rubbishy food… For the ones of us who are doing it [right] then you just ignore it and think whatever, I know I'm doing right." UK Parent	International group was downgraded 3 times for minor concerns about methodological limitations and relevance, and for serious concerns about coherence and adequacy	UK group: High International group: Very low
Parents disagreed with the identification In the UK and internationally: • They did not think their child was overweight • They discussed with friends and family who agreed and reinforced that the child was not overweight. • They believed their child's weight was normal for a growing child pre-puberty In the UK only:	Dam 2019 Gainsbury 2018 Syrad 2015 Turner 2016	Hardy 2019 Sjunnestrand 2019 Toftemo 2013 Eli 2022	"I look at him and I see puppy fat, I don't see overweight fat, I think they're two different things" UK Parent "I can't think why they would even say that he's overweight or obese and needs to go on a healthy eating class, that's disgusting" UK Mother-in-law of parent "Her "puppy-fat" will disappear as she gets older" International parent	International group was downgraded once for minor concerns about methodological limitations, relevance and adequacy	UK group: High International group: Moderate

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
• They provided alternative explanations for their size, such as 'solid' or 'tall' • Many disagreed with how they were measured. They felt that BMI was not appropriate.					
Parents agreed with the identification, but felt that overweight is not a problem In the UK and internationally: • They valued 'health and happiness' over weight • Some children had health conditions or other circumstances that prevented them from losing weight • Some cultures favour a larger body type for children • Some were more concerned about eating disorders and stigma that could result from addressing weight than about weight itself In the UK only: • Their child was happy with their body and not being bullied, so there's no need to do anything	Dam 2019 Syrad 2015 Coupe 2022	Hardy 2019 Jones 2014 Toftemo 2013 Eli 2022	"'If she's not active I would be worried but she's active, she runs, she do all of them things so I'm not worried about her health" UK Parent "I don't even make spaghetti sauce from scratch anymore due to being time poor" International parent "Some of our cultures of children that we are working with, it is a sign of wealth if you are overweight …so there's also that cultural element that we're pushing against" UK teacher "You don't want him to get eating disorders either. How can you help him with this without it going the other way, so to speak" International parent	International group was downgraded 3 times for minor concerns about methodological limitations, relevance and coherence, and for moderate concerns about adequacy	UK group: High International group: Very low

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
• Their child was fit and physically active, so weight didn't impact their health					
Staff describe practical limitations on what they can do In the UK and internationally: • They felt unable to offer much support to families who were identified. • They felt that parents were not open to engaging with them about children's weight In the UK only: • They often had too many competing priorities. • They felt that they lacked the skills, knowledge, and training to deal with weight. • They were concerned that parents were working against the school's health policies by providing unhealthy packed lunches or not providing PE kits.	Dam 2019 Turner 2016 Coupe 2022	Sjunnestrand 2019 Jones 2014 Hardy 2019	"there's no way we can deliver this [weight management] at the moment – [we're busy with] immunisations, your safeguarding, your general public health" UK School nurse "if the child is sitting there and you say to the child…what did you have for your tea last night, and they will confess all sorts" UK School nurse "specialists may feel the matter is too trivial for paediatric review" International HCP	UK group was downgraded once for minor concerns about adequacy and coherence International group was downgraded 3 times for minor concerns about methodological limitations, relevance, and adequacy, and for moderate concerns about coherence	UK group: Moderate International group: Very low
International barriers and facilitators					
HCPs provided context for normal weight and growth		Avis 2016 Hardy 2019	"We reward and praise [the parents] when [the children] gain weight and then all of a	Downgraded once for minor	Moderate

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
Parents were not sure what a 'normal' weight should be for their child's age and circumstances. They considered gaining weight to be a natural part of growing, so found it difficult to assess if there was a problem: Parents wanted the GPs expert judgement on whether to be concerned and what action to take.		Jones 2014 Sjunnestrand 2019 Toftemo 2013	sudden we say the child has gained too much weight and it's difficult for the parents to keep up." International nurse "'since my daughter was 18 months old she has always been around 10 per cent above the healthy weight limit for her age. When she was four and a half, the doctor said to maintain her weight" International parent "It's great to have formal guidelines just to know that you're doing what is recommended, just that reassurance . . . and then also if a parent decides, you know that doesn't seem reasonable at all, then I can pull it up and say well this is what it is, right?" International HCP	concerns about methodological limitations and relevance	
HCPs were able to discuss and explain weight issues Many parents needed information and a chance to ask questions about weight. HCPs provided this and selected the right resources and referrals. Parents saw HCPs as credible and trustworthy sources of information		Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Toftemo 2013	"there are many situations … that can arise where one needs to be uncomfortable or bring up something that perhaps the parents don't agree with. My role is to stand up for the child if I see a difficulty or so" International GP	No downgrading required	High

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
HCPs considered it was their role to identify overweight. They felt they had a responsibility of discuss weight with reluctant parents as a way of advocating for the child.		Eli 2022	"in general GPs reinforce the basics, diet exercise because GPs are a natural source of information" International parent		
Collaboration with other professionals facilitated engagement HCPs felt that their role in identifying overweight was part of a collaboration and was most effective when they had support from specialists and other staff. Many children received general healthy lifestyle advice at school, and felt that this was complemented by specific and personal advice from a HCP.		Hardy 2019 Jones 2014 McPherson 2018 Sjunnestrand 2019	"I just think that if you hear it more than one time, or like from different doctors, it might help you … so I think if multiple people are telling you that it is a problem … you can fix it, then that's better" International Child "'ancillary staff [in the practice] helping, perhaps a dietitian could have helped" International parent	Downgraded once for minor concerns about methodological limitations, relevance and coherence	Moderate
A trusting relationship between HCP and families was important HCPs described their efforts to build and maintain trust which enabled them present identification of overweight as genuine concern rather than judgement. Parents were more open to engaging with weight management with a known and trusted HCP. Parents preferred having their child's weight monitored over a period of time by		Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Toftemo 2013 Eli 2022	"There's a stigma that comes with it [obesity] … but address it as any other condition that you have and not treating it, like, "oh you have a weight problem," but "you have a weight problem and this is what we can do about it." International child "He really cares about our child, so it's a good thing" International parent	No downgrading required	High

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
the same HCP, rather than being identified as an issue in a single instance. Both HCPs and families expressed that it is better to consider weight management as something to work on as together rather than a problem presented to the family.					
HCPs tailored conversations to the patients Parents appreciated a holistic assessment of their child's health with weight as a component within a context of other issues. HCPs described how they personalised their consultations by adapting to parents priorities and concerns, even if that meant avoid the issue until a better time. HCPs and parents emphasised the importance of choice in whether to discuss weight. Some did not want their child to be weighed or to be involved in the conversation.		Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Eli 2022	"the doctor sits, takes time, sees the real problem that maybe it is not food but something else'" International parent "We have very different genes for this [overweight]… I don't know much about that but it's obvious… It's much more difficult for some families than others" International nurse	No downgrading required	High
Barriers and facilitators for specific groups					
Younger age groups		Jones 2014 McPherson 2018	"It's good to have grandparents close by, but my child knows that if she goes there, she'll have anything she asks for… because	Downgraded twice for minor concerns about	Low

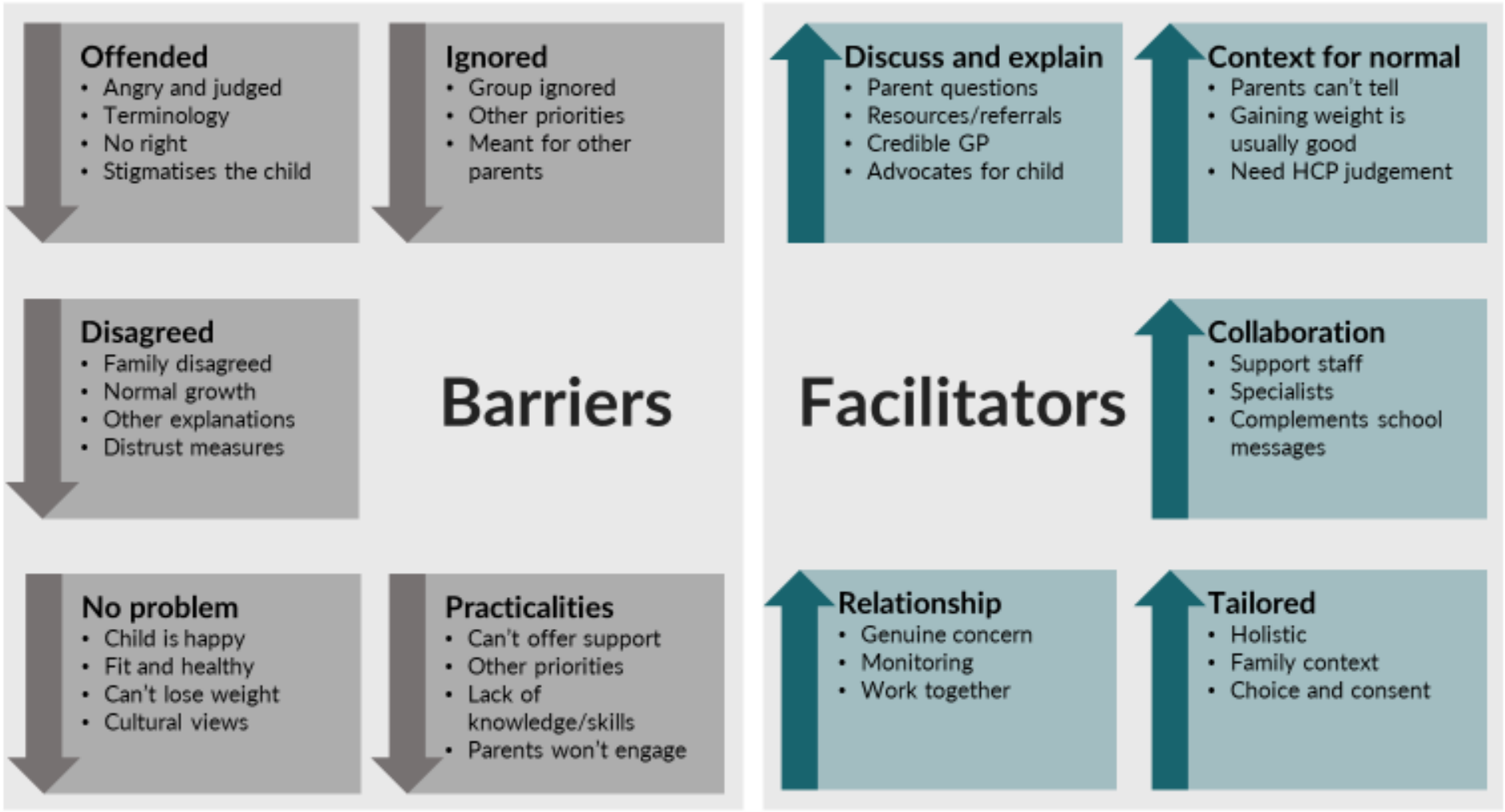
Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
• Parents preferred earlier identification to prevent problems as the child grows up • Parents did not want their child to be involved conversations about weight, so felt this was easier when children were younger and understood less. • Grandparents and other caregivers did not take weight seriously in young children, which made it harder to control		Toftemo 2013	grandparents somehow have a right to spoil them, especially with sweets. It's an everlasting job when we try to restrict this" International parent "[Best] not to wait until they're 18 because their habits are already established" International parent	and relevance and coherence, and moderate concerns about methodological limitations	
Disability and complex health issues • Some HCPs were reluctant to add weight concerns to the medical burden of a child with complex health needs • Some parents felt that their ability to manage their child's disability was being judged in addition to their parenting skills • There were often many caregivers and HCPs involved in managing the child's health, who all needed to be engaged with weight management via a holistic 'therapeutic partnership' • Specialist HCPs in hospitals were often not equipped to deal		Jachyra 2018 McPherson 2018	"People look at [Child] and assume she's lazy. They look at me and assume I am a bad parent… But they don't see that I am constantly trying to do everything I can to help her… It's not like I am ignoring medical advice on purpose" International parent "The doctor now is much better because they treat me like a friend and helps me feel good about my weight because he really understands me, my challenges and my complicated life" International young person	Downgraded once for minor concerns about methodological limitations, relevance and adequacy	Moderate

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
with general health issues such as weight					
Autism • HCPs adapted the way they communicated weight identification, using clear concrete terms. • HCPs often used visual aids which young people found patronising • Medication caused weight gain and made it difficult to control weight. This trade off between harms and benefits posed a difficult dilemma for parents and HCPs • Many young people were uncomfortable with having their weight discussed; it provoked anxiety. Some preferred to discuss it gradually to get used to the idea. • Parents were concerned that if weight loss became an autistic child's 'special interest' they could be vulnerable to eating disorders		Jachyra 2018 McPherson 2018	"Even though I don't like talking about my weight, at least if I know it's coming, I can prepare for it. There is nothing worse than learning something new about your body and not expecting it" International young person "I have one family where the child just seems to be exquisitely sensitive to the weight effects. We've tried taking him off the medication and it doesn't seem to work. They can't access appropriate behavioral resources and so we're sort of stuck between a rock and a hard place on how to manage his behavior right now. This child has probably gained 50 pounds on this med, and he's very young. His cholesterol is now abnormal. So it's tough." International Paediatrician	Downgraded once for minor concerns about methodological limitations, relevance and adequacy	Moderate
Race and culture • Different cultures have different size norms and ideals		Avis 2016 Jones 2014 McPherson 2018	"being chubby represented good health" International HCP	Downgraded twice for minor concerns about	Low

Finding	UK Studies	International studies	Illustrative quotes	CERQual explanation	Confidence
• Culture and language barriers made it harder for HCPs to discuss weight with some families				methodological limitations and relevance and moderate concerns about adequacy	

See appendix G for full GRADE-CERQual tables.

Theme map: Summary of the barriers and facilitators to identification of children and young people


Offended
• Angry and judged
• Terminology
• No right
• Stigmatises the child
Ignored
• Group ignored
• Other priorities
• Meant for other parents
Disagreed
• Family disagreed
• Normal growth
• Other explanations
• Distrust measures
Barriers
No problem
• Child is happy
• Fit and healthy
• Can't lose weight
• Cultural views
Practicalities
• Can't offer support
• Other priorities
• Lack of knowledge/skills
• Parents won't engage
Discuss and explain
• Parent questions
• Resources/referrals
• Credible GP
• Advocates for child
Context for normal
• Parents can't tell
• Gaining weight is usually good
• Need HCP judgement
Facilitators
Collaboration
• Support staff
• Specialists
• Complements school messages
Relationship
• Genuine concern
• Monitoring
• Work together
Tailored
• Holistic
• Family context
• Choice and consent

1.1.7 Mixed methods integration

Are the results/findings from individual syntheses supportive or contradictory?

The quantitative evidence focused on active case finding interventions that were based on the case finding systems similar to the National Child Measurement Program, which is outside the remit for this guideline. The qualitative evidence covered identification experiences from the NCMP for the UK which provides a context for the current barriers and facilitators families experience, and evidence opportunistic identification practices in other OECD countries which do not use an NCMP equivalent to explore the possible benefits or recommending other forms of identification.

The UK qualitative evidence indicates a range of barriers that families experience when their children are identified as overweight or obese through the NCMP, which can be viewed with the context from the quantitative evidence that active case finding approaches do increase identification. It appears that while there are negative experiences associated with these programs in schools, this is not sufficient to prevent it from being effective, however these barriers may cause problems further along the process towards weight management.

Does the qualitative evidence explain why the intervention is/is not effective?

The UK qualitative evidence indicates that there are many barriers to active case finding through the NCMP, mostly based around how the parent feels about their child being identified in this way. This does not explain why active case finding is effective in increasing identification of overweight and obesity, but does highlight a possibility that active case-finding could be more effective if the barriers were addressed.

Does the qualitative evidence explain differences in the direction and size of effect across the included quantitative studies?

The quantitative evidence examined 4 stigma outcomes: 'family weight teasing', 'peer weight teasing', 'teachers commenting on weight', and 'family encouraging the child to diet'. Only 'family encouraging the child to diet' was significantly increased with active case finding. The qualitative evidence described concerns about stigma and the child or young person's self-esteem, however none of the specific elements investigated in the quantitative evidence were mentioned. This suggests that the lack of difference found with active case finding in those areas may have because those specific elements were not the most prevalent concerns.

Which aspects of the quantitative evidence were/were not explored in the qualitative studies?

The quantitative evidence compared active case finding and enhanced active case finding. Active case finding through the NCMP was the focus of the UK qualitative studies, but the participants in these studies did not experience anything similar to the enhanced active case finding used in the quantitative evidence so could not provide views or experiences on it.

Which aspects of the qualitative evidence were/were not tested in the quantitative studies?

The quantitative studies only examined identification through active case finding in the context of programs similar to the national child measurement program, whereas the qualitative evidence looked directly at the NCMP in the UK. The qualitative evidence also examined opportunistic identification by professionals in schools and healthcare settings.

1.1.8 Economic evidence

1.1.8.1 Included studies

A combined search was conducted for economic evidence on identification and uptake in children, young people and adults. This search retrieved 444 studies, and all of them were excluded after the title and abstract screening. Thus, the review for this question does not include any study from the existing literature.

1.1.8.2 Excluded studies

All studies were excluded at the title and abstract screening stage.

1.1.9 Summary of included economic evidence

No existing economic studies was included for this review question.

1.1.10 Economic model

No economic modelling was conducted for this review question.

1.1.11 Unit costs

Not applicable.

1.1.12 The committee's discussion and interpretation of the evidence

The committee discussion of the quantitative evidence and qualitative evidence are presented together.

1.1.12.1. The outcomes that matter most

Quantitative evidence

During the development of the review protocol, the committee identified a number of important outcomes such as number of children and young people identified as overweight or obese, referral to weight management services and health related quality of life. Other important outcomes included adverse events such as stigma, eating disorders and disordered eating behaviours.

The consensus was that the direct measure of identification – the number of children and young people identified – was the most important outcome for decision making. The committee were also interested in stigma as a factor in how often to take measurements and how to approach talking to people about weight. There was less focus on referral to weight management services and health related quality of life. The committee also noted that eating disorders and disordered eating can be prevalent in young people, particularly among people who identify as women or girls, however no suitable quantitative evidence was found.

Qualitative evidence

Qualitative outcomes were individual perspectives, experiences, values, beliefs, preferences, views and considerations that describe the barriers and facilitators to identification of overweight and obesity. These outcomes were grouped into 3 categories, with 13 themes:

- Barriers in the UK NCMP: offence; ignored; disagreed; not a problem; practical limitations

- International barriers and facilitators: discussion; context for ‘normal’; collaboration; tailored conversations
- Barriers and facilitators for specific groups: younger age groups; disability and health; autism; race and culture

Evidence from the UK was considered more important than evidence from other countries. The only UK evidence available was on the national child measurement programme, which is outside of the remit of this guideline. Therefore, these outcomes were used to describe barriers experienced in this setting and to contrast to settings described in international studies.

The committee found the evidence on international barriers and facilitators particularly useful for informing opportunistic identification in primary care settings. They also found the barriers and facilitators for specific groups useful when considering the equality impact assessment to ensure the recommendations do not widen health inequalities.

1.1.12.2 The quality of the evidence

Quantitative evidence

The quantitative evidence was rated from very low to low confidence using the GRADE criteria. All 3 studies were rated as high risk of bias, so all outcomes were downgraded to very serious concerns in this domain. There were also several outcomes that were downgraded for imprecision due to confidence intervals crossing the MIDs or confidence intervals not being reported.

The committee were concerned specifically with the lack of directness and the small number of studies. All 3 quantitative studies looked at school screening interventions in the USA so, in the committees view, were not suitable to make recommendations on directly.

Qualitative evidence

The committee were satisfied that the confidence ratings had been given to the qualitative evidence using the GRADE-CERQUAL criteria. The majority of the themes were rated as high confidence (7 themes) or moderate confidence (6 themes). There were 2 themes rated as low confidence reflecting the smaller pool of evidence for specific groups. There were also 3 themes rated as very low confidence reflecting the lack of evidence for the UK barrier themes being present in the international studies. These themes were downgraded due to this lack of evidence creating minor concerns across most domains,

These confidence ratings aided the interpretation of the differences between UK school-based identification and international opportunistic identification. In this analysis, international studies were not downgraded for relevance because they were not attempting to extrapolate to the experiences of people in the UK. Instead they were used to contrast other identification in other similar healthcare systems to the UK, so were relevant to that specific purpose.

Gaps in the evidence

Although the review questions focused on people from minority ethnic family backgrounds, there were no quantitative studies that looked at these groups specifically and only a small amount of qualitative evidence available covering issues relating to ethnicity and culture. There was also a limited range of ages (5-14 years) represented in the quantitative data due to the focus within the school setting, whereas the qualitative data also included pre-school age children (2-5 years) and some older teenagers (14-18 years). Taking these limitations into account, the committee chose to draft a research recommendation to address this lack of evidence. Without any additional evidence to base changes on, they chose to retain the three existing recommendations on specific advice for people from minority ethnic family backgrounds.

The qualitative evidence highlighted the range of concerns parents and guardians had about the potential negative impact of their children being identified as having overweight or obesity, however there was very little quantitative research measuring whether these adverse effects occurred. The committee felt this was an important gap in the evidence, so drafted a research recommendation on the adverse effects of identification, with a particular focus on the risk of developing eating disorders as they felt this was the most serious concern regarding children and young people.

1.1.12.3 Benefits and harms

Current practice

A briefing for NICE guideline developers and committee members on obesity, weight management and health inequalities highlighted in England, more than 3 in 10 children aged 10-11 years (36.6%) are overweight or living with obesity.. This briefing also included the findings from the 2020/21 National Child Measurement Programme which found that children living in the most deprived areas were more than twice as likely to be obese than those living in the least deprived areas. For children leaving primary school, the gap in obesity prevalence between those from the most and least deprived areas has grown between 2006/7 and 2019/20. With childhood obesity being a stronger predictor of adult obesity and associated morbidities, it is important that children and young people living with overweight, and obesity are identified early.

Existing NICE guidance states that healthcare professionals should use clinical judgement to decide when to measure a child or young person's height and weight. Opportunities include when registering with a GP, consultations for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks.

The committee further noted that in practice, there are two main established methods of identification: 'National child measurement programme (NCMP)' and 'Healthy Child Programme: Pregnancy and the First 5 Years of Life'. Along with tracking growth and development, both of these use forms of active case finding to identify overweight, defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease.

Evidence was primarily identified for the effectiveness of active case finding, which involved case finding in school settings with parents receiving feedback. These interventions mimicked the NCMP and while evidence did show some favourable outcomes (e.g., number of children and young people identified as overweight or obese), such programmes would be outside the remit of NICE recommendations.

Although these programmes are outside of the remit of this guideline the committee felt it was important to consider other situations where measurements regularly occur, particularly through opportunistic methods of identification which are actively used in practice. While no new quantitative evidence on opportunistic identification was found for children and young people, the committee's consensus was to adapt the existing recommendations to remain in line with current practice, in the absence of evidence to suggest a better alternative.

The committee decided to add a recommendation to ensure that there are processes to identify children and young people with overweight and obesity in addition to the national child measurement program. They wanted to acknowledge that while these programs regularly identify children with overweight or obesity, identification should also take place in other settings. The NCMP measures children at age 4-5 and age 10-11 in primary schools, it varies by local area whether feedback is provided to families or carers as this is not a mandated part of the program. The committee felt it was important that children between these ages and children and young people in secondary schools also had opportunities for identification.

They also considered this to be a health inequality concern: children and young people who do not attend mainstream state education do not take part in the NCMP. There are many reasons why children might not attend mainstream state education, some of which are a result social or health factors (for example, some looked after children or children with disabilities). It is important that these children have the opportunity to be identified opportunistically in other settings to ensure that they are not further disadvantaged as a knock on effect of the factors that may cause them to miss out on standard education.

Opportunities for measurement

The previous NICE recommendations suggested opportunities for identification, however the committee noted that these are less relevant for children and young people as they tend to be measured more routinely than adults. They discussed the most appropriate time to take measurements and concluded that routine health checks were the best regular opportunity and made a recommendation to reflect this.

The committee debated how often a child or young person should be measured. They felt that regular measurement of height and weight was an important part of providing healthcare to children, as it can indicate a range of potential problems aside from overweight and obesity (e.g., failure to thrive, eating disorders etc.). Some members believed that children should be measured at every health encounter because of this reason. Other committee members commented that measurements should be taken when it is appropriate rather than at every opportunity regardless of the purpose of the encounter. They decided on committee consensus that it should be left to professional judgement to decide when it is appropriate to take measurements and added that routine health checks may be appropriate appointments.

The committee also discussed the phrase ‘use clinical judgement’ and concluded that professional judgement is more appropriate, as measures of growth are essential for a wide range of practitioners to use as a marker of general health and development. This judgement should take into consideration the context of the family’s health, circumstances, openness toengage and the appropriateness of discussing weight (for example, discussing weight with children and young people with eating disorders). As older children and young people are not routinely weighed as often as young children and are not part of the national child measurement program, professional judgement should take this into account to ensure that they older children do not miss out of the opportunity for identification of overweight or obesity. Furthermore, as these measures are vital markers of health and development in children and young people, the committee also stressed the importance of maintaining an up-to-date record of these measurements.

Based on these discussions, committee amended the recommendation to highlight that professional judgement should be used to decide when to record an up-to-date measure of a child or young person’s height and weight. They also amended the recommendation to highlight that appropriate times can include health checks, because measurement is usually taken at these checks.

Additionally, the committee further considered the existing recommendations on central adiposity in children and young people. As waist to height ratio can be considered to assess and predict health risks associated with central adiposity the committee drafted a further recommendation to highlight that health and care professionals can consider measuring a child or young person’s waist circumference to allow waist-to-height ratio to be calculated to predict health risks associated with central adiposity. There was some discussion over whether children and young people would be able to measure their own waist-to-height ratio, but there was no evidence on either the effectiveness or the acceptability of encouraging them to do this. The committee drafted a research recommendation to investigate this.

The committee noted that the updated recommendations should encourage health and care practitioners to consider keeping an up-to-date record of markers of health and development in children and young people. These recommendations were designed to be in line with the

advice provided in previous Public Health England (PHE) guidance, which states that the first step in identifying families at risk of overweight and obesity is to measure the child or young person's height and weight and professional judgement should be used to determine when it is appropriate to initiate a conversation about weight.

It was further noted that some parents may already be concerned about their child's weight or may have been informed about their child's weight through feedback letters through NCMP. This may encourage them to self-refer for a discussion about their child's weight. As there was no evidence on self-referral, based on their understanding of practice, the committee recommended that health and care professionals should ensure that records are kept up to date for children and young people who have been self-referred. The committee also used the advice outlined in the PHE guidance which states that when parents seek weight management based on the NCMP letter, the measurements should be repeated to ensure that records are kept up to date. The committee further highlighted that this recommendation will encourage professionals to maintain an up-to-date record of markers of health and development in children and young people.

Consent and taking measurements

The committee noted that is important to have the individual in mind when introducing conversations about weight and recognising when it is not appropriate. While the existing recommendation did focus on using clinical judgement, it did not mention the importance of consent. Therefore, the committee agreed that it is very important for healthcare professionals to ask permission from the child, young people or their parents/carers, before engaging in discussions on the degree of overweight, obesity and central adiposity. Healthcare professionals should also consider a child's (aged under 16 years of age) capacity to consent by determining the Gillick competency.

Qualitative evidence highlighted the negative emotions felt by parents who were told their child was overweight when they did not feel that they had been given the opportunity to consent to them being measured for this purpose. Based on this, the committee agreed that it was important to explain what the measurement is for and why it is important, and to obtain consent before any discussions take place. Based on this understanding, the previous recommendation was amended to outline that measurements should only be taken once consent is granted. This statement is in line with NICE guidance on babies, children and young people's experiences of healthcare which also highlights children and young people under 16 years can make decisions about their healthcare and consent to treatment if they are assessed to be Gillick competent.

Additionally, the committee recommended that before discussing weight, health and care professionals should talk about the condition first (e.g., patient coming in for hip pain) to avoid diagnostic overshadowing, and then use professional judgement to identify whether it's an appropriate opportunity to have a discussion about weight. The committee considered the qualitative evidence from adults that in cases of opportunistic identification, people often felt that the issue they presented with was overshadowed by discussions of weight which could be stigmatising and unhelpful. They were concerned that this could also be the case for children and young people, although there was no direct evidence of this in the review. Upon discussion of committee members' experiences, they decided that the recommendation should apply to all age groups, so chose to also include it in the recommendations for children and young people.

Stigma and principles of care

The committee highlighted that there is stigma associated with being measured and the subsequent discussions of results. The qualitative evidence addressed both the stigma to the child of being identified as overweight and the stigma driving parents' negative reactions to their child being identified. Many parents were offended and felt judged. Several parents in

the qualitative evidence review expressed that they did not want their child to be involved in, or aware of, the conversation about weight, to protect them from weight stigma. The committee pointed out that in practice, as measurements are conducted during routine health checks, the discussion of weight may have occurred several times. This can further perpetuate the feeling of being judged and stigmatised.

The qualitative evidence also addressed the views of healthcare professionals. This evidence showed that while healthcare professionals understood the importance of developing a trusting relationship with families, some did feel that that they lacked skills, knowledge, and training to deal with weight. Based on these findings and their understanding of practice, the committee highlighted the importance of outlining the ethos or key principles of care for health and care professionals

Based on this evidence, the committee outlined that before discussing degree of overweight and obesity with children and young people, their parents and carers, health and care professionals should consider the context and the appropriateness of the discussion as there may be instances when it is not appropriate or important to discuss weight or take measurements. They further highlighted that weight may have been raised on numerous occasions, health and care professionals should respect the decision to not discuss it further on this occasion and to explore the reason for refusal at an appropriate time. Additionally, as parents may be worried about the impact of weight stigma, health and care professionals should also consider the appropriateness of having the child or young person involved in the discussions and should give the parent or guardian the opportunity to decide this. If the child or young person is involved in the conversation, the committee felt this could be managed by tailoring the conversation to their age, maturity and understanding of the subject.

Concerns were raised in the qualitative evidence that young people, particularly teenage girls, may be vulnerable to eating disorders. The committee decided it was important to highlight this as a recommendation, so that practitioners are mindful of the risk when deciding whether it is appropriate to measure weight. They stated that mental health support should be available, but it is not within the remit of this guideline.

Furthermore, the committee also mentioned that a potential unintended consequence of being measured is that it can have a profound effect of how a child or young person feels about themselves and runs a risk of perpetuating or triggering overemphasis on body image and size, as well as disordered eating or eating disorders. The qualitative evidence showed that parents were concerned about identification harming their child's self-esteem. Evidence also suggested that they did not like the terms such as obese and overweight and valued health and happiness of their child rather than weight.

In light of this stigma, the committee agreed that sensitivity should be emphasised in the recommendation, and that stigmatising language should be avoided and the focus should be on using person first language for example, child or young person living with obesity. The committee also highlighted that health and care professionals should engage with children and young people and their families or carers to identify their preferred terms. The committee also discussed how sensitivity should also be a core aspect of the principles of care section that applies across the guideline.

Based on this understanding, the committee recommended that all discussions linked to the degree of overweight and obesity are conducted in a sensitive manner. The committee also outlined steps that can help health and care professionals ensure discussions are handled sensitively. These include, using sensitive, non-stigmatising language and preferred terms, engaging with children, young people their families or carer to identify preferred terms and also providing age-appropriate explanations with a focus on improvement in health as opposed to simply talking about weight. They also highlighted that all forms of communication should include non-stigmatising language and images.

Qualitative evidence also showed that parents were not sure what a 'normal' weight should be for their child's age and circumstances and healthcare professionals found that many parents needed information and a chance to ask questions about weight and healthcare professionals provided this and selected the right resources and referrals. The committee noted that use of resources such as growth charts can be useful during discussions about weight. Based on this understanding, the committee recommended that accurate facts and figures, for example growth charts should be used to ensure that discussions that place in a sensitive manner. Other committee members also suggested using waist to height ratio as an alternative, as it does not need to be adjusted for age and sex and can be communicated easily.

The committee also stressed the importance of person-centred care. Qualitative evidence demonstrated that parents appreciated a holistic assessment of their child's health with weight as a component within a context of other issues. Healthcare professionals also described how they personalised their consultations by adapting to parents' priorities and concerns. Based on this finding, the committee agreed that in order to ensure discussions are conducted in a sensitive manner, it was important to use a person-centred and solution-based approach in which factors such as the families' thoughts and views, previous weight management experience, their level of readiness to engage and cultural, religious/faith and spiritual beliefs were taken into consideration. They also noted that it was important to remain mindful of the barriers that may prevent or restrict weight loss.

The committee noted that these steps were important for the development of a trusting relationship between people and health and care professionals. They also noted by taking a positive and sensitive approach to measurement and subsequent discussion of weight would allow conversations to occur in a respectful manner. The committee also highlighted that these recommendations are in agreement with PHE guidance as well guidance on healthier weight competency framework produced by Health Education England which states that health and care staff that are involved with engaging with people (including children and young people) about a healthier weight should be able to understand the stigma that is associated with weight, the impact this can have on people, be able to identify implications of the child or young person's weight status and be able to discuss empathically and accurately.

While training is outside the remit of this update, the committee also noted that there are various resources that are available that provide further guidance on the steps healthcare professionals can take to discuss weight in a sensitive manner. This includes guidance produced by Obesity UK on language matters. There are also training courses produced by the Royal College of General Practitioners (RCGP) which explore the effect of weight stigma in children and by World Obesity Federation which explore how to raise the issue about obesity with patients. Additionally, there are webinars available such as those produced by the European Association for the Study of Obesity (EASO) which also focus on how healthcare professionals should talk about weight. While some of the training courses focus on adult population, the committee did consider these as useful tools for health and care professionals working within paediatric weight management. Short of recommending formal training, the committee opted to recommend that healthcare professionals should be aware of what weight management services are locally available, as vital knowledge base.

1.1.12.4 Cost effectiveness and resource use

No health economic studies were identified for this question.

The committee made a recommendation to use professional judgement to decide when to record weight and height of a child or young person. The more inclusive term "professional judgement" will allow a wider range of practitioners to make their decisions on weight and height measurement based on a variety of clinical and personal considerations. The committee also made recommendations to tackle issues related to stigma that repeated

measurement can cause in children and young people, especially among those who are vulnerable to eating disorder.

Overall, the new recommendations are not expected to increase NHS resources significantly. It is possible that weight and height will be measured more often following the recommendation thus possibly increasing the length of appointments. However, the more flexible approach is expected to lead to more appropriate measurements enhancing NHS efficiency in the identification of children and young people who are overweight or obese. Moreover, the additional recommendations on tackling stigma are expected to reduce children and young people's distress during visits and routine health checks which will improve their quality of life and reduce their likelihood of not attending follow-up appointments.

1.1.12.5 Other factors the committee took into account

Wider determinants and the context of overweight and obesity

Upon discussion of the wider evidence base from reviews 1.3, 1.4 and 2.3, the committee drafted an overarching recommendation in the principles of care to think about the wider determinants and the context of overweight and obesity. This recommendation included a non-exhaustive list of examples to encourage consideration of overweight and obesity as a complex health issue which requires a holistic approach. The committee chose to use this as both a standalone recommendation and a recommendation to cross-refer to throughout the guideline when these factors are relevant.

People from minority ethnic family backgrounds

Although the review question focused particularly on people from minority ethnic family backgrounds, there were no quantitative studies that looked at these groups specifically and only a small amount of qualitative evidence available covering issues relating to ethnicity and culture. The committee looked at the equality impact assessment and considered how the recommendations may affect people from different family backgrounds. They highlighted that the new recommendations were applicable for children from minority ethnic family backgrounds as the core principles of these recommendations were demonstrating sensitivity and using a person-centred approach which takes ethnicity into consideration. The committee also noted that there is a need to spread awareness amongst health and care professionals as well as the public of the increased risk people from minority ethnic family backgrounds face at a lower BMI.

Based on this understanding the committee retained existing NICE recommendations which promote this understanding and as well as recommendations that promote the use of existing local information networks to share information on the increased risks these group face at a lower BMI.

Children and young people with disabilities, learning disabilities and neurodevelopmental disabilities

Although there was some evidence that families of children with disabilities faced some additional challenges, the committee felt that people with physical disabilities, learning and neurodevelopmental disabilities were adequately covered by the recommendations they drafted and would additionally be identified during regular specialist health checks. Additionally, it was highlighted that there are existing NICE guidelines that can help health and care professionals plan the care for children and young people with learning disabilities and neurodevelopmental disabilities. This includes guidance on learning disabilities and behaviour that challenges: service design and delivery (NG93).

Looked after children

No evidence was identified on the particular needs of looked after children, however social complexity should be taken into consideration. Additionally, the NICE guideline on looked-after children and young people (NG205) includes recommendations on building expertise about trauma and raising awareness.

1.1.13 Recommendations supported by this evidence review

[To be completed once editorially complete version of the guideline is available for submission to NICE for quality assurance, consultation and publication]

This evidence review supports recommendations [add recommendation numbers] and the research recommendation on [add topic of research recommendation]. Other evidence supporting these recommendations can be found in the evidence reviews on [add topic of evidence review and review letter (A, B, C, etc)]. OR No recommendations were made from this evidence review. Amend as needed

1.1.14 References – included studies

1.1.14.1 Effectiveness

Bailey-Davis, Lisa, Peyer, Karissa L, Fang, Yinan et al. (2017) Effects of Enhancing School-Based Body Mass Index Screening Reports with Parent Education on Report Utility and Parental Intent To Modify Obesity Risk Factors. Childhood obesity (Print) 13(2): 164-171

Chomitz, Virginia R, Collins, Jessica, Kim, Juhee et al. (2003) Promoting healthy weight among elementary school children via a health report card approach. Archives of pediatrics & adolescent medicine 157(8): 765-72

Madsen, Kristine A, Thompson, Hannah R, Linchey, Jennifer et al. (2021) Effect of School-Based Body Mass Index Reporting in California Public Schools: A Randomized Clinical Trial. JAMA pediatrics 175(3): 251-259

1.1.14.2 Qualitative evidence

Avis, Jillian L S, Komarnicki, Angela, Farmer, Anna P et al. (2016) Tools and resources for preventing childhood obesity in primary care: A method of evaluation and preliminary assessment. Patient education and counseling 99(5): 769-75

Dam, Rinita, Robinson, Heather Anne, Vince-Cain, Sarah et al. (2019) Engaging parents using web-based feedback on child growth to reduce childhood obesity: a mixed methods study. BMC public health 19(1): 300

Gainsbury, Alexa and Dowling, Sally (2018) 'A little bit offended and slightly patronised': parents' experiences of National Child Measurement Programme feedback. Public health nutrition 21(15): 2884-2892

Hardy, Kelly, Hooker, Leesa, Ridgway, Lael et al. (2019) Australian parents' experiences when discussing their child's overweight and obesity with the Maternal and Child Health nurse: A qualitative study. Journal of Clinical Nursing 28(1920): 3610-3617

Jachyra, Patrick, Anagnostou, Evdokia, Knibbe, Tara Joy et al. (2018) Weighty Conversations: Caregivers', Children's, and Clinicians' Perspectives and Experiences of Discussing Weight-Related Topics in Healthcare Consultations. Autism Research 11(11): 1500-1510

Jones, Kay M; Dixon, Maureen E; Dixon, John B (2014) GPs, families and children's perceptions of childhood obesity. Obesity research & clinical practice 8(2): e140-8

McPherson, A. C, Knibbe, T. J, Oake, M et al. (2018) "Fat is really a four-letter word": Exploring weight-related communication best practices in children with and without disabilities and their caregivers. Child: Care, Health and Development 44(4): 636-643

Sjunnestrand, My, Nordin, Karin, Eli, Karin et al. (2019) Planting a seed - child health care nurses' perceptions of speaking to parents about overweight and obesity: a qualitative study within the STOP project. BMC public health 19(1): 1494

Syrad, H, Falconer, C, Cooke, L et al. (2015) 'Health and happiness is more important than weight': A qualitative investigation of the views of parents receiving written feedback on their child's weight as part of the National Child Measurement Programme. Journal of Human Nutrition and Dietetics 28(1): 47-55

Toftemo, Ingun, Glavin, Kari, Lagerlov, Per et al. (2013) Parents' views and experiences when their preschool child is identified as overweight: A qualitative study in primary care. Family Practice 30(6): 719-723

Turner, Gillian L, Owen, Stephanie, Watson, Paula M et al. (2016) Addressing childhood obesity at school entry: Qualitative experiences of school health professionals. Journal of Child Health Care 20(3): 304-313

2 Identifying overweight and obesity in adults

2.1 Review questions

What approaches are effective and cost-effective in identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups?

What are the barriers and facilitators to identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups?

2.1.1 Introduction

Overweight, obesity and central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some type of cancer in adults. Currently, people who are overweight, or living with obesity are identified through the healthcare system opportunistically. NICE 2014 guidance on obesity identification, assessment, and management (CG189) recommends using clinical judgement to decide when to measure a person's height and weight. Opportunities include registration with a general practice, consultation for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks.

During the surveillance process, topic experts highlighted that relying on opportunistic identification, rather than active case finding, increases the likelihood that conditions such as type 2 diabetes will be under-diagnosed in black, Asian and other minority groups whose risk of these conditions is increased at a lower BMI than the general population. Topic expert feedback also indicated that a proactive approach of informing people of their BMI is needed. The experts also advised that instructions to clinicians, especially GPs, to measure BMI should be firmer to further support NICE quality standard QS127.

Based on this, review questions were drafted to explore the effectiveness, barriers, and facilitators of identification of overweight and obesity in adults.

2.1.2 Summary of the protocol

Table 12 summarises the protocol for the review of effective and cost-effective interventions. Table 13 summarises the qualitative evidence synthesis for barriers and facilitators of identification.

Table 12: PICO table effectiveness of approaches in identifying overweight and obesity in adults

Population	• Adults 18 years and over.
	Where possible, evidence will be stratified by ethnicity:
	  ○ White
	  ○ Black African/ Caribbean
	  ○ Asian (South Asian, Chinese, any other Asian background)
	  ○ Other ethnic groups (Arab, any other ethnic group)
	  ○ Multiple/mixed ethnic group
	• Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services.

Intervention	• **Opportunistic identification, including but not confined to:**
	  ○ When registering with GP
	  ○ When receiving consultation for health conditions (e.g., chronic health conditions)

	○ During routine check-up / annual check-ups (delivered by GPs, nurses, pharmacists and social care staff) ○ During medication checks (e.g., contraception pill check) ○ During vaccination appointments ○ Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments) • **Active case finding** (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to: ○ Review of medical records ○ Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers) ○ audits of other services (e.g., disability services or endocrinology services) • Receiving or received interventions for example brief physical activity advice, diabetes prevention programme, smoking cessation programme, counselling for low calorie diets (delivered by GPs, nurses, pharmacists, activity providers) • Self-identification or referral • Carer initiated identification or referral
Comparator	• No intervention/usual care • Comparison of interventions
Outcomes	Primary outcomes: • Number of people identified as overweight or obese • Referral to weight management service • Health- related quality of life Secondary outcomes • Adverse events: ○ Eating disorders or disordered eating ○ Stigma (including self-stigma and negative body image as defined in studies)
Study type	Quantitative review • Systematic reviews of included study designs • RCTs • Observational studies (cohort studies) • Mixed methods studies (quantitative evidence that matches the above study designs only)

Table 13: SPIDER table for barriers and facilitators for identifying overweight and obesity in adults

Sample	• Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: ○ White ○ Black African/ Caribbean ○ Asian (South Asian, Chinese, any other Asian background) ○ Other ethnic groups (Arab, any other ethnic group) ○ Multiple/mixed ethnic group • Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services.
Phenomenon of interest	Barriers and facilitators to the identification and engagement of overweight and obese people including, but not limited to: • Thoughts, views and perceptions of individuals or carers • Thoughts, views and perceptions of staff undertaking identification of people who are living with overweight of obesity • Issues relating to education • Issues relating to stigma

	• Issues relating to self-esteem • Issues relating to cultural sensitivities
Design	• Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only)
Evaluation	Thematic synthesis
Research type	Qualitative and qualitative elements of mixed methods

2.1.3 Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. This is described further in the methods chapter. Methods specific to this review question are described in the review protocol in appendix A.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

2.1.4 Effectiveness and Qualitative evidence

2.1.4.1 Included studies

A combined search was conducted for review questions on identification and uptake in children, young people and adults. A total of 19,477 studies were identified in the search which explored both quantitative and qualitative evidence. The search was re-run in May 2023 to find newly published references prior to consultation and identified a further 1,630 studies.

Quantitative evidence

Following title and abstract screening 20 studies were identified as being potentially relevant in adults. These studies were reviewed against the inclusion criteria as described in review protocol (Appendix A). Overall, 3 studies were included; 2 RCTs and 1 cluster RCT. These studies covered opportunistic approaches for identification.

Qualitative evidence

Following title and abstract screening 26 studies were identified as being potentially relevant. These studies were reviewed against the inclusion criteria as described in review protocol (Appendix A). Overall, 8 studies were included which used semi-structured interviews/ focus groups. There were 4 studies from the UK and 4 studies from other countries. All studies addressed opportunistic identification in primary care.

See appendix E for evidence tables and the reference list in section 1.2.14. For information on included studies in children and young people, see section 1.1.4.

2.1.4.2 Excluded studies

See appendix K for the list of studies excluded at full text screening with reasons for their exclusion.

2.1.5 Summary of studies included in the effectiveness and qualitative evidence

2.1.5.1 Quantitative Evidence

Table 14: Quantitative evidence included in the review of effectiveness of approaches in identifying overweight and obesity in adults

Study and study design	Country	Setting	Population and number of participants	Intervention	Comparator	Follow-up	Outcomes
Lee 2009 RCT	USA	Medical school	29 nurses; 1,804 patients	Opportunistic identification using clinical decision support system (n=1,874)	Clinical log without decision support (n=997)	None	• Diagnosis of overweight • Missed diagnosis
Tang 2012 RCT	USA	Primary care clinic	30 doctors; 2,114 patients	Opportunistic identification using new electronic health record tools (n=958)	No change to electronic health record (n=1,156)	None	• Diagnosis of overweight • Weight counselling
Wee 2010 Cluster RCT	USA	primary care clinics	23 clinic clusters; 60,224 patients	Opportunistic identification using new electronic health record tools (n=26,481)	No change to electronic health record (n=33,763)	None	• Diagnosis of overweight • Missed diagnosis • Documentation of BMI

2.1.5.2 Qualitative Evidence

Table 15: Qualitative evidence included in the review of effectiveness of approaches in identifying overweight and obesity in adults

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Atlantis 2021	Semi-structured interviews with no specified analysis framework	Australia	General practice	5 GPs; 25 patients	To assess the clinical usefulness of a new screening tool based on the Edmonton Obesity Staging System (EOSS) for activating weight management discussions in general practice
Beeken 2021	'Community jury' Focus Groups with no specified analysis framework	Australia	Commercial research organisation	13 members of the public	To elicit the views of people with overweight and obesity about the role of GPs in initiating conversations about weight management.
Blackburn 2015	Semi-structured interviews using Theoretical Domains Framework	UK	General practice	17 GPs; 17 nurses	To explore general practitioners' (GPs) and primary care nurses' perceived barriers to raising the topic of weight in general practice
Doherty 2019	Semi-structured interviews with no specified analysis framework	UK	General practice	7 GPs; 1 nurse; 6 other HCPs	To explore GPs and other HCPs' views and experiences of barriers and facilitators to providing evidence-based weight management interventions for adults with intellectual disabilities
Glenister 2017	Semi-structured interviews with no specified analysis framework	Australia	Rural GP practices	7 GPs; 7 patients	To examine how GPs in rural areas talk about overweight and obesity with their patients, specifically to identify key barriers to effective conversations
Gunther 2012	Semi-structured interviews with no specified analysis framework	UK	General practice	7 GPs; 7 nurses; 9 patients	To uncover and describe barriers and enablers to implementing NICE's recommendations on the management of obesity in adults in general practice, using practical qualitative methods.
Holmgren 2019	Interviews using grounded theory	Sweden	Primary care	10 public health nurses	To develop a theory explaining how public health nurses accomplish and adapt counselling in lifestyle habits to decrease obesity in people with mobility disability

Study	Design and analysis	Country	Setting	Population and sample size	Objective
Phillips 2014	Semi-structured interviews with no specified analysis framework	UK	Primary care health boards	16 nurses	To use qualitative semi-structured interviews to explore how practice nurses manage obesity within primary care and to identify good practice and explore barriers to achieving effective management

See appendix E for full evidence tables.

2.1.6 Summary of the effectiveness and qualitative evidence

2.1.6.1 Quantitative Evidence

Table 16: Opportunistic identification using electronic tools vs usual care with no tool use

No. of studies	Sample size	Effect estimate (95% CI)	Quality	Interpretation of effect
Diagnosis of overweight/obesity: assessed by number of patients diagnosed				
3 (Lee 2009 Wee 2010 Tang 2012)	64162	RR 6.61 (3.56 to 12.28)	Very low	**Favours electronic record tools**
Weight counselling: assessed by number of patients who received weight counselling				
1 (Tang 2012)	400	RR 1.83 (1.22 to 2.75)	Low	**Favours electronic record tools**
Missed diagnoses: assessed number of patients with BMI>=25 who were not diagnosed as overweight/obese				
2 (Lee 2009 Wee 2010)	36535	RR 0.32 (0.29 to 0.37)	Very low	**Favours electronic record tools**
Documentation of BMI: assessed by number of patients whose BMI was recorded				
1 (Wee 2010)	60244	RR 1 (1 to 1)	Low	Evidence could not differentiate between arms

See appendix G for full GRADE tables.

2.1.6.2 Qualitative Evidence

Table 17: Summary of the barriers and facilitators to identification in adults

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Barriers and facilitators to identification in general				
Healthcare providers felt that tools and guidance on identifying overweight were useful, but there was often a lack of consistency and availability. Tools that help guide conversations were considered particularly valuable. The 'EOSS-2 risk tool' was examined in one paper and generally praised. Some GPs commented on the lack of tools available to them though. GPs appreciated guidance that enabled them to have information on comorbidities and risk factors readily available. Some GPs wanted more guidance on how to adapt their approach to people with disabilities. GPs also commented that guidelines and policies were not implemented consistently. Some felt that obesity was not prioritised by management. They were concerned that with no standardised approach among HCPs, there would be unequal provision of treatment.	Atlantis 2021 Blackburn 2015 Doherty 2019 Glenister Gunther 2012 Holmgren 2019	"so we just need to maximise everybody at every level and you can't do that unless you have a common consensus about where we are going. Actually, it is really hard to have a common consensus" GP "In terms of the medical tool box, pneumonia: we have a tool for that, diabetes: we have a tool for that … for obesity: we've got nothing." GP "All the government guidelines I've read, there's never anything really that's targeted towards that group [people with intellectual disabilities]." HCP	Downgraded once for minor concerns about coherence	Moderate
There were mixed opinions on whether it is a HCPs responsibility to identify overweight or obese people.	Atlantis 2021 Beeken 2021 Blackburn 2015 Gunther	"You can lead a horse to water but you can't stop it eating cream cakes." GP	Downgraded once for minor concerns about coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Most patients felt that HCPs were in an appropriate role to identify overweight, as they could approach it objectively and clinically. They felt it would be better received than if a friend or relative commented on it. Some HCPs agreed that it was an important part of their role in maintaining patients' health and took an active interest in weight management. Some of these felt that they had a responsibility to help prevent obesity by intervening when patients started to gain weight rather than when they reached a certain BMI. Others disagreed as they felt it was not their responsibility and not their place to comment. They claimed that they were unable to make a difference to patients' weight and felt it was up to the individual to choose to manage it themselves. Furthermore, several HCPs felt their jobs remit was quite specific and their daily work did not involve public health promotion.	2012 Holmgren 2019 Phillips 2014	"if it's not a doctor, then who? Because, family, they're just going to irritate people. Friends, they're just going to try to butter it up" Patient "'I don't really see it as my job. I think by the time they get to me, they come with a specific problem or some complexity associated with them" GP		
Barriers and facilitators to identification of an individual				
Identifying overweight or obesity was seen as a difficult conversation to initiate, so HCPs needed to feel confident in their ability to do it well. Some HCPs who lacked this confidence avoided addressing weight for fear that it could do more harm	Blackburn 2015 Doherty 2019 Gunther 2012 Holmgren	"I think it's that we don't get any training on how to talk to people about their weight and how best to advise people to lose weight" GP	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
than good if they were to upset or alienate their patient. Of these HCPs, some felt they didn't have enough knowledge or training on the subject of weight management and others felt that they didn't have enough skills or experience in communicating sensitive issues. HCPs also felt they needed specific training in how to approach these issues with patients who have learning disabilities, as there are additional barriers to communication in these interactions. For many GPs, however, training on weight management topics was not prioritised when there is limited time to undertake professional development courses.	2019	"if some course comes up about obesity, that's the last thing I'm gonna go to. Whereas if there's a course on new treatments in hypertension or new treatments in epilepsy or… that's what I'm gonna go to." GP "I've got a thirteen percent chance of having a heart attack, does that mean I am going to have a heart attack?... I think we are not always good at explaining that as GPs – I think particularly with people who have learning disabilities." GP		
Competing priorities in a clinical interaction often meant that weight was not addressed. Time constraints were frequently mentioned as a reason for not identifying overweight in eligible patients. HCPs felt that they already had too little time to cover everything essential to the primary purpose of the appointment, so did not have time for anything else. Patients agreed that the primary purpose of the appointment should always be prioritised but also found it frustrating to run out of time when they did want to discuss their weight. HCPs also described how their practice managers and commissioners did not see weight as a priority so	Blackburn 2015 Doherty 2019 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	"We've got enough to do, in terms or sorting and presenting the complaint and then sorting out the ongoing stuff and sorting out the critical health stuff and that's quite enough for 10 minutes, thank you very much.' (GP 2)" "I said 'I wouldn't mind having a chat with someone about my weight', and she [GP] said 'We'll talk about it later', because everything's always rushed." Patient	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
discouraged staff from dedicating time and resources to it. They felt that the pressure they were under to meet certain targets made it harder to use their judgement.		"So I feel constrained in what I can do. And we have even had the PCT [primacy care trust] in checking on our Orlistat prescribing." GP		
Opinions varied as to which patients should be identified and whether a conversation about weight should occur for an individual. Patients tended to prefer the idea of routine weight assessment for everyone, to normalise the idea of monitoring weight. They felt that it would be less stigmatising as it would prevent them from feeling singled out and judged. HCPs on the other hand felt that this approach was less efficient; targeting people at high risk was a better use of limited time and resources. Furthermore, some HCPs felt that it is only necessary to identify overweight if a patient has comorbidities or other health issues that are affected by it. These HCPs felt firmly that weight is not inherently a health problem, so an otherwise healthy overweight person does not need to manage their weight. The patients' consent and choice in whether to discuss weight was often seen as the deciding factor in whether to initiate a weight conversation. Some HCPs felt that	Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	"Don't a lot of doctors take your blood pressure every time you walk into there anyway, so why can't they use the scales?" Patient "I do believe that there are some people who are overweight and still remarkably healthy and actually their weight isn't really an issue that I need to be too concerned about." GP "But it really comes down to the consent of the patient. That's the thing that I feel most strongly about. [pre-appointment questionnaire] is given to the patient so that they feel like they're more in control of the discussion that's going to occur." Patient	Downgraded once for minor concerns about coherence	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
weight should only be discussed and documented if the patient brings it up and asks for support. Others felt that gauging a patient's openness to the idea before making any formal identification was the best approach. They felt it could harm the relationship to bring it up with a patient who was unwilling, so allowing them to control the conversation was less confrontational.				
Barriers and facilitators to raising the topic of weight with a patient				
A good relationship between patient and HCP made it easier to initiate a conversation about weight. An ongoing relationship allowed HCPs to raise the issue gradually and to choose the right moment. They stated that it was much harder to do this in a single time-limited interaction. They also commented that using identification tools helped to introduce the subject by making it less personal and distancing themselves from the source of the conversation. The HCP's weight could function as either a barrier or a facilitator. Some HCPs felt that being overweight themselves undermined the message they were trying to convey. In other cases, patients felt more comfortable talking to another overweight person who would understand their experience and not judge them. Some GPs commented that they valued the relationship they had built with their patients above the need to identify overweight. They felt the risk of damaging that relationship and their wider reputation as a trustworthy	Atlantis 2021 Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	"'you don't have to bring it up just as a problem with weight. You can say, 'How are you going? How's everything? What have you been doing lately? How do you feel?'" Patient "Being a rather larger person myself, I find it sometimes a little bit sensitive to say, 'You really ought to lose some weight', when, actually, the same person could be saying it back to me." Nurse "if I have to not talk about something or talk about something very sort of gently in order to preserve my reputation as being non-judgmental then I will do that." GP	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
GP by offending their patients was not worth the benefits.				
Framing the identification of overweight as a general status was less productive than framing identification as a health concern. Health concerns felt more appropriate for a HCP to comment on, and particularly if the health issue was linked to an ongoing comorbidity or the problem the patient was presenting with. Patients felt more comfortable with this approach as it took the focus away from their appearance and the social stigma of weight. HCPs agreed with this and commented that it removes the suggestion of blame and made it easier to motive their patients. Furthermore, patients did not trust BMI measures and saw a high BMI as insufficient reason to identify someone as overweight. They needed more direct evidence of how their weight was affecting their health to see the relevance of it. There was one clear exception to this theme: HCPs working with patients who have learning disabilities found it more productive to focus on appearance and lifestyle than on health. They found it easier to communicate tangible benefits of weight management than more abstract health implications.	Atlantis 2021 Beeken 2021 Doherty 2019 Holmgren 2019 Phillips 2014	"…discussion around medical illness rather than judgmental values about failure or success as far as their obesity is concerned. It did help to focus the attention away from personal failure and towards medical conditions" GP "However high you are, I'm stocky, another guy is skinny. There's a difference straight away. It doesn't mean anything, but I'm not going to go along and have someone write me a letter saying I'm fat. It's hard to judge how fat you might be'" Patient "We had another guy who had a learning disability and he was working really, really hard… Now his goal, was to be able to reduce his size enough so he could buy a jacket…a particular brand of jacket he wanted to be able to buy" GP	Downgraded once for minor concerns about relevance	Moderate

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Most HCPs considered weight conversations to be challenging due to the stigma of being overweight. HCPs were concerned that patients may take offense at having their weight commented on. They worried about the words they use to describe weight being stigmatising and unintentionally implying their patients' choices are shameful or blameworthy. Some HCPs empathised with patients who reacted negatively and felt uncomfortable with having caused conflict. Many patients described previous bad experiences where HCPs had talked about their weight in insulting or insensitive terms. These experiences made them feel wary and defensive when weight was brought up in subsequent medical encounters. Some patients and felt that raising the subject of their weight in a clinical encounter, particularly when it was not relevant, was inherently stigmatising. They were concerned that HCPs viewed them primarily as an overweight person and the expressed the desire to be treated the same as anyone else.	Atlantis 2021 Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	"No, if they were coming for something completely unrelated because they would probably have had plenty of people doing it to them already, and it will have [annoyed them] to be quite honest. If I went to the doctors with conjunctivitis and had a weight problem I would be pretty [annoyed] to be quite honest if you then started telling me about my weight" Nurse "I remember this one explicitly, the anaesthesiologist … she was quite rude about my weight … she said I was lazy … I didn't even know this person, I don't see why she had the right to even start commenting." Patient "So, that's why we're changing the question to lifestyle, yes? So, it's not as focused on weight, but it's also looking at all of the factors that are contributing to the overweight or obese situation? It's all- encompassing. It's not selecting certain groups of people, or pointing the finger, 'You've done this wrong, and now you're fat.'" Patient	No downgrading required	High
Barriers and facilitators to discussing weight management				

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
Discussions of weight were dependent on the patient's motivation to engage with weight management With a motivated patient, the conversation is often well received and support or referral to weight loss services are welcomed. If a patient is not motivated, however, these conversations may be less productive unless the HCP is able to actively motivate them through the conversation. Many HCPs described this as the key part of their role in identifying overweight. Some described how motivational interviewing techniques can be helpful to achieve this. Personalised risks and benefits were more effective in creating engagement than generic risk factors. Patients felt more motivated to manage their weight when thinking about how it might affect their own health and interact with health issues they were experiencing.	Atlantis 2021 Gunther 2012 Holmgren 2019 Phillips 2014	"most of that data would be in my database anyway… then it would be very easy for me to say, look, Mom, dad had diabetes too, you're at an extreme high risk." GP "So I think this is more reinforcement. I'm more confident that I can lose weight. She's [GP] there to help and refer me to the people that can help me as well." Patient "So it's kind of motivated me take some action. Yeah, I mean, the results of the blood tests kind of made me think about it a bit more, because I hadn't really had too many issues previously, and knowing that not everything's perfect, definitely give me some motivation. I know that if I follow the plan, it will definitely help me be more active and healthier and longer for your long term health issues." Patient	Downgraded once for minor concerns about coherence	Moderate
HCPs discussed the importance of tailoring conversations to the patient they are talking to. GPs described how they adapted to a range of patients' knowledge, personal risks factors and previous weight management experience. For example, some patients had unreasonable expectations of a 'quick fix' solution	Beeken 2021 Doherty 2019 Gunther 2012 Holmgren 2019 Phillips 2014	"You gauge the patient on that first meeting. So if they, 'I don't know what I'm doing' then you kind of make it to suit – you know, you go back to basics…. But if you get patients that come in and say 'Look, I've done weight-watchers, I know what I should be doing. I know what I shouldn't be eating and I know I should be exercising, and I know I should be	No downgrading required	High

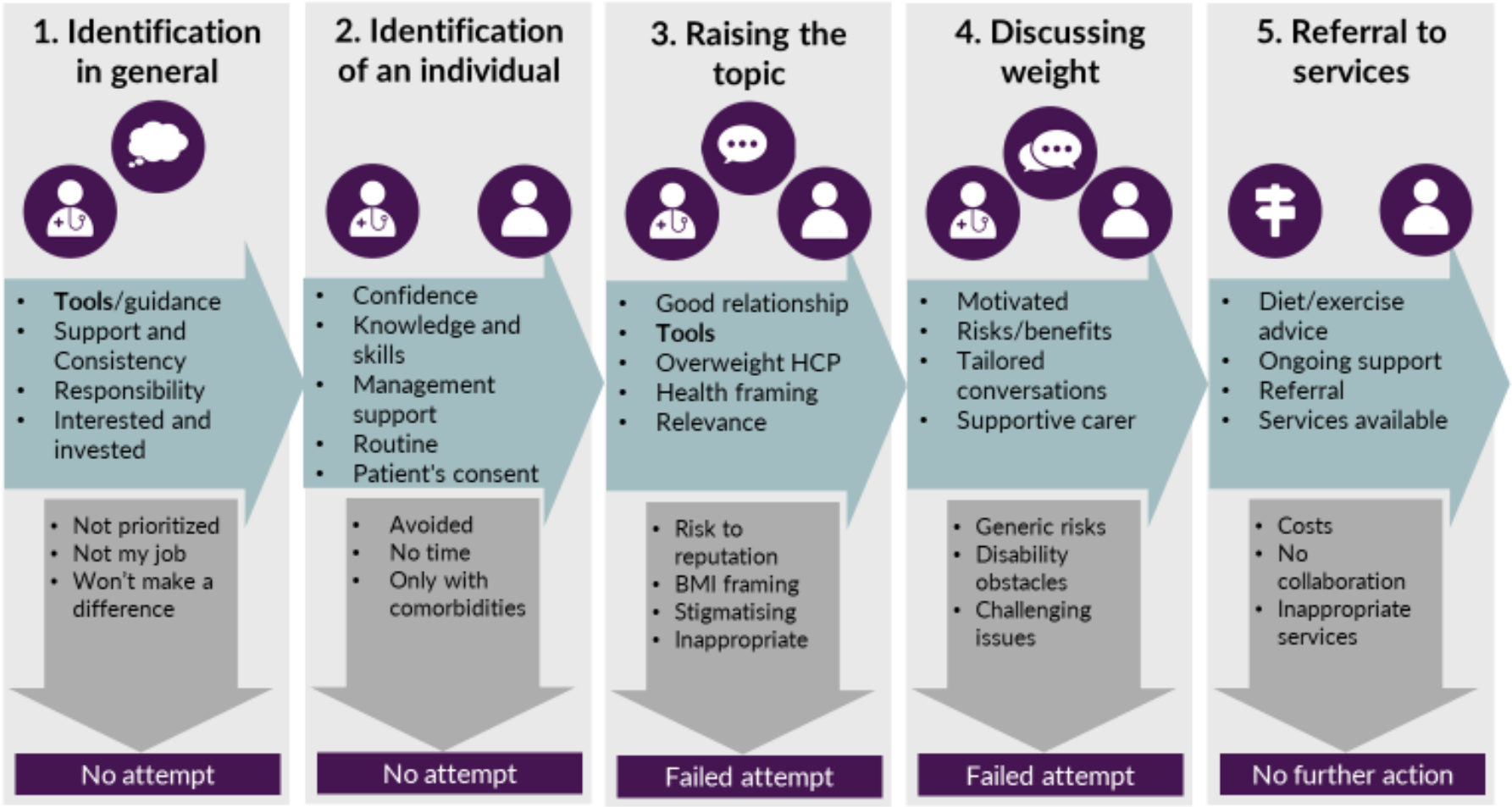
Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
akin to medication, with little knowledge of how to approach weight management. Other patients were highly knowledgeable but had experienced cycles of weight loss and regain over many years. These situations required different approaches to take into account the patient's perspective given and to motivate achievable weight management. HCPs also mentioned other factors affecting how weight management conversations are approached: • Physical disabilities can make weight management more challenging and less accessible, so GPs described their attempts to adapt the conversation to the patients' needs and conditions. • Learning disabilities can create challenges in communicating the risks and benefits of weight, so extra consideration is needed to how the conversation is handled. • HCPs also expressed the challenges of tailoring to different cultural beliefs about weight.		doing this and this' And they've got more of an idea, then you do it a little bit differently. You say, 'OK, lets try this'. Your approach with them is slightly different because of their knowledge" GP "I try to personalize, try to scan that person's ability to do and that you give advices based on that…" GP "A lot of them feel they are quite healthy, especially in our culture [South Asian ethnic groups], they don't like anyone who is slimly built, especially with kids; so that kind of, that kind of mentality kind of goes with them into to adulthood."		
HCPs who worked with patients with learning disabilities described the additional considerations when carers or support workers are involved. They had the added challenge of motivating both the patient and the carer, as patients with learning disabilities often didn't have full control over their diet and exercise.	Doherty 2019	"You're trying to motivate a carer to motivate the patient. So, it's second hand motivation" GP "They [carers] just feed him junk food cos that's what he eats and he won't eat anything else. And they're not gonna have a conflict with him…I can see an attitude of well, this person's not got much in their life and if they	Downgraded twice for moderate concerns about adequacy and minor concerns about relevance	Low

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
They found that carers were sometimes unsupportive of weight management. This meant that even if a patient was engaged and motivated during the conversation, their carer's attitude prevented any further action.		like eating burgers well let them eat burgers, cos what else have they got." GP		
Barriers and facilitators to referral and management				
HCPs advised their patients on diet and exercise, and helped them to plan their weight management individually. In many cases, GPs felt that patients who were willing to engage in weight management could do so independently. They offered information on diet and exercise and often invited them to make a follow up appointment but did not refer them to a programme. In other cases HCPs felt that patients were unlikely to be able to follow and maintain a weight management plan without further support. They felt that they didn't know how to give the right advice in a way that would be effective, and that specialist help was needed. Some HCPs wanted to provide structured ongoing support within their clinic, but this was not often possible. Patients were keen to utilise these services if and when they were available.	Atlantis 2021 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	"I can talk 'til I'm blue in the face about the health benefits of losing weight, I have no idea how to get people started on that journey." GP "What they're doing – they're not doing any exercise in between those times, because when you ask them they say 'no, I'm going to the gym twice a week', and they think that's all they have to do." Nurse "I would prefer NHS [support] with small groups of 10–15 at a time, perhaps weigh them ... I just say I think coming regularly and meet and talk with people is important" Patient	Downgraded once for minor concerns about coherence	Moderate
A referral for weight management was often dependent on whether there are appropriate services available to refer patients to.	Blackburn 2015 Doherty 2019 Glenister	"They have reduced the number of dietary services in the whole of [area], so it's very difficult to actually refer somebody, and they are all now based in [area], so if people don't	No downgrading required	High

Finding	Studies	Illustrative quotes	CERQual explanation	Confidence
In many areas there were either very few services or the HCPs did not know what services there were. Many services were oversubscribed and GPs commented that if they were to refer every eligible patient, their local services would not have the capacity to cope with the demand. Some patients were unable to pay for commercial weight management services outside of the NHS. Often the services that patients were referred to were not appropriate for their needs. Patients who have a very high BMI require more specialist support manage their weight safely. Patients whose needs are complicated by physical or learning disabilities also require services that can accommodate them. HCPs felt that there was little collaboration between weight management service providers and professionals who specialise in disability support, and that this is essential to making services more accessible. The consensus among HCPs and patients was that services need to be expanded and invested in to be fully inclusive.	Gunther 2012 Holmgren 2019 Phillips 2014	drive, they are just not going to go, that is even if they have an appointment.'" GP "The people at the council who've had twenty years' experience working in learning disability probably have zero experience in health, and it's probably linking those together that's going to be key." HCP "The doctor did try and put me down for the gym, but they said I was too heavy for it. I did go to the physiotherapist assistants ... it was only temporary because that's the way NHS works" Patient		

See appendix G for full GRADE-CERQual tables.

Theme map: Summary of the barriers (grey) and facilitators (green) to opportunistic identification of adults in a clinical setting. Each pillar represents a set of themes describing what influences a healthcare professional's ability to proceed with identification.


1. Identification in general
• Tools/guidance
• Support and Consistency
• Responsibility
• Interested and invested
• Not prioritized
• Not my job
• Won't make a difference
No attempt
2. Identification of an individual
• Confidence
• Knowledge and skills
• Management support
• Routine
• Patient's consent
• Avoided
• No time
• Only with comorbidities
No attempt
3. Raising the topic
• Good relationship
• Tools
• Overweight HCP
• Health framing
• Relevance
• Risk to reputation
• BMI framing
• Stigmatising
• Inappropriate
Failed attempt
4. Discussing weight
• Motivated
• Risks/benefits
• Tailored conversations
• Supportive carer
• Generic risks
• Disability obstacles
• Challenging issues
Failed attempt
5. Referral to services
• Diet/exercise advice
• Ongoing support
• Referral
• Services available
• Costs
• No collaboration
• Inappropriate services
No further action

16

2.1.7 Mixed methods integration

Are the results/findings from individual syntheses supportive or contradictory?

The qualitative and quantitative findings were not directly comparable as the barriers and facilitators to identification were not directly targeted by the interventions to increase identification. Likewise, the success and suitability of the interventions was not explored in the qualitative evidence as it examined barriers and facilitators in the current system. Therefore it is difficult to integrate the findings directly.

It is important to note that the quantitative studies were all conducted in the USA, while the qualitative studies were describing patient and clinician experiences in the UK. This makes it harder to make a direct comparison as the populations, health care systems and social context are different. Therefore it is hard to tell whether the intervention in the quantitative results supports the qualitative account of UK experiences. There were, however, no direct contradictions between the two evidence bases.

Does the qualitative evidence explain why the intervention is/is not effective?

In the qualitative evidence, some healthcare practitioners described the benefits of having tools and guidance in place at their clinic to support making identifications, which may explain why the tools used in the interventions were effective. It can also be inferred from the qualitative findings that the barriers around raising the topic are eased by having it raised externally by the computer prompt. It may also have reduced the stigma of singling out a patient if the prompt is used for everyone and communicated as a calculation, rather than singling out a patient based on the clinicians perception of them as overweight.

Does the qualitative evidence explain differences in the direction and size of effect across the included quantitative studies?

Diagnosis of overweight or obesity from the total number of patients seen is the only outcome with results that vary in magnitude (but all favour the use of tools). The differences between studies are more likely to be a product of variance from using different intervention methods than from the qualitative experience of identification.

Which aspects of the quantitative evidence were/were not explored in the qualitative studies?

The qualitative evidence did not explore how patients felt about being identified using opportunistic identification prompts. The committee commented that the interventions described in the quantitative evidence were similar to systems that are commonly used in the UK, but the qualitative evidence did not directly reference them.

Which aspects of the qualitative evidence were/were not tested in the quantitative studies?

The qualitative evidence provided a wealth of barriers and facilitators across the span of a clinical encounter, whereas the quantitative evidence only examined opportunistic identification using system prompts. There is scope for quantitative investigation on addressing the barriers in clinicians approaches to identification in general; whether to identify an individual; how to raise the topic of weight; how to discuss weight; and referral to services.

2.1.8 Economic evidence

2.1.8.1 Included studies

A combined search was conducted for economic evidence on identification and uptake in children, young people and adults. This search retrieved 444 studies, and all of them were excluded after the title and abstract screening. Thus, the review for this question does not include any study from the existing literature.

2.1.8.2 Excluded studies

Not applicable.

2.1.9 Summary of included economic evidence

No existing economic studies were included for this review question.

2.1.10 Economic model

No economic modelling was conducted for this review question.

2.1.11 Unit costs

Not applicable.

2.1.12 The committee's discussion and interpretation of the evidence

The committee discussion of the quantitative evidence and qualitative evidence are presented together.

2.1.12.1. The outcomes that matter most

Quantitative evidence

During the development of the review protocol, the committee identified a number of important outcomes such as people identified as overweight or obese, referral to weight management services and health related quality of life. Other important outcomes included adverse events such as stigma, eating disorders and disordered eating behaviours.

The committee consensus was that the direct measure of identification – the number of people identified – was the most important outcome for decision making. The committee were also interested in stigma as a factor in how often to take measurements and how to approach talking to people about weight. There was less focus on referral to weight management services and health related quality of life. The committee also noted that eating disorders and disordered eating can be prevalent in young people, particularly among women, however no quantitative evidence was found on this as an adverse event.

Qualitative evidence

Qualitative outcomes were individual perspectives, experiences, values, beliefs, preferences, views and considerations that describe the barriers and facilitators to identification of overweight and obesity. These outcomes covered 5 broad themes with 13 subthemes:

- Identification in general: tools and guidance; responsibility to identify
- Identification of an individual: confidence; competing priorities; which patients should be identified

- Raising the topic of weight with a patient: relationship between patient and HCP; framing as a health concern; stigma
- Discussing weight management: motivation; tailoring conversations; carers and support workers
- Referral and management: advice and planning; referrals

Evidence from the UK was considered more important than evidence from other countries. As there was a mixture of UK and international evidence for all themes, it was inferred that the international evidence was applicable to a UK setting. The committee were particularly interested in themes that described stigma and patient choice in weight management discussions, which they applied to the recommendations they created.

2.1.12.2 The quality of the evidence

The quantitative evidence was rated from low to moderate confidence using the GRADE criteria. Two out of the 3 studies were rated as moderate risk of bias, which resulted in the outcomes being downgraded. There were also issues with consistency as one of the outcomes had an I^2= 36% and another had an I^2 = 93%, which is likely a result of differences between the tools and how they were implemented. Despite this, the evidence showed a clear benefit of using these tools so the committee were satisfied with interpreting the evidence as favouring these interventions.

The committee were satisfied with the confidence ratings given to the qualitative evidence using the GRADE-CERQUAL criteria. The majority of the themes were rated as high confidence (6 themes) or moderate confidence (6 themes). There was 1 theme rated as low confidence. Themes were mostly downgraded due to minor concerns about coherence arising from conflicting or inconsistent views within the data. The committee felt this evidence base was strong enough to support recommendations made from it.

Although there was sufficient quantitative evidence of adequate quality to recommend using tools to prompt clinicians to address weight opportunistically, the committee felt that it was not appropriate to make a recommendation on this without specific tools available. They were also concerned that the quantitative evidence only covered one intervention type, but decided not to make a research recommendation as they did not have any other specific interventions to request further research on.

The committee also noted that both the quantitative and qualitative evidence was focused on healthcare settings. They felt it was important to also consider how social care and health advocates in the community could contribute to identification of overweight and obesity. The evidence was also limited in terms of age, as none of the studies looked at older adults. Although the review questions focused on people from minority ethnic family backgrounds, there were no quantitative studies that looked specifically at these populations and limited qualitative evidence addressing issues that affect them. Taking these limitations into account, the committee chose to draft a research recommendation. They felt that the lack of evidence on people from minority ethnic family backgrounds was the most important gap, so opted to focus solely on recommending further research on this population. Without any additional evidence to base changes on, they chose to retain the three existing recommendations on raising awareness among people from minority ethnic family backgrounds.

2.1.12.3 Benefits and harms

Current practice

A briefing for NICE guideline developers and committee members on obesity, weight management and health inequalities highlighted that the greatest rates of adult obesity are seen in the most deprived parts of the country. The difference is particularly pronounced for women, where 39% of women in the most deprived areas are obese, compared with 22% in

the least deprived areas. This disparity highlights the importance of identification and subsequent uptake of weight management services.

Existing NICE guidance states that healthcare professionals should use clinical judgement to decide when to measure a person's height and weight. Opportunities include when registering with a GP, consultations for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks.

Unlike for children and young people, the committee noted that there aren't established measurement programmes for adults, but the Quality Outcomes Framework (QOF) does recommend the establishment and maintenance of a register of patients aged 18 years or over with a BMI ≥30 in the preceding 12 months. Within health and social care practice, there is also a push towards making every contact count (MECC) which is a behaviour change approach that enables the opportunistic delivery of consistent and concise healthy lifestyle information and enables individuals to engage in conversations about their health.

While the quantitative evidence primarily focused on the use of electronic record tools, these tools do already form part of opportunistic identification. Also, as opportunistic identification is one of the main methods of identification, the committee wished to retain the existing recommendation but amend it to match current practice.

Opportunities for measurement

The committee debated how often people should be measured. Some members supported the idea of measurements be conducted routinely. The committee members also felt that height and weight are important parameters in a clinical setting, and that there are many reasons to regularly measure people (e.g., eating disorders and cancer etc.) beyond identifying overweight and obesity. The committee also hypothesised that if measurements are conducted more routinely, the stigma associated with being measured may be reduced. They also discussed what would constitute 'routine measurement' and whether this should be every 6 months, every year, or every appointment. However, there were concerns about adding further burden to the service by suggesting measurements should be taken at every appointment. The lived experiences of the committee members also highlighted that being regularly weighed by their GP was seen as unnecessary and humiliating, and they did not want to experience that further.

Some committee members also countered that it is inappropriate to measure at every contact. They were concerned about the stigma of addressing weight in situations where it wasn't relevant to the person or their condition. The qualitative evidence also showed that there are competing priorities in a clinical interaction which often meant that weight was not addressed. The committee agreed with this finding and highlighted that in practice, routine consultations do not allow enough time for weight to be discussed. However, they stated that the primary purpose of the appointment should always be prioritised. The committee also noted the evidence of diagnostic overshadowing, defined as the attribution of symptoms to an existing diagnosis rather than a potential co-morbid condition: in cases of opportunistic identification, people often felt that the issue they presented with was overshadowed by discussions of weight which could be stigmatising and unhelpful. Lay members confirmed that this was a very common experience and so suggested that avoiding diagnostic overshadowing should be explicitly included in the recommendations in order to reverse the trend.

Based on this discussion, the committee suggested that weight should be measured when it is clinically relevant rather than at every opportunity so that it can be addressed appropriately and respectfully. As previously mentioned, the QOF states that if someone has been identified as overweight or obese, they should be measured for 12 months. While the committee chose not to specify this in the recommendations, they wished to emphasise the importance of maintaining a record.

Existing NICE recommendations also stated that healthcare professionals should use clinical judgement to decide when to measure a person's height and weight. The committee discussed the phrase 'use clinical judgement' and concluded that professional judgement is more appropriate, as it applies to a wider range of roles. This judgement should take into consideration the context of the person's health, circumstances, openness to engage and the appropriateness of discussing weight. The qualitative evidence contained many accounts of negative experiences where healthcare providers did not take these contextual factors into account, so the committee felt that it was important to keep these issues at the forefront when making a professional judgement.

Based on these discussions the committee amended the existing recommendations to state that professional judgement should be used to decide when to record an up-to-date measure of a person's height and weight. As existing guidance also state that waist-to-height ratio can be used as a practical measure of central adiposity, the committee further amended the recommendation to state that waist circumference can also be measured in people with BMI below 35 kg/m^2 to enable waist-to-height ratio to be calculated. They also chose to expand upon what opportunities may be appropriate and to highlight the influence of social context and ethnicity, as these were common themes in the qualitative evidence.

Additionally, the committee recommended that before discussing weight, health and care professionals should talk about the condition first (e.g., patient coming in for hip pain) to avoid diagnostic overshadowing, and then use professional judgement to identify if it's an appropriate opportunity to have a discussion about weight.

Lastly, existing guidance encourages people with BMI below 35 kg/m^2 to assess their waist-to-height ratio as a method of assessing central adiposity and seeking advice and further clinical assessment if the measurements indicate increased risk. This could mean that health and care professionals may see more people wanting to discuss their results. Based on this understanding, the committee further recommended that health and care professionals should ensure that records are kept up to date for people who have self-referred to discuss their weight or health risks associated with central adiposity.

The committee noted that the updated recommendations should encourage health and care practitioners to consider maintaining an up-to-date record of a person's measurements. They also noted that the new recommendations are in line with advice provided in Public Health England's (PHE) guidance, which also promotes weight being measured and discussed as part of routine consultation.

Consent and taking measurements

The committee noted that is important to have the individual in mind when introducing conversations about weight and recognising when it is not appropriate. While the existing recommendation did focus on using clinical judgement, it did not mention the importance of consent. Therefore, the committee agreed that it is very important for healthcare professionals to ask permission before engaging in discussions on the degree of overweight, obesity and central adiposity.

The qualitative evidence demonstrated that the patients' consent and choice in whether to discuss weight was often seen as the deciding factor in whether to initiate a conversation. The committee agreed with this finding and felt it was important acknowledge that some people do not want to be weighed on any occasion, and that their wishes should be respected. Based on this understanding, the existing recommendation was amended to state that measurements should only be taken once consent is granted and that health and care professionals should seek permission before conducting any discussions about the degree of overweight or obesity.

Stigma and principle of care

The committee highlighted that there is stigma associated with being measured and with the subsequent discussions of results. The qualitative evidence highlighted that many patients had experiences where healthcare professionals had talked about their weight in an insensitive manner. These experiences had made them feel wary and defensive when weight was brought up in subsequent medical encounters. Qualitative evidence indicated that patients also felt that raising the subject of their weight in a clinical encounter, especially when it was not relevant was stigmatising.

Additionally, patients felt more comfortable when discussions were linked to health concerns as it took the focus away from their appearance and the social stigma of weight. However, patients did not trust BMI measures and saw a high BMI as insufficient reason to identify someone as overweight. They needed more direct evidence of how their weight was affecting their health to see the relevance of it.

The qualitative evidence also addressed the views of healthcare professionals. This evidence showed that healthcare professionals agreed that they had a responsibility to help prevent obesity, but some did state that they found it difficult to initiate conversations about weight. Those who lacked the confidence to discuss weight avoided addressing weight as they felt they could do more harm than good. They also felt that they didn't have enough knowledge or training on the subject of weight management and others felt they didn't have enough skills or experience in communicating sensitive issues.

The evidence also showed that the conversation, support or referral to weight loss services was often well received when the patient was motivated. If a patient was not motivated, the conservations were usually less productive. The evidence also highlighted how general practitioners adapted their discussions to a range of patients' knowledge, personal risks factors and previous weight management experience. Evidence also showed that factors such as physical disabilities, learning disabilities and cultural beliefs about weight should be considered during discussions.

Based on these findings and their understanding of practice, the committee highlighted the importance of outlining the ethos or key principles of care for health and care professionals. The committee outlined that before discussions take place about the degree of overweight and obesity, health and care professionals should take into account the context and appropriateness of the discussion or appointment and to respect someone's choice not to discuss their weight on this occasion as it may have been raised on numerous occasions.

Furthermore, the committee also mentioned that a potential unintended consequence of being measured is that it can have a profound effect of how the person feels about themselves and runs a risk of perpetuating or triggering over-emphasis on body image and size, as well as disordered eating or eating disorders. Based on this understanding the committee stressed the importance of ensuring that all discussions linked to the degree of overweight and obesity are conducted in a sensitive manner.

To further support health and care professionals, the committee outlined steps that can ensure conversations occur in a sensitive manner. This includes using, non-stigmatising language and preferred terms such as 'person living with obesity' and engaging with adults to identify their preferred terms. All forms of communication should also use non-stigmatising language and images.

The committee also stressed the importance of using a person-centred, solution-based approach during discussions which considers factors such as previous weight management experience, the level of readiness to engage, cultural, religious/faith and spiritual beliefs about overweight and obesity and being mindful of the barriers that prevent or restrict weight loss. The committee further stated that it is important for the focus of discussion to be on improvements in health as opposed to simply taking about weight.

Lastly, evidence demonstrated that in many areas there were either very few overweight or obesity services or healthcare professionals did not know what services there were. While the committee agreed the availability of overweight or obesity services is an issue in many areas across the UK, they also highlighted that it was important for health and care professionals involved in identification of overweight and obesity to be aware of the range of services are locally available.

The committee noted that these steps were important for the development of a trusting relationship between people and health and care professionals. They also noted by taking a positive and sensitive approach to measurement and subsequent discussion of weight would allow conversations to occur in a respectful manner. The committee also highlighted that these recommendations are in agreement with PHE guidance as well as guidance on a/the healthier weight competency framework produced by Health Education England which states that health and care staff that are involved with engaging with people about a healthier weight should be able to understand the stigma that is associated with weight, the impact this can have on people, be able to identify implications of the person's weight status and be able to discuss empathically and accurately.

While training is outside the remit of this update, the committee also noted that there are various resources that are available that provide further guidance on the steps healthcare professionals can take to discuss weight in a sensitive manner. This includes guidance produced by Obesity UK on language matters. There are also training courses produced by the Royal College of General Practitioners (RCGP) which explore the effect of weight stigma in children and by World Obesity Federation which explore how to raise the issue about obesity with patients. Additionally, there are webinars available such as those produced by the European Association for the Study of Obesity (EASO) which also focus on how healthcare professionals should talk about weight.

2.1.12.4 Cost effectiveness and resource use

No health economic studies were identified for this question.

The committee made a recommendation to use professional judgement to decide when to record weight and height of a person. The more inclusive term "professional judgement" will allow a wider range of practitioners to make their decisions on weight and height measurement based on a variety of clinical and personal considerations. The committee made additional recommendations to tackle issues related with stigma by highlighting the importance of taking into account the context, socio-economic background and ethnicity.

Overall, the new recommendations are not expected to increase NHS resource significantly. It is possible that weight and height will be measured more often following the recommendation, thus possibly increasing the length of appointments. However, the more flexible approach is expected to lead to more appropriate measurements enhancing NHS efficiency in the identification of people who are overweight or obese. Moreover, the additional recommendations tackling stigma are expected to reduce people's distress during visits and routine health checks which will improve their quality of life and reduce their likelihood of not attending follow-up appointments.

2.1.12.5 Other factors the committee took into account

Wider determinants and the context of overweight and obesity

Upon discussion of the wider evidence base from reviews 1.3, 1.4, and in line with the recommendations made for children and young people, the committee drafted an overarching recommendation in the principles of care to think about the wider determinants and the context of overweight and obesity. This recommendation included a non-exhaustive

list of examples to encourage consideration of overweight and obesity as a complex health issue which requires a holistic approach. The committee chose to use this as both a standalone recommendation and a recommendation to cross-refer to throughout the guideline when these factors are relevant.

People from minority ethnic family backgrounds

Although the review question focused particularly on people from minority ethnic family backgrounds, there were no quantitative studies that looked at these groups specifically and very little qualitative evidence on their experiences. The committee looked at the equality impact assessment and considered how the recommendations may affect people from different minority ethnic family backgrounds.

They highlighted that the new recommendations were applicable for people from minority ethnic family backgrounds as the core principles of these recommendations were demonstrating sensitivity and using a person-centred approach which takes ethnicity into consideration. The committee also noted that there is need to spread awareness amongst health and care professionals as well as the public of the increased risk people from minority ethnic family backgrounds face at a lower BMI.

Based on this understanding the committee retained existing NICE recommendations which promote this understanding and as well as recommendations that promote the use of existing local information networks to share information on the increased risks these group face at a lower BMI.

People with disabilities, learning disabilities and neurodevelopmental disabilities

There was some evidence of additional challenges in identifying overweight in people with learning disabilities due to communication difficulties or continuity of care with support workers. The committee felt that people with disabilities, learning disabilities and neurodevelopmental disabilities were adequately covered by the recommendations they drafted and would additionally be identified during regular specialist health checks.

Furthermore, it was highlighted that there are existing NICE guidelines that can help health and care professionals plan the care for people with learning disabilities and neurodevelopment disabilities. These include guidance on learning disabilities and behaviour that challenges: service design and delivery (NG93), care and support for people growing older with learning disabilities (NG96), autism spectrum disorder in adults: diagnosis and management (CG142) which can help healthcare professionals.

Older adults

No qualitative or quantitative evidence was identified on the identification of people from older age groups, however their individual needs and circumstances should be considered using a person centred approach, which is highlighted in the recommendations.

2.1.13 Recommendations supported by this evidence review

This evidence review supports recommendations 1.1.1 to 1.1.5, 1.8.1 to 1.8.3, 1.9.1 to 1.9.4, 1.10.1, 1.11.5 to 1.11.11 and the research recommendations outlined in appendix K.

2.1.14 References – included studies

2.1.14.1 Effectiveness

Lee, Nam-Ju, Chen, Elizabeth S, Currie, Leanne M et al. (2009) The effect of a mobile clinical decision support system on the diagnosis of obesity and overweight in acute and primary care encounters. ANS. Advances in nursing science 32(3): 211-21

Tang, Joyce W, Kushner, Robert F, Cameron, Kenzie A et al. (2012) Electronic tools to assist with identification and counseling for overweight patients: a randomized controlled trial. Journal of general internal medicine 27(8): 933-9

Wee, Christina C., Baer, Heather J., Orav, Endel J. et al. (2016) Use of electronic health records for addressing overweight and obesity in rimary care: Results from a cluster-randomized controlled trial. Journal of General Internal Medicine 31(2suppl1): 452-s453

2.1.14.2 Qualitative evidence

Atlantis, Evan, John, James Rufus, Fahey, Paul Patrick et al. (2021) Clinical usefulness of brief screening tool for activating weight management discussions in primary cARE (AWARE): A nationwide mixed methods pilot study. PloS one 16(10): e0259220

Beeken, Rebecca J., Scott, Anna M., Sims, Rebecca et al. (2021) A Community Jury on initiating weight management conversations in primary care. Health expectations : an international journal of public participation in health care and health policy 24(4): 1450-1458

Blackburn M, Stathi A, Keogh E et al. (2015) Raising the topic of weight in general practice: perspectives of GPs and primary care nurses. BMJ open 5(8): e008546

Doherty, Alison J, Jones, Stephanie P, Chauhan, Umesh et al. (2019) Healthcare practitioners' views and experiences of barriers and facilitators to weight management interventions for adults with intellectual disabilities. Journal of applied research in intellectual disabilities : JARID 32(5): 1067-1077

Glenister KM; Malatzky CA; Wright J (2017) Barriers to effective conversations regarding overweight and obesity in regional Victoria. Australian family physician 46(10): 769-773

Gunther, Stephen, Guo, Fenglin, Sinfield, Paul et al. (2012) Barriers and enablers to managing obesity in general practice: a practical approach for use in implementation activities. Quality in primary care 20(2): 93-103

Holmgren, Marianne, Sandberg, Magnus, Ahlstrom, Gerd et al. (2019) To initiate the conversation-Public health nurses' experiences of working with obesity in persons with mobility disability. Journal of Advanced Nursing 75(10): 2156-2166

Phillips, Katie; Wood, Fiona; Kinnersley, Paul (2014) Tackling obesity: the challenge of obesity management for practice nurses in primary care. Family practice 31(1): 51-9

Appendices

Appendix A – Review protocols

Review protocol for identifying overweight and obesity

1.	Review title	Identifying effective approaches for identifying overweight and obesity in adults and in children and young people. Identifying barriers to and facilitators for identifying overweight and obesity in adults and in children and young people.

2.	Review question	1.3 a) What approaches are effective and cost-effective in identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups? 1.3 b) What approaches are effective and cost-effective in identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups? 1.3 c) What are the barriers and facilitators to identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups? 1.3 d) What are the barriers and facilitators to identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups?

3.	Objective	Identifying the most effective and cost-effective approaches for identifying overweight and obesity in adults and in children and young people, particularly those in black, Asian and minority ethnic groups. Identifying barriers and facilitators to identifying overweight and obesity in adults and in children and young people, particularly those in black, Asian and minority ethnic groups, and increasing their uptake to weight management services.

4.	Searches	Databases to be searched:
		• Medline/MIP/MEP
		• Embase
		• Cochrane CDSR/CENTRAL
		• HMIC
		• SPP
		• PsycInfo
		
		Searches will be restricted by:
		• English language
		• Human studies
		• Systematic reviews
		  • UK and OECD countries
		  • Date: 2000 – current
		• Experimental studies (e.g.RCT/Controlled trials)
		  • UK and OECD countries
		  • Date: 2000 – current
		• Observational studies (as needed)
		  • UK and OECD countries
		  • Date: 2000 – current
		• Qualitative studies
		  • Country limit: UK. Expand to Australia, Canada, Ireland, the Netherlands and Scandinavia (Denmark, Norway, and Sweden) if insufficient UK studies are found.
		  • Date limit: 2010 - current
		• Mixed method studies
		  • Country limit: UK. Expand to Australia, Canada, Ireland, the Netherlands, and Scandinavia (Denmark, Norway, and Sweden) if insufficient UK studies are found.

		• Date limit: 2010 - current The searches will be re-run 6 weeks before final submission of the review and further studies retrieved for inclusion. The full search strategies for MEDLINE database will be published in the final review.
5.	Condition or domain being studied	Weight management / obesity management
6.	Population	**Inclusion for RQ1.3a and 1.3c** • Children and young people aged under 18 years Where possible, evidence will be stratified by ethnicity: o White o Black African/ Caribbean o Asian (South Asian, Chinese, any other Asian background) o Other ethnic groups (Arab, any other ethnic group) o Multiple/mixed ethnic group Further stratification within this group will be informed by the analysis undertaken in the included studies. Studies that do not stratify by ethnic group will not be excluded though. • Parents and carers • Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services. **Inclusion for RQ1.3b and 1.3d** • Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: • White • Black African/ Caribbean • Asian (South Asian, Chinese, any other Asian background) • Other ethnic groups (Arab, any other ethnic group) • Multiple/mixed ethnic group Further stratification within this group will be informed by the analysis undertaken in the included studies. Studies that do not stratify by ethnic group will not be excluded though.

		• Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services. **Exclusion:** • People whose body weight is below the healthy range (underweight) • Pregnant women • Children under the age of 2 years • 1.3a and 1.3c only: People aged 18 years and over • 1.3b and 1.3d only: Children and young people under 18 years

7.	Intervention	**<u>1.3a and d) Methods of identification:</u>**
		• **Opportunistic identification, including but not confined to:**
		  ○ When registering with GP
		  ○ When receiving consultation for health conditions (e.g., chronic health conditions)
		  ○ During routine check-up/ annual check-up (delivered by GPs, nurses or pharmacists, social care staff)
		  ○ During medication check (e.g., contraception pill check)
		  ○ During vaccination appointments
		  ○ Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments)
		
		• **Active case finding** (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to:
		  ○ Review of medical records
		  ○ Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers)
		  ○ audits of other services (e.g. disability services or endocrinology services)
		• **Self-identification or referral**
		• **Parent/ carer-initiated identification or referral**
		• **School nurse/ teacher / health visitor / social services-initiated identification or referrals**
		
		1.3b and 1.3d) Methods of identification
		• **Opportunistic identification, including but not confined to:**
		  ○ When registering with GP
		  ○ When receiving consultation for health conditions (e.g., chronic health conditions)
		  ○ During routine check up/ annual check-ups (delivered by GPs, nurses, pharmacists and social care staff)

		○ During medication checks (e.g. contraception pill check) ○ During vaccination appointments ○ Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments) • **Active case finding** (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to: ○ Review of medical records ○ Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers) ○ audits of other services (e.g. disability services or endocrinology services) • Receiving or received interventions for example brief physical activity advice, diabetes prevention programme, smoking cessation programme, counselling for low calorie diets (delivered by GPs, nurses, pharmacists, activity providers) • Self-identification or referral • Carer initiated identification or referral
8.	Comparator/Reference standard/Confounding factors	<u>Quantitative review</u> • No intervention/usual care • Comparison of interventions <u>Qualitative review</u> Not applicable
9.	Types of study to be included	<u>Quantitative review</u> • Systematic reviews of included study designs • RCTs • Observational studies (cohort studies) • Mixed methods studies (quantitative evidence that matches the above study designs only) **A stepped approach will be used to select quantitative studies:** • Systematic reviews and RCTs will be prioritised. • Then, if there is insufficient evidence, observational studies (cohort studies) will be included as needed. <u>Qualitative review</u>

		• Systematic reviews of included study designs • Qualitative studies that collect data from focus groups and interviews. • Qualitative studies that collect data from open-ended questions from questionnaires • Mixed method study designs (qualitative evidence that matches the above study designs only) **A stepped approach will be used to select qualitative studies:** • UK studies will be prioritised • If there is insufficient UK evidence in some areas, studies based in Australia, Canada, Ireland, the Netherlands and Scandinavia (Denmark, Norway, and Sweden) will be included because they also have universal healthcare and similar populations to the UK. • Interview and focus group study designs will be prioritised. • If there is insufficient evidence from interviews and focus groups, studies using questionnaires with open-ended questions will be included. There is no strict definition of insufficient evidence, but in discussion with the guideline committee we will consider whether we have enough to form the basis for a recommendation.
10.	Other exclusion criteria	• Non-English language studies • Quantitative studies published prior to 2000 • Qualitative studies published prior to 2010 • Non-OECD • Conference abstracts • Narrative reviews • Studies with samples who are already engaged in weight-loss interventions • Studies evaluating weight management programmes • Studies focusing on training needs.
11.	Context	This review is part of an update of the NICE guideline for weight management: preventing, assessing and managing overweight and obesity (update). Specifically, the questions in this protocol seek to update elements from obesity: identification, assessment and management (2014) NICE guideline CG189, weight management: lifestyle services for overweight or obese adults (2014) NICE guideline PH53, weight management: lifestyle services for overweight or obese children and young people (2013) NICE guideline PH47 and obesity prevention (2006) NICE guideline CG43. Central adiposity is a risk factor for development of CVD, type 2 diabetes, hypertension, dyslipidaemia or some type of cancer in children and young people. Currently, people who are overweight, or living with obesity are identified through the healthcare

		system opportunistically. There is concern that relying on opportunistic identification, rather than active case finding, increases the likelihood that conditions such as type 2 diabetes will be under-diagnosed in black, Asian and other minority groups whose risk of these conditions is increased at a lower BMI and waist circumference than the general population. The questions this protocol seeks to investigate: 1) What approaches are effective and cost-effective in identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups? 2) What approaches are effective and cost-effective in identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups? 3) What are the barriers and facilitators to identifying overweight and obesity in children and young people, particularly those in black, Asian and minority ethnic groups? 4) What are the barriers and facilitators to identifying overweight and obesity in adults, particularly those in black, Asian and minority ethnic groups?

12.	Primary outcomes (critical outcomes)	**RQ1.3a and RQ1.3c:**
		
		Quantitative review
		• Number of children and young people identified as overweight or obese
		• Referral to weight management service
		• Health-related quality of life
		
		Qualitative review
		Barriers and facilitators to the identification and engagement of overweight and obese children and young people. These may include:
		• Thoughts, views and perceptions of individuals, parents or carers
		• Thoughts of staff undertaking identification of children and young people who are living with overweight and obesity
		  ○ Issues relating to education
		  ○ Issues relating to stigma
		  ○ Issues relating to self-esteem
		  ○ Issues relating to cultural sensitivities
		
		RQ1.3b and RQ1.3d:
		• Number of people identified as overweight or obese
		• Referral to weight management service
		
		Barriers and facilitators to the identification and engagement of overweight and obese people including, but not limited to:

		• Thoughts, views and perceptions of individuals or carers • Thoughts of staff undertaking identification of people who are living with overweight of obesity • Issues relating to education • Issues relating to stigma • Issues relating to self-esteem • Issues relating to cultural sensitivities

13.	Secondary outcomes (important outcomes)	• Adverse events:
		  ○ Eating disorders or disordered eating
		  ○ Stigma (including self-stigma and negative body image as defined in studies)

14.	Data extraction (selection and coding)	• All references identified by the searches and from other sources will be uploaded into EPPI reviewer and de-duplicated. 10% of the abstracts will be reviewed by two reviewers, with any disagreements resolved by discussion or, if necessary, a third independent reviewer. • This review will make use of the priority screening functionality within the EPPI-reviewer software. A stopping criteria will also be used. We will sift at least 60% of the database. After that we will stop screening if a further 5% (of the total records) of the records are sifted and not included. • The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4). Study investigators may be contacted for missing data where time and resources allow.
15.	Risk of bias (quality) assessment	Risk of bias will be assessed using an preferred checklist as described in Developing NICE guidelines: the manual.
16.	Strategy for data synthesis	• A mixed methods approach with be used to address questions 1.3 and 1.4 in conjunction. • The quantitative (RQ1.3) and qualitative (RQ1.4) reviews will be conducted separately (segregated study design) but at the same time. The evidence from the reviews will then be analysed in relation to each other (convergent synthesis of results). (See below for more details. The findings will **not** be integrated by transforming one type of evidence into the other (e.g. quantitative findings into qualitative findings).

		Quantitative review: • For the quantitative component, data will be extracted from quantitative and mixed methods (quantitative component only) studies. Where possible, meta-analyses of outcome data will be conducted for all comparators that are reported by more than one study, with reference to the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al. 2011). Data will be separated into the groups identified in section 17. • Continuous outcomes will be analysed as mean differences, unless multiple scales are used to measure the same factor. In these cases, standardised mean differences will be used instead. Pooled relative risks will be calculated for dichotomous outcomes (using the Mantel–Haenszel method) reporting numbers of people having an event. Absolute risks will be presented where possible. • Fixed- and random-effects models (der Simonian and Laird) will be fitted for all comparators, with the presented analysis dependent on the degree of heterogeneity in the assembled evidence. Fixed-effects models will be deemed to be inappropriate if one or both of the following conditions is met: o Significant between study heterogeneity in methodology, population, intervention or comparator was identified by the reviewer in advance of data analysis. o The presence of significant statistical heterogeneity in the meta-analysis, defined as I2≥50%. • In any meta-analyses where some (but not all) of the data comes from studies at high risk of bias, a sensitivity analysis will be conducted, excluding those studies from the analysis. Results from both the full and restricted meta-analyses will be reported. Similarly, in any meta-analyses where some (but not all) of the data comes from indirect studies, a sensitivity analysis will be conducted, excluding those studies from the analysis. • GRADE will be used to assess the quality of the outcomes. Outcomes using evidence from RCTs, non-randomised trials and cohort studies will be rated as high quality initially and downgraded from this point. Controlled before and after studies and interrupted time series will be rated as low quality initially. Reasons for upgrading the certainty of the evidence will also be considered.

		• Where 10 or more studies are included as part of a single meta-analysis, a funnel plot will be produced to graphically assess the potential for publication bias. • Meta-analyses will be carried out separately for each study type per outcome, but the similarities and differences between the results obtained from the different study types will be noted. • Critical quantitative outcomes will be prioritised for mixed method approach, depending on the evidence identified. **Qualitative review:** • Where multiple qualitative studies are identified for a single question, information from the studies will be combined using a thematic synthesis. By examining the findings of each included study, themes will be independently identified and coded in NVivo release 1.5.1. • Once all of the included studies have been examined and coded, the resulting themes and sub-themes will be evaluated to examine their relevance to the review question, the importance given to each theme, and the extent to which each theme recurs across the different studies. The qualitative synthesis will use these themes to develop an analytical interpretation of the evidence with regard to the overarching review questions. • CERQual will be used to assess the confidence we have in the summary findings of each of the identified themes. Evidence from all qualitative study designs (interviews, focus groups etc.) is initially rated as high confidence and the confidence in the evidence for each theme will be downgraded from this initial point. • If there are more than 20 studies included in the review, we will use the Ames et al. (2019) approach to prioritise evidence. <u>Synthesising the findings of mixed method reviews.</u> • Where mixed methods studies are identified that present data in a form that cannot be extracted and analysed separately as quantitative and qualitative data, the results of the studies will be reported separately for each study. Any

		correlations or discrepancies between the findings of the mixed methods studies and the syntheses of the quantitative and qualitative findings of the above analyses will be noted. <u>Mixed method synthesis of findings from the quantitative and qualitative reviews</u> • A convergent segregated approach will be used the synthesise and integrate the qualitative and quantitative aspects of the reviews, where sufficient data has been identified to enable this. Where appropriate, a synthesis matrix will be produced to combine results from the two different analytical approaches. Findings from one analytical approach will be compared to findings from the second approach, and outcomes paired up if they provided relevant information on the same underlying topic for example, barriers to identification may be paired up with interventions that address these barriers. The agreement between the findings of the two approaches will be qualitatively assessed, with each paired set of findings put into categories relating to the strength of the identified correlation. The 5 questions required by JBI for convergent segregated integration approach will be systematically applied. • The results may be presented as a concept diagram which will summarise the quantitative findings mapped onto the qualitative ones, if this is thought to be informative.

17.	Analysis of sub-groups	Results will be separated into the following for analysis:
		
		System levels:
		• service provider level (for example GP practices, practitioners, WM service providers, other professionals)
		• individual level (individuals, parents and carers)
		• mixed levels
		
		Where possible stratification by the following sub-groups will be undertaken:
		
		• Ethnicity (as detailed in section 6)
		• Age:
		  ○ Children aged 2 up to 5 years (Early years)
		  ○ Children aged 6 up to 11 years (Primary school)

		○ Children and young people aged 12 up to 16 years (Secondary school) ○ Young people aged 17 up to 18 years (post-16 education) ○ Younger adults ○ Older adults • Sex • People with learning and physical disabilities • People with chronic disease affecting mobility (e.g., neurological, musculoskeletal, and respiratory conditions) • People with serious mental illness • Socioeconomic group • Index of multiple deprivation • Intensity and/or duration of intervention • Setting of delivery (e.g., hospitals, GP practice, residential homes) • Severity of obesity • Women with previous gestational diabetes
18.	Type and method of review	☒ Intervention ☐ Diagnostic ☐ Prognostic ☒ Qualitative ☐ Epidemiologic ☐ Service Delivery ☒ Other (mixed methods)
19.	Language	English
20.	Country	England

See methods document

Appendix B - Literature search strategies

Search design and peer review

A NICE information specialist conducted the literature searches for the evidence review. The clinical searches were run on 21st January and 24th January. The searches were re-run on 12th and 13th April 2023. The cost-effective searches were run on 1st and 2nd February. This search report is compliant with the requirements of PRISMA-S.

The MEDLINE strategy below was quality assured (QA) by a trained NICE information specialist. All translated search strategies were peer reviewed to ensure their accuracy. Both procedures were adapted from the 2016 PRESS Checklist.

The principal search strategy was developed in MEDLINE (Ovid interface) and adapted, as appropriate, for use in the other sources listed in the protocol, taking into account their size, search functionality and subject coverage.

Review management

The search results were managed in EPPI-Reviewer v5. Duplicates were removed in EPPI-R5 using a two-step process. First, automated deduplication is performed using a high-value algorithm. Second, manual deduplication is used to assess 'low-probability' matches. All decisions made for the review can be accessed via the deduplication history.

Prior work

A set of 13 test papers were supplied by the analysts and the committee.

Limits and restrictions

English language limits were applied in adherence to standard NICE practice and the review protocol.

Limits to exclude letters, editorials, news, conferences were applied in adherence to standard NICE practice and the review protocol.

The search was limited from 2000 to 2022, for systematic reviews, RCTs and observational studies. The search was limited from 2010 to 2022 for qualitative studies, as defined in the review protocol.

The limit to remove animal studies in the searches was the standard NICE practice, which has been adapted from: Dickersin, K., Scherer, R., & Lefebvre, C. (1994). Systematic Reviews: Identifying relevant studies for systematic reviews. *BMJ*, 309(6964), 1286.

Search filters

Clinical/public health searches

- RCT filters:
  - McMaster Therapy – Medline - "best balance of sensitivity and specificity" version.
    Haynes RB et al. (2005) Optimal search strategies for retrieving scientifically strong studies of treatment from Medline: analytical survey. *BMJ*, 330, 1179-1183.

  - McMaster Therapy – Embase "best balance of sensitivity and specificity" version.

    Wong SSL et al. (2006) Developing optimal search strategies for detecting clinically sound treatment studies in EMBASE. Journal of the Medical Library Association, 94(1), 41-47.

- Systematic reviews filters:
  - Lee, E. et al. (2012) An optimal search filter for retrieving systematic reviews and meta-analyses. *BMC Medical Research Methodology,* 12(1), 51.

    In MEDLINE, the standard NICE modifications were used: pubmed.tw added; systematic review.pt added from MeSH update 2019.

    In Embase, the standard NICE modifications were used: pubmed.tw added to line medline.tw.

- Observational filter:
  - The terms used for observational studies are standard NICE practice that have been developed in house.
  - The observational filter was adapted to remove controlled studies, cross-sectional studies, case series studies.

- OECD filter:
  - The OECD countries filters were used without modification:

  - Ayiku, L., Hudson, T., Williams, C., Levay, P., & Jacobs, C. (submitted for publication) The NICE OECD countries geographic search filters: Part 2 - Validation of the MEDLINE and Embase (Ovid) filters. *Journal of the Medical Library Association* (in peer review)

- Qualitative filter:
  - The terms used for qualitative studies are standard NICE practice that have been developed in house.

Cost effectiveness searches

The NICE cost utility (specific) filter was applied to the Medline and Embase searches to identify cost utility studies.

- Cost Utility filter is available via the ISSG search filters resource

Key decisions

For qualitative studies, the date limit was amended to 2010-2022. For systematic reviews, RCTs and observational studies, the search was limited from 2000-2022. Non-OECD countries were excluded from both sets of results, for Medline and Embase searches only.

The Medline and Embase searches were split into two files, one for qualitative studies and one containing SR, RCTs and observational studies – this was to allow the analysts to limit by study type within EPPI.

The results for RQ1.3 were imported into the same EPPI review as RQ1.4, this was to reduce the number of duplicates between both sets of results.

The searches were translated from the Medline search strategy. If a MeSH term or alternative was not available, the term was not included in that translation. For instance, Obesity Management/ was not used in the Cochrane search.

The HMIC and SPP searches did not include any subject headings, instead heading words were searched using the method outlined in Finnegan, A and Levay, P (2021) Translated search strategies may require truncated subject headings for efficient public health retrieval. *Health Information and Libraries Journal*

3 additional papers were added after the main search by the analyst. The papers were identified by citation searching.

DARE (CRD) was not searched as it contains historical information. This review question was interested in recently published evidence.

The database searches were re-run on 12th and 13th April 2023.

For the cost utility searches, a modified version of the searches was run in INAHTA and NHS EED. This decision was taken because the search strategy is complex and the search functionality in both databases would not be compatible.

Clinical/public health searches

Main search – Databases

• Database	• Date searched	• Database platform	• Database segment or version	• No. of results downloaded
Medline	21/01/2022	OVID	1946 to January 20, 2022	Qualitative -2180 SR/RCT/Observational - 3504
Medline in process	21/01/2022	OVID	1946 to January 20, 2022	31
Medline ePub ahead	21/01/2022	OVID	January 20, 2022	29
Embase	21/01/2022	OVID	1974 to 2022 January 20	Qualitative -3424 SR/RCT/Observational - 5227
Health Management Information Consortium (HMIC)	24/01/2022	OVID	1979 to November 2021	143
Social Policy and Practice (SPP)	24/01/2022	OVID	202201	69
PsycInfo	24/01/2022	OVID	1987 to January Week 3 2022	5537
Cochrane CDSR	21/01/2022	Wiley	Issue 1 of 12, January 2022	17
Cochrane CENTRAL	21/01/2022	Wiley	Issue 1 of 12, January 2022	2053

Re-run search – Databases

Database	Date searched	Database platform	Database segment or version	No. of results downloaded
Medline	12/04/2023	OVID	1946 to April 12, 2023	Qualitative - 110 SR/RCT/Observational - 171
Medline in process	12/04/2023	OVID	1946 to April 12, 2023	0
Medline ePub ahead	12/04/2023	OVID	April 12, 2023	Qualitative - 14 SR/RCT/Observational - 13
Embase	12/04/2023	OVID	1974 to 2023 April 12	Qualitative - 383 SR/RCT/Observational - 579
Health Management Information Consortium (HMIC)	12/04/2023	OVID	1979 to January 2023	1
Social Policy and Practice (SPP)	12/04/2023	OVID	202301	17
PsycInfo	12/04/2023	OVID	2002 to April Week 1 2023	406
Cochrane CDSR	13/04/2023	Wiley	Issue 4 of 12, April 2023	2
Cochrane CENTRAL	13/04/2023	Wiley	Issue 4 of 12, April 2023	139

Search strategy history

Database name: Medline

1 Weight Reduction Programs/ (2658)

2 exp *obesity/ or overweight/ or Obesity Management/ (186290)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (309636)

4 or/2-3 (336913)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (11425)

6 4 and 5 (8939)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3231)

8 1 or 6 or 7 (13083)

9 exp *Obesity/di, pc or *Overweight/di, pc (14964)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (435)

11 or/9-10 (15272)

12 8 or 11 (26353)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (101388)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (48179)

15 (case-find* or active-case*).ti,ab. (6233)

16 self care/ or self-management/ (38709)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (183140)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (665840)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (83864)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (6008)

21 Mass Screening/ (111647)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (76168)

23 school health services/ or school nursing/ (22306)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (64735)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (22301)

26 exp Family/ (346379)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (63309)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (64242)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (125200)

30 Home Nursing/ or Home Care Services/ (42842)

31 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (17773)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2123)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (37486)

34 or/13-33 (1814809)

35 12 and 34 (6925)

36 limit 35 to english language (6719)

37 animals/ not humans/ (4912184)

38 36 not 37 (6703)

39 limit 38 to ed=20000101-20221231 (6460)

40 limit 38 to ed=20100101-20221231 (5218)

41 Qualitative Research/ (71057)

42 Nursing Methodology Research/ (16404)

43 Interview.pt. (29252)

44 exp Interviews as Topic/ (66659)

45 Questionnaires/ (524195)

46 Narration/ (9459)

47 Health Care Surveys/ (33820)

48 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (1475112)

49 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (96027)

50 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (10630)

51 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (1617)

52 "critical interpretive synthes*".tw. (112)

53 (realist adj (review* or synthes*)).tw. (558)

54 (noblit and hare).tw. (74)

55 (meta adj (method or triangulation)).tw. (32)

56 (CERQUAL or CONQUAL).tw. (220)

57 ((thematic or framework) adj synthes*).tw. (1058)

58 or/41-57 (1687537)

59 40 and 58 (2291)

60 Observational Studies as Topic/ (7380)

61 Observational Study/ (119126)

62 Epidemiologic Studies/ (8971)

63 exp Case-Control Studies/ (1274562)

64 exp Cohort Studies/ (2282419)

65 Comparative Study.pt. (1907076)

66 case control$.tw. (126463)

67 (cohort adj (study or studies)).tw. (221163)

68 cohort analy$.tw. (8472)

69 (follow up adj (study or studies)).tw. (48575)

70 (observational adj (study or studies)).tw. (110576)

71 longitudinal.tw. (240704)

72 prospective.tw. (565128)

73 retrospective.tw. (538883)

74 or/60-73 (4458821)

75 randomized controlled trial.pt. (556026)

76 randomi?ed.mp. (891783)

77 placebo.mp. (211820)

78 or/75-77 (946506)

79 (MEDLINE or pubmed).tw. (214279)

80 systematic review.tw. (168603)

81 systematic review.pt. (178926)

82 meta-analysis.pt. (150882)

83 intervention$.ti. (147478)

84 or/79-83 (477420)

85 39 and (74 or 78 or 84) (3632)

86 afghanistan/ or africa/ or africa, northern/ or africa, central/ or africa, eastern/ or "africa south of the sahara"/ or africa, southern/ or africa, western/ or albania/ or algeria/ or andorra/ or angola/ or "antigua and barbuda"/ or argentina/ or armenia/ or azerbaijan/ or bahamas/ or bahrain/ or bangladesh/ or barbados/ or belize/ or benin/ or bhutan/ or bolivia/ or borneo/ or "bosnia and herzegovina"/ or botswana/ or brazil/ or brunei/ or bulgaria/ or burkina faso/ or burundi/ or cabo verde/ or cambodia/ or cameroon/ or central african republic/ or chad/ or exp china/ or comoros/ or congo/ or cote d'ivoire/ or croatia/ or cuba/ or "democratic republic of the congo"/ or cyprus/ or djibouti/ or dominica/ or dominican republic/ or ecuador/ or egypt/ or el salvador/ or equatorial guinea/ or eritrea/ or eswatini/ or ethiopia/ or fiji/ or gabon/ or gambia/ or "georgia (republic)"/ or ghana/ or grenada/ or guatemala/ or guinea/ or guinea-bissau/ or guyana/ or haiti/ or honduras/ or independent state of samoa/ or exp india/ or indian ocean islands/ or indochina/ or indonesia/ or iran/ or iraq/ or jamaica/ or jordan/ or kazakhstan/ or kenya/ or kosovo/ or kuwait/ or kyrgyzstan/ or laos/ or lebanon/ or liechtenstein/ or lesotho/ or liberia/ or libya/ or madagascar/ or malaysia/ or malawi/ or mali/ or malta/ or mauritania/ or mauritius/ or mekong valley/ or melanesia/ or micronesia/ or monaco/ or mongolia/ or montenegro/ or morocco/ or mozambique/ or myanmar/ or namibia/ or nepal/ or nicaragua/ or niger/ or nigeria/ or oman/ or pakistan/ or palau/ or exp panama/ or papua new guinea/ or paraguay/ or peru/ or philippines/ or qatar/ or "republic of belarus"/ or "republic of north macedonia"/ or romania/ or exp russia/ or rwanda/ or "saint kitts and nevis"/ or saint lucia/ or "saint vincent and the grenadines"/ or "sao tome and principe"/ or saudi arabia/ or serbia/ or sierra leone/ or senegal/ or seychelles/ or singapore/ or somalia/ or south africa/ or south sudan/ or sri lanka/ or sudan/ or suriname/ or syria/ or taiwan/ or tajikistan/ or tanzania/ or thailand/ or timor-leste/ or togo/ or tonga/ or "trinidad and tobago"/ or tunisia/ or turkmenistan/ or uganda/ or ukraine/ or united arab emirates/ or uruguay/ or uzbekistan/ or vanuatu/ or venezuela/ or vietnam/ or west indies/ or yemen/ or zambia/ or zimbabwe/ (1193249)

87 "organisation for economic co-operation and development"/ (411)

88 australasia/ or exp australia/ or austria/ or baltic states/ or belgium/ or exp canada/ or chile/ or colombia/ or costa rica/ or czech republic/ or exp denmark/ or estonia/ or europe/ or finland/ or exp france/ or exp germany/ or greece/ or hungary/ or iceland/ or ireland/ or israel/ or exp italy/ or exp japan/ or korea/ or latvia/ or lithuania/ or luxembourg/ or mexico/ or netherlands/ or new zealand/ or north america/ or exp norway/ or poland/ or portugal/ or exp "republic of korea"/ or "scandinavian and nordic countries"/ or slovakia/ or slovenia/ or spain/ or sweden/ or switzerland/ or turkey/ or exp united kingdom/ or exp united states/ (3374331)

89 european union/ (17062)

90 developed countries/ (21041)

91 or/87-90 (3389530)

92 86 not 91 (1106684)

93 59 not 92 (2180)

94 85 not 92 (3504)

95 59 and 92 (111)

96 85 and 92 (128)

Database name: Medline in process

1 Weight Reduction Programs/ (0)

2 exp *obesity/ or overweight/ or Obesity Management/ (0)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (3980)

4 or/2-3 (3980)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (133)

6 4 and 5 (97)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (45)

8 1 or 6 or 7 (137)

9 exp *Obesity/di, pc or *Overweight/di, pc (0)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (7)

11 or/9-10 (7)

12 8 or 11 (144)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (0)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (578)

15 (case-find* or active-case*).ti,ab. (44)

16 self care/ or self-management/ (0)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (2279)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (0)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (811)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (68)

21 Mass Screening/ (0)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1127)

23 school health services/ or school nursing/ (0)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (671)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (250)

26 exp Family/ (0)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (629)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (874)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1588)

30 Home Nursing/ or Home Care Services/ (0)

31 ((home* or resident* or residenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (202)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (23)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (411)

34 or/13-33 (8666)

35 12 and 34 (30)

36 limit 35 to english language (30)

37 animals/ not humans/ (0)

38 36 not 37 (30)

39 limit 38 to dt=20000101-20221231 (30)

40 limit 38 to dt=20100101-20221231 (30)

41 Qualitative Research/ (0)

42 Nursing Methodology Research/ (0)

43 Interview.pt. (63)

44 exp Interviews as Topic/ (0)

45 Questionnaires/ (0)

46 Narration/ (0)

47 Health Care Surveys/ (0)

48 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (14194)

49 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (1810)

50 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (49)

51 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (28)

52 "critical interpretive synthes*".tw. (6)

53 (realist adj (review* or synthes*)).tw. (18)

54 (noblit and hare).tw. (3)

55 (meta adj (method or triangulation)).tw. (1)

56 (CERQUAL or CONQUAL).tw. (13)

57 ((thematic or framework) adj synthes*).tw. (32)

58 or/41-57 (15150)

59 40 and 58 (11)

60 Observational Studies as Topic/ (0)

61 Observational Study/ (0)

62 Epidemiologic Studies/ (0)

63 exp Case-Control Studies/ (0)

64 exp Cohort Studies/ (0)

65 Comparative Study.pt. (0)

66 case control$.tw. (1302)

67 (cohort adj (study or studies)).tw. (4937)

68 cohort analy$.tw. (195)

69 (follow up adj (study or studies)).tw. (277)

70 (observational adj (study or studies)).tw. (2023)

71 longitudinal.tw. (3398)

72 prospective.tw. (6245)

73 retrospective.tw. (8329)

74 or/60-73 (20306)

75 randomized controlled trial.pt. (0)

76 randomi?ed.mp. (6953)

77 placebo.mp. (1662)

78 or/75-77 (7442)

79 (MEDLINE or pubmed).tw. (4622)

80 systematic review.tw. (4474)

81 systematic review.pt. (178)

82 meta-analysis.pt. (47)

83 intervention$.ti. (1891)

84 or/79-83 (7972)

85 39 and (74 or 78 or 84) (21)

86 85 or 59 (29)

Database name: Medline ePub ahead

1 Weight Reduction Programs/ (0)

2 exp *obesity/ or overweight/ or Obesity Management/ (0)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (5829)

4 or/2-3 (5829)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (257)

6 4 and 5 (180)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (64)

8 1 or 6 or 7 (236)

9 exp *Obesity/di, pc or *Overweight/di, pc (0)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (14)

11 or/9-10 (14)

12 8 or 11 (249)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (0)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1157)

15 (case-find* or active-case*).ti,ab. (118)

16 self care/ or self-management/ (0)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (5728)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (0)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2122)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (208)

21 Mass Screening/ (0)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1827)

23 school health services/ or school nursing/ (0)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2093)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (588)

26 exp Family/ (0)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (1425)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1946)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2852)

30 Home Nursing/ or Home Care Services/ (0)

31 ((home* or resident* or residenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (515)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (111)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1155)

34 or/13-33 (19369)

35 12 and 34 (47)

36 limit 35 to english language (47)

37 animals/ not humans/ (0)

38 36 not 37 (47)

39 limit 38 to dt=20000101-20221231 (47)

40 limit 38 to dt=20100101-20221231 (46)

41 Qualitative Research/ (0)

42 Nursing Methodology Research/ (0)

43 Interview.pt. (1)

44 exp Interviews as Topic/ (0)

45 "Questionnaires"/ (0)

46 Narration/ (0)

47 Health Care Surveys/ (0)

48 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (40247)

49 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (4474)

50 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (267)

51 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (118)

52 "critical interpretive synthes*".tw. (13)

53 (realist adj (review* or synthes*)).tw. (48)

54 (noblit and hare).tw. (2)

55 (meta adj (method or triangulation)).tw. (0)

56 (CERQUAL or CONQUAL).tw. (32)

57 ((thematic or framework) adj synthes*).tw. (95)

58 or/41-57 (41291)

59 40 and 58 (28)

60 Observational Studies as Topic/ (0)

61 Observational Study/ (1)

62 Epidemiologic Studies/ (0)

63 exp Case-Control Studies/ (0)

64 exp Cohort Studies/ (0)

65 Comparative Study.pt. (0)

66 case control$.tw. (2520)

67 (cohort adj (study or studies)).tw. (9240)

68 cohort analy$.tw. (329)

69 (follow up adj (study or studies)).tw. (642)

70 (observational adj (study or studies)).tw. (4335)

71 longitudinal.tw. (6870)

72 prospective.tw. (12470)

73 retrospective.tw. (18571)

74 or/60-73 (42134)

75 randomized controlled trial.pt. (1)

76 randomi?ed.mp. (13966)

77 placebo.mp. (3004)

78 or/75-77 (14929)

79 (MEDLINE or pubmed).tw. (9391)

80 systematic review.tw. (9514)

81 systematic review.pt. (154)

82 meta-analysis.pt. (80)

83 intervention$.ti. (4088)

84 or/79-83 (16965)

85 39 and (74 or 78 or 84) (31)

86 85 or 59 (38)

Database name: Embase

1 weight loss program/ (2786)

2 exp *obesity/ or obesity management/ (264774)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (522231)

4 or/2-3 (572270)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (19696)

6 4 and 5 (14558)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4943)

8 1 or 6 or 7 (20264)

9 exp obesity/di, pc (28933)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (855)

11 or/9-10 (29611)

12 8 or 11 (47599)

13 patient referral/ or teleconsultation/ or self evaluation/ or consultation/ or hospital management/ (342200)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (81898)

15 (case-find* or active-case*).ti,ab. (8856)

16 self care/ (66632)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (280867)

18 exp health care personnel/ or exp health personnel attitude/ or human relation/ or professional-patient relationship/ (1923282)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (146096)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (10217)

21 mass screening/ (58373)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (126450)

23 school health services/ or school nursing/ (17755)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (106935)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (34452)

26 exp family/ (546616)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (99342)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (105807)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (206385)

30 exp home care/ (80580)

31 ((home* or resident* or residenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (30902)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (3632)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (63583)

34 or/13-33 (3592210)

35 12 and 34 (11963)

36 limit 35 to english language (11467)

37 nonhuman/ not human/ (4919293)

38 36 not 37 (11419)

39 limit 38 to dc=20000101-20221231 (11038)

40 limit 38 to dc=20100101-20221231 (8850)

41 Qualitative Research/ (95638)

42 exp Interview/ (321295)

43 exp Questionnaire/ (810654)

44 exp Observational Method/ (7063)

45 Narrative/ (17336)

46 (qualitative$ or interview$ or focus group$ or questionnaire$ or narrative$ or narration$ or survey$).tw. (2249202)

47 (ethno$ or emic or etic or phenomenolog$ or grounded theory or constant compar$ or (thematic$ adj4 analys$) or theoretical sampl$ or purposive sampl$).tw. (143170)

48 (hermeneutic$ or heidegger$ or husser$ or colaizzi$ or van kaam$ or van manen$ or giorgi$ or glaser$ or strauss$ or ricoeur$ or spiegelberg$ or merleau$).tw. (14766)

49 (metasynthes$ or meta-synthes$ or metasummar$ or meta-summar$ or metastud$ or meta-stud$ or metathem$ or meta-them$).tw. (2195)

50 "critical interpretive synthes*".tw. (145)

51 (realist adj (review* or synthes*)).tw. (705)

52 (noblit and hare).tw. (96)

53 (meta adj (method or triangulation)).tw. (41)

54 (CERQUAL or CONQUAL).tw. (286)

55 ((thematic or framework) adj synthes*).tw. (1493)

56 or/41-55 (2498835)

57 Clinical study/ (157041)

58 Case control study/ (182646)

59 Family study/ (25370)

60 Longitudinal study/ (166184)

61 Retrospective study/ (1187991)

62 comparative study/ (932299)

63 Prospective study/ (739574)

64 Randomized controlled trials/ (218570)

65 63 not 64 (731026)

66 Cohort analysis/ (796848)

67 cohort analy$.tw. (15859)

68 (Cohort adj (study or studies)).tw. (374930)

69 (Case control$ adj (study or studies)).tw. (153929)

70 (follow up adj (study or studies)).tw. (68137)

71 (observational adj (study or studies)).tw. (207615)

72 (epidemiologic$ adj (study or studies)).tw. (114163)

73 (cross sectional adj (study or studies)).tw. (274799)

74 case series.tw. (124894)

75 case series.tw. (124894)

76 prospective.tw. (973105)

77 retrospective.tw. (1056160)

78 or/57-62,65-77 (4679041)

79 random:.tw. (1745052)

80 placebo:.mp. (487682)

81 double-blind:.tw. (226763)

82 or/79-81 (2010365)

83 (MEDLINE or pubmed).tw. (327778)

84 exp systematic review/ or systematic review.tw. (394189)

85 meta-analysis/ (235116)

86 intervention$.ti. (230131)

87 or/83-86 (798763)

88 40 and 56 (3641)

89 39 and (78 or 82 or 87) (5533)

90 afghanistan/ or africa/ or "africa south of the sahara"/ or albania/ or algeria/ or andorra/ or angola/ or argentina/ or "antigua and barbuda"/ or armenia/ or exp azerbaijan/ or bahamas/ or bahrain/ or bangladesh/ or barbados/ or belarus/ or belize/ or benin/ or bhutan/ or bolivia/ or borneo/ or exp "bosnia and herzegovina"/ or botswana/ or exp brazil/ or brunei darussalam/ or bulgaria/ or burkina faso/ or burundi/ or cambodia/ or cameroon/ or cape verde/ or central africa/ or central african republic/ or chad/ or exp china/ or comoros/ or congo/ or cook islands/ or cote d'ivoire/ or croatia/ or cuba/ or cyprus/ or democratic republic congo/ or djibouti/ or dominica/ or dominican republic/ or ecuador/ or el salvador/ or egypt/ or equatorial guinea/ or eritrea/ or eswatini/ or ethiopia/ or exp "federated states of micronesia"/ or fiji/ or gabon/ or gambia/ or exp "georgia (republic)"/ or ghana/ or grenada/ or guatemala/ or guinea/ or guinea-bissau/ or guyana/ or haiti/ or honduras/ or exp india/ or exp indonesia/ or iran/ or exp iraq/ or jamaica/ or jordan/ or kazakhstan/ or kenya/ or kiribati/ or kosovo/ or kuwait/ or kyrgyzstan/ or laos/ or lebanon/ or liechtenstein/ or lesotho/ or liberia/ or libyan arab jamahiriya/ or madagascar/ or malawi/ or exp malaysia/ or maldives/ or mali/ or malta/ or mauritania/ or mauritius/ or melanesia/ or moldova/ or monaco/ or mongolia/ or "montenegro (republic)"/ or morocco/ or mozambique/ or myanmar/ or namibia/ or nauru/ or nepal/ or nicaragua/ or niger/ or nigeria/ or niue/ or north africa/ or oman/ or exp pakistan/ or palau/ or palestine/ or panama/ or papua new guinea/ or paraguay/ or peru/ or philippines/ or polynesia/ or qatar/ or "republic of north macedonia"/ or romania/ or exp russian federation/ or rwanda/ or sahel/ or "saint kitts and nevis"/ or "saint lucia"/ or "saint vincent and the grenadines"/ or saudi arabia/ or senegal/ or exp serbia/ or seychelles/ or sierra leone/ or singapore/ or "sao tome and principe"/ or solomon islands/ or exp somalia/ or south africa/ or south asia/ or south sudan/ or exp southeast asia/ or sri lanka/ or sudan/ or suriname/ or syrian arab republic/ or taiwan/ or tajikistan/ or tanzania/ or thailand/ or timor-leste/ or togo/ or tonga/ or "trinidad and tobago"/ or tunisia/ or turkmenistan/ or tuvalu/ or uganda/ or exp ukraine/ or exp united arab emirates/ or uruguay/ or exp uzbekistan/ or vanuatu/ or venezuela/ or viet nam/ or western sahara/ or yemen/ or zambia/ or zimbabwe/ (1498651)

91 exp "organisation for economic co-operation and development"/ (1882)

92 exp australia/ or "australia and new zealand"/ or austria/ or baltic states/ or exp belgium/ or exp canada/ or chile/ or colombia/ or costa rica/ or czech republic/ or denmark/ or estonia/ or europe/ or exp finland/ or exp france/ or exp germany/ or greece/ or hungary/ or iceland/ or ireland/ or israel/ or exp italy/ or japan/ or korea/ or latvia/ or lithuania/ or luxembourg/ or exp mexico/ or netherlands/ or new zealand/ or north america/ or exp norway/ or poland/ or exp portugal/ or scandinavia/ or sweden/ or slovakia/ or slovenia/ or south korea/ or exp spain/ or switzerland/ or "Turkey (republic)"/ or exp united kingdom/ or exp united states/ or western europe/ (3527520)

93 european union/ (29020)

94 developed country/ (34350)

95 or/91-94 (3558195)

96 90 not 95 (1361029)

97 88 not 96 (3424)

98 89 not 96 (5227)

99 88 and 96 (217)

100 89 and 96 (306)

Database name: PsycInfo

1 Weight Loss/ (3908)

2 exp *obesity/ or overweight/ (21840)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (44017)

4 or/2-3 (44815)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3866)

6 4 and 5 (2949)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (1263)

8 1 or 6 or 7 (6811)

9 exp Obesity/ or *Overweight/ (25881)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (78)

11 or/9-10 (25898)

12 8 or 11 (28533)

13 Professional Referral/ or Professional Consultation/ or Videoconferencing/ or Self-Evaluation/ (18251)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (10035)

15 (case-find* or active-case*).ti,ab. (886)

16 self-care/ or self-management/ (9729)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (150118)

18 exp Health Personnel/ or exp health personnel attitudes/ or therapeutic processes/ (184656)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (22967)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2111)

21 screening/ or health screening/ or screening tests/ (20010)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (12055)

23 School Nurses/ (898)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (69131)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (11756)

26 exp family/ or exp "family and parenting measures"/ or exp parental attitudes/ (275166)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (29512)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (22982)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (24488)

30 exp home care/ (6777)

31 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (7304)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2969)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (19146)

34 or/13-33 (751923)

35 12 and 34 (6834)

36 animals/ not humans/ (4446)

37 35 not 36 (6833)

38 english.lg. or "first posting".ps. (3889938)

39 37 and 38 (6719)

40 limit 39 to up=20000101-20221231 (6431)

41 limit 40 to ("0200 book" or "0240 authored book" or "0280 edited book" or "0300 encyclopedia" or "0400 dissertation abstract") (894)

42 40 not 41 (5537)

Database name: HMIC

1 (obes* or preobese* or overweight* or over-weight*).ti,ab. (4480)

2 (obes* or preobese* or overweight* or over-weight*).hw. (3716)

3 or/1-2 (5151)

4 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (265)

5 ((weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*)) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (63)

6 or/4-5 (298)

7 3 and 6 (250)

8 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (115)

9 ((obes* or preobes* or overweight* or over-weight*) and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (463)

10 or/8-9 (550)

11 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (12)

12 (((obes* or preobese* or overweight* or over-weight*) and (detect* or identif* or diagnos*)) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (24)

13 or/11-12 (34)

14 7 or 10 or 13 (738)

15 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1302)

16 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) and (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (363)

17 (case-find* or active-case*).ti,ab. (232)

18 (case-find* or active-case*).hw. (0)

19 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (4349)

20 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).hw. (560)

21 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (6685)

22 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) and (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (3172)

23 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (464)

24 (((medical* or health or healthcare or clinical*) and (staff* or team* or provide* or agenc*)) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (357)

25 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1313)

26 (screen* and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (584)

27 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2532)

28 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (735)

29 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (1668)

30 ((Setting-based or communit* or clinic-based or work-based or workplace*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (1362)

31 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (1487)

32 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (516)

33 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1637)

34 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (559)

35 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1706)

36 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (359)

37 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1037)

38 ((home* or resident*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (261)

39 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1064)

40 ((carer* or social-work* or health-visit*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (519)

41 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1794)

42 ((survey* or audit* or questionnaire* or framework*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (960)

43 or/15-42 (29198)

44 14 and 43 (143)

45 (2000* or 2001* or 2002* or 2003* or 2004* or 2005* or 2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016* or 2017* or 2018* or 2019* or 2020* or 2021* or 2022*).up. (425108)

46 44 and 45 (143)

47 limit 46 to english (143)

Database name: SPP

1 (obes* or preobese* or overweight* or over-weight*).ti,ab. (1072)

2 (obes* or preobese* or overweight* or over-weight*).hw. (891)

3 or/1-2 (1277)

4 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (54)

5 ((weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*)) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (6)

6 or/4-5 (59)

7 3 and 6 (51)

8 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (23)

9 ((obes* or preobes* or overweight* or over-weight*) and (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) and (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).hw. (254)

10 or/8-9 (270)

11 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (0)

12 (((obes* or preobese* or overweight* or over-weight*) and (detect* or identif* or diagnos*)) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (5)

13 or/11-12 (5)

14 7 or 10 or 13 (303)

15 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (977)

16 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) and (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (648)

17 (case-find* or active-case*).ti,ab. (125)

18 (case-find* or active-case*).hw. (0)

19 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (4509)

20 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).hw. (36)

21 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1537)

22 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) and (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (1149)

23 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (145)

24 (((medical* or health or healthcare or clinical*) and (staff* or team* or provide* or agenc*)) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (189)

25 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (595)

26 (screen* and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (465)

27 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (3252)

28 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (4280)

29 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (2034)

30 ((Setting-based or communit* or clinic-based or work-based or workplace*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (3626)

31 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (3200)

32 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).hw. (4741)

33 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend*

or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2234)

34 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (3318)

35 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1357)

36 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (930)

37 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2110)

38 ((home* or resident*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (2611)

39 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2720)

40 ((carer* or social-work* or health-visit*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (5135)

41 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1337)

42 ((survey* or audit* or questionnaire* or framework*) and (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).hw. (1189)

43 or/15-42 (39739)

44 14 and 43 (72)

45 (2000* or 2001* or 2002* or 2003* or 2004* or 2005* or 2006* or 2007* or 2008* or 2009* or 2010* or 2011* or 2012* or 2013* or 2014* or 2015* or 2016* or 2017* or 2018* or 2019* or 2020* or 2021* or 2022*).up. (275101)

46 44 and 45 (69)

Database name: Cochrane: CDSR and CENTRAL

#1 MeSH descriptor: [Weight Reduction Programs] this term only 849

#2 MeSH descriptor: [Obesity] explode all trees 15271

#3 MeSH descriptor: [Overweight] explode all trees 18120

#4 (obes* or preobes* or overweight* or over-weight*):ti,ab 45929

#5 {or #2-#4} 48507

#6 (weight* NEAR/1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) NEAR/2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 6423

#7 #5 and #6 5092

#8 ((obes* or preobes* or overweight* or over-weight*) NEAR/2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) NEAR/2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)):ti,ab 1344

#9 #1 or #7 or #8 6557

#10 MeSH descriptor: [Obesity] explode all trees and with qualifier(s): [diagnosis - DI, prevention & control - PC] 2192

#11 MeSH descriptor: [Overweight] this term only and with qualifier(s): [diagnosis - DI, prevention & control - PC] 498

#12 ((obes* or preobese* or overweight* or over-weight*) NEAR/1 (detect* or identif* or diagnos*) NEAR/3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)):ti,ab 85

#13 {or #10-#12} 2547

#14 #9 or #13 8387

#15 MeSH descriptor: [Referral and Consultation] this term only 2010

#16 MeSH descriptor: [Remote Consultation] this term only 387

#17 MeSH descriptor: [Diagnostic Self Evaluation] this term only 214

#18 MeSH descriptor: [Appointments and Schedules] explode all trees 1123

#19 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) NEAR/3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 6628

#20 (case-find* or active-case*):ti,ab 529

#21 MeSH descriptor: [Self Care] this term only 4327

#22 MeSH descriptor: [Self-Management] this term only 621

#23 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*):ti,ab 42933

#24 MeSH descriptor: [Health Personnel] explode all trees 9998

#25 MeSH descriptor: [Attitude of Health Personnel] this term only 2006

#26 MeSH descriptor: [Professional-Family Relations] this term only 223

#27 MeSH descriptor: [Professional-Patient Relations] this term only 792

#28 ((clinician* or physician* or doctor* or nurse or nurses or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP or GPs or HCP or HCPs) NEAR/3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 17082

#29 ((medical* or health or healthcare or clinical*) NEAR/2 (staff* or team* or provide* or agenc*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 1167

#30 MeSH descriptor: [Mass Screening] this term only 3339

#31 (screen* NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 7988

#32 MeSH descriptor: [School Health Services] this term only 1536

#33 MeSH descriptor: [School Nursing] this term only 83

#34 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 22564

#35 ((Setting-based or communit* or clinic-based or work-based or workplace*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)):ti,ab 4019

#36 MeSH descriptor: [Family] explode all trees 10243

#37 ((family* or famili* or parent* or grandparent* or mother* or mum or mums or mummy or mummies or father* or dad or dads or daddy or daddies or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin or twins) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)):ti,ab 5190

#38 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) NEAR/1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 12806

#39 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) NEAR/1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 19919

#40 MeSH descriptor: [Home Nursing] explode all trees 299

#41 MeSH descriptor: [Home Care Services] this term only 1926

#42 ((home* or resident*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 6530

#43 ((carer* or social-work* or health-visit*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 659

#44 ((survey* or audit* or questionnaire* or framework*) NEAR/3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)):ti,ab 6677

#45 {or #15-#44} 146979

#46 #14 and #45 2707

#47 "conference":pt or (clinicaltrials or trialsearch):so 582582

#48 #46 not #47 with Cochrane Library publication date Between Jan 2000 and Jan 2022, in Cochrane Reviews 17

#49 #46 not #47 with Publication Year from 2000 to 2022, in Trials 2053

Cost-effectiveness searches

Main search – Databases

Database	Date searched	Database Platform	Database segment or version	No. of results downloaded
Medline	01/02/2022	OVID	1946 to January 31, 2022	162
Medline in process	01/02/2022	OVID	1946 to January 31, 2022	1
Medline ePub ahead	01/02/2022	OVID	January 31, 2022	3
Embase	02/02/2022	OVID	1974 to 2022 February 01	111
Econlit	02/02/2022	OVID	1886 to January 27, 2022	1
NHS EED	02/02/2022	CRD	N/A	51
INAHTA	02/02/2022	INAHTA	N/A	61

Search strategy history

Database name: Medline

1 Weight Reduction Programs/ (2670)

2 exp *obesity/ or overweight/ or Obesity Management/ (186743)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (310583)

4 or/2-3 (337899)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (11461)

6 4 and 5 (8971)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (3241)

8 1 or 6 or 7 (13130)

9 exp *Obesity/di, pc or *Overweight/di, pc (14986)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (437)

11 or/9-10 (15295)

12 8 or 11 (26420)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (101516)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (48303)

15 (case-find* or active-case*).ti,ab. (6244)

16 self care/ or self-management/ (38777)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (183752)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (666942)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (84102)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (6020)

21 Mass Screening/ (111788)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (76415)

23 school health services/ or school nursing/ (22318)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (64973)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (22366)

26 exp Family/ (346922)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (63458)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend*

or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (64484)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (125630)

30 Home Nursing/ or Home Care Services/ (42873)

31 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (17829)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2130)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (37594)

34 or/13-33 (1818655)

35 12 and 34 (6944)

36 limit 35 to english language (6738)

37 animals/ not humans/ (4918000)

38 36 not 37 (6722)

39 limit 38 to ed=20000101-20221231 (6478)

40 Cost-Benefit Analysis/ (88239)

41 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (13141)

42 ((incremental* adj2 cost*) or ICER).tw. (13549)

43 (cost adj2 utilit*).tw. (5156)

44 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (1688)

45 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (17922)

46 (cost and (effect* or utilit*)).ti. (30136)

47 or/40-46 (99896)

48 39 and 47 (162)

Database name: Medline in process

1 Weight Reduction Programs/ (0)

2 exp *obesity/ or overweight/ or Obesity Management/ (0)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (3660)

4 or/2-3 (3660)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (119)

6 4 and 5 (85)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (46)

8 1 or 6 or 7 (125)

9 exp *Obesity/di, pc or *Overweight/di, pc (0)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (7)

11 or/9-10 (7)

12 8 or 11 (132)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (0)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (558)

15 (case-find* or active-case*).ti,ab. (40)

16 self care/ or self-management/ (0)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (2156)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (0)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (728)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (69)

21 Mass Screening/ (0)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1045)

23 school health services/ or school nursing/ (0)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (611)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (228)

26 exp Family/ (0)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (572)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (789)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1467)

30 Home Nursing/ or Home Care Services/ (0)

31 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (171)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (21)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (399)

34 or/13-33 (8039)

35 12 and 34 (27)

36 limit 35 to english language (27)

37 animals/ not humans/ (0)

38 36 not 37 (27)

39 limit 38 to dt=20000101-20221231 (27)

40 Cost-Benefit Analysis/ (0)

41 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (190)

42 ((incremental* adj2 cost*) or ICER).tw. (163)

43 (cost adj2 utilit*).tw. (71)

44 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (27)

45 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (228)

46 (cost and (effect* or utilit*)).ti. (277)

47 or/40-46 (421)

48 39 and 47 (1)

Database name: Medline ePub ahead

1 Weight Reduction Programs/ (0)

2 exp *obesity/ or overweight/ or Obesity Management/ (0)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (5844)

4 or/2-3 (5844)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (249)

6 4 and 5 (169)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (66)

8 1 or 6 or 7 (227)

9 exp *Obesity/di, pc or *Overweight/di, pc (0)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (16)

11 or/9-10 (16)

12 8 or 11 (242)

13 "referral and consultation"/ or remote consultation/ or diagnostic self evaluation/ or exp "Appointments and Schedules"/ (0)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1168)

15 (case-find* or active-case*).ti,ab. (119)

16 self care/ or self-management/ (0)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (5760)

18 exp Health Personnel/ or "Attitude of Health Personnel"/ or professional-family relations/ or professional-patient relations/ (0)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2149)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (209)

21 Mass Screening/ (0)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1837)

23 school health services/ or school nursing/ (0)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2099)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (605)

26 exp Family/ (0)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (1451)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1960)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2855)

30 Home Nursing/ or Home Care Services/ (0)

31 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (467)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (110)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1172)

34 or/13-33 (19459)

35 12 and 34 (49)

36 limit 35 to english language (49)

37 animals/ not humans/ (0)

38 36 not 37 (49)

39 limit 38 to dt=20000101-20221231 (49)

40 Cost-Benefit Analysis/ (0)

41 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (469)

42 ((incremental* adj2 cost*) or ICER).tw. (406)

43 (cost adj2 utilit*).tw. (207)

44 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (57)

45 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (637)

46 (cost and (effect* or utilit*)).ti. (631)

47 or/40-46 (1219)

48 39 and 47 (3)

Database name: Embase

1 weight loss program/ (2801)

2 exp *obesity/ or obesity management/ (265216)

3 (obes* or preobese* or overweight* or over-weight*).ti,ab. (523498)

4 or/2-3 (573633)

5 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (19724)

6 4 and 5 (14575)

7 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (4951)

8 1 or 6 or 7 (20292)

9 exp obesity/di, pc (29015)

10 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (858)

11 or/9-10 (29694)

12 8 or 11 (47701)

13 patient referral/ or teleconsultation/ or self evaluation/ or consultation/ or hospital management/ (342954)

14 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (82114)

15 (case-find* or active-case*).ti,ab. (8887)

16 self care/ (66793)

17 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (281838)

18 exp health care personnel/ or exp health personnel attitude/ or human relation/ or professional-patient relationship/ (1927227)

19 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (146534)

20 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (10251)

21 mass screening/ (58508)

22 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (126848)

23 school health services/ or school nursing/ (17785)

24 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (107250)

25 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (34584)

26 exp family/ (547607)

27 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (99574)

28 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (106198)

29 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (207074)

30 exp home care/ (80814)

31 ((home* or resident* or residenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (30988)

32 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (3639)

33 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (63836)

34 or/13-33 (3600798)

35 12 and 34 (11979)

36 limit 35 to english language (11484)

37 nonhuman/ not human/ (4925871)

38 36 not 37 (11437)

39 (letter or editorial or conference abstract or conference paper or conference proceeding or "conference review").pt. (7005464)

40 38 not 39 (8901)

41 limit 40 to dc=20000101-20221231 (8555)

42 cost utility analysis/ (10889)

43 (cost* and ((qualit* adj2 adjust* adj2 life*) or qaly*)).tw. (26094)

44 ((incremental* adj2 cost*) or ICER).tw. (26699)

45 (cost adj2 utilit*).tw. (9634)

46 (cost* and ((net adj benefit*) or (net adj monetary adj benefit*) or (net adj health adj benefit*))).tw. (2703)

47 ((cost adj2 (effect* or utilit*)) and (quality adj of adj life)).tw. (31821)

48 (cost and (effect* or utilit*)).ti. (51253)

49 or/42-48 (80857)

50 41 and 49 (111)

Database name: Econlit

1 (obes* or preobese* or overweight* or over-weight*).ti,ab. (2470)

2 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (18)

3 1 and 2 (12)

4 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)).ti,ab. (20)

5 3 or 4 (30)

6 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (0)

7 5 or 6 (30)

8 ((opportun* or holistic* or routine* or consultat* or appointment* or checkup* or check-up*) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1041)

9 (case-find* or active-case*).ti,ab. (42)

10 (self-refer* or self-report* or self-diagnos* or self-evaluat* or self-manag*).ti,ab. (3790)

11 ((clinician* or physician* or doctor* or nurse*1 or pharmacy* or pharmacies* or pharmacist* or consultant* or practition* or primary-care* or dietician* or nutritionist* or GP*1 or HCP*1) adj3 (identif* or refer* or signpost* or sign-post* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (412)

12 ((medical* or health or healthcare or clinical*) adj2 (staff* or team* or provide* or agenc*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (21)

13 (screen* adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (171)

14 ((school* or highschool* or primaryschool* or preschool* or nurser* or universit* or educat* or pupil* or teach* or student*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2602)

15 ((Setting-based or communit* or clinic-based or work-based or workplace*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (694)

16 ((family* or famili* or parent* or grandparent* or mother* or mum*3 or father* or dad*3 or grandparent* or grandmother* or grandfather* or grandad* or sister* or brother* or sibling* or twin*1) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)).ti,ab. (1403)

17 ((barrier* or facilitat* or hinder* or block* or obstacle* or restrict* or restrain* or obstruct* or impede* or delay* or constrain* or hindrance or enhance* or encourag* or support* or promot* or optimiz* or optimis* or motivat* or incentiv* or persuad* or persuasion or intend* or intention or counsel* or hesitan* or attrition) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (1549)

18 ((increas* or improv* or rais* or higher or decreas* or reduc* or poor* or low or lower or drop* or withdraw* or quit* or likely or unlikely or positiv* or negativ* or influen*) adj1 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2256)

19 ((home* or resident*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (378)

20 ((carer* or social-work* or health-visit*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (14)

21 ((survey* or audit* or questionnaire* or framework*) adj3 (identif* or refer* or sign-post* or signpost* or transfer* or recruit* or detect* or advic* or intervent* or diagnos*)).ti,ab. (2399)

22 or/8-21 (16030)

23 7 and 22 (1)

24 limit 23 to (yr="2000 -Current" and english) (1)

Database name: NHS EED

1 MeSH DESCRIPTOR weight reduction programs 39

2 MeSH DESCRIPTOR Obesity EXPLODE ALL TREES 1025

3 MeSH DESCRIPTOR overweight 172

4 MeSH DESCRIPTOR obesity management 0

5 (obes* or preobese* or overweight* or over-weight*) 1620

6 #2 OR #3 OR #4 OR #5 1625

7 (weight* adj1 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)) 255

8 #6 AND #7 200

9 ((obes* or preobes* or overweight* or over-weight*) adj2 (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) adj2 (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)) 161

10 #1 OR #8 OR #9 335

11 ((obes* or preobese* or overweight* or over-weight*) adj1 (detect* or identif* or diagnos*) adj3 (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)) 2

12 (#10 OR #11) IN NHSEED FROM 2000 TO 2022 51

Database name: INAHTA

1 "Weight Reduction Programs"[mh] 9

2 "Obesity"[mhe] 232

3 "Overweight"[mh] 15

4 "Obesity Management"[mh] 8

5 (obes* or preobese* or overweight* or over-weight*) [Title] 263

6 #2 or #3 or #4 or #5 315

7 ((weight* AND (loss* or management* or reduc* or lifestyle* or life-style* or control* or health*) AND (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)))[Title] 32

8 #7 and #6 32

9 (((obes* or preobes* or overweight* or over-weight*) AND (loss* or management* or reduc* or lifestyle* or life-style* or control* or health* or prevent*) AND (servic* or intervent* or program* or plan* or refer* or scheme* or treatment* or trial* or therap* or clinic* or session*)))[Title] 64

10 #1 or #8 or #9 65

11 (((obes* or preobese* or overweight* or over-weight*) AND (detect* or identif* or diagnos*) AND (refer* or sign-post* or signpost* or transfer* or recruit* or evaluat* or advic* or diagnos*)))[Title] 2

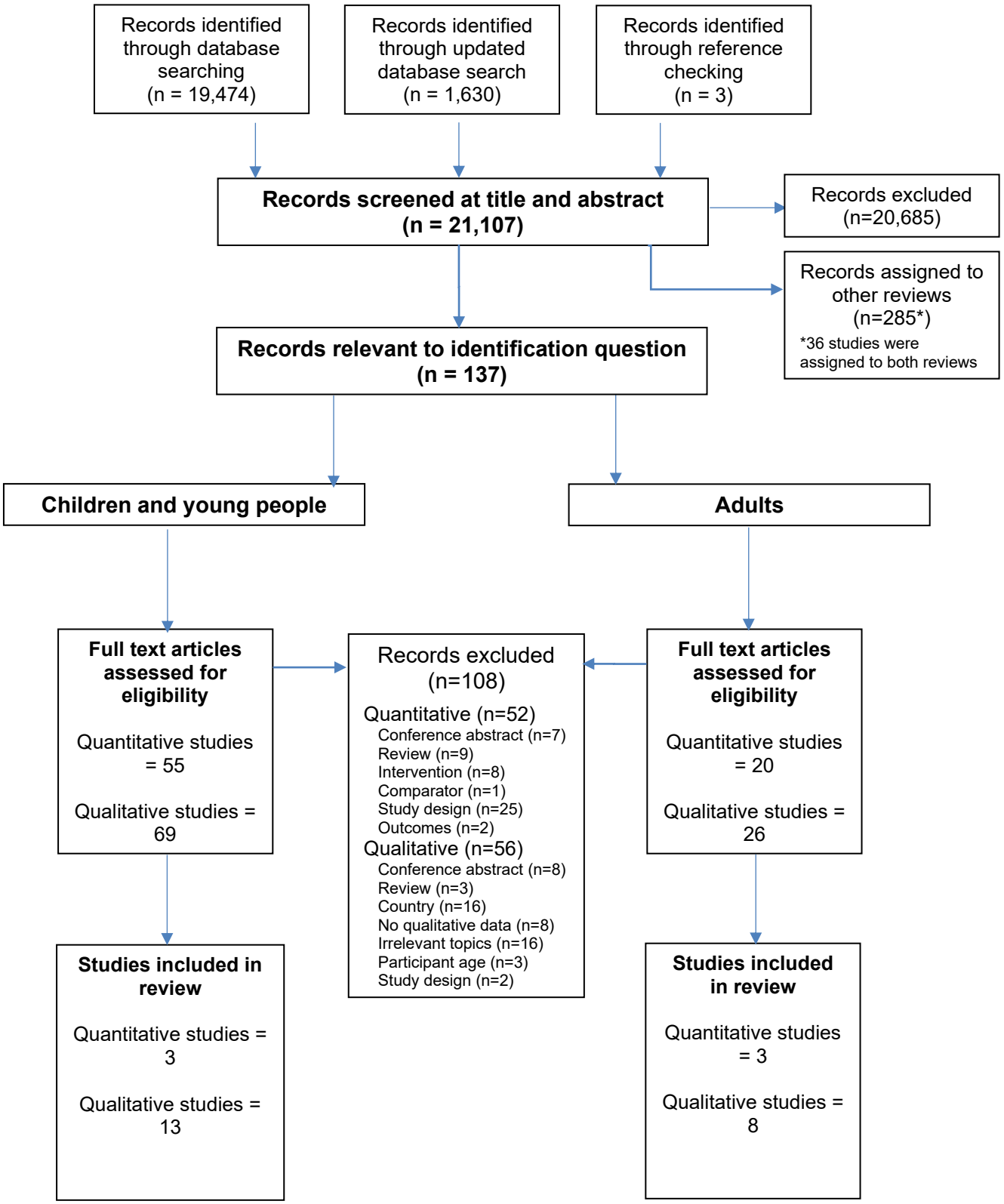
12 #10 or #11 67

13 #12 FROM 2000 TO 2022 65

14 #13 English Language 61

Appendix C - Quantitative and qualitative evidence study selection

A joint search was conducted for review questions on identification and uptake (RQ1.3 and RQ1.4). The joint search also covered children, young people and adults.



Appendix D – Evidence tables

Quantitative evidence

Children and young people

Bailey-Davis, 2017

Bibliographic Reference	Bailey-Davis, Lisa; Peyer, Karissa L; Fang, Yinan; Kim, Jae-Kwang; Welk, Greg J; Effects of Enhancing School-Based Body Mass Index Screening Reports with Parent Education on Report Utility and Parental Intent To Modify Obesity Risk Factors.; Childhood obesity (Print); 2017; vol. 13 (no. 2); 164-171

Study details

Trial registration number and/or trial name	Not detailed
Study type	Randomised controlled trial (RCT)
Study location	Convenience sample of schools in Pennsylvania, USA
Study setting	A convenience sample of schools.
Study dates	2012 - 2013
Sources of funding	NIH grant (5R21HD067803).
Inclusion criteria	Children 5-10 years old
Intervention(s)	Active case finding via SBMIS: school-based body mass index screening, for the purpose of providing parents with annual assessments of their child's weight status with an explanation of the results, recommended follow-up actions, and education on healthy eating and active living. Active case finding+ via SBMIS+: reports enhanced with education that included an online link for parents to self-assess and learn about strategies to reduce the risk of childhood obesity
Comparator	Comparison of interventions
Outcome measures	Referral to weight management service Parent response to report: - "Report provided information or access to resources aimed at promoting healthy lifestyles" - "Report prompted you to visit a healthcare provider or registered dietitian about your child's weight status"

Number of participants	6356 surveys were sent out
Duration of follow-up	The surveys were sent 4-6 weeks after the parents received the SBMIS or SBMIS+ reports
Loss to follow-up	1745 (27%) of 6535 surveys were returned
Methods of analysis	Responses to questions were coded ‘‘1 = Yes’’ and ‘‘0 = No.’’

Study arms

Active case finding + (N = 738)

School-based body mass index screening (SBMIS). This was enhanced with education that included an online link for parents to self-assess and learn about strategies to reduce the risk of childhood obesity

Active case finding (N = 731)

School-based body mass index screening (SBMIS).

Characteristics

Study-level characteristics

Characteristic	Study (N = 1469)
% Female Sample size	n = 742 ; % = 51
Mean age (SD) Custom value	5-6 years old: 446, 7-8: 502, 9-10: 521

Arm-level characteristics

Characteristic	Active case finding + (N = 738)	Active case finding (N = 731)
Ethnicity Custom value	White 90%, Black 4%, Hispanic 4%, Asian, 1%, American Indian/Alaskan Native/Pacific I 1%, Other 0%	White 86%, Black 2%, Hispanic 7%, Asian, 3%, American Indian/Alaskan Native/Pacific I 1%, Other 1%

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Due to issues with randomisation and missing outcome data)*
Overall bias and Directness	Overall Directness	Partially applicable *(Unclear if participants were referred to a weight management service)*

Chomitz, 2003

Bibliographic Reference	Chomitz, Virginia R; Collins, Jessica; Kim, Juhee; Kramer, Ellen; McGowan, Robert; Promoting healthy weight among elementary school children via a health report card approach.; Archives of pediatrics & adolescent medicine; 2003; vol. 157 (no. 8); 765-72

Study details

Trial registration number and/or trial name	Not reported
Study type	Randomised controlled trial (RCT)
Study location	Schools in Cambridge, USA
Study setting	Four predominantly English- or Spanish-speaking elementary schools agreed to participate in the intervention.
Study dates	Undertaken in 2001
Sources of funding	This study was supported by the Institute for Community Health and Cambridge Public Schools, Cambridge, USA
Inclusion criteria	Children 5-14 years old
Intervention(s)	For PI and GI groups, the package of intervention materials included an introductory letter and a 1-page general-information sheet with tips for healthy living, including the slogan "2-1-5," developed to promote the following daily recommendations: 2 hours or less of television or videos, 1 hour of physical activity, and 5 servings of fruits and vegetables. Other tips and resources for healthy living and managing overweight were based on existing materials, including a return-addressed stamped postcard of suggestions for community- or school-based obesity-prevention approaches for families to check off and return, and a directory of physical activity options available to families in the locality. The PI group also received the personalized health report card of the children's height, weight, and weight status (overweight, at risk for overweight, healthy weight, and underweight), fitness test results, and interpretive information. The materials referred parents with children outside the healthy weight range to follow up with their primary health care provider or their school nurse.
Comparator	No health report card
Outcome measures	Number of children and young people identified as overweight or obese Parents correctly identifying their children's weight status Referral to weight management service Seek medical service for overweight children
Number of participants	1131 families

Duration of follow-up	6 weeks of phone calls after intervention. Unclear how many or any more specificity of when they occurred.
Loss to follow-up	50% of families completed telephone interviews after the intervention. 45% PI, 52% GI, 54%, control group.
Methods of analysis	All analyses were stratified by the child's overweight or healthy weight status, because weight status was independently associated with implementation and outcome measures

Study arms

Active case finding+ (N = 481)

PI: Family group receiving personal information intervention using a health report card

Active case finding (N = 451)

GI: Family groups in the general-information intervention (GI)

Control (N = 464)

Family groups receiving no intervention

Characteristics

Study-level characteristics

Characteristic	Study (N = 1131)
% Female Custom value	50%
Mean age (SD) Mean (SD)	98.5 (*empty data*)

Arm-level characteristics

Characteristic	Active case finding+ (N = 481)	Active case finding (N = 451)	Control (N = 464)
BMI Custom value	Underweight: 1%, healthy weight: 53%, at risk of overweight: 9%, overweight: 37%	Underweight: 0%, healthy weight: 46%, at risk of overweight: 14%, overweight: 40%%	Underweight: 1%, healthy weight: 48%, at risk of overweight: 13%, overweight: 39%%
Ethnic group Custom value	White: 44%, African American: 28%, Hispanics: 24%, Others: 4%	White: 50%, African American: 24%, Hispanics: 16%, Others: 10%	White: 40%, African American: 26%, Hispanics: 27%, Others: 7%

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Concerns about randomisation, concealment, lack of blinding, and missing outcome data.)*
Overall bias and Directness	Overall Directness	Partially applicable *(Outcome parents correctly identifying their children's weight partially applicable to review. Outcome parents seek medical service for overweight children partially applicable to review.)*

Madsen, 2021

Bibliographic Reference	Madsen, Kristine A; Thompson, Hannah R; Linchey, Jennifer; Ritchie, Lorrene D; Gupta, Shalika; Neumark-Sztainer, Dianne; Crawford, Patricia B; McCulloch, Charles E; Ibarra-Castro, Ana; Effect of School-Based Body Mass Index Reporting in California Public Schools: A Randomized Clinical Trial.; JAMA pediatrics; 2021; vol. 175 (no. 3); 251-259

Study details

Trial registration number and/or trial name	ClinicalTrials.gov Identifier: NCT02088086
Study type	Cluster randomised controlled trial 79 schools, rather than individuals, randomised
Study location	USA
Study setting	79 schools in California, USA
Study dates	2014-2017
Sources of funding	This study was funded by grant R01HD074759 from the National Heart, Lung, and Blood Institute of the National Institutes of Health (NIH).
Inclusion criteria	Children 8-13 years old
Intervention(s)	School staff assessed BMI each spring among students in both intervention groups. Parents of students in the active case finding + group were sent a BMI report each in Autumn during the 2 years study
Comparator	No BMI screening
Outcome measures	Adverse events
Number of participants	28,641
Duration of follow-up	3 years

Loss to follow-up	14,273 (50%) did not return complete survey data

Study arms

Active case finding + (N = 10041)
BMI screening and reporting

Active case finding (N = 10441)
BMI screening only

Usual care (N = 8159)
No screening

Characteristics

Arm-level characteristics

Characteristic	Active case finding + (N = 10041)	Active case finding (N = 10441)	Usual care (N = 8159)
% Female Custom value	48.1%	49.3%	49.2%
% of children in each grade Custom value	Grade 3: 40%, 4: 22%, 5: 9%, 6: 16%, 7: 12%	Grade 3: 35%, 4: 20%, 5: 9%, 6: 22%, 7: 15%	Grade 3: 0%, 4: 43%, 5: 9%, 6: 22%, 7: 25%
Race / Ethnicity Custom value	Hispanic: 57%, Asian: 18%, African_American: 5%, White: 17%, Other 4%	Hispanic: 63%, Asian: 11%, African_American: 10%, White: 15%, Other 2%	Hispanic: 56%, Asian: 18%, African_American: 8%, White: 15%, Other 4%
% weight category Custom value	Underweight: 22%, healthy weight: 53%, overweight: 20%, Obese: 5%	Underweight: 22%, healthy weight: 51%, overweight: 22%, Obese: 5%	Underweight: 23%, healthy weight: 51%, overweight: 21%, Obese: 5%

Critical appraisal - GDT Crit App - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Due to variations in the treatment groups and due to the scale of the missing data)*
Overall bias and Directness	Overall Directness	Directly applicable

Adults

Lee, 2009

Bibliographic Reference	Lee, Nam-Ju; Chen, Elizabeth S; Currie, Leanne M; Donovan, Mary; Hall, Elizabeth K; Jia, Haomiao; John, Rita Marie; Bakken, Suzanne; The effect of a mobile clinical decision support system on the diagnosis of obesity and overweight in acute and primary care encounters.; ANS. Advances in nursing science; 2009; vol. 32 (no. 3); 211-21

Study details

Trial registration number and/or trial name	1R01 NR008903
Study type	Randomised controlled trial (RCT)
Study location	New York, USA
Study setting	master's program at the Columbia University School of Nursing
Study dates	January 1, 2006 – August 31, 2006
Sources of funding	National Institute of Nursing Research
Inclusion criteria	Nurses (registered nurses completing advanced practice nurse (master's level) training in 2 nurse practitioner specialties (acute care and family)) Enrolled in the master's program at the Columbia University School of Nursing
Intervention(s)	In the application used by the experimental group (the personal digital assistant-based clinical decision support system for obesity), the screening process includes a reminder to screen; entering height, weight, and waist circumference; automatic calculation of body mass index, assessing potential confounders to accurate interpretation of body mass index, and documentation of number of obesity related risk factors. Also, the clinical decision support system provides nurses with information based on guidelines through a context specific link, which we call an info button. For example, if a nurse clicks on the info button next to waist circumference, content related to the association of high waist circumference and obesity and the cut-off point for high risk in waist circumference are presented. On the basis of the results of screening, the clinical decision support system generates an obesity-related diagnosis, and nurses can document the patient's weight management goal.
Comparator	The personal digital assistant-based clinical log without decision support features for obesity. In regards to the diagnosis and management of obesity and overweight, the clinical log supports entering of height and weight; selection of an obesity related diagnoses from a pick-list of diagnoses for "Weight-related Condition"; and selection of plan of care items from pick-lists for diagnostics, procedures, prescriptions, teaching and counselling, and referrals. The content related to diagnoses and plan

	of care is the same as in the decision support system, however, the content is not tailored by obesity diagnosis or organized accordingly by plan of care categories
Outcome measures	Diagnosis of overweight/obesity Missed diagnosis
Number of participants	The study sample comprised 1874 encounters: 807 (46%) experimental group encounters entered by 13 nurses and 997 control group encounters entered by 16 nurses.
Duration of follow-up	n/a
Loss to follow-up	n/a
Methods of analysis	Independent sample t test for continuous variables and chi-square or Fisher exact statistics for categorical data were used for comparisons of demographic and encounter information in the experimental and control groups. All statistical tests were 2-sided and considered statistically significant if P values were less than or equal to .05. We conducted an ad hoc power analysis for 2-sided chi-square test and alpha of .05 to examine whether there were sufficient encounters to test differences between experimental and control groups. Given the number of encounters of 807 and 997 in the experimental and control group, respectively, there is 80% power to detect a relative risk of 1.44, assuming the baseline proportion of the encounter with obesity-related diagnosis was as low as 10%.
Additional comments	Participants were described as being the nurses rather than the patients in this study

Study arms

Clinical decision support system (N = 13)
1874 patients visiting 13 nurses

Clinical log without decision support (N = 16)
997 patients visiting 16 nurses

Characteristics

Arm-level characteristics

Characteristic	clinical decision support system (N = 13)	clinical log without decision support (N = 16)
% Female Nominal	58.4	57.3
Mean age (SD) Mean (SD)	47.8 (17.88)	47.16 (16.95)

Characteristic	clinical decision support system (N = 13)	clinical log without decision support (N = 16)
BMI Mean (SD)	28.77 (8.93)	28.23 (6.71)
Weight (lbs) Mean (SD)	169.45 (45.81)	168.67 (41.87)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate (Some moderate concerns about ransomisation and deviations from the intended interventions)
Overall bias and Directness	Overall Directness	Indirectly applicable *(USA demographics differ from UK population)*

Tang, 2012

Bibliographic Reference	Tang, Joyce W; Kushner, Robert F; Cameron, Kenzie A; Hicks, Brent; Cooper, Andrew J; Baker, David W; Electronic tools to assist with identification and counseling for overweight patients: a randomized controlled trial.; Journal of general internal medicine; 2012; vol. 27 (no. 8); 933-9

Study details

Trial registration number and/or trial name	Not stated
Study type	Randomised controlled trial (RCT)
Study location	Chicago, USA
Study setting	This study was conducted at the Northwestern Medical Faculty Foundation (NMFF) GIM clinic (Chicago, IL), an academic clinic with 40 physicians and a volume of >60,000 patient visits yearly. The clinic is supported by a commercial EHR (EpicCare, Epic Systems Corporation, Verona, WI).
Study dates	March 19–September 20, 2010
Sources of funding	Dr. Tang was supported by an institutional award from the Agency for Health care Research and Quality,
Inclusion criteria	People who are obese or overweight • Patients with BMI 27–29.9 kg/m2 • Age range: • Patients 18-65

	• Visited a physician during the study period Doctors • Physicians who saw patients for at least 8 hours per week
Intervention(s)	Intervention physicians received access to a tool set including: 1) a point-of-care alert for overweight; 2) a counselling template to help patients make an action plan; and 3) an order set to assist with entry of overweight as a diagnosis and to order relevant handouts. A point-of-care alert for overweight was designed as a passive prompt within the patient's medical record (Fig. 2). Upon viewing the alert, physicians were directed to open the counselling template (Fig. 3), which supported evidence-based weight-related counselling through goal-setting and action planning.17,18 The template guided physicians through assessing the patient's rated importance of weight management, setting a target weight, selecting from a list of specific strategies to control weight, and assessing the patient's confidence to adhere to the selected strategies. The template included a list of effective strategies for weight loss often overlooked by physicians (e.g., logging diet and use of meal replacements).19 After completing the template, physicians could open an order set that facilitated entry of overweight as a diagnosis, imported the template information into the physician note, and enabled ordering of handouts specific to a patient's chosen goals
Comparator	Usual care
Outcome measures	Documentation of weight status BMI Diagnosis of overweight/obesity Patients were categorized as receiving a diagnosis of overweight if overweight was listed as an encounter diagnosis or problem in the assessment and plan Counselling for overweight Documentation of weight-specific counselling was categorized based on presence or absence of a documented recommendation for weight loss or maintenance. Intervention tool use Frequency Participants self-report of intervention experience Intervention Physician Perspectives Regarding the EHR Tool and Self-reported Outcomes Among Patients Counselled Using EHR Tools

Number of participants	Physicians who saw patients for at least 8 hours per week were approached for participation and informed consent (n=35). Eligible patients were adults ages 18–65 who had a visit with a consenting physician during the 6-month study period (March 19–September 20, 2010), and whose most recently measured weight and height corresponded to a calculated BMI 27–29.9 kg/m^2. Intervention: 15 physicians, 958 patients. Control: 15 physicians, 1156 patients.
Duration of follow-up	6 months
Loss to follow-up	0 loss
Methods of analysis	Descriptive statistics were used to characterize all outcomes. Baseline characteristics for patients of intervention and control physicians were compared using chi-square or t-tests as appropriate. We used logistic regression to compare frequency of diagnosis and counselling for overweight among intervention and control groups. P values were adjusted for clustering of patients within physicians' practices; the intra-class correlation coefficient was 0.11 for documented diagnosis of overweight and 0.07 for weight specific counselling. Examples of representative qualitative responses are presented. Qualitative comments from patient interviews were reviewed by a single individual (JT). Specific factors contributing to the usefulness of the counselling were individually noted and tallied if mentioned by multiple participants.

Study arms
Intervention (N = 15)
15 physicians seeing 958 patients, using the intervention tools.

Usual care (N = 15)
15 physicians seeing 1156 patients, with usual care.

Characteristics
Study-level characteristics

Characteristic	Study (N =)
Intervention Nominal	48.5
Control Control Nominal	54.5
Intervention Mean (SD)	46.4 (10.8)

Characteristic	Study (N =)
Control Mean (SD)	46.8 (12)
Intervention Mean (SD)	28.2 (2.5)
Control Mean (SD)	28.4 (1.3)
Intervention Nominal	48.5
Control Nominal	56.5

Critical appraisal - GDT Crit App - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Low (No serious concerns identified)
Overall bias and Directness	Overall Directness	Indirectly applicable *(USA demographics differ from those in the UK)*

Wee, 2016

Bibliographic Reference	Wee, Christina C.; Baer, Heather J.; Orav, Endel J.; DeVito, Katerina; Burdick, Elisabeth; Williams, Deborah H.; Wright, Adam; Bates, David W.; Use of electronic health records for addressing overweight and obesity in rimary care: Results from a cluster-randomized controlled trial; Journal of General Internal Medicine; 2016; vol. 31 (no. 2suppl1); 452-s453

Study details

Secondary publication of another included study- see primary study for details	This record represents a conference abstract. Data extraction has been done using the full text project report available at: https://digital.ahrq.gov/ahrq-funded-projects/use-electronic-health-records-addressing-overweight-and-obesity-primary-care
Trial registration number	AHRQ/ K01 HS019789

and/or trial name	
Study type	Cluster randomised controlled trial
Study location	Boston, USA
Study setting	primary care practices at Brigham and Women's Hospital (BWH).
Study dates	December 2011 - December 2012
Sources of funding	the Agency for Healthcare Research and Quality and the Boston Nutrition Obesity Research Center
Inclusion criteria	People who are obese or overweight BMI >=25 (for diagnosis outcome only) Age range: Over 20 Visited a physician during the study period
Exclusion criteria	Visited a physician who saw less than 50 patients during the study period
Intervention(s)	New electronic health record tools implemented: 1. Reminders to measure height and weight. If a patient had no measure of height and/or no measure of weight in the LMR within the past year, a reminder would appear on the summary screen, asking the provider to enter a height and/or weight for the patient. The LMR automatically calculates BMI from patients' most recent height and weight entries; therefore, any patient with both height and weight should have a BMI. 2. An alert asking providers whether they want to add overweight or obesity to the problem list, for patients with BMI 25-29.9 or ≥ 30 kg/m2 , respectively. The alert would appear as a pop-up screen, and the provider would have the option to add overweight or obesity or to dismiss the alert (Figure 1). This alert was added to an existing clinical alerting system, introduced in May 2010, which was designed to improve the completeness of electronic problem list documentation for 17 other conditions 3. Reminders with tailored management recommendations, based on patients' BMI and other risk factors (e.g., hypertension, hyperlipidemia, type 2 diabetes) included on the problem list or identified from medications or laboratory results.34 For each patient with BMI ≥ 25, one reminder would appear on the summary screen with a recommendation that was based on the NIH guidelines (Table 1).12 4) 4. A Weight Management screen with several features, including tools to help providers assess patients' motivation to lose weight, calculate and set a 6-month weight loss goal, refer patients to other resources (e.g., nutritionist or medically-monitored weight loss program), and access more information
Comparator	The new features were activated for clinics in the intervention group and were not activated for clinics in the control group.

Outcome measures	Documentation of weight status Diagnosis of overweight/obesity
Number of participants	Documentation outcome: A total of 60,244 eligible patients had visits during Phase 1 of the intervention period (26,481 in the intervention group and 33,763 in the control group) Diagnosis outcome: a total of 35,665 eligible patients with BMI ≥ 25 kg/m2 had visits during Phase 2 of the intervention period (14,779 in the intervention group and 20,886 in the control group).
Duration of follow-up	12 months
Loss to follow-up	Not stated
Methods of analysis	All statistical analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC). We compared changes in documentation of BMI in the LMR from the pre-intervention period to Phase 1 for patients who had visits in the intervention and control clinics, using mixed-effects logistic regression models (SAS PROC GLIMMIX) to account for the within-clinic and within-provider correlation. We used a similar approach to compare changes in diagnosis and management of overweight and obesity from the preintervention period to Phase 2 for patients with BMI ≥ 25 kg/m2 who had visits in the intervention and control clinics.
Additional comments	Peer review uncertain, as the document does not match the search record.

Study arms

New EHR tools used (N = 26481)

26481 patients visiting 11 clinics, 14779 with a BMI >=25

No change to EHR (N = 33763)

33763 patients visiting 12 clinics, 20886 with a BMI >=25

Characteristics

Arm-level characteristics

Characteristic	New EHR tools used (N = 26481)	No change to EHR (N = 33763)
% Female	68.6	60.8

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Cluster trials

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	Moderate (Some moderate concerns about the randomisation process and deviations from the intended interventions)
Overall bias and Directness	Overall Directness	Indirectly applicable (USA demographics differ from UK population)

Qualitative evidence

Children and young people

Avis, 2016

Bibliographic Reference	Avis, Jillian L S; Komarnicki, Angela; Farmer, Anna P; Holt, Nicholas L; Perez, Arnaldo; Spence, Nicholas; Ball, Geoff D C; Tools and resources for preventing childhood obesity in primary care: A method of evaluation and preliminary assessment.; Patient education and counseling; 2016; vol. 99 (no. 5); 769-75

Study Characteristics

Study type	Semi structured interviews
Aim of study	To pilot-test a mixed methods approach to evaluate tools and resources (TRs) that healthcare providers (HCPs) use for preventing childhood obesity in primary care, and report a preliminary descriptive assessment of commonly-used TRs
Theoretical approach	None stated
Study location	Alberta, Canada
Study setting	Primary Care
Study dates	Not provided
Sources of funding	the Canadian Institutes of Health Research (JA), Alberta Innovates—Health Solutions (JA, AP), and the Women and Children's Health Research Institute
Data collection	Our semi-structured interview guide (Supplementary material) included 13 questions with follow-up examples and probes. The guide was developed by (i) identifying and evaluating relevant literature, (ii) organizing questions thematically (e.g., context, likability), and (iii) confirming the inclusion and exclusion of concepts and questions with team members (AK, AP). At the end of each interview, participants were asked by interviewers (JA, AK) to self-rate the suitability of each TR on a 10-point Likert scale (1[not suitable]–10[very suitable]), with the option to rate by increments of 0.5. This question was used to quantify participants' perceptions of an intangible concept
Method and process of analysis	Interviews were audio-recorded and submitted to The Comma Police (www.commapolice.com) for transcription. Interviews were transcribed within 5–7 business days of data collection to facilitate concurrent data collection and analysis. Data saturation was reached when no new information emerged from the interviews. Transcribed data were imported into NVivo 10 (QSR, Melbourne, Australia) for management, which was followed by inductive thematic data analysis [23]. Once interviews were checked alongside their corresponding audio-recording for accuracy and completeness, each transcript was read to become familiar with the data; a broad-based coding system was then developed. This coding scheme was used to understand the relationships between various groupings and concepts. After each interview

	was coded, categories were grouped under general themes, and a written description was constructed to explain each theme. To enhance methodological rigor, the coding scheme was reviewed by a colleague (AP) and formally discussed with two additional researchers (NH, GB) to ensure accuracy and completeness.
Population and sample collection	Participants were purposefully sampled to achieve diversity in experience and expertise, which we believed would offer rich, in-depth, and multifaceted perspectives on their use of TRs. Participants were recruited (Fig. 1) through their professional affiliations with Alberta Health Services, the University of Alberta, and the Edmonton Oliver Primary Care Network. Snowball sampling was used to continue recruitment of participants until data saturation was achieved. Participants who identified as eligible for study participation were recruited by telephone or email. One week prior to scheduled interviews, participants were contacted to complete an online survey (SurveyMonkey Inc.) that queried their clinical discipline, years of experience in clinical practice, information about the TRs they used for childhood obesity prevention, and of the TRs they listed, which ones were used for patient education and clinical support purposes.
Inclusion Criteria	Healthcare professionals Directly involved in weight management Involved in child measurement Clinical experience at least 2 years Used tools and resources at least 3
Relevant themes	1. Purpose of use 1. 1. Need for clinical support 1. 1a. Assessment & monitoring [1a] One of our clinics or locations we do more of a health promotion, so just a quick screening. So . . . plotting the child on the graph . . . to continue to monitor their weight and their height and their growth. [KIN1] 2. 1b. Communication with families [1b] So I guess I use tools to support discussions that I might be having with families around nutrition and weight management in the pediatric setting, so yeah primarily to support like in discussion. [RD8] 3. 1c. Enhance credibility, confidence & competency [1c] It's great to have formal guidelines just to know that you're doing what is recommended, just that reassurance . . . and then also if a parent decides, you know that doesn't seem reasonable at all, then I can pull it up and say well this is what it is, right? [RD4] 2. 2. Need for families 1. 2a. Education [2a] Yeah, I think just to provide more education to the families and to the children. I think it's used as a good reference guide for when people go home. [RN3]

2. 2b. Facilitate behavior change [2b] People walk out the door and forget what we told them from a practical, physical perspective so those tools are there to support the behaviour when they're not with us. [KIN3]

2. Logistical factors
    1. 1. Awareness
        1. 1a. Top-down process [1a] We do have updates from Alberta Health Services so when they do have some new tools or information or journals or articles, they do send it to us. [RD7]
        2. 1b. Bottom-up process [1b] Like really if you weren't following all the blogs and reading research, you might not even know about the 5As and that's one of the ones that's most discussed and researched. [RN1]
    2. 2. Accessibility
        1. 2. Access is impacted by cost, distribution, and production [1b] I've looked for my tools, so just searching a lot on the Internet. I've been following a few blogs, which have been helpful [KIN4] [2] For myself I'd have to purchase a lot of them so that's the biggest thing so we have to look at cost in our clinics as well. If cost is an issue, then we might not have the resources. [KIN5]
3. Decision to use
    1. 1. Expected suitability
        1. 1a. Age of child [1a] I think it's clinical judgement right? So if they're teenagers, sometimes they want to read the ones that are not Peds focused, 'cause they don't identify themselves as kids. [RN1]
        2. 1b. Culture, language & literacy level [1b] So I mean I love them but they're only for certain families, okay? I mean they have to be able to read well, you know definitely not for someone whose English is a second language. [RD3]
        3. 1c. Motivation & readiness to change [1c] So it depends on how engaged the family is in terms of their willingness to change and their willingness to cooperate as a family . . . so, for example, like I won't always pull out the growth chart because I don't want the view to be very skewed on focusing just on weight and he's overweight and stuff like that. [RD9]
        4. 1d. Specific parental concerns [1d] Well, it's very different for every tool right that we use, so depending on the issues that the family may have, like they don't get enough fruits and vegetables in their diet, then you would choose a tool that would help boost their fruits and vegetables and gives them ways how to do it. [RD5]
    2. 2. Experienced suitability
        1. 2a. Usability (for self and families) [2a] It's easy to get out the rip-off version, the one-page version . . . is very easy to use, and you can scribble on it. [MD2]
        2. 2b. Usefulness (for self and families) [2b] I guess in terms of it [tool], it is a good, little, quick, cheap thing, but not crazy effective because I haven't looked at it in

		a while and because I feel like I just have that in my back pocket already. But if I had a co-worker that was seeing an overweight patient for weight management, and they were panicking about, “I don’t know what to do,” I could hand them this and say, this will help you. [KIN2]

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Dam, 2019

Bibliographic Reference	Dam, Rinita; Robinson, Heather Anne; Vince-Cain, Sarah; Heaton, Gill; Greenstein, Adam; Sperrin, Matthew; Hassan, Lamiece; Engaging parents using web-based feedback on child growth to reduce childhood obesity: a mixed methods study.; BMC public health; 2019; vol. 19 (no. 1); 300

Study Characteristics

Study type	Focus Groups Interviews
Aim of study	to investigate how effectively CHAMP engaged parents and supported reductions in childhood obesity, with a view to building an evidence base for parent-only, online feedback interventions
Theoretical approach	Ellis and Hogard’s three-pronged “trident” model as a theoretical framework.
Study location	Manchester, UK
Study setting	Schools
Study dates	2016/2017
Sources of funding	This work was commissioned by Manchester University NHS Foundation Trust (MFT) and funded by Health Education England working across the North West. The research was undertaken by the Health eResearch Centre (HeRC), which is funded by the Medical Research Council (MRC)
Data collection	Parents were invited to participate in focus group discussions and/or individual semi-structured interviews, depending on their preference. To increase flexibility and maximise opportunities for recruitment, we provided the participants with a choice of being interviewed in person or over the telephone. Focus groups took place in a private room at the school and typically lasted 60 min; interviews took place at the school and/or over the telephone and lasted up to 30 min. RD led the facilitation of the focus groups with LH acting as co-facilitator. RD carried out one-to-one and telephone

	interviews. All participants were asked to complete a short questionnaire to capture demographic information about them and their family. Topic guides were used to guide discussions, exploring topics including: views on healthy growth; views on the annual weighing and measuring programme; awareness and experiences of the CHAMP programme; and perceived impacts (see Additional file 1 Topic guide for parents). Key personnel were interviewed individually, typically at their place of work (see Additional file 2 Topic guide for staff). Topics explored included views on organisational approaches to combat childhood obesity, knowledge and experience of the CHAMP programme and ideas for future improvements. Data collection continued until saturation was reached, with interviewees providing no substantively new information. All focus groups and interviews were audio (digitally) recorded with the consent of participants, and transcribed verbatim
Method and process of analysis	Data were imported into NVivo software (version 11) and analysed thematically [28]. Data were coded using a priori framework developed from our existing understanding of the key issues. Coding then developed iteratively, with comparisons made between different stakeholders to further refine our understanding of key outcomes and processes. LH was the second coder who coded four transcripts (out of a total of 20 transcripts) – specifically, a transcript from one focus group discussion that took place with five parents, a transcript from a one-to-one parent semi-structured interview, a transcript from a one-to-one semi-structured interview with a Head of school and a transcript from a one-to-one semi-structured interview with an NHS/public health manager. Emerging findings were discussed at team meetings to resolve discrepancies and refine themes
Population and sample collection	Focus group and interview participants were drawn from six primary schools in Manchester, selected to cover the range of prevalence of deprivation, BMI category and CHAMP website registration. Purposive sampling strategies were used to recruit from two broad groups: (a) parents/carers (n = 18); and (b) healthcare and school staff (n = 11). A group of parents at a local school that did not take part in the qualitative element of the study provided public involvement input into study design including recruitment strategies, participant information and dissemination strategies. Family liaison workers working within the schools were guided to recruit a diverse sample of parents with respect to demographics (including gender, ethnicity and family size) and prior awareness of the CHAMP website. Maximum variation sampling and snowball sampling techniques were used to identify participants with relevant experiences and ensure a sufficiently diverse sample Of the 63,337 children in our sample, 45.0% (n = 28,530) had been measured once, 39.5% (n = 25,024) had measurements spanning two academic years and 15.4% (n = 9783) had measurements taken for three or more academic years between 2013/14 and 2016/17
Inclusion Criteria	• Child participated in the National Child Measurement Programme; eligible during 2016/2017 • Location: Manchester • Age: Over 16 • Healthcare professionals

	• Parent/guardian • School staff; • Heads of school (or acting Heads), • School Health Assistants • NHS and public health senior managers with a role relevant to commissioning and/or delivering childhood obesity related services • English language

Relevant themes	1. Engagement with annual weighing and measuring: Most parents interviewed (16 out of 18) stated that they were aware of the measuring and weighing process. “It’s good to know where you stand, where you can… If there’s a problem, you can sort it out, instead of just sitting without knowing anything”
	2. Engagement with the CHAMP website: the process by which parents became aware of, and subsequently accessed the CHAMP website was inconsistent
	3. Associations between CHAMP registration and changes in child BMI: arents readily described a range of measures that they were using to support their children to be healthy. "It was a real concern for the school, they were monitoring the weight, thinking of activities that she could do. It was stressful for us, so that’s when we started looking into it."
	4. Psychological impacts of CHAMP on families. ""“She’s only nine, nearly ten at the end of the day. I think it’s young to be worrying about weight because she’s going through puberty now. So her body is going to be changing.”"
	    1. judgement of parenting: Parents may feel judged or reassured, depending on the BMI result
	    2. Increased reflection and monitoring: CHAMP can prompt parents to stop, reflect and monitor
	    3. Psychological impacts on children: Concern about children worrying over weight from a young age

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Gainsbury, 2018

Bibliographic Reference	Gainsbury, Alexa; Dowling, Sally; 'A little bit offended and slightly patronised': parents' experiences of National Child Measurement Programme feedback.; Public health nutrition; 2018; vol. 21 (no. 15); 2884-2892

Study Characteristics

Study type	Focus Groups Semi-structured
Aim of study	To develop a descriptive account of parents' experiences of written feedback from the National Child Measurement Programme (NCMP), based on primary data collected from semi-structured focus groups.
Theoretical approach	Critical realist perspective
Study location	South West England
Study setting	Community
Study dates	Unspecified. Children entered the National Child Measurement Programme in 2014/15 and 2015/16.
Sources of funding	This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors. Part of author's MSc in Public Health which was funded by Health Education England SW.
Data collection	All focus groups were audio-recorded and followed a semi-structured schedule (Box 1). This was developed by both authors based on study objectives with further input provided by the local NCMP manager, who wished to use study findings to inform future communications with parents. The schedule included open questions and prompts to stimulate conversation while also enabling discussion to grow organically. Discussions lasted between 55 and 77 min and group size ranged from three to six participants. We decided to hold mixed outcome groups and not stratify participants according to their child's weight status. This approach enabled the study to observe how healthy and overweight feedback is assimilated and discussed within the same social contexts.
Method and process of analysis	Recordings of focus group discussions were transcribed verbatim, reviewed for accuracy by A.G. and imported into the qualitative data analysis software NVivo version 10. Analysis identified themes and patterns relating to parents' experience of NCMP feedback. Analysis followed the framework set out by Braun and Clarke: data familiarisation, initial code generation, searching for themes, review of themes, defining and naming themes and finally producing a report. Extracts are coded according to the category of feedback participants reported to have received regarding their index child (underweight (UW), healthy weight (HW), overweight (OW) or very over-weight (VOW)), their child's gender (male (M) or female (F)) and the number of the focus group that the parent attended (FG1–4)
Population and sample collection	Participants were recruited directly through advertisement and then via snowballing once volunteers had made contact. Via this approach two focus groups were formed out of existing peer groups ('natural groups'). A further two focus groups ('study-established' groups) comprised of direct recruits with no social connection. Eighteen parents participated in the study, including seventeen birth parents and one adoptive parent. The majority of parents who participated in the groups were female (*n* 15) and both natural groups were comprised only of women.

Inclusion Criteria	Child participated in the National Child Measurement Programme in 2014/15 and 2015/16 Parents
Exclusion criteria	None reported
Relevant themes	1. Peer collaboration in the rejection of overweight feedback: Healthy weight recipients in the natural groups were more likely to trivialise the impact of receiving healthy feedback; receipt of overweight feedback was generally reported in overwhelmingly negative terms. "If I was you I would have been fuming because none of your children are obese, so I would have been furious." 2. The shared process of 'othering' by participants based on characteristics other than weight feedback in their understanding of childhood obesity and the NCMP's perceived target audience. "What we're saying is it's impacting the wrong people because the responsible ones are having sleepless nights about it and the irresponsible ones are ignoring it"

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Hardy, 2019

Bibliographic Reference	Hardy, Kelly; Hooker, Leesa; Ridgway, Lael; Edvardsson, Kristina; Australian parents' experiences when discussing their child's overweight and obesity with the Maternal and Child Health nurse: A qualitative study.; Journal of Clinical Nursing; 2019; vol. 28 (no. 1920); 3610-3617

Study Characteristics

Study type	Interviews
Aim of study	To explore parents' experiences when discussing child overweight issues with the Maternal and Child Health nurse
Theoretical approach	None stated
Study location	Victoria, Australia
Study setting	Primary care: child and family health nurses (termed Maternal and Child Health [MCH] nurses) provide free, universal, primary health care to infants, children and their families.
Study dates	June 2017

Sources of funding	Not stated
Data collection	All interviews were conducted in June 2017 by the first author, at a location of the participant's choice. Prior to the interview, women were emailed details of the study, consent forms for signing and information on withdrawing from the study if they wished. The following topics were discussed during interviews. How child overweight/obesity was identified and addressed during the consultation and the subsequent parent's reaction; advice given by the MCH nurse; barriers and facilitators for discussing weight with the MCH nurse; and how parents perceive the MCH nurse's role in the management of weight issues in children, in relation to support offered from other professions/sources. Additional probing questions were used when needed to encourage participants to discuss the topics at length. Interviews were recorded with the consent of each participant. Each interview lasted between 11 and 32 (mean 20) minutes and was transcribed verbatim. No identifiable information was collected or documented during the interviews
Method and process of analysis	Data analysis did not commence until all interviews were completed. The transcribed interviews were analysed using the inductive thematic method of data analysis recommended by Green et al. (2007). The transcripts were read and reread to get a sense of the meaning of the experience for the participant, during which recurring themes emerged. Analysis involved inductive coding of all interview transcripts (KH). Using word processing and spreadsheet software, manual coding was facilitated by using separate colours for each interview. The process involved back and forth movement between text, codes and categories. KH inductively coded all transcripts, with double coding of a small sample by remaining authors. All authors met regularly to discuss coding and emerging themes. KH, LH and KE finalised the categories into three final themes. The final themes were generated beyond simple categorisation—to consideration of the links between the interview data findings and our methodological (lived experience) approach. For example, simple codes/categories such as “words to avoid,” “bringing up the topic” and “failure to ask” were interpreted in the context of child obesity discussions to become the important theme of MCH nurse communication with parents. Research processes were documented in a clear audit trail, which included development of a comprehensive data analysis code book and processes of member checking of data. The COREQ guidelines were used to ensure rigour in conduct and reporting of the research
Population and sample collection	The study involved a snowball sampling method for participants using Facebook and word of mouth, where parents were invited to partake in semi structured interviews. Parents were included if they had a child aged 2–5 years that had been identified as overweight or obese by the MCH nurse. No other inclusion or exclusion criteria applied. Interested parents contacted the first author by phone and were then emailed about the study. The snowball sampling meant that participants who contacted with the researcher were asked to refer other parents on, if they met the inclusion criteria. All parents who contacted the researcher met the inclusion criteria. Interviews were planned by phone and participants nominated a place and time for the interview. Sample size was determined by the number of participants responding to the study and the time limited scope of the project. Ten mothers with a child aged between 2 and 5 years responded to the call for participants and were recruited. No fathers sought to participate. A researcher's background can significantly influence the research process, findings and framing of conclusions (Malterud, 2001). In this study, the interviewer (KH) is a midwife and new graduate child health nurse who has a developing

	knowledge base, insight and experience in the nursing role. KH disclosed her professional status but had no previous relationship with participants. Regular reflection and team discussions assisted KH to check assumptions, motivations and systematically attend to the knowledge constructed. The sociodemographic characteristics of the 10 women who participated in the study are described in Table 1. The majority of women were aged between 30–35 years, were well educated, working part time, married and of Caucasian background.
Inclusion Criteria	Parents Child is overweight/obese Child's age: 2-5 years
Relevant themes	1. Maternal and Child Health nurse communication: participants described communication challenges faced by nurses when addressing weight concerns. According to the participants, MCH nurses either did not discuss the child's identified issue or lacked the communication skills to discuss it adequately. "The opening is there to discuss weight, food, activity when you're actually weighing and measuring the child" 2. Parent's perspectives on child overweight and obesity: Elements included their own previous understanding of the problem, their partner's reaction and how they personally felt about the issue. "I felt as though the health nurse was blaming me, that was exactly how it felt" 3. Role of the Health Care Practitioner: Participant views varied on the MCH nurse's role in discussing weight management. The majority of mothers felt it was to offer evidence-based information and support when discussing children's weight, while not being judgemental. "Established relationships encourage easier communication"

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Jachyra, 2018

Bibliographic Reference	Jachyra, Patrick; Anagnostou, Evdokia; Knibbe, Tara Joy; Petta, Catharine; Cosgrove, Susan; Chen, Lorry; Capano, Lucia; Moltisanti, Lorena; McPherson, Amy C.; Weighty Conversations: Caregivers', Children's, and Clinicians' Perspectives and Experiences of Discussing Weight-Related Topics in Healthcare Consultations; Autism Research; 2018; vol. 11 (no. 11); 1500-1510

Study Characteristics

Study type	Interviews
Aim of study	to examine the perspectives and experiences of children with ASD, their caregivers, and HCPs around discussing weight-related topics in healthcare consultations
Theoretical approach	Interpretive phenomenological analysis (IPA) approach
Study location	Toronto, Canada
Study setting	Canadian children's rehabilitation hospital
Study dates	Not provided
Sources of funding	Centre for Leadership in Child Development with support from Holland Bloorview Kids Rehabilitation Hospital Foundation
Data collection	Individual, in-depth, and in-person semi-structured interviews were conducted with children, caregivers, and HCPs. Separate interview guides were used for each stakeholder group. Questions were designed to elicit discussion about their experiences and perceptions of discussing weight-related topics in healthcare consultations. Consistent with our IPA approach, questions were open-ended and flexible in nature to understand the everyday practices and experiences of weight-related conversations in the clinic setting (Jachyra, Atkinson, & Washiya, 2015; Jachyra, Atkinson, & Gibson, 2014; Jachyra et al., 2018). Children and caregivers were interviewed in their homes (see Jachyra et al., 2018) as previous research has shown that it positions them as experts of this particular social space, and they can utilize their surrounding environment to illustrate a point they are making (Teachman & Gibson, 2013). Acknowledging the potentially sensitive nature of the research topic, caregivers were interviewed without the presence of their child to provide them with a safe space to speak openly about their child's weight and clinical encounters. During children's interviews, caregivers had the option to be present to help support, and potentially prompt their child to speak about a particular clinical experience. Some children were completely independent in sharing their perspectives and experiences, while others required some prompting to remind the child about clinical experiences. Interviews with HCPs were conducted at the children's hospital. Interviews were conducted by a research coordinator who had expertise in qualitative methodology and previous experience interviewing children, caregivers, and HCPs about weight-related topics. All interviews were audio recorded, and transcribed verbatim.
Method and process of analysis	Given the iterative nature of qualitative research, data generation and analysis occurred concurrently, and was guided by our IPA approach. Three members of the research team (PJ, TJ, AMC) read all of the transcripts and the remaining team members each read a selection of transcripts. To begin analysis, each transcript was first read and reread to be immersed in the data. When reading each transcript, line by line descriptive (content), language use (type and use of vernacular), and conceptual (possible meanings/interpretations) annotations (codes) of the text were made in the margins (Smith et al., 2009). Initially, three lists of annotations were generated from children, caregivers, and HCPs, and each were examined separately. The annotations and interview notes then were clustered, compared and contrasted across the interviews to examine patterns, and connections to map out interrelationships between the interviewees. Throughout analysis, we

	drew on “negative cases” (known as outliers in quantitative research), which are codes and themes that deviate and/or contradict the defining plotline and characteristics of an emerging theme (Phoenix & Orr, 2017). These inconsistencies in the analysis served as a valuable resource to explore the contradictions across participants’ accounts, and served to test our interpretations of the data. This iterative process enabled the development of themes, which were grouped if they were similar in nature. Drawing on a higher level of abstraction, the themes were descriptively labelled, and verbatim quotations were utilized to support the themes. Several strategies were used to facilitate the conduct of high quality qualitative research and analysis (Smith & McGannon, 2017): varied expertise on the research team (all members of the study team had experience working with children with ASD, and also represented clinical and research expertise in paediatrics, dietetics, nursing, rehabilitation science, medicine, psychology, and early childhood education); use of a reflexive dialogue; use of multiple coders and analysts; analytic memos within the transcripts, a consistent epistemological approach; and peer examinations about the process and developing interpretations of the data
Population and sample collection	Multiple stakeholder perspectives were sought to elicit a contextualized and nuanced understanding of weight related communication. Children, their caregivers, and HCPs at a large Canadian children’s rehabilitation hospital were recruited using purposive sampling (Etikan, Musa, & Alkassim, 2016). This approach was used to obtain “information rich cases” for the phenomenon being studied, that is, those with experiences of discussing weight management in healthcare settings related to ASD. With this sampling frame in mind, eligibility criteria for a child’s participation in the study were: a diagnosis of ASD as per DSM-5 criteria (American Psychiatric Association, 2013) and supported by the Autism Diagnostic Observation Schedule (Lord, Rutter, Dilavore, et al., 2012); aged 10–18 years; verbal fluency in English; attending the tertiary psycho-pharmacology clinic and currently being prescribed psychotropic medications; and Body Mass Index greater than the 85th percentile (Center for Disease Control, 2016). Caregivers of these children were also invited to take part in an interview as part of the study if they were the primary caregiver for the child, and were able to communicate in English. Finally, HCPs who worked in the psycho-pharmacology clinic were also invited to participate in an individual interview. The study included 21 participants. Eight children (4 male, 4 female) aged 11–17 years; eight caregivers (6 mothers and 2 fathers); and five HCPs (2 paediatricians, 2 nurses, and 1 neurologist) participated
Inclusion Criteria	Healthcare professionals Overweight/obese; Body Mass Index greater than the 85th percentile Parent/guardian English language Child’s age: 10-18 years Children had a diagnosis of autism and were attending a clinic. This included children attending the tertiary psycho-pharmacology clinic and currently being prescribed psychotropic medications

Relevant themes	1. Caregivers' and Children's Clinical Encounters 2. HCPs Reflect upon Clinical Practice 3. Establishing a Therapeutic Partnership

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Jones, 2014

Bibliographic Reference	Jones, Kay M; Dixon, Maureen E; Dixon, John B; GPs, families and children's perceptions of childhood obesity.; Obesity research & clinical practice; 2014; vol. 8 (no. 2); e140-8

Study Characteristics

Study type	Semi structured interviews
Aim of study	To explore perceptions and experiences of treating childhood obesity of (i) GPs, (ii) families involved in a childhood obesity study in general practice' and (iii) families not involved in the project, but who had concerns about childhood obesity.
Theoretical approach	None stated
Study location	Australia
Study setting	Primary care - GP practices
Study dates	2009
Sources of funding	Commonwealth Government through the General Practice Clinical Research Programme (Round 2) — Priority Driven Research Grants administered by NHMRC
Data collection	Supported by the literature, a semi-structured schedule was developed to address the aims (Table 1). Data were collected from GPs during workshops and from families during face-to-face or telephone interviews. All interviews were conducted in 2009. Workshops lasted approximately 1.5—2 h and interviews approximately 30—45 min. All interviews were audio-taped and transcribed verbatim.
Method and process of analysis	Data were thematically analysed independently by two investigators (KJ, MD). Key themes were compared and when there was a difference of opinion, issues were discussed until agreement was reached. Data are reported under the five themes that emerged from the data analysis. Generally, numbers are not used to describe data, but where relevant, numbers are used.
Population and sample collection	A convenience sample was recruited from the 10 GPs and 15 families involved in the study for the purpose of exploring GPs' perceptions and experiences of treating childhood obesity and families and children's

	perceptions, concerns and experiences of treating childhood obesity [47,48]. GPs were invited to participate during education workshops and to invite the families involved in this project to participate in a semi-structured interview. All 10 GPs (100% response rate) and eight of the 15 families agreed and participated (53% response rate). In addition, families not involved in this project were recruited via advertisements placed in local newspapers inviting them to participate in an interview; four families responded and all participated in an interview (100% response rate). The purpose of interviewing the second cohort of families was to explore whether their perceptions, concerns and experiences of treating childhood obesity were similar or different to families who were involved in the project. GPs and families were compensated for their involvement in this project. Of the 12 interviews, eight were conducted face-to-face and four by telephone. Children were present at five of the eight face-to-face interviews. Two of the children were from 'study' families and three were from 'non-study' families. Children commented during four interviews. Two children from one non-study family were present at one of the face-to-face interviews. No children were present and/or participated in the four telephone interviews. The group comprised eight females and five males with an age range of 8—16 years
Inclusion Criteria	GPs Participants in larger study Parent/guardian Children

Relevant themes	1. Raising the topic (of obesity)
	    1. GPs: GPs used a range of approaches including ''clinical impression triggers'' (GP1) ''a gentle, subtle approach'' (GP5), in a ''non-confrontational way'' (GP6) and ensuring to ''always include the family in the child's management plan''
	    2. Families: participants described the GP as being ''more interested in the children's life and wellbeing and has a better understanding of the family unit''
	2. Frustrations experienced by the GPs and families
	    1. GPs: issues around family dynamics and/or a lack of compliance and follow up, particularly when parents give in to children's demands were frustrating for the GPs
	    2. Families: few mentioned practice-based issues, such as whether the nurse or other staff spent more time with the child. Change of staff was an issue for one family, ''we started seeing one nurse, she left, and there was a period where there was nobody else''
	3. Support available for GPs to provide to families and/or anticipated by families
	    1. GPs: All GPs reported that specialists including the Royal Children's Hospital, allied health professionals such as dietitians and psychologists, community programmes and sport such as football, hockey, cycling, affiliations with schools, and gymnasiums were available in the various areas where the GPs were located.

	2. Families: The eight families involved in the project reported changes in how they managed their child's weight as a consequence of their involvement 4. Successes from involvement in the project 1. GPs: GPs' felt there were significant successes from involvement in the project which were both practice and patient related. 2. Families: For families involved the most important changes were related to sedentary behaviour and physical activity), food and portion size and children asking questions 5. Sustaining improvements — the GPs' and family's perspectives 1. GPs: Sustaining improvement revolved around continuing to ''measure the children regularly'' and ''educate them to have a healthy diet'' ensuring a ''more methodical approach'' 2. Families: Study families identified issues for sustaining improvement of weight management for their child as including ''ancillary staff [in the practice] helping, perhaps a dietitian could have helped'

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High (Minimal information provided in the methods, so cannot judge data collection method or research design. Data analysis does not appear to be rigorous.)
Overall risk of bias and relevance	Relevance	Relevant

McPherson, 2018

Bibliographic Reference	McPherson, A. C; Knibbe, T. J; Oake, M; Swift, J. A; Browne, N; Ball, G. D. C; Hamilton, J; "Fat is really a four-letter word": Exploring weight-related communication best practices in children with and without disabilities and their caregivers.; Child: Care, Health and Development; 2018; vol. 44 (no. 4); 636-643

Study Characteristics

Study type	Interviews
Aim of study	To present the findings of a recent scoping review to children with and without disabilities and their caregivers for their reactions; and to explore the experiences and perceptions of the children and their caregivers regarding weight-related communication best practices
Theoretical approach	Inductive thematic analysis from a relativist ontologic approach was undertaken using a systematic, iterative approach
Study location	Ontario, Canada

Study setting	Paediatric hospitals
Study dates	January–May 2016.
Sources of funding	Canadian Institutes of Health Research (Funding reference: 132037).
Data collection	Separate focus groups were conducted with children and caregivers at the two hospitals with individual interviews offered as alternatives. After verbal consent was obtained, a lay summary of the scoping review findings was sent to participants prior to their focus group/ interview. Written informed consent (and assent, when appropriate) was obtained in-person prior to data collection. All participants completed a short demographic questionnaire. Three members of the research team (A. C. M., T. J. K., M. O.) led the focus groups/interviews using a semi structured interview guide. We convened a Research Advisory Group to guide our original scoping review, comprising clinicians, caregivers of children with overweight or obesity, and researchers. The Research Advisory Group helped develop the interview guides, which clustered into three main sections considered to be clinically meaningful: (a) Who should participate in weight- related discussions?; (b) When and how should the topic of weight be broached?; and (c) What terminology should be used? Summarized findings for each of the three sections were briefly reviewed with participants, who were then invited to discuss their experiences, including where the existing literature did or did not resonate with those experiences. The discussions took approximately 1 hr
Method and process of analysis	All discussions were digitally recorded, professionally transcribed and managed using NVivo (v10). Inductive thematic analysis from a relativist ontologic approach was undertaken using a systematic, iterative approach (Fade & Swift, 2011). The data were read separately several times by all authors and emerging themes and patterns identified, from which a flexible coding system was created and applied to the data (by T. J. K.) and checked (by A. C. M.). Discrepancies were resolved through discussion. Coding ceased when it no longer added anything substantial to the overall analysis (Braun & Clarke, 2006). Sections of text assigned the same code were grouped, and a consolidated list of master themes produced and supported by verbatim quotations (all names are pseudonyms). The lists of master themes from children and caregivers were examined separately, then compared and contrasted to explore varying perspectives. Data from focus groups and individual interviews were combined after examining transcripts and finding little difference in data patterns (Lambert & Loiselle, 2008). Characteristics such as child age and presence of disability were considered when analysing the data, in order to understand the context within which participants derived meaning from their experiences (Dierckx, Gastmans, Bryon, & Denier, 2012). Dissenting views and “negative cases” were included where appropriate (Shenton, 2004). An audit trail of key analytical decisions was documented throughout the analysis. Methodological rigour was ensured by regular team discussions about the process and the ideas emerging from the data, and we provide detailed accounts to convey the contexts within which the discussions took place (termed “thick description”) to enhance credibility and assist with the transferability of the data (Shenton, 2004). Member checking was not employed as it was inconsistent with our relativist ontologic position (Fade & Swift, 2011). Responses to the demographic questionnaires were analysed descriptively using SPSS (v21). A supplementary file contains information required for reporting of qualitative studies using the “Consolidated Criteria for Reporting Qualitative Studies (COREQ)” (Tong, Sainsbury, & Craig, 2007)

Population and sample collection	Children and their caregivers (i.e., parents and guardians) were recruited purposively from two large paediatric hospitals in Ontario, Canada. Participants were either attending a tertiary-level weight management clinic for typically developing adolescents or receiving rehabilitation services from a hospital that serves children with conditions including cerebral palsy, spina bifida, autism spectrum disorder (ASD), and acquired brain injury. A maximum variation sampling strategy was used in relation to age, gender, and medical condition/diagnosis (Sandelowski, 2000). Child eligibility criteria were (a) aged 7–18 years; (b) have an interest in healthy lifestyles and weight management; and (c) able to communicate in English. Children were excluded if they had (a) severe cognitive impairments or (b) major co-morbid psychiatric illness (e.g., severe depression and anxiety) that impacted their ability to participate in a discussion. Primary caregivers of children who met eligibility criteria and could communicate in English were also recruited. Research ethics approval was obtained from both hospitals. Eighteen children (nine boys, nine girls; age: 14.0 ± 2.6 years) and 21 caregivers (17 mothers, one step-father, three other caregivers) participated in eight focus groups and seven interviews (Table 1). Two child and two caregiver focus groups were held with participants recruited from the weight management program (n = 11 children, n = 12 caregivers); the remaining participants were recruited from the rehabilitation hospital (n = 7 children, n = 9 caregivers).
Inclusion Criteria	Parent/guardian; and children English language Child’s age: 7-18 years Interested in weight management
Exclusion criteria	History of psychological illness Learning disability or condition

Relevant themes	1. Who should participate in weight-related discussions? "If it was an appointment and I knew it was going to be about [weight], I would ask my Mom if I would not have to go to the appointment so I wouldn't have to hear about it. "
	    1. Is everyone on the same page?
	    2. The triadic relationship
	2. When and how should the topic of weight be broached? "I feel like weight loss should be discussed only in certain areas, like, I don't feel like all your doctors should be like … why don't you lose some weight"
	    1. Timing: A delicate balance
	    2. The clinical imperative
	    3. The blame and shame game
	3. What terminology should be used? "For some people, if they hear [the word] obese they may think “oh this is more serious than I thought, this is something that I need to do something about,” right?"
	    1. Fat is a four-letter word
	    2. Visual materials: Benefits and unintended consequences

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate (Some concerns about the relationship between the researcher and participants)
Overall risk of bias and relevance	Relevance	Relevant

Sjunnestrand, 2019

Bibliographic Reference	Sjunnestrand, My; Nordin, Karin; Eli, Karin; Nowicka, Paulina; Ek, Anna; Planting a seed - child health care nurses' perceptions of speaking to parents about overweight and obesity: a qualitative study within the STOP project.; BMC public health; 2019; vol. 19 (no. 1); 1494

Study Characteristics

Study type	Interviews
Aim of study	to explore CHC nurses' perceptions of speaking to parents about children's overweight/obesity and of their role in referring children to treatment for overweight/ obesity
Theoretical approach	realist approach
Study location	Stockholm, Sweden
Study setting	child health care (CHC) centers
Study dates	2010–2012
Sources of funding	The STOP project received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 774548.
Data collection	Data were collected using individual, semi-structured interviews. All interviews were conducted by the first author, MS, as part of a Master's degree. Interviews took place over the telephone, except one that was held in the nurse's office due to the nurse's preference for an in person interview. The interviews were audio recorded and transcribed verbatim by MS and a trained journalist. Field notes were made during the interviews. The interviews followed an interview guide developed by MS in consultation with an expert group (all female). The expert group consisted of main supervisor AE, a postdoctoral fellow in early childhood obesity treatment, co-supervisor PN, a professor in Communication of Dietetics, and co-supervisor KN, a paediatric nurse and research assistant. All three experts have extensive experience of talking to families about overweight and obesity and have worked closely with child health professionals in different settings to improve overweight and obesity care. The interview questions aimed to capture CHC nurses' experiences of communicating with parents about their children's overweight, and to identify the nurses' perceived barriers and facilitators to referring children to obesity treatment (see Table 1). The interviewer asked all questions to all nurses, as well as individualized follow-up questions based on each nurse's responses. The questions were pilot tested using cognitive interviews with two CHC nurses and then revised for a final version. During

	these cognitive interviews, think-aloud and verbal probing techniques were used. Think-aloud is a technique where the participant is encouraged to verbalize how she/he reasons when answering the questions and verbal probing refers to follow-up questions asked by the interviewer. Both techniques enable the researcher to identify strategies used by the participant when she/he attempts to answer the question to gain a better understanding of the cognitive processes evoked by the questions. It was emphasized that the participants were free to express their own thoughts and to raise additional issues during the interviews. Questions that did not provide comprehensive answers or did not capture what was intended were removed or rephrased. For example, the question “When do you usually address children’s overweight?” was removed because the answer was given in a previous question. In another example, the question “Do you feel that the children’s weight status is perceived as a problem for parents?” was changed to “When do parents seek help for their child’s obesity?” In addition, some words were changed or added to questions in order to soften the tone. The final version of the interview guide consisted of 14 open-ended questions. The reporting of this study follows the COnsolidated criteria for REporting Qualitative research (COREQ) checklist
Method and process of analysis	The interviews were analysed using thematic analysis, following a realist approach. This approach allowed us to focus on the experiences the participants described, ascertain the meanings they assigned to these experiences, and relate these to the everyday realities of working in CHCs . The transcribed interviews were read and re-read by MS and KN and coded by MS using an inductive approach, without being limited to a preexisting coding frame . Thus, identified themes were associated with the participants’ responses rather than directly linked to the specific questions asked. MS noted initial ideas that emerged while reading through the interviews, to identify an overall pattern. MS then placed relevant textual entities into a new document and coded these. MS, AE and KN met weekly to follow the progress of analysis and discuss the coding. Once the coding was completed, MS, AE and KN sorted the codes into different themes and subthemes. Themes were identified on semantic level (i.e., each theme reflected content explicit in the data). Lastly, all identified themes were organized in a table.
Population and sample collection	Participants were recruited through a purposive sampling approach. First, an invitation letter explaining the aim and content of the study was sent by email to all registered CHC nurses employed in Stockholm County (n = 442). Nurses who wanted to participate in the study were asked to contact the research group. No nurses responded to this letter. As the next step, the first author, MS, visited 15 CHC centers, most of which were located in areas with a high prevalence of childhood overweight and obesity, and provided information about the study in person to all nurses at each CHC center. All nurses who attended those meetings were invited to participate in an interview. In addition, nurses (n = 24) from 8 of the visited 15 CHC centers were individually approached by phone. The nurses who declined participation reported they had limited experience of addressing children’s overweight to parents. Nurses who wanted to participate were sent an informed consent form by mail and were asked to send the signed original back to the research group. The interviews were then scheduled for a date and time that suited the nurses. A total of 17 CHC nurses representing 10 CHC (all female with an average working experience of 6.7 years (SD ± 4.9 years)) were interviewed.

Inclusion Criteria	Nurses
Relevant themes	1. The relationship between the nurse and the parent: Nurses emphasized the importance of developing and maintaining trusting relationships with parents, and interacted carefully with parents to raise awareness of child overweigh 1. Afraid to burn bridges 2. Plant a seed 2. Glitch in the system: Nurses identified several organizational factors that interfered with their ability to communicate with parents about children's weights and offer them appropriate support. The subthemes focus on organizational and relational factors in the healthcare system 1. Working together 2. Improving structures and maintaining knowledge

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate (Some concerns about the recruitment strategy, participants were not initially willing)
Overall risk of bias and relevance	Relevance	Relevant

Syrad, 2015

Bibliographic Reference	Syrad, H; Falconer, C; Cooke, L; Saxena, S; Kessel, A. S; Viner, R; Kinra, S; Wardle, J; Croker, H; 'Health and happiness is more important than weight': A qualitative investigation of the views of parents receiving written feedback on their child's weight as part of the National Child Measurement Programme.; Journal of Human Nutrition and Dietetics; 2015; vol. 28 (no. 1); 47-55

Study Characteristics

Study type	Semi structured interviews
Aim of study	to explore parental perceptions of overweight children and associated health risks after receiving National Child Measurement Programme (NCMP) weight feedback
Theoretical approach	theory of planned behaviour
Study location	England, UK
Study setting	Primary Care
Study dates	2010–2011
Sources of funding	National Institute for Health Research (NIHR) under its Programme Grants for Applied Research programme [RP-PG-0608-10035 – The Paediatric

	Research in Obesity Multi-modal Intervention and Service Evaluation (PROMISE) programme].
Data collection	An interview schedule was developed by two of the authors, and consisted of open-ended questions, with prompts used as required, to explore parents' perceptions of their child's weight and health (for interview schedule, see Appendix A). For the present study, we focused on responses to questions specifically about reactions to NCMP written feedback and behaviour change after receiving feedback. Example items included 'Do you agree/disagree with the feedback?' and 'Is there anything that would help you to make changes to your child's diet?'. Parents provided written consent before participation. On average, interviews lasted 30 min, with face-to-face interviews in the parents' homes lasting 10 min longer than telephone interviews. Interviews were audiotaped using a digital voice recorder. Interviews were conducted by one researcher with considerable experience in conducting qualitative interviews with parents of school-aged children
Method and process of analysis	Interviews were transcribed verbatim and reviewed for accuracy. A thematic analysis was carried out using the qualitative data analysis software package NVIVO (Bazeley & Jackson, 2013). Braun & Clarke (2006) suggest that thematic analysis can be approached in an essentialist/ realist way, in which the experiences, meanings and the reality of participants are reported, or in a constructionist way, which explores the ways that experiences are the effects of a range of discourses within society. It was acknowledged that parental views of NCMP feedback will be influenced by social factors, such as culture, history and language (Willig, 2008), and so, for the present study, a constructionist framework was used, focusing at a latent/interpretative level on the underlying views, assumptions and conceptualisations of parents receiving overweight feedback about their child. Transcripts were read and re-read, and initial codes were drawn from the data. These codes were collated into themes, in close discussion with three of the authors, and a coding frame was developed. One researcher conducted and analysed all the interviews, and themes were driven by her preconceptions, with the research question in mind when conducting and analysing the interviews. Therefore, an epistemological strategy was taken because the researcher's interest in the research area, and a view to potentially improve the NCMP feedback and other services involving parents of overweight and obese children, would have introduced some degree of subjectivity. This subjectivity was important because different parents would inevitably respond to the NCMP feedback in different ways; however, to account for this, one in five transcripts was randomly selected to be coded by a second researcher who was provided with the raw transcripts and coding frame. This inter-rater reliability aimed to check agreement with the themes and ensure that both researchers deduced similar themes from the transcripts. Minor changes to terminology were made, although there were no changes to the emerging themes
Population and sample collection	Parents were recruited from five National Health Service (NHS) Primary Care Trusts enrolled in the NCMP programme in England in 2010–2011 as part of a larger study aiming to evaluate the impact of NCMP feedback. The study methods have been previously reported in detail (Falconer et al., 2012). This qualitative study recruited parents of overweight or obese children purposely on the basis of their response to a pre- and post-NCMP feedback survey, which was sent to all parents with children involved in the NCMP from 2010 to 2011. This questionnaire assessed parents' awareness that their child's weight might pose a risk to their health: the primary outcome of the main study. Responses were obtained for 1844 parents, of whom 285 were parents of obese and overweight children, and therefore eligible for interview. Of

	these, we aimed to recruit 50 parents, of whom an equal proportion had and had not indicated awareness that their child's weight might pose a risk to their health. Parents were selected from different socioeconomic and ethnic backgrounds to obtain views across a range of social circumstances, and an equal proportion of parents with children aged 4–5 years and 10–11 years was selected. Because we were interested in the views of all parents with children in the NCMP, we did not exclude anyone with a child that may have not been following a typical development trajectory (e.g. as a result of a disability). Parents were sent a written invitation to participate and, if parents did not contact us to decline participation, this letter was followed up by a maximum of three phone calls, carried out during the day and evening to minimise selection bias.
Inclusion Criteria	Child participated in the National Child Measurement Programme during 2010-2011 Participants in larger study Pre- and post NCMP feedback survey, which was sent to all parents with children involved in the NCMP from 2010 to 2011 Parent/guardian of children aged 4-11; child is overweight/obese
Relevant themes	1. Broad definitions of healthy: Parents reported that they placed more importance on their child's emotional and physical health than weight: 'I see it more as being healthy as opposed to being you're too fat or you're too thin' 2. Inherited/acquired factors: When asked why they thought their child had been classified as overweight, the most common explanation was that the child had puppy fat: 'I look at him and I see puppy fat, I don't see overweight fat, I think they're two different things' 3. Appearance: Some parents therefore agreed their child was overweight, and perceived them to look overweight: 'She looks fat' 4. Cultural influence: Although not commonly commented on, some parents of non-white ethnicity described a disparity between 'traditional' British views of overweight and those of their culture where being overweight was more acceptable

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Toftemo, 2013

Bibliographic Reference	Toftemo, Ingun; Glavin, Kari; Lagerlov, Per; Parents' views and experiences when their preschool child is identified as overweight: A qualitative study in primary care.; Family Practice; 2013; vol. 30 (no. 6); 719-723

Study Characteristics

Study type	Interviews
Aim of study	To explore parents' views and experiences when health professionals identify their preschool child as overweight.
Theoretical approach	None stated
Study location	Eastern Norway
Study setting	Well child clinics
Study dates	March–September 2012
Sources of funding	the Norwegian Committee on Research in General Practice, a division of the Norwegian College of General Practice
Data collection	Parents gave their informed consent to participate in semi-structured interviews conducted by the first author; she is a GP with a speciality in family medicine (Norwegian Medical Association). The other authors have PhDs applying qualitative methods. The interviews took place at the families' local WCC during March–September 2012, no <4 weeks after consultation at the WCCs. The interviews lasted 45–75 minutes. An interview guide was used during each interview. The main topics included the parents' experiences at the WCC, their perceptions of their child's weight and their own weight and the family's relationship within their extended family and with kindergarten. Interviews were recorded digitally and transcribed verbatim by the first author
Method and process of analysis	Sound tracks were listened to, and transcriptions were read by all three authors who worked together on the qualitative analysis through discussions Transcripts were imported into the software package ATLAS.ti (atlasti. com). Qualitative data were analysed through systematic text condensation as described by Malterud.10 Analysis followed these steps: (i) reading transcripts and listening to sound tracks to obtain an overall impression; (ii) identifying and coding for units of meaning, representing different aspects parents experienced when their child was identified as overweight; (iii) condensing and summarizing contents of each coded group and (iv) generalizing descriptions and concepts summarized into subcategories and then into main themes.
Population and sample collection	To this study, we recruited parents of preschool children with an ISO-BMI of 25 or above. GPs and public health nurses at seven WCCs in the eastern rural part of Norway informed parents about the study, and handed out written invitations. These WCCs were located within 150 km from the hometown of the first author enabling visits by car. They covered all children with varying socioeconomic background in the area. During the recruitment period of 6 months, 4 of the WCCs were able to recruit participants: mothers of 9 children and both parents of 1 child. The families were ethnic Norwegian and had at least one grandparent living in the same county. All children were healthy and attended kindergarten.
Inclusion Criteria	Parent/guardian Child is overweight/obese; BMI>25 Child's age: Pre-school

Relevant themes	1. Parents' feelings and concerns when being told that their child is overweight: Parents reported that overweight was a thoroughly difficult issue to discuss. They presented themselves and their children as easily hurt. Most parents did not consider their child to be overweight. This theme comprised three subcategories: 1. (i) parents being vulnerable; 2. (ii) relationship with the child; 3. (iii) conceptions about the child 2. Motivational factors: All parents accepted that they were mainly responsible for their child attaining normal growth. However, they expressed a desire to receive support from primary health care, kindergarten and grandparents. Participants noted several disadvantages and bad experiences in relation to overweight. This theme comprised three subcategories: 1. (i) consequences of overweight; 2. (ii) dialogue with health professionals; 3. (iii) relationships with significant others.

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Moderate (Concerns that there was not enough detail on the methods and the sample size was small)
Overall risk of bias and relevance	Relevance	Relevant

Turner, 2016

Bibliographic Reference	Turner, Gillian L; Owen, Stephanie; Watson, Paula M; Addressing childhood obesity at school entry: Qualitative experiences of school health professionals.; Journal of Child Health Care; 2016; vol. 20 (no. 3); 304-313

Study Characteristics

Study type	Focus Groups Semi structured interviews Open ended questionnaires
Aim of study	To explore the practice of school health professionals in addressing childhood obesity at school entry, with a view to explaining potential reasons for low referral rates and understanding how the role of school health professionals can be optimised to address childhood obesity at an early age.
Theoretical approach	None stated
Study location	North-West England, UK

Study setting	Schools
Study dates	October 2012 and July 2013
Sources of funding	This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors. This study formed part of Gillian Turner's MSc dissertation
Data collection	Mixed qualitative methods (semi-structured interviews, focus groups and questionnaires) were used to gather perspectives of staff in different roles. Semi-structured interviews were used to capture the experiences of Ms (n=3), who operated in different geographical areas of the city. Conversely SNs/CHPs operated in geographical teams and shared a common frame of reference (SEA delivery), therefore focus groups were used to promote peer interaction and explore the shared and diverse experiences of addressing child weight (Kidd and Parshall, 2000). Two focus groups were conducted with SNs (n=12) and two focus groups with CHPs (n=6), organised by geographical area to take place during office hours. SNs (n=4) and CHPs (n=1) who were unavailable to attend focus groups completed an open-ended e-mail questionnaire. Questions for all methods were focussed around the research questions, with additional probes as appropriate (see supplementary resources 1, 2 & 3 for full schedules). Although each interview/focus group had key themes, the conversation was driven by participant experiences, allowing the emergence of inductive themes beyond those already identified in the nursing literature (Steele et al., 2011). To enhance the trustworthiness of data, participants were assured of their anonymity and encouraged to air their honest views, even if their opinions were different from others. All focus groups were facilitated by PW with assistance from either GT or SO. Interviews were conducted by SO or PW.
Method and process of analysis	Interviews and focus groups were audio-recorded, transcribed verbatim and imported (along with the questionnaires) into the QSR NVivo 10 qualitative software programme for analysis. A thematic analysis (Braun and Clarke, 2006) was conducted by GT, with frequent debriefing sessions with PW to debate emerging themes and review coding decisions. After reading and re-reading transcripts for familiarisation, text was coded into broad themes aligned with each research question. Coded text was scrutinised for patterns and similarities, and grouped together to form inductive themes which were then reviewed and further refined. When coding the focus group data, interaction between participants was preserved to ensure viewpoints were considered in the context of the surrounding conversation (Kidd and Parshall, 2000)
Population and sample collection	The study was conducted in a large city in the North-West of England with high levels of socio-economic deprivation. Prevalence of childhood obesity was higher than the national average, with 28.6% of children overweight or obese at reception age (compared with 22.2% nationally, Health and Social Care Information Centre, 2013). The school health service was grouped into three geographical areas, each with a service manager (M) plus smaller teams made up of school nurses (SN, registered nurses with caseload responsibilities) and child health practitioners (CHP, registered nurses who supported school nurses in the delivery of care, but did not hold caseload responsibilities). All Ms, SNs and CHPs employed in the study location between October 2012 and July 2013 were eligible to take part. Invites were e-mailed directly to Ms and to team leaders (SNs) who distributed invites amongst SNs/CHPs (estimated to be 45-55 staff). The inclusion of staff in

	different roles was deemed important as stakeholders differ with regards to perceptions of childhood obesity (Staniford et al., 2011). Twenty-six staff (25 females, 1 male) consented to participate, including three Ms (one from each geographical area), 16 SNs and 7 CHPs. Number of years in current roles ranged from one month to 13 years.
Inclusion Criteria	School staff A service manager (M) plus smaller teams made up of school nurses (SN, registered nurses with caseload responsibilities) and child health practitioners (CHP, registered nurses who supported school nurses in the delivery of care, but did not hold caseload responsibilities Involved in child measurement Employed in study locations
Relevant themes	1. Perceived role and current practice: Participants viewed health promotion as an important part of the school health professional's role 2. lack of capacity: Participants felt their ability to support children who were overweight was limited by reduced staffing levels and the requirement to cover for other colleagues "We have sickness and absence, we have annual leave, we have other commitments", 3. lack of clear protocols: Participants were not aware of any written protocols within the school health service related to childhood obesity "there's no clarity on what we should be doing…I don't know about anyone else but I don't know any clear guidelines" 4. Challenges of engaging parents: Participants described how parents often failed to engage "the ones that really need it don't access it", 5. Confidence in addressing weight issues: Participants expressed mixed levels of confidence in addressing weight issues with families. "We're not trained formally, you're not confident in what you're delivering you know" 6. Training: There was a strong feeling amongst participants that training related to childhood obesity was insufficient. "I didn't have formal training, but you're learning as you go along"
Additional information	Questionnaire data included as it is combined with focus groups and interviews

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Adults

Atlantis, 2021

Bibliographic Reference	Atlantis, Evan; John, James Rufus; Fahey, Paul Patrick; Hocking, Samantha; Peters, Kath; Clinical usefulness of brief screening tool for activating weight management discussions in primary cARE (AWARE): A nationwide mixed methods pilot study.; PloS one; 2021; vol. 16 (no. 10); e0259220

Study Characteristics

Study type	Semi structured interviews
Aim of study	To assess the clinical usefulness of a new screening tool based on the Edmonton Obesity Staging System (EOSS) for activating weight management discussions in general practice
Theoretical approach	None stated
Study location	South Australia, New South Wales, Queensland, Victoria, and Western Australia
Study setting	General practice
Study dates	Not stated
Sources of funding	iNova Pharmaceuticals (Australia) Pty Ltd (https://inovapharma.com/), in partnership with the National Association of Clinical Obesity Services Incorporated (https://www.nacos.org.au/) and Western Sydney University.
Data collection	We collected qualitative data from GP participants soon after they had completed all the study tasks in most of their patients enrolled in the study and from patient participants soon after (no more than two weeks apart) their second appointment. To explore GP and patient participants' perspectives of the feasibility and applicability of the tool in general practice, we utilised semi-structured interviews. The interviews included a set of open-ended questions generated prior to the interview to uncover different perspectives (S2 Appendix). One author (JRJ) conducted the interviews after receiving expert training by another author with extensive experience in qualitative interviewing (KP). He used prompt questions to gain a deeper understanding of participants' perspectives or to clarify aspects of their narratives. We sought to complete the interviews within 10 to 15 minutes to minimise study burden. Additionally, we sent the interview questions to some patients who had requested them via a text message prior to their scheduled interview. All interviews were audio-recorded for accurate verbatim transcription
Method and process of analysis	The audio-recordings were transcribed verbatim using the online Otter.ai software and imported into Microsoft Word documents for data management. We adopted Braun and Clarke's six phase method of thematic analysis to ensure rigour in the analytic process. The first phase identified by Braun and Clarke is familiarisation with the interview data. This involved immersion in the data by repeatedly listening to the audio-recordings while reading and re-reading the interview transcripts. The second and third phases consisted of identifying patterns and meanings, organising these into initial codes, and then generating broad themes and sub-themes. The fourth phase of analysis involved reviewing the data set to ensure themes are coherent and supported by the data and the fifth phase involved further development and refinement

	of the themes and sub-themes. Transcripts were independently reviewed and analysed by authors (JRJ, KP, EA) and themes were discussed and further developed until consensus was reached. In the sixth and final phase of analysis, final themes integrated relevant extracts from participants' transcripts with the guiding narrative to authentically convey their experiences.
Population and sample collection	GP participants: The GP participants were recruited via the authors professional networks, namely the National Association for Clinical Obesity Services (NACOS) and Healthed, using a promotional flyer seeking expressions of interest "to participate in paid research testing a brief screening tool to help them initiate discussions about obesity with their patients.". They received payment of $250 (Australian dollars) per patient recruited and completed, to partially compensate them for the extra study tasks over and above standard care. Patient participants: The GPs recruited the study patients from their practices. Patients were not reimbursed for their participation in the study. We used purposive sampling to ensure participants had relevant experience with the phenomenon of interest. Despite the nature of the present pilot study, we anticipated that the small target sample sizes for collecting GP and patient participants' perspectives would be adequate to provide credible and trustworthy preliminary evidence of the feasibility and applicability of the EOSS-2 Risk Tool in general practice. For instance, expert opinions argue that sample size targets for qualitative research have no firm lower bounds. It has been suggested that sample sizes between one and 12 may be most efficient for homogeneous populations and up to 30 for heterogeneous populations. Interviews with patients continued until no new information was revealed and data saturation was reached. Five GPs participated and enrolled 25 patients. One GP recruited one patient only, whereas the other GPs recruited six patients each. Nineteen (76%) patients were aged 45 years or more, five (20%) were male, and 20 (80%) were classified as having obesity.
Inclusion Criteria	GPs: Practicing and able to recruit patient participants Patients: Overweight/obese; eligible for weight management Age: 18-65 years Capacity to give informed consent
Exclusion criteria	Pregnant or planning to become pregnant during the study; breastfeeding or currently lactating History of psychological illness Learning disability or condition Condition such as to interfere with the patient's ability to understand the requirements of the study
Relevant themes	1. GP recognition of obesity as a health priority: Most GP participants had a special interest in obesity and an excellent understanding of its

	importance. "I usually try to attend all the webinars and everything I can get. " 2. Obesity stigma: Most of the GPs pointed to the usefulness of the tool in discussing weight related issues with their patients, as it helped them initiate health based and non-judgmental unbiased conversations with their patients. "you can just show them the test. See you are high risk. So let's talk about this time to change." 3. Patient health literacy: The GP participants reported that the tool had increased the level of awareness and understanding of weight related health risks. "My knowledge has improved 100%, that a lot of things are linked to it, like having surgeries, that the recovery from the surgery could impact your weight gain" 4. Patient motivation for self-management: The application of the EOSS-2 Risk Tool motivated patients to focus on self-management their weight related complications. "I'm more confident that I can lose weight. She's [GP] there to help and refer me to the people that can help me as well." 5. Applicability and scalability: There was consensus among most GPs that the EOSS-2 Risk Tool was easy to use, relevant to a range of their patient groups, and possibly scalable in general practice. "Yes. CVD risk calculator, diabetes risk calculator, we only use this and K10 score and this kind of thing. We use it a general screening. It just [needs to] become more coincided. And to make it more organized if you have got something visible."

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High (Due to potential conflict of interest: the tool being tested was developed by the research team)
Overall risk of bias and relevance	Relevance	Relevant

Beeken, 2021

Bibliographic Reference	Beeken, Rebecca J.; Scott, Anna M.; Sims, Rebecca; Cleo, Gina; Glasziou, Paul; Thomas, Rae; Clifford, Helen; A Community Jury on initiating weight management conversations in primary care; Health expectations : an international journal of public participation in health care and health policy; 2021; vol. 24 (no. 4); 1450-1458

Study Characteristics

Study type	Focus Groups 'Community jury' structure which imitates a courtroom jury decision making process and guides discussions towards forming a consensus and group 'verdict'
Aim of study	To elicit the views of people with overweight and obesity about the role of GPs in initiating conversations about weight management.

Theoretical approach	None stated
Study location	Unspecified region, Australia
Study setting	Conducted through Taverner Research using a random-generated landline and location known mobile sample drawn from SamplePages
Study dates	10-11 March 2018
Sources of funding	This work was supported by an Endeavour Award and a Yorkshire Cancer Research University Academic Fellowship awarded to Dr Beeken. Dr Scott is supported by an NHMRC Centre for Research Excellence (# 1044904), Dr Thomas and Ms Sims are supported by an NHMRC Program grant (# 1106452), and Professor Glasziou is supported by a NHMRC Research Fellowship (#1080042)
Data collection	All sessions except for the final deliberation were facilitated by an experienced facilitator and researcher, who had conducted work in the field of obesity/weight management. The facilitator ensured equal participation, recorded questions and noted participant concerns. Two observers took notes on participant comments, affect and participation, except during the final confidential deliberation. To not lead or bias the jurors towards a specific recommendation, only jury group members were present during private deliberations. On Day 1, following written consent, participants completed a brief survey to assess their comprehension of the topic and attitudes prior to receiving information. Four experts with clinical, research and public health expertise, each presented 20-minute voice over PowerPoint presentations followed by a telephone question–and-answer session with the jurors. As background, the first expert provided a scientific overview of obesity; the second presented on the available resources and services for weight management in the local region. The third and fourth experts presented opposing views on whether GPs should initiate conversations with patients about weight management. Participants were provided with hand-outs of the presentations and the experts' biographies. Participants commenced facilitated discussions after the presentations and broke for the day. On Day 2, participants shared overnight reflections and, where needed, re-questioned the experts by telephone. Participants then deliberated in private until a consensus or impasse was reached and presented their decisions on the two questions to the facilitator and other researchers. Postsurveys were administered to participants prior to CJ completion
Method and process of analysis	CJ proceedings were audiotaped and transcribed. Reasons for the jury recommendation were analysed by two researchers using thematic analysis.
Population and sample collection	Recommendations for the composition of CJs suggest a sample size between 12 and 25 is appropriate.18 We were therefore aiming to recruit 15 participants to allow for some dropout and ensure there were sufficient people to encourage a wide ranging, but manageable, discussion, where all voices would be heard.19 We were seeking to obtain the views of 'consumers' (the affected public),17 as these would be most relevant to GPs considering this issue. Therefore, we recruited participants over 18 years with a body mass index ≥25 (calculated from self-reported height and weight). We excluded anyone unable to provide informed consent due to mental incapacity, or unable to speak or understand English. We recruited participants from a region in Australia through Taverner Research using a random-generated landline and location known mobile sample drawn from SamplePages. This sample frame had the potential to cover 80% or more of the population in the

	region. Compared with an online panel or market research database, recruits were therefore less likely to have been exposed to research and people without internet could be included. We requested roughly equal numbers of men and women, and where possible, a range of education levels and ages. Using the random generated and location known telephone numbers, Taverner Research contacted potential participants and, without coercion or pressure, asked respondents whether they would be willing to receive more information about the study. Interested participants were checked by Taverner Research for eligibility, and given further details about the study, including an explanatory statement containing details about the nature and purpose of the CJ alongside contact details for the research team in case they had any queries, and a consent form. If potential participants agreed to take part after reading this sheet, and having had the opportunity to contact the research team with any queries, then they were asked to sign a consent form. Participants were asked to either send the consent form in advance, or bring a hardcopy on the day of jury. Written consent was obtained from all participants before commencing the CJ. CJ participants received two $100 gift cards as reimbursement for their time. Of the 13 participants recruited, 11 (5 males and 6 females) attended the CJ weekend. No explanations were provided for nonattendance. Mean age of attendees was 47 years (SD 20); median BMI was 29.1 (IQR 26.6-31.6). All jurors had completed high school and a majority had some post-high school education
Inclusion Criteria	Location: specific region Overweight/obese; BMI>=25 Over 18 years General public
Exclusion criteria	Learning disability or condition Unable to provide written consent Limited/no English
Relevant themes	1. Community Jury decision, GP initiating conversation on weight management: The jury found the original first question problematic and opted to change it to ‘Should GPs discuss lifestyle, health, and weight management, with their patients? 2. Jury's rationale for changing the question: The jury felt it was important that weight management be considered as just one aspect of overall health as part of a holistic approach to care. "? So, it’s not as focused on weight, but it’s also looking at all of the factors that are contributing to the overweight or obese situation? " 3. Jury's rationale for verdict: Jurors unanimously agreed a GP was the most appropriate person to discuss weight management with an individual as they could be objective. "everyone trusts their doctor, to a certain degree. They trust they’re educated, they trust they’ve seen it all"

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High (Concerns about the approach to data collection. Too rigid to address the research question adequately and minimal information on data analysis method)
Overall risk of bias and relevance	Relevance	Relevant

Blackburn, 2015

Bibliographic Reference	Blackburn M; Stathi A; Keogh E; Eccleston C; Raising the topic of weight in general practice: perspectives of GPs and primary care nurses.; BMJ open; 2015; vol. 5 (no. 8)

Study Characteristics

Study type	Semi structured interviews
Aim of study	To explore general practitioners' (GPs) and primary care nurses' perceived barriers to raising the topic of weight in general practice
Theoretical approach	Theoretical Domains Framework (TDF)
Study location	South West of England, UK
Study setting	General practices located in one primary care trust
Study dates	January and February 2013
Sources of funding	Wiltshire Public Health
Data collection	A flexible interview schedule was developed based on the TDF domains and a review of empirical research literature concerning barriers to health professional prevention and management of obesity in primary care (see online supplementary additional file 2). The topic guide for the interviews began by asking participants about the factors that triggered them to broach discussions about weight loss. The remainder of the questions focused on the theoretical domains, to gain insight into factors hindering discussion about weight loss. Prior to interviews, the questions were piloted with three GPs and two primary care nurses, to assess clarity and focus of the interview schedule, and refined as appropriate. Face-to-face individual interviews were conducted by the lead researcher (MB), at a time and place to suit the participant. Interview locations included general practice offices, the University of Bath and participants' homes. Interviews lasted between 30 and 90 min. Participants were encouraged to express the barriers most salient to them and prompted to expand on views when deemed appropriate by the researcher. Interviews were digitally audiorecorded, and then transcribed verbatim by the lead researcher and an external agency with transcription expertise.
Method and process of analysis	Audio recordings were transcribed verbatim in Microsoft Word and then uploaded to NVivo (V.10) for coding and data organisation. A period of familiarisation with the data set by the lead researcher was followed by a

	process of coding whereby a priori themes directed by the interview topic guide, unexpected emergent themes and recurring viewpoints were identified. A deductive approach to content analysis34 was used to code the data to the TDF framework, whereby data were reviewed for content and correspondence to identified categories of the TDF.31 The manifest and latent content were both examined.35 36 The TDF coding framework developed by Heslehurst et al31 was used to ensure code names were matched to the appropriate domains. The accuracy of this initial coding, derived from a subset of the data, was checked by other members of the research team, and then used to guide the indexing of the remaining transcripts. Following the mapping of codes to the domains of the TDF, the lower order themes were charted and organised into three salient higher order themes that manifest within the whole data set. This process was facilitated by drawing on principles of thematic analysis37 and additional behaviour change theory designed to guide the grouping of domains in the TDF into broader components.38 At the final stage of data analysis, the derived themes for GPs and nurses were compared, and similarities and differences were identified. Analysis was a recursive process that developed over time, with the lead researcher continually revisiting the data set and theoretical literature before arriving at the final themes
Population and sample collection	Purposive sampling was used to recruit a heterogeneous sample of GPs and nurses working within one primary care trust in the South West of England. Study information was provided at a practice manager meeting, and emails outlining the study were sent to 58 GP surgeries and to a network of sessional GPs in the local authority. This resulted in 13 GPs and 14 nurses agreeing to be interviewed after receiving further details about the study. Snowball sampling was also used to recruit participants; four GPs and three nurses were approached, either in person or via email, and all agreed to be interviewed. Prior to taking part in the study, participants were informed that interviews would involve discussion about views of obesity, role and efficacy beliefs, and the challenges involved in raising the topic of weight in general practice. Participants were recruited until no new information and understanding from the interviews occurred.32 33 As a token of appreciation, participants were offered the opportunity to claim practice level reimbursement for their time. Of the 17 GPs interviewed, 5 were partners, 6 were salaried (1 of whom was a GP assistant) and 6 were locums. Of the 17 nurses interviewed, 3 were nurse practitioners. Nursing roles varied widely: six nurses specialised in diabetes care (3 of whom also carried out general practice nurse duties), three nurses specialised in chronic obstructive pulmonary disease and asthma (2 of whom also carried out general practice nurse duties), four nurses worked in emergency and minor illness roles (1 of whom also carried out general practice nurse duties), and four nurses were identified as having a generalist practice nurse role. Respondents came from rural, semirural and urban practices.
Inclusion Criteria	GPs
Exclusion criteria	None reported
Relevant themes	1. Knowledge: Lacking content knowledge of guidelines, Not recognising obesity as a complex medical problem, Uncertainty about raising the topic routinely

	2. Skills: Uncertainty about how to raise the topic sensitively. Uncertainty about how to raise the topic when patient is not consulting with related problem 3. Beliefs about consequences: Potential to damage the doctor–patient relationship, Concern that patient will feel alienated and disengage from healthcare, Beliefs about negative responses, Potential to 'open a can of worms' 4. Beliefs about capabilities: Feeling ineffective at helping patients with weight loss 5. Motivation: Desire to maintain a positive, non-judgemental relationship with patient 6. Competing goals: Prioritising other areas of patient care, Prioritising other public health concerns 7. Emotion: Fear of upsetting patients, Feeling awkward/uncomfortable raising the issue, Hopelessness, Frustration 8. Professional role and identification: Threat to professional reputation, Impact of own weight status, Personal feelings about advocating weight loss 9. GP practice and available resources: Having time to open up a sensitive issue, Feeling as if there's nothing to offer patients, No continuity of care with patients 10. Social influences: Adhering to the patient's agenda, Perceptions about patient receptiveness to advice

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Doherty, 2019

Bibliographic Reference	Doherty, Alison J; Jones, Stephanie P; Chauhan, Umesh; Gibson, Josephine M E; Healthcare practitioners' views and experiences of barriers and facilitators to weight management interventions for adults with intellectual disabilities.; Journal of applied research in intellectual disabilities : JARID; 2019; vol. 32 (no. 5); 1067-1077

Study Characteristics

Study type	Semi structured interviews
Aim of study	To explore GPs and other HCPs' views and experiences of barriers and facilitators to providing evidence-based weight management interventions for adults with intellectual disabilities
Theoretical approach	None stated
Study location	Lancashire, North-West England.

Study setting	General practice
Study dates	Between April 2016 and November 2016
Sources of funding	None stated
Data collection	Semi-structured, face-to-face interviews were held with GPs and other HCPs involved in obesity identification and or the provision of evidence-based weight management interventions for all adults (including adults with, and without, intellectual disabilities) in Lancashire, North-West England. The research team comprised a lead researcher and two other researchers with knowledge and experience of conducting qualitative research. A study topic guide for the semi-structured interviews was developed by the lead researcher with the support of the other researchers. The guide contained 16 questions designed to explore how HCPs recognise obesity in adults with intellectual disabilities, and how they manage weight management interventions for such individuals. The study topic guide's questions included, for example, whether HCPs incurred anything that helped or hindered them from discussing obesity and weight management with people who have intellectual disabilities, from offering and or delivering weight management interventions to this population, and if they had accessed or needed any training, guidelines or other resources for weight management interventions involving this population. Digital audio-recordings made of the semi-structured interviews lasted an average of 28 minutes per interview (range 13 - 52 minutes).
Method and process of analysis	Digital audio-recordings of the interviews were transcribed by an independent researcher from within the lead researcher's institutional faculty. The transcriptions were checked for accuracy by the lead researcher. Mays & Pope's (2000) application of reflexivity was applied by the research team. Reflexivity involves being sensitive to the ways in which the subjectivities of researchers affect the data collection and analysis. The application of reflexivity in this study involved the lead researcher undertaking the primary analysis followed by a second member of the research team independently analysing a sample of the transcripts. The transcriptions were analysed using thematic analysis. Reading, re-reading, and open coding of each individual transcript was firstly undertaken to explore the data, and then themes within and between all the individual transcriptions were compared using constant comparison techniques. Potential themes and sub-themes were identified by hand and then by using NVivo (v11) software by the lead researcher. A second independent researcher similarly analysed a sample of the transcripts. A thematic coding framework was produced by the lead researcher to aid the analysis. Key themes identified by the lead researcher in the analysis were verified with the second independent researcher. A third researcher from the team reviewed and critiqued the emerging themes attributed by the first two researchers. Any discrepancies were discussed and reviewed by the research team to reach a consensus agreement.
Population and sample collection	A combination of purposive and snowball sampling was selected as the most practical approach. Clinical Commissioning Groups (CCGs) who are responsible for the planning and commissioning of health care services for their local area, were approached by the lead researcher and asked to send information about the research study to GPs' Practices. The lead researcher also contacted local authorities in Lancashire by email requesting information about their commissioned weight management services. The researchers

	intended to recruit up to 20 participants, however 6 of the 20 potential participants who were approached and provided with information declined. 14 practitioners (7 GPs, one GP nurse and 6 other HCPs) were interviewed in GPs' Practices and other venues used in the delivery of weight management services and interventions (e.g. leisure centres).
Inclusion Criteria	GPs, Nurses, Healthcare professionals, health facilitators, physiotherapists and dietitians Location: Lancashire Directly involved in weight management
Exclusion criteria	None reported
Relevant themes	1. Communication: GPs experience challenges in communicating the subject of weight management with individuals with intellectual disabilities, and that these challenges are compounded if the carers or support workers are overweight or obese themselves and or if individuals with intellectual disabilities do not always have the support of the same carer or support worker. "I'm aware that there's a lot of easy-to-read information out there but we don't really have that [in general practice]." 2. Knowledge: This study identified a need to raise GPs' knowledge and awareness of locally available weight management interventions for adults with intellectual disabilities and, thereby, improve referrals to such services. "Weight management services? I don't think we've got any weight management services I am afraid." 3. Support: GPs and other HCPs value continuity of caring support for people with intellectual disabilities who have weight management needs, including carers' involvement in weight management interventions for this population. "We try to encourage the parents or the support workers and carers to actually be part of the groups" 4. Resources: Resources - including training for HCPs - are required to facilitate weight management discussions between HCPs and people with intellectual disabilities. However, this study's findings suggest that some GPs may not to be sufficiently motivated or incentivised to participate in weight management training for this population group. "You've got to improve their access to a lot of services available, specialised interventions for their needs." 5. External factors: This study's findings add to other studies' arguments for weight management interventions for people with intellectual disabilities that are tailored to address the wider environment, demographic and socio-economic issues surrounding this population. "I think its environmental more than anything…they're just getting dragged off to McDonald's and things…" 6. Motivation: Motivation for weight management may be a challenge for some individuals with intellectual disabilities and it is acknowledged that there may be conflicts between carers and people with intellectual disabilities which may affect motivation for weight loss. "You've got to be really motivated…if some course comes up about obesity, that's the last thing I'm gonna go to. Whereas if there's a course on new treatments in hypertension or new treatments in epilepsy or… that's what I'm gonna go to."

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Partially relevant (the aim was focused on weight management more than identification)

Glenister, 2017

Bibliographic Reference	Glenister KM; Malatzky CA; Wright J; Barriers to effective conversations regarding overweight and obesity in regional Victoria.; Australian family physician; 2017; vol. 46 (no. 10)

Study Characteristics

Study type	Semi structured interviews
Aim of study	To examine how GPs in rural areas talk about overweight and obesity with their patients, specifically to identify key barriers to effective conversations
Theoretical approach	None stated
Study location	Victoria, Australia
Study setting	Rural GP practices
Study dates	Not provided
Sources of funding	The federal Department of Health's Rural Health Multidisciplinary Training Program.
Data collection	Semi-structured interviews were undertaken with GPs and patients located in two of the four regional Victorian locations of the preceding community health survey (populations of 50,000 and 27,000, each with nine general practices). A total of seven GPs and seven patients across the two sites participated in audiorecorded, face-to-face interviews with one researcher (sociologist or biomedical scientist) Participants were asked about: • how often weight is discussed during consultations • how discussions are initiated • what kind of advice is provided • barriers to effective conversations

Method and process of analysis	The resulting data were then coded separately by each researcher for thematic analysis. Researchers shared and discussed the initial coding of data before engaging in an iterative process of re-coding, categorising and identifying broad themes
Population and sample collection	To recruit GPs, a plain language statement explaining the project was sent via email to all general practices in the two towns. GPs who were interested then contacted the researchers directly. Patients were recruited via a flyer outlining the project, which was displayed in several public places, including gymnasiums, health clinics and public service noticeboards. A total of seven GPs and seven patients across the two sites participated.
Inclusion Criteria	GPs Patients
Exclusion criteria	None reported
Relevant themes	1. Lack of effective treatment options 2. Uncertainty about appropriate language 3. Lack of time 4. Impact of rurality on difficult conversations 5. Importance of mutual trust and rapport for weight-related conversations 6. Concern about patient readiness 7. Patients' mental health and impact of stigma 8. Lack of effective and individualised treatment and/or referral options 9. Lack of regular weight measurement 10. Uncomplicated obesity

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	High (Concerns due to there being very little information on the methods used and because the summary of the themes does not match the full descriptions)
Overall risk of bias and relevance	Relevance	Relevant

Gunther, 2012

Bibliographic Reference	Gunther, Stephen; Guo, Fenglin; Sinfield, Paul; Rogers, Stephen; Baker, Richard; Barriers and enablers to managing obesity in general practice: a practical approach for use in implementation activities.; Quality in primary care; 2012; vol. 20 (no. 2); 93-103

Study Characteristics

Study type	Semi structured interviews

Aim of study	To uncover and describe barriers and enablers to implementing NICE's recommendations on the management of obesity in adults in general practice, using practical qualitative methods.
Theoretical approach	None stated
Study location	East Midlands, UK
Study setting	Primary care
Study dates	December 2009 to March 2010
Sources of funding	National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care – Leicestershire, Northamptonshire and Rutland
Data collection	Interviews were conducted between December 2009 and March 2010 and lasted between 20 and 45 minutes each. The interview schedule was designed to be practical, being delivered and analysed by staff with relatively limited research expertise in order to reflect an approach feasible to replicate in routine practice. An interview schedule containing open-ended questions with prompts was developed by the research team to guide semi-structured interviews. Health professionals were asked what factors hinder or help them in identifying and managing patients who are overweight or obese. Patients were asked about the barriers and enablers to obtaining support from the practice, and what services they were aware of to support them with their weight reduction. In addition to the interview questions, information on age, gender, marital status and duration of employment of practitioners were collected. Participant information leaflets were provided prior to the interviews, and those giving consent to take part were interviewed individually at a place of their own preference. All health professionals were interviewed at their practices. Patients were interviewed either at their homes or at their local practice. Interviews were recorded, transcribed verbatim and entered into Nvivo 814 for data management. The researchers took field notes during the interview to record any issues in need of further exploration.15 SG, a health professional, conducted 14 interviews and FG, a health services researcher, conducted nine.
Method and process of analysis	Reflecting the practical nature of the study, a thematic framework approach was used to analyse the data. The thematic framework was created, drawing from issues reported in the literature on barriers and enablers to the implementation of guidelines. SG and FG familiarised themselves with the data separately, identifying additional emergent themes and sub-themes which were coded. SG and FG coded, mapped and interpreted the data to provide explanations of the findings. To test the understanding of the data, the two researchers met to agree the final themes and subthemes which were then tested through discussions with researchers at the university to agree codes that were subsequently incorporated, and to ensure appropriate methodology was adopted. Analyses revealed good agreement between the two researchers to develop the final model and they were content with the methods used
Population and sample collection	We used purposive sampling by asking the obesity leads in each PCT to identify five practices with different levels of commitment to obesity, indicated by different levels of recording of body mass index (BMI) from quality and outcomes framework data from each PCT. We sought a mix of rural and urban practices and set a provisional quota sample of 12 healthcare professionals (one GP and one practice nurse from each participating general

	practice) and 8–10 patients (one or two from each participating general practice who had experience of weight management from the practice) to enable us to capture a range of views, recognising that some practices would not participate. From those practices agreeing to take part, health professionals were recruited by the researchers, and patients who had experienced weight management support from the practice were recruited by their healthcare professional. Nine general practices (Table 1) were recruited with a total of 14 health professionals (seven GPs and seven practice nurses; Table 2) and nine patients (Table 3) being interviewed. On average, health professionals had spent 10 years working in primary care.
Inclusion Criteria	GPs, Nurses, Healthcare professionals Location: East Midlands PCTs Patients who had experienced weight management conversations in the practice
Exclusion criteria	None reported
Relevant themes	1. Patient themes: "'You need to trust someone. Sometimes you don't get the same nurse and sometimes you don't see the same person" 1. Motivation: Family support, empowered patient, good relationship with health professional 2. Patient experience: Endless loop of failure. Patient requiring a trigger 3. Stigma: View obesity as their own fault, in denial about being obese 4. Cost of services: additional costs 2. Practitioner themes: "'You can lead a horse to water but you can't stop it eating cream cakes.'" 1. Consultation with patients: Lack of counselling skills, limited time with patients 2. Consistency of approach: Lack of consistency of approach across the practice 3. Not the practitioner's responsibility: helplessness in patients not interested, frustration by lack of support, practitioners wanting patients to take responsibility 4. Confident practitioner: Practitioner being overweight or obese, trying to tackling co-morbidities 3. Service themes: "'They have reduced the number of dietary services in the whole of [x], so it's very difficult to actually refer somebody" 1. Commissioning process: Embedding obesity into the quality and outcomes framework 2. Support services: Peer support groups within a practice, supporting patients earlier, other agencies supporting the practice, multi-component one-stop shop, professional feeling confident to refer to services

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Holmgren, 2019

Bibliographic Reference	Holmgren, Marianne; Sandberg, Magnus; Ahlstrom, Gerd; To initiate the conversation-Public health nurses' experiences of working with obesity in persons with mobility disability.; Journal of Advanced Nursing; 2019; vol. 75 (no. 10); 2156-2166

Study Characteristics

Study type	Interviews
Aim of study	To develop a theory explaining how public health nurses accomplish and adapt counselling in lifestyle habits to decrease obesity in people with mobility disability
Theoretical approach	Grounded theory
Study location	Southern Sweden
Study setting	Primary health care centres
Study dates	September 2017–February 2018
Sources of funding	This work was supported by a programme grant from Forte (the Swedish Research Council for Health, Working Life and Welfare), number 2010-1828. This work was also supported by a grant from the Faculty of Medicine, Lund University (Date of decision 2017-11-13)
Data collection	In total, ten face-to face interviews were conducted at the PHNs' workplace, except one that was conducted at Lund University. Interviewing, analysing and coding occurred in an iterative process in accordance with GT by Glaser (Glaser, 1978, 1998) by the first author (MH). All interviews were digitally recorded and lasted be- tween 33-66 min. The study began with three interviews (Interview step 1, Table 1) and, was thereafter analysed by open coding, which means coding the participants' own words, line by line. These three interviews included three open questions: 'What is your experience with meeting persons with MD?' Followed by: 'What is your experience with treating obesity when you meet a person with MD?' And 'In which way would you work with lifestyle counselling and tailoring obesity treatment to people with MD.' To process the PHNs' narratives from the interviews, open coding conceptualizes the underlying pattern of a set of empirical indicators in the data. Open coding includes questioning the data and the narratives during the analysis. Memos, which are the interviewers' thoughts that appear during the analysis and are a core ingredient in GT (Glaser, 1978), were written throughout the analysis to capture new questions and angles. The open coding of the first three interviews generated more refined interview questions.

Method and process of analysis	After the first three interviews were analysed, another three interviews were performed (Interview step 2, Table 1). These three interviews were performed one at a time with an analysis phase between the interviews where the raw data were coded. Further new questions emerged that were used in later interviews, for example: ‘In what way is it difficult to discuss obesity with the patient?,’ ‘How does the discussion differ if the patients have MD?’ and ‘How can you facilitate addressing the problem? The codes generated concepts, which were compared continuously during the analysis to ensure that the data and the concepts were related to each other and through this process, the core concept emerged. When the main concern to initiate the conversation and the core concept public health nurses facilitators to communicate lifestyle changes emerged, the next phase of selective coding began. The core concept explains how participants resolve their main concern (Glaser, 1998). During the selective coding, only those indicators that were related to the main concern in sufficiently significant ways were used
Population and sample collection	A purposeful selection of PHNs with a specialist education in public health on master level from both rural and urban PHCC in southern Sweden were made. The last author (GA) sent a letter with information about the study to medical directors at PHCCs asking for permission to contact the PHNs who were most experienced in healthy lifestyle interventions for people with MD. Twenty-six medical directors were contacted and asked to recommend PHNs suitable to interview. The first author (MH) then sent an information letter to these PHNs who were thereafter contacted by telephone in a week, received additional verbal in- formation and were asked if they had any questions and if they were willing to participate in the study. The participants were nine female and one male PHNs, aged 40–58, with work experience between 3–22 years
Inclusion Criteria	Nurses Location: primary care region in southern Sweden Experienced with care of disabled patients
Exclusion criteria	None reported

Relevant themes	1. Person-centeredness in the situation: "I try to personalize, try to scan that person's ability to do and that you give advices based on that"
	    1. Needs and conditions
	    2. Continuous
	    3. Related to medical issues
	2. Experience and knowledge: "think the more years you have worked, the easier it is for you to dare and find opportunities where it would be appropriate to initiate it…"
	    1. Years of experiences
	    2. Educated in motivating interviewing
	3. Strengthening conditions: "Is it the doctor who wants it or is it the patient? It is first and foremost important in all behavioral changes"
	    1. Motivation
	    2. Responsibility
	    3. Group physical activity
	4. Access to other professionals: "… you have to have multi-professional collaboration with physiotherapist and dietician"
	    1. Physiotherapist
	    2. Dietician
	    3. Physicians

	5. Prioritization in everyday work: "..a lot is given low priority and this is such a thing – lifestyle habits. It is after all, the first choice in all treatment with regard to osteoarthritis, hypertension, obesity." 1. Resources 2. Management 3. Time

Critical appraisal - CASP qualitative checklist

Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Relevant

Phillips, 2014

Bibliographic Reference	Phillips, Katie; Wood, Fiona; Kinnersley, Paul; Tackling obesity: the challenge of obesity management for practice nurses in primary care.; Family practice; 2014; vol. 31 (no. 1); 51-9

Study Characteristics

Study type	Semi structured interviews
Aim of study	To use qualitative semi-structured interviews to explore how practice nurses manage obesity within primary care and to identify good practice and explore barriers to achieving effective management
Theoretical approach	None stated
Study location	South Wales, UK
Study setting	Local Health Boards
Study dates	Not stated
Sources of funding	This project was not externally funded
Data collection	Semi-structured face-to-face interviews were conducted with 18 practice nurses in South Wales Following a literature review and discussion within the research team of the aims of the project, we designed an interview schedule (Appendix 1) incorporating a diagram based on a tool previously used in body-morph research (21). The body-morph diagram was used to facilitate discussion of which patients the practice nurse would approach. The diagram showed lines of Caucasian women and men with body sizes ranging from underweight to obese in sequence. Participants were asked to focus on the overweight end of the spectrum and discuss who they would counsel in a variety of situations. The interview schedule was piloted with a practice nurse and two questions

	adapted. The final interview schedule was piloted with another practice nurse and data from this interview were incorporated into the data analysis.
Method and process of analysis	Interviews were conducted, anonymized and transcribed by KP. Thematic analysis was adopted for analysis. A field diary and research diary were kept during data collection and informed inductive development of data themes as the interviews progressed. Data immersion during transcription and reading of all interviews also aided theme development. Provisional themes of 'who is being counselled?', 'how is counselling being approached and done?' and 'what counselling is given?' were generated. Transcripts were read again by KP, FW and PK and themes validated. Data were then coded under these major themes, with subnodes agreed and modified iteratively. NVivo was used to manage data by constructing an accessible code book to assist in coding and extraction during analysis. Node labels and definitions were discussed before inputting data into NVivo in order to tighten definitions and explicate themes from each other as much as possible. When 10 of the interviews had been coded by KP, and FW used the coding stripes function in NVivo to check for appropriate standard of coding
Population and sample collection	Nurses were included in the sample frame if they were a practice nurse currently working in either Cwm Taf Local Health Board (LHB) or Cardiff and Vale University Health Board (UHB). Health care in Wales is organized by 7 LHBs, each responsible for a geographical area of the country. The two LHBs chosen provide care for two geographically neighbouring areas in South Wales; Cardiff and Vale UHB covers the urban capital city and a mix of coastal and rural areas with varying affluence, and Cwm Taf LHB covers a different population including isolated ex-mining populations in the South Wales Valleys. The mix of patient populations afforded through sampling from these two LHBs was chosen to add breadth to the experience nurses would have. There were no age, gender, or experience sampling criteria and nurses who had extra qualifications to become 'nurse practitioners' with consulting and prescribing roles were eligible for recruitment, given their background of practice nursing and continued exposure to obesity management. More than one nurse from each practice was eligible to participate. No financial incentive was given. We sent an e-mail to the lead nurses for each LHB and asked them to disseminate it to all practice nurses in the area. In Cwm Taf, KP attended a teaching afternoon for all nurses in the locality. Interested nurses contacted the research team by e-mail or phone. The Townsend Score (a measure to calculate deprivation based on multiple personal and societal factors) was used to describe the relative deprivation of each practice population recruited. Data accessed from Public Health Wales Observatory were used to assign a score to each practice that a nurse was recruited from, based on the postcode of the practice. Scores in Wales range from −7.64 (the least deprived area) to 11.93 (the most deprived score). We assessed data saturation after 16 interviews and made a decision to continue recruiting to 18 interviews due to the relative under-representation of affluent areas in Cwm Taf. A total of 18 nurses across the two health boards agreed to participate. Of the 18 nurses, 11 worked in Cardiff and Vale UHB (out of all nurses in the area, this is a response rate of 7%) and 7 worked in Cwm Taf LHB (response rate 8%). All participants were female. Sixteen percent of participants had <5 years of experience, 16% had 5–10 years of experience, 61% had 10–20 years of experience and 5% had >20 years of experience. Five

	participants (28%) had nurse practitioner roles above their practice nurse duties.
Inclusion Criteria	Location: Cardiff and Vale UHB and Cwm Taf LHB
Exclusion criteria	None reported
Relevant themes	1. Who are nurses discussing weight with?: "I'll look at them and think sometimes 'well, you're really not that bad' but that is compared to what I'm dealing with in my weight management clinic" 1. Who is primary care seeing? 2. Opportunities to discuss weight with patients 3. Priority patients to target 2. How are nurses discussing weight?: "...But nearly at 35 stone no one is doing anything and it's perceived that he can't stop but nobody can help. You can't say 'you know, you should eat less" 1. Approaching the subject 2. Relationships with patients 3. Risk language used in discussion with different groups of patients 4. Strategies for discussing weight with patients 5. Guiding or directing patients to making lifestyle changes 6. Monitoring patients 3. What is being discussed with patients?: "So if they, 'I don't know what I'm doing' then you kind of make it to suit – you know, you go back to basics. Right, we'll do a food diary, we'll do this week, I give them little goals" 1. Dietary advice given 2. Exercise advice given

Critical appraisal - CASP qualitative checklist

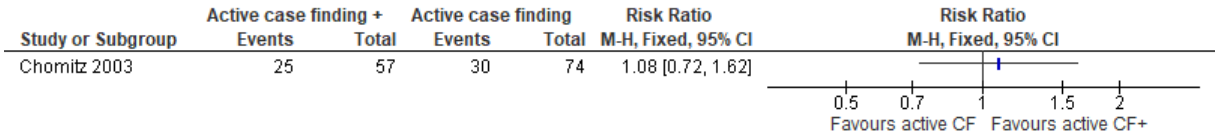
Section	Question	Answer
Overall risk of bias and relevance	Overall risk of bias	Low
Overall risk of bias and relevance	Relevance	Highly relevant

Appendix E – Forest plots

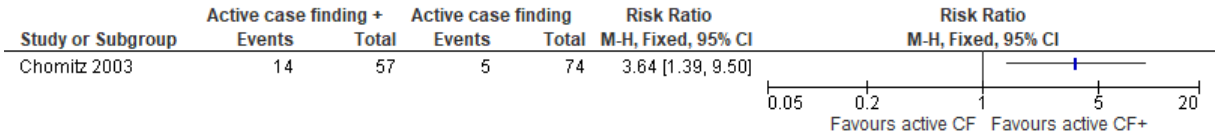
Children and young people

Advanced active case finding (report card with personal information intervention) versus active case finding (report card with general information intervention)

Number of children and young people identified as overweight

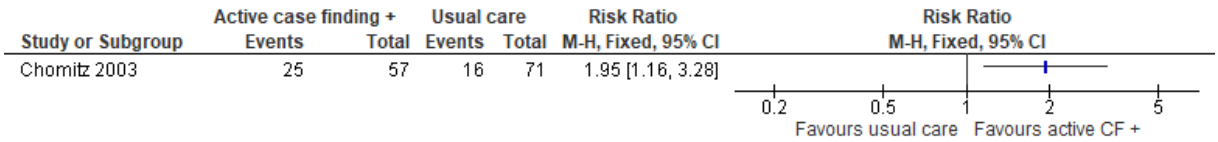


Referral to weight management services

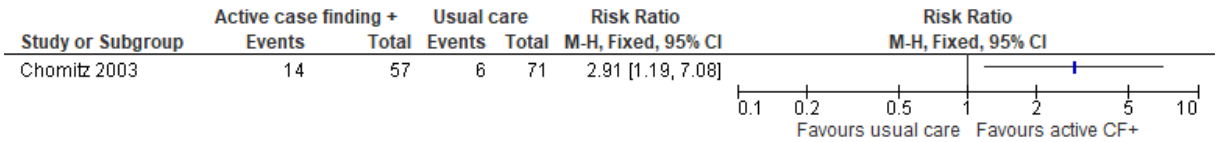


Advanced active case finding (report card with personal information intervention) versus usual care (no report card)

Number of children and young people identified as overweight

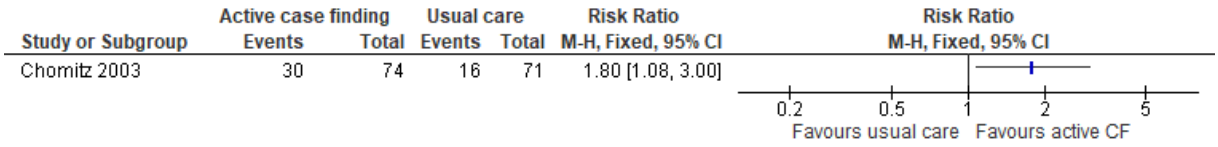


Referral to weight management services

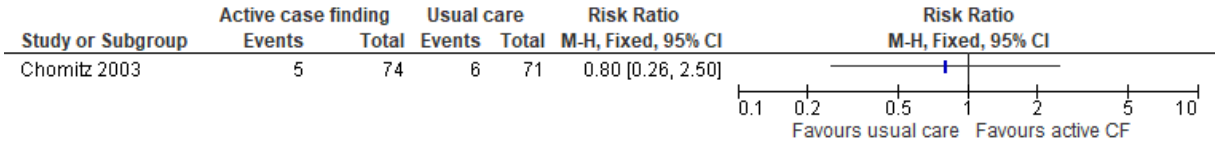


Active case finding (report card with general information intervention) versus usual care (no report card)

Number of children and young people identified as overweight

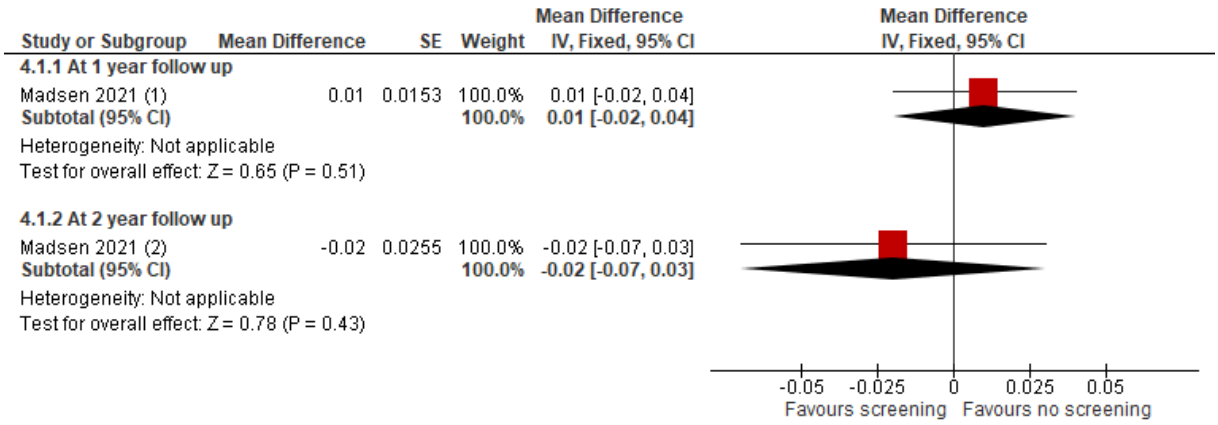


Referral to weight management services



All Active case finding (screening with parent report and no parent report) versus usual care (no screening)

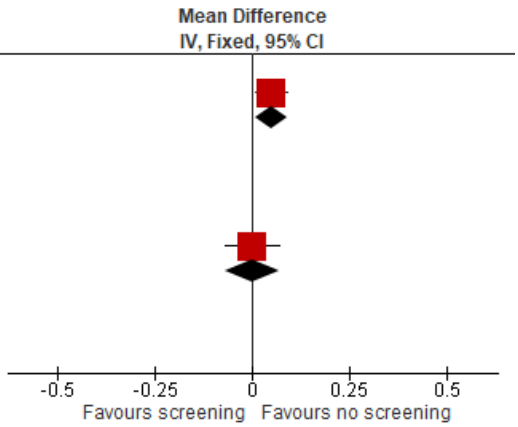
Adverse events: Peer teasing (Higher value reflects increased teasing)



Footnotes
(1) Study accounted for clustering
(2) Study accounted for clustering

Adverse events: Peer weight talk (Higher value reflects increased talk)

Study or Subgroup	Mean Difference	SE	Weight	Mean Difference IV, Fixed, 95% CI
4.3.1 At 1 year follow up				
Madsen 2021 (1)	0.05	0.0204	100.0%	0.05 [0.01, 0.09]
Subtotal (95% CI)			**100.0%**	**0.05 [0.01, 0.09]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 2.45 (P = 0.01)				
4.3.2 At 2 year follow up				
Madsen 2021 (2)	0	0.0357	100.0%	0.00 [-0.07, 0.07]
Subtotal (95% CI)			**100.0%**	**0.00 [-0.07, 0.07]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.00 (P = 1.00)				



Test for subgroup differences: Chi² = 1.48, df = 1 (P = 0.22), I² = 32.4%

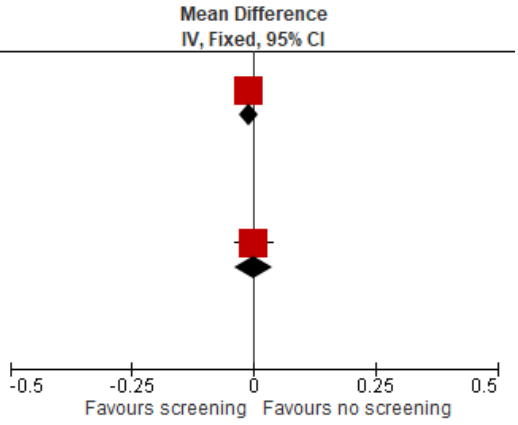
Footnotes

(1) Study accounted for clustering

(2) Study accounted for clustering

Adverse events: teacher weight talk (Higher value reflects increased talk)

Study or Subgroup	Mean Difference	SE	Weight	Mean Difference IV, Fixed, 95% CI
4.5.1 At 1 year follow up				
Madsen 2021 (1)	-0.01	0.0102	100.0%	-0.01 [-0.03, 0.01]
Subtotal (95% CI)			**100.0%**	**-0.01 [-0.03, 0.01]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.98 (P = 0.33)				
4.5.2 At 2 year follow up				
Madsen 2021 (2)	0	0.0204	100.0%	0.00 [-0.04, 0.04]
Subtotal (95% CI)			**100.0%**	**0.00 [-0.04, 0.04]**
Heterogeneity: Not applicable				
Test for overall effect: Z = 0.00 (P = 1.00)				



Test for subgroup differences: Chi² = 0.19, df = 1 (P = 0.66), I² = 0%

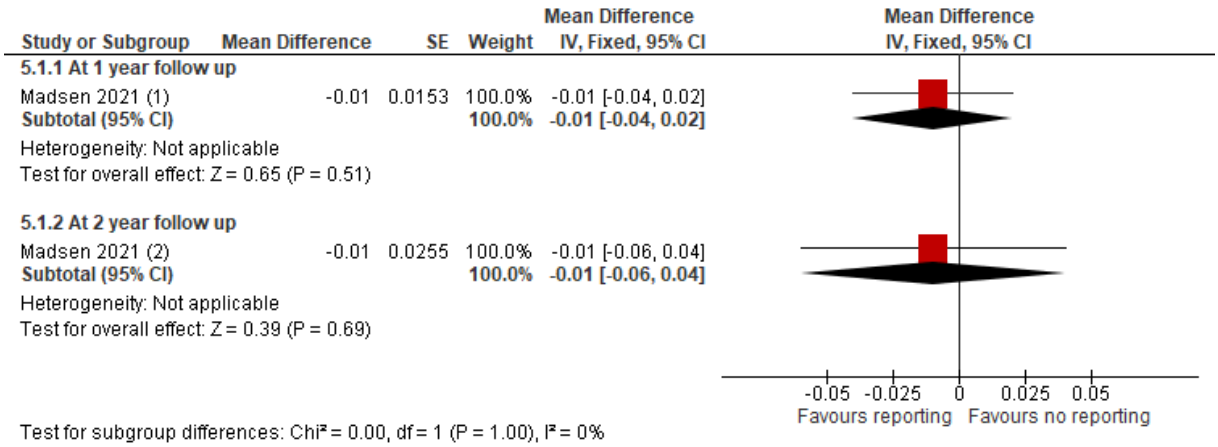
Footnotes

(1) Study accounted for clustering

(2) Study accounted for clustering

Advanced active case finding (screening with parent report) versus active case finding (screening with no parent report) or usual care (no screening)

Adverse events: Family weight teasing (Higher value reflects increased teasing)



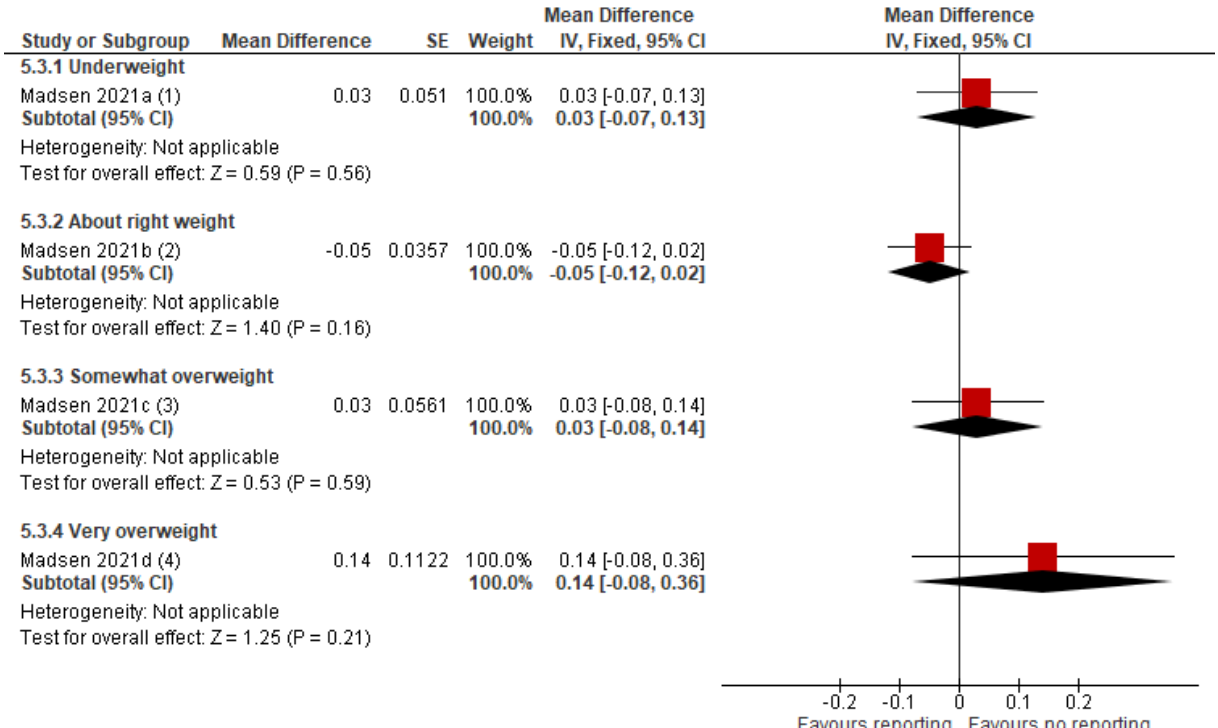
Test for subgroup differences: $Chi^2 = 0.00$, df = 1 (P = 1.00), $I^2 = 0\%$

Footnotes

(1) Study accounted for clustering.

(2) Study accounted for clustering.

Adverse events: Family encourages dieting at 1 year follow up (Higher value reflects increasing encouragement)



Test for subgroup differences: $Chi^2 = 4.12$, df = 3 (P = 0.25), $I^2 = 27.2\%$

Footnotes

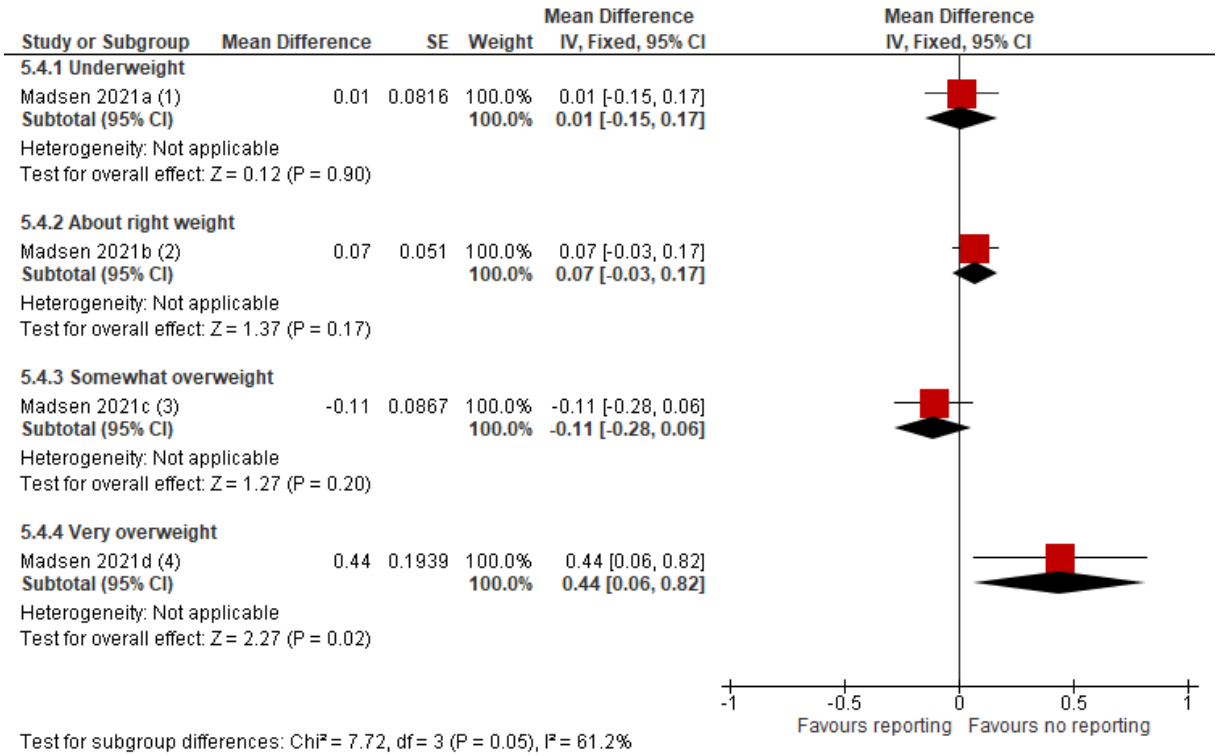
(1) Study accounted for clustering.

(2) Study accounted for clustering.

(3) Study accounted for clustering.

(4) Study accounted for clustering.

Adverse events: Family encourages dieting at 2 years follow up (Higher value reflects increasing encouragement to diet to control weight)

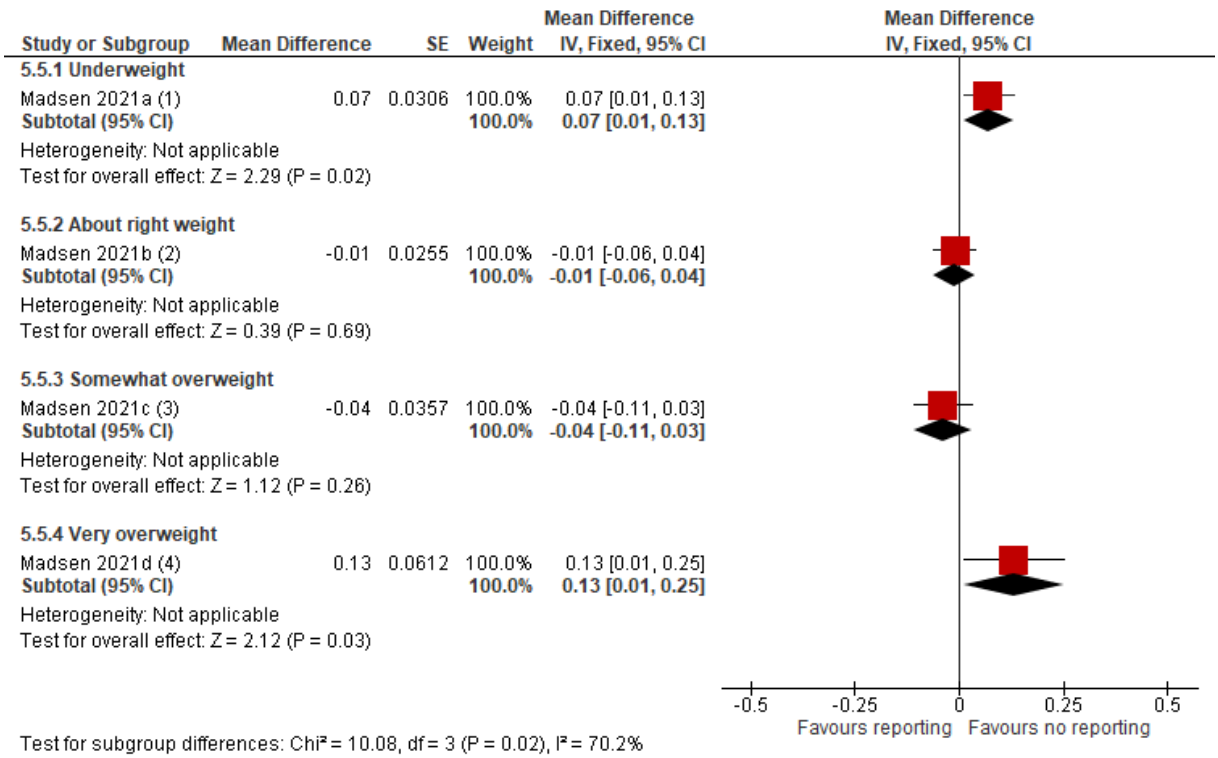


Test for subgroup differences: Chi² = 7.72, df = 3 (P = 0.05), I² = 61.2%

Footnotes

(1) Study accounted for clustering.
(2) Study accounted for clustering.
(3) Study accounted for clustering.
(4) Study accounted for clustering.

Adverse events: Family weight talk at 1 year follow up (Higher value reflects increasing talk)

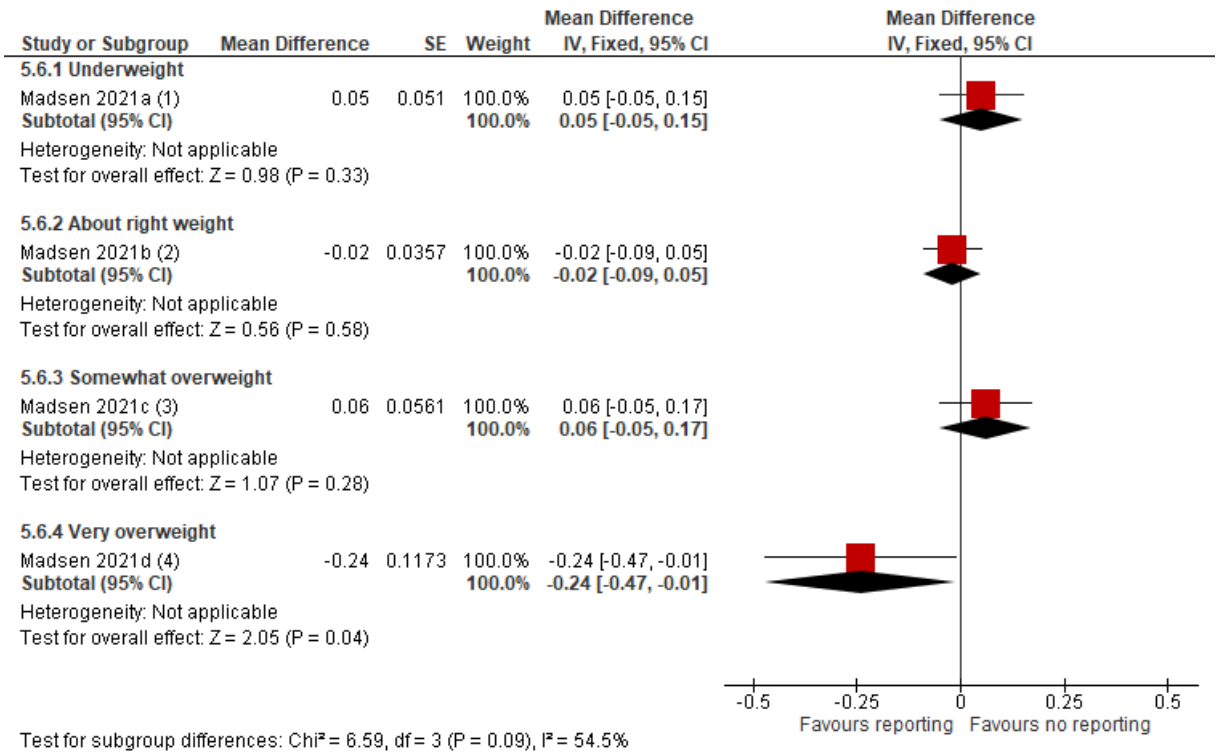


Test for subgroup differences: $Chi^2 = 10.08$, df = 3 (P = 0.02), $I^2 = 70.2\%$

Footnotes

(1) Study accounted for clustering.
(2) Study accounted for clustering.
(3) Study accounted for clustering.
(4) Study accounted for clustering.

Adverse events: Family weight talk at 2 year follow up (Higher value reflects increasing talk)



Test for subgroup differences: Chi² = 6.59, df = 3 (P = 0.09), I² = 54.5%

Footnotes

(1) Study accounted for clustering.
(2) Study accounted for clustering.
(3) Study accounted for clustering.
(4) Study accounted for clustering.

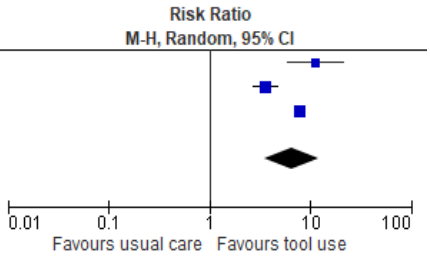
Adults

Opportunistic identification using electronic tools vs usual care with no tool use

Diagnosis of overweight/obesity: Number of adults identified as overweight or obese from the total number of patient consultations

Study or Subgroup	Electronic record tools Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Lee 2009	91	807	10	997	26.9%	11.24 [5.89, 21.46]
Tang 2012	163	958	55	1156	35.1%	3.58 [2.67, 4.80]
Wee 2010	10493	26481	1671	33763	38.0%	8.01 [7.62, 8.41]
Total (95% CI)		**28246**		**35916**	**100.0%**	**6.61 [3.56, 12.28]**
Total events	10747		1736			

Heterogeneity: Tau² = 0.26; Chi² = 29.42, df = 2 (P < 0.00001); I² = 93%
Test for overall effect: Z = 5.98 (P < 0.00001)

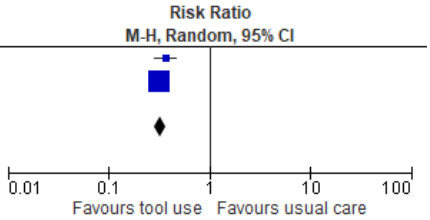


(a) It is unclear if Wee 2010 has statistically accounted for clustering

Missed diagnoses: Number of patients with BMI≥25 who were not diagnosed with overweight/obesity

Study or Subgroup	Electronic record tools Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
Lee 2009	51	208	440	662	18.9%	0.37 [0.29, 0.47]
Wee 2010	4286	14779	19215	20886	81.1%	0.32 [0.31, 0.32]
Total (95% CI)		**14987**		**21548**	**100.0%**	**0.32 [0.29, 0.37]**
Total events	4337		19655			

Heterogeneity: Tau² = 0.00; Chi² = 1.57, df = 1 (P = 0.21); I² = 36%
Test for overall effect: Z = 18.26 (P < 0.00001)



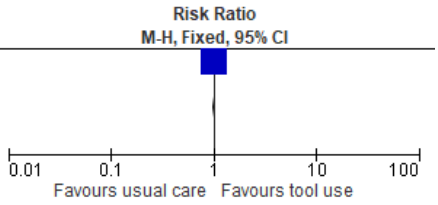
(b) It is unclear if Wee 2010 has statistically accounted for clustering

(c) A random effects model was selected due to the use of different types of tool in each study, which would be expected to produce heterogeneous effects.

Documentation of BMI: Number of patients whose BMI was recorded from the total number of patient consultations

Study or Subgroup	Electronic record tools Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Wee 2010	25951	26481	33088	33763	100.0%	1.00 [1.00, 1.00]
Total (95% CI)		**26481**		**33763**	**100.0%**	**1.00 [1.00, 1.00]**
Total events	25951		33088			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.02 (P = 0.98)

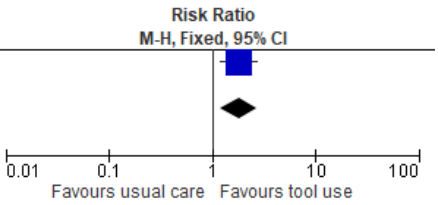


(d) It is unclear if Wee 2010 has statistically accounted for clustering

Weight counselling: The number of patients who received weight counselling during their appointment from the total number of patient consultations

Study or Subgroup	Electronic record tools Events	Total	Usual care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tang 2012	53	200	29	200	100.0%	1.83 [1.22, 2.75]
Total (95% CI)		**200**		**200**	**100.0%**	**1.83 [1.22, 2.75]**
Total events	53		29			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.90 (P = 0.004)



Appendix F – GRADE and CERQual tables

GRADE tables

Children and young people

Table 20: Advanced active case finding (report card with personal information intervention) versus active case finding (report card with general information intervention)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Active case finding + versus active case finding	Control	Relative (95% CI)	Absolute		
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[4]	very serious[5]	none	25/57 (43.9%)	41.1%	RR 1.08 (0.72 to 1.62)	33 more per 1000 (from 115 fewer to 255 more)	⊕OOO VERY LOW	CRITICAL
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)												
1	randomised trials	very serious[2]	no serious inconsistency[3]	serious[6]	no serious imprecision	none	14/57 (24.6%)	7%	RR 3.64 (1.39 to 9.5)	185 more per 1000 (from 27 more to 595 more)	⊕OOO VERY LOW	CRITICAL

[1] Chomitz 2003
[2] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[3] Single study- inconsistency not applicable.
[4] Indirect assessment of the number of children and young people identified as overweight or obese
[5] Downgraded by 2 increments as the confidence interval crossed both MIDs (0.8. 1.25)
[6] Considered indirect evidence as it was unclear if they went on to referral to weight management service

Table 21: Advanced active case finding (report card with personal information intervention) versus usual care (no report card)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Active case finding + versus usual care	Control	Relative (95% CI)	Absolute		
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[4]	Serious[6]	none	25/57 (43.9%)	22.9%	RR 1.95 (1.16 to 3.28)	218 more per 1000 (from 37 more to 522 more)	⊕OOO VERY LOW	CRITICAL
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[5]	Serious[6]	none	14/57 (24.6%)	8%	RR 2.91 (1.19 to 7.08)	153 more per 1000 (from 15 more to 486 more)	⊕OOO VERY LOW	CRITICAL

[1] Chomitz 2003
[2] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[3] Single study- inconsistency not applicable
[4] Indirect assessment of the number of children and young people identified as overweight or obese
[5] Considered indirect evidence as it was unclear if they went on to referral to weight management service
[6] Downgraded by 1 increment as the confidence interval crossed one MID (0.8, 1.25)

Table 22: Active case finding (report card with general information intervention) versus usual care (no report card)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Active case finding versus usual care	Control	Relative (95% CI)	Absolute		
Number of children and young people identified as overweight or obese (follow-up 0-6 weeks; assessed with: Parents correctly identifying their children's weight status)												
1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[4]	serious[5]	none	30/74 (40.5%)	22.9%	RR 1.8 (1.08 to 3)	183 more per 1000 (from 18 more to 458 more)	⊕OOO VERY LOW	CRITICAL
Referral to weight management service (follow-up 0-6 weeks; assessed with: Parents seek medical service for overweight children)												

1[1]	randomised trials	very serious[2]	no serious inconsistency[3]	serious[6]	very serious[7]	none	5/74 (6.8%)	8%	RR 0.8 (0.26 to 2.5)	16 fewer per 1000 (from 59 fewer to 120 more)	⊕OOO VERY LOW	CRITICAL

[1] Chomitz 2003
[2] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[3] Single study- inconsistency not applicable
[4] Indirect assessment of the number of children and young people identified as overweight or obese
[5] Downgraded by 1 increment as the confidence interval crossed one MID (0.8, 1.25)
[6] Considered indirect evidence as it was unclear if they went on to referral to weight management service
[7] Downgraded by 2 increments as the confidence interval crossed both MIDs (0.8, 1.25)

Table 23: All Active case finding (screening with parent report and no parent report) versus usual care (no screening)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Active case finding + / active case finding**	**Control**	**Relative (95% CI)**	**Absolute**		
Adverse events: peer teasing (follow-up 1 years; measured with: Peer weight teasing index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[5]	none	20482[6]	8159[6]	-	MD 0.01 higher (0.02 lower to 0.04 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: peer teasing (follow-up 2 years; measured with: Peer weight teasing index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[7]	none	20482[6]	8159[6]	-	MD 0.02 lower (0.07 lower to 0.03 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: peer talk (follow-up 1 years; measured with: Peer weight talk index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[8]	none	20482[6]	8159[6]	-	MD 0.05 higher (0.01 to 0.09 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: peer talk (follow-up 2 years; measured with: Peer weight talk index. 1-5 "never" to "almost every day"; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[5]	none	20482[6]	8159[6]	-	MD 0.00 higher (0.07 lower to 0.07 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: teacher weight talk (follow-up 1 years; measured with: "Teachers talk about my weight or size": 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)												

1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[9]	none	20482[6]	8159[6]	-	MD 0.01 lower (0.03 lower to 0.01 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: teacher weight talk (follow-up 2 years; measured with: "Teachers talk about my weight or size": 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[8]	none	20482[6]	8159[6]	-	MD 0.00 lower (0.04 lower to 0.04 higher)	⊕⊕OO LOW	IMPORTANT

[1] Madsen 2021
[2] Cluster randomised trial
[3] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[4] Single study- inconsistency not applicable
[5] Calculated SD of comparison group =2.71. MID calculated as 0.5 of the SD in comparison group= 1.355
[6] Number of students in the arm - Study does not report number of clusters
[7] Calculated SD of comparison group=3.61. MID calculated as 0.5 of the SD in comparison group= 1.805
[8] Calculated SD of comparison group = 1.81. MID calculated as 0.5 of the SD in comparison group = 0.905
[9] Calculated SD of comparison group = 0.90. MID calculated as 0.5 of the SD in comparison group = 0.45

Table 24: Advanced active case finding (screening with parent report) versus active case finding (screening with no parent report) or usual care (no screening)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Active case finding +**	**Active case finding / usual care**	**Relative (95% CI)**	**Absolute**		
Adverse events: family weight teasing (follow-up 1 years; measured with: My family teases or makes fun of me because of my weight. 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[5]	none	10041[6]	18600[6]	-	MD 0.01 lower (0.04 lower to 0.02 higher)	⊕⊕OO LOW	IMPORTANT
Adverse events: family weight teasing (follow-up 2 years; measured with: My family teases or makes fun of me because of my weight. 1-5 Never to almost every day; range of scores: 1-5; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision[7]	none	10041[6]	18600[6]	-	MD 0.01 lower (0.06 lower to 0.04 higher)	⊕⊕OO LOW	IMPORTANT

Adverse event: family encourages dieting in children who consider themselves as underweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.03 higher (0.07 lower to 0.13 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves as underweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.01 higher (0.15 lower to 0.17 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves as about the right weight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.05 lower (0.12 lower to 0.02 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves as about the right weight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.07 higher (0.03 lower to 0.17 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves as somewhat overweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.03 higher (0.08 lower to 0.14 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves as somewhat overweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.11 lower (0.28 lower to 0.06 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves very overweight (follow-up 1 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.14 higher (0.08 lower to 0.36 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family encourages dieting in children who consider themselves very overweight (follow-up 2 years; measured with: Family encourages dieting. 1 to 4 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												

1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision	none	10041[9]	18600[9]	-	MD 0.44 higher (0.66 to 0.82 higher)	⊕⊕OO LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as underweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision	none	10041[9]	18600[9]	-	MD 0.07 higher (0.01 to 0.13 higher)	⊕⊕OO LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as underweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.05 higher (0.05 lower to 0.15 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as about the right weight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.01 lower (0.06 lower to 0.04 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as about the right weight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.02 lower (0.09 lower to 0.05 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as somewhat overweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.04 lower (0.11 lower to 0.03 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as somewhat overweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	serious[8]	none	10041[9]	18600[9]	-	MD 0.06 higher (0.05 lower to 0.17 higher)	⊕OOO VERY LOW	IMPORTANT
Adverse event: family weight talk in children who consider themselves as very overweight (follow-up 1 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision	none	10041[9]	18600[9]	-	MD 0.13 higher (0.01 to 0.25 higher)	⊕⊕OO LOW	IMPORTANT

Adverse event: family weight talk in children who consider themselves as very overweight (follow-up 2 years; measured with: Family weight-talk index. 1 to 5 Not at all to very much; range of scores: 1-4; Better indicated by lower values)												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	no serious indirectness	no serious imprecision	none	10041[9]	18600[9]	-	MD 0.24 lower (0.47 to 0.01 lower)	⊕⊕OO LOW	IMPORTANT

[1] Madsen 2021
[2] Cluster randomised trial
[3] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[4] Single study- inconsistency not applicable
[5] Calculated SD of comparison group = 0.90. MID calculated as 0.5 of the SD in comparison group = 0.45
[6] Number of students in the arm - Study does not report number of clusters
[7] Calculated SD of comparison group = 1.81. MID calculated as 0.5 of the SD in comparison group = 0.905
[8] Downgraded by 1 increment because 95% CI crosses line of no effect. (MID could not be calculated).
[9] Total number in arm. Study does not report the number of children in this subgroup

Table 25: Advanced active case finding (report enhanced with education) versus active case finding alone (report alone)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Active case finding +**	**Active case finding**	**Relative (95% CI)**	**Absolute**		
Referral to weight management service (follow-up 0-8 weeks; assessed with: "Report prompted you to visit a healthcare provider or registered dietitian about your child's weight status")												
1[1]	randomised trials[2]	very serious[3]	no serious inconsistency[4]	serious[5]	very serious[6]	none	-	0%	OR 0.8 (0 to 0)[7]	-[8]	⊕OOO VERY LOW	CRITICAL

[1] Bailey-Davis 2017
[2] Cluster randomised trial
[3] Downgraded by 2 increments because the majority of the evidence was at very high risk of bias
[4] Single study- inconsistency not applicable
[5] Considered indirect evidence as it was unclear if they went on to referral to weight management service
[6] Downgraded by 2 increments. Confidence interval not reported.
[7] Study does not report 95% CI. Study reports p-value of 0.16.
[8] Absolute risk not calculable with the outcome data provided

Adults

Table 26: Opportunistic identification using electronic tools vs usual care with no tool use

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Electronic record tools	Usual care	Relative (95% CI)	Absolute		
Diagnosis of overweight/obesity (assessed with: number of patients diagnosed, 0 follow up)												
3[1,2,3]	randomised trials	serious[4]	very serious inconsistency[7]	serious[5]	no serious imprecision	none	10747/28246 (38%)	1736/35916 (4.8%)	RR 6.61 (3.56 to 12.28)	271 more per 1000 (from 124 more to 545 more)	⊕⊕OO VERY LOW	CRITICAL
Weight counselling (assessed with: Number of patients who received weight counselling)												
1[3]	randomised trials	no serious risk of bias	no serious inconsistency[8]	serious[5]	serious imprecision[9]	none	53/200 (26.5%)	29/200 (14.5%)	RR 1.83 (1.22 to 2.75)	120 more per 1000 (from 32 more to 254 more)	⊕⊕⊕O LOW	CRITICAL
Missed diagnosis (assessed with: Number of patients with BMI>=25 who were not diagnosed as overweight/obese)												
2[1,2]	randomised trials	serious[4]	serious inconsistency[10]	serious[5]	no serious imprecision	none	4337/14987 (28.9%)	19655/21548 (91.2%)	RR 0.32 (0.29 to 0.37)	620 fewer per 1000 (from 575 fewer to 648 fewer)	⊕⊕OO VERY LOW	CRITICAL
Documentation of BMI (assessed with: Number of patients whose BMI was recorded)												
1[2]	randomised trials	serious[6]	no serious inconsistency[8]	serious[5]	no serious imprecision	none	25951/26481 (98%)	33088/33763 (98%)	RR 1 (1 to 1)	No difference	⊕⊕OO LOW	CRITICAL

[1] Lee 2009
[2] Wee 2010 (cluster RCT)
[3] Tang 2012
[4] Lee 2009 and Wee 2010 were both rated moderate risk of bias
[5] All studies were rated indirectly applicable as they were conducted in the USA
[6] Wee 2010 was rated moderate risk of bias
[7] I^2 = 93%
[8] Single study: Inconsistency is not applicable
[9] Confidence interval crossed the MID (0.8, 1.25)
[10] I^2 = 36%

CERQual tables

Table 27: GRADE-CERQual table for evidence on the effectiveness of approaches in identifying overweight and obesity in children and young people

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Barriers in the UK NCMP						
Parents were offended by the identification	Dam 2019 Gainsbury 2018 Coupe 2022	No concerns	No concerns	No concerns	No concerns	High
Parents ignored the identification	Gainsbury 2018 Syrad 2015 Turner 2016	No concerns	No concerns	No concerns	No concerns	High
Parents disagreed with the identification	Dam 2019 Gainsbury 2018 Syrad 2015 Turner 2016	No concerns	No concerns	No concerns	No concerns	High
Parents agreed with the identification, but felt that overweight is not a problem	Dam 2019 Syrad 2015 Coupe 2022	No concerns	No concerns	No concerns	No concerns	High
Staff describe practical limitations on what they can do	Dam 2019 Turner 2016 Coupe 2022	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
International barriers matching the UK NCMP						
Parents were offended by the identification	Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018	Minor concerns[1]	Minor concerns[3]	No concerns	No concerns	Moderate

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Sjunnestrand 2019 Toftemo 2013 Eli 2022					
Parents ignored the identification	Hardy 2019 Jones 2014	Minor concerns[1]	Minor concerns[3]	Serious concerns[9]	Serious concerns[10]	Very low
Parents disagreed with the identification	Hardy 2019 Sjunnestrand 2019 Toftemo 2013 Eli 2022	Minor concerns[1]	Minor concerns[3]	No concerns	Minor concerns[7]	Moderate
Parents agreed with the identification, but felt that overweight is not a problem	Hardy 2019 Jones 2014 Toftemo 2013 Eli 2022	Minor concerns[1]	Minor concerns[3]	Minor concerns[5]	Moderate concerns[8]	Very low
Staff describe practical limitations on what they can do	Sjunnestrand 2019 Jones 2014 Hardy 2019	Minor concerns[1]	Minor concerns[3]	Moderate concerns[6]	Minor concerns[7]	Very low
International barriers and facilitators						
HCPs provided context for normal weight and growth	Avis 2016 Hardy 2019 Jones 2014 Sjunnestrand 2019 Toftemo 2013 Eli 2022	Minor concerns[1]	Minor concerns[3]	No concerns	No concerns	Moderate
HCPs were able to discuss and explain weight issues	Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Toftemo 2013	No concerns	Minor concerns[3]	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Eli 2022					
Collaboration with other professionals facilitated engagement	Hardy 2019 Jones 2014 McPherson 2018 Sjunnestrand 2019	Minor concerns[1]	Minor concerns[3]	Minor concerns[5]	No concerns	Moderate
A trusting relationship between HCP and families was important	Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Toftemo 2013 Eli 2022	No concerns	Minor concerns[3]	No concerns	No concerns	High
HCPs tailored conversations to the families	Avis 2016 Hardy 2019 Jachyra 2018 Jones 2014 McPherson 2018 Sjunnestrand 2019 Eli 2022	No concerns	Minor concerns[3]	No concerns	No concerns	High
Barriers and facilitators for specific groups						
Younger age groups	Jones 2014 McPherson 2018 Toftemo 2013	Moderate concerns[2]	Minor concerns[3]	Minor concerns[5]	No concerns	Low
Disability and complex health issues	Jachyra 2018 McPherson 2018	Minor concerns[1]	Minor concerns[3]	No concerns	Minor concerns[7]	Moderate
Autism	Jachyra 2018 McPherson 2018	Minor concerns[1]	Minor concerns[3]	No concerns	Minor concerns[7]	Moderate
Race and culture	Avis 2016 Jones 2014 McPherson 2018	Minor concerns[1]	Minor concerns[3]	No concerns	Moderate concerns[8]	Low

[1] Finding was downgraded once because it was identified mainly in studies at moderate or high risk of bias
[2] Finding was downgraded twice because it was identified mainly in studies at high risk of bias
[3] Finding was downgraded once because it was identified mainly in studies that were indirectly or partially relevant
[4] Finding was downgraded twice because it was identified mainly in studies that were partially relevant
[5] Finding was downgraded once for coherence because the theme did not emerge from all relevant studies, findings were somewhat conflicting, or there was little convincing theoretical explanation
[6] Finding me was downgraded twice for coherence because the theme did not emerge from all relevant studies, findings were directly conflicting, or there was no convincing theoretical explanation
[7] Finding was downgraded once for adequacy because of insufficient studies (fewer than 3) or insufficient detail
[8] Finding was downgraded twice for adequacy because of both insufficient studies (fewer than 3) and insufficient detail
[9] Finding was downgraded three times for coherence because the theme rarely emerged and there was no convincing theoretical explanation
[10] Finding was downgraded three times for adequacy because of minimal detail being present in fewer than 3 studies

Table 28: GRADE-CERQual table for evidence on the effectiveness of approaches in identifying overweight and obesity in adults

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Barriers and facilitators to identification in general						
Healthcare providers felt that tools and guidance on identifying overweight were useful, but there was often a lack of consistency and availability.	Atlantis 2021 Blackburn 2015 Doherty 2019 Glenister Gunther 2012 Holmgren 2019	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
There were mixed opinions on whether it is a HCPs responsibility to identify overweight or obese people.	Atlantis 2021 Beeken 2021 Blackburn 2015 Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
Barriers and facilitators to identification of an individual						
Identifying overweight or obesity was seen as a difficult conversation to initiate, so HCPs needed to feel confident in their ability to do it well.	Blackburn 2015 Doherty 2019 Gunther 2012	No concerns	No concerns	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
	Holmgren 2019					
Competing priorities in a clinical interaction often meant that weight was not addressed.	Blackburn 2015 Doherty 2019 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	**No concerns**	No concerns	No concerns	No concerns	High
Opinions varied as to which patients should be identified and whether a conversation about weight should occur for an individual.	Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
Barriers and facilitators to raising the topic of weight with a patient						
A good relationship between patient and HCP made it easier to initiate a conversation about weight.	Atlantis 2021 Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	No concerns	No concerns	High

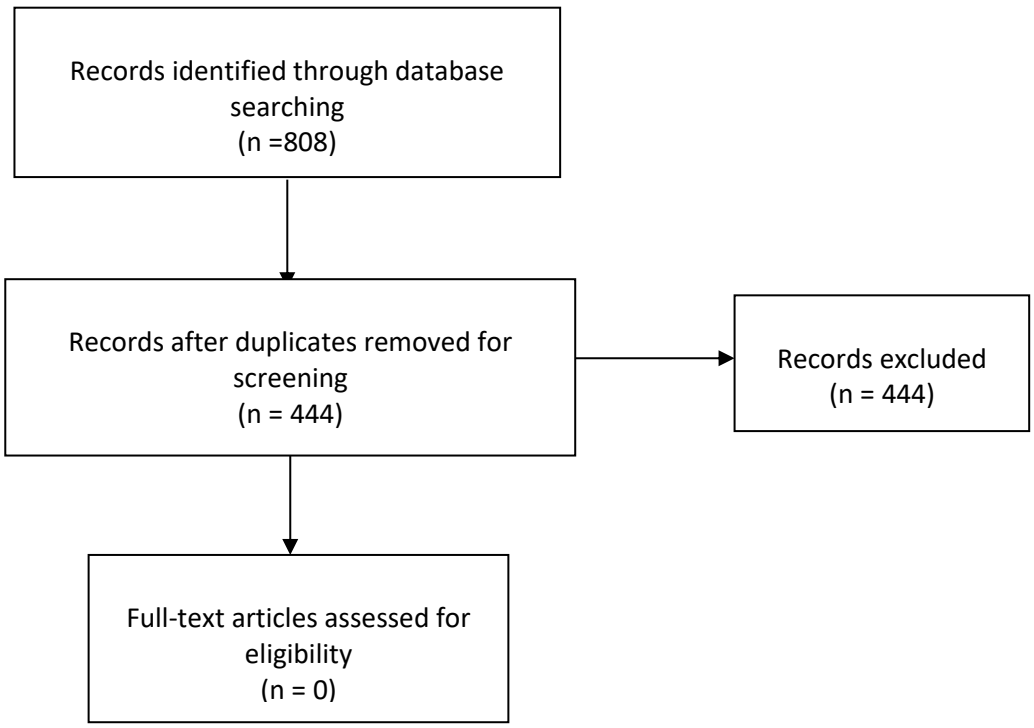
Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
Framing the identification of overweight as a general status was less productive than framing identification as a health concern.	Atlantis 2021 Beeken 2021 Doherty 2019 Holmgren 2019 Phillips 2014	No concerns	Minor concerns	No concerns	No concerns	Moderate
Most HCPs considered weight conversations to be challenging due to the stigma of being overweight.	Atlantis 2021 Beeken 2021 Blackburn 2015 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	No concerns	No concerns	High
Barriers and facilitators to discussing weight management						
Discussions of weight were dependent on the patient's motivation to engage with weight management	Atlantis 2021 Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
HCPs discussed the importance of tailoring conversations to the patient they are talking to.	Beeken 2021 Doherty 2019 Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	No concerns	No concerns	High

Summary of review finding	Studies	Methodological limitations	Relevance	Coherence	Adequacy	Confidence
HCPs who worked with patients with learning disabilities described the additional considerations when carers or support workers are involved.	Doherty 2019	No concerns	Minor concerns[3]	No concerns	Moderate concerns[8]	Low
Barriers and facilitators to referral and management						
HCPs advised their patients on diet and exercise, and helped them to plan their weight management individually.	Atlantis 2021 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	Minor concerns[5]	No concerns	Moderate
A referral for weight management was often dependent on whether there are appropriate services available to refer patients to.	Blackburn 2015 Doherty 2019 Glenister Gunther 2012 Holmgren 2019 Phillips 2014	No concerns	No concerns	No concerns	No concerns	High

[1] Finding was downgraded once because it was identified mainly in studies at moderate or high risk of bias
[2] Finding was downgraded twice because it was identified mainly in studies at high risk of bias
[3] Finding was downgraded once because it was identified mainly in studies that were indirectly or partially relevant
[4] Finding was downgraded twice because it was identified mainly in studies that were partially relevant
[5] Finding was downgraded once for coherence because the theme did not emerge from all relevant studies, findings were somewhat conflicting, or there was little convincing theoretical explanation
[6] Finding me was downgraded twice for coherence because the theme did not emerge from all relevant studies, findings were directly conflicting, or there was no convincing theoretical explanation
[7] Finding was downgraded once for adequacy because of insufficient studies (fewer than 3) or insufficient detail
[8] Finding was downgraded twice for adequacy because of both insufficient studies (fewer than 3) and insufficient detail

Appendix G - Economic evidence study selection

What is the cost-effectiveness of identifying overweight and obesity in children, young people and adults?



Appendix H – Economic evidence tables

No economic evidence was found for these review questions.

Appendix I – Health economic model

These questions were not prioritised for original economic analysis.

Appendix J – Excluded studies

Study	Code [Reason]
Atlantis, Evan, John, James Rufus, Fahey, Paul Patrick et al. (2021) Clinical usefulness of brief screening tool for activating weight management discussions in primary cARE (AWARE): A nationwide mixed methods pilot study. PloS one 16(10): e0259220	- Not a relevant study design *Cross-sectional diagnostic accuracy*
Aveyard, Paul, Lewis, Amanda, Tearne, Sarah et al. (2016) Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial. Lancet (London, England) 388(10059): 2492-2500	- Study does not contain a relevant intervention *Intervention is for uptake, all participants experienced screening in the same way.*
Bailey-Davis, Lisa, Hosterman, Jennifer, Poulsen, Melissa et al. (2020) Clinical screening for food security and lifestyle behavioral risk to prevent pediatric obesity. Obesity 28(suppl2): 68	- Conference abstract
Barba, G., Giacco, R., Clemente, G. et al. (2001) The BRAVO project: screening for childhood obesity in a primary school setting. Nutrition, metabolism, and cardiovascular diseases : NMCD 11(4suppl): 103-108	- Not a comparative study *Ongoing assessment of obesity, lifestyle, and dietary habits in a school in Italy*
Blane, David N; Macdonald, Sara; O'Donnell, Catherine A (2020) What works and why in the identification and referral of adults with comorbid obesity in primary care: A realist review. Obesity reviews : an official journal of the International Association for the Study of Obesity 21(4): e12979	- SR - checked
Bonsergent, Emilie, Thilly, Nathalie, Legrand, Karine et al. (2013) Process evaluation of a school-based overweight and obesity screening strategy in adolescents. Global health promotion 20(2suppl): 76-82	- No relevent outcomes provided *Comparative outcomes reported do not address identification of overweight/obesity and co not match those in the protocol*
Bordowitz, Richard; Morland, Kimberly; Reich, Douglas (2007) The use of an electronic medical record to improve documentation and treatment of obesity. Family medicine 39(4): 274-9	- Not a relevant study design *retrospective cross-sectional study*
Camp, Nadine L, Robert, Rebecca C, Nash, Jessica E et al. (2017) Modifying Provider Practice To Improve Assessment of Unhealthy Weight and Lifestyle in Young Children: Translating Evidence in a Quality Improvement Initiative for At-Risk Children. Childhood obesity (Print) 13(3): 173-181	- Not a relevant study design *Review of electronic record data*
Campbell-Scherer, D., Heatherington, M., Klein, D. et al. (2017) The 5AsT-MD pilot: Improving education and training in obesity management in family medicine residents. Obesity Facts 10(supplement1): 146	- Conference abstract
Chau, Sarah, Oldman, Samantha, Ali, Saba et al. (2021) Online behavioral screener with tailored obesity prevention messages: Application to a pediatric clinical setting. Nutrients 13(1): 1-14	- Comparator in study does not match that specified in protocol *No control group used*

Dam, Rinita, Robinson, Heather Anne, Vince-Cain, Sarah et al. (2019) Engaging parents using web-based feedback on child growth to reduce childhood obesity: a mixed methods study. BMC public health 19(1): 300	- Not a relevant study design *Descriptive data*
Davidson, Kamila, Vidgen, Helen, Denney-Wilson, Elizabeth et al. (2018) How is children's weight status assessed for early identification of overweight and obesity? - Narrative review of programs for weight status assessment. Journal of child health care : for professionals working with children in the hospital and community 22(3): 486-500	- SR - checked
Dennison, Barbara A, Nicholas, Joseph, de Long, Rachel et al. (2009) Randomized controlled trial of a mailed toolkit to increase use of body mass index percentiles to screen for childhood obesity. Preventing chronic disease 6(4): a122	- Study does not contain a relevant intervention *Toolkit for doctors to support them measuring BMI in children versus no toolkit*
Fayter, Debra, Nixon, John, Hartley, Suzanne et al. (2007) A systematic review of the routine monitoring of growth in children of primary school age to identify growth-related conditions. Health Technology Assessment 11(22)	- Not a relevant study design *Diagnostic accuracy review*
Gee, Kevin A (2015) School-Based Body Mass Index Screening and Parental Notification in Late Adolescence: Evidence From Arkansas's Act 1220. The Journal of adolescent health : official publication of the Society for Adolescent Medicine 57(3): 270-6	- Not a relevant study design *Non-randomised trial*
Gehring, Nicole D, Kebbe, Maryam, Rathwell, Sarah et al. (2021) Physician-related predictors of referral for multidisciplinary paediatric obesity management: a population-based study. Family practice 38(5): 576-581	- Not a relevant study design *retrospective, population-level cross-sectional study*
Gentile, Natalie, Cristiani, Valeria, Lynch, Brian A et al. (2016) The effect of an automated point of care tool on diagnosis and management of childhood obesity in primary care. Journal of Evaluation in Clinical Practice 22(6): 958-964	- Not a relevant study design *retrospective record review*
Greenberg, Barbara L; Glick, Michael; Tavares, Mary (2017) Addressing obesity in the dental setting: What can be learned from oral health care professionals' efforts to screen for medical conditions. Journal of public health dentistry 77suppl1: 67-s78	- SR - checked
Guardi, Jodie N, Aquino, Elizabeth, Larimer, Karen et al. (2020) Lack of Diagnosis and Screening for Pediatric Obesity in the Retail Health Setting: Implications for Quality Improvement Measures. Journal of pediatric health care : official publication of National Association of Pediatric Nurse Associates & Practitioners 34(3): 222-229	- Not a comparative study *This was a retrospective chart review investigating the accuracy of diagnosis of overweight and obesity in Illinois, USA.*
Henderson, E J, Ells, L J, Rubin, G P et al. (2015) Systematic review of the use of data from national childhood obesity surveillance programmes in primary care: a conceptual synthesis. Obesity reviews : an official journal of the International Association for the Study of Obesity 16(11): 962-71	- SR - checked

Hillman, Jennifer B; Corathers, Sarah D; Wilson, Stephen E (2009) Pediatricians and screening for obesity with body mass index: does level of training matter?. Public health reports (Washington, D.C. : 1974) 124(4): 561-7	- Not a relevant study design *a retrospective review of the medical records*
Hudson, Eibhlin; McGloin, Aileen; McConnon, Aine (2012) Parental weight (mis)perceptions: factors influencing parents' ability to correctly categorise their child's weight status. Maternal and child health journal 16(9): 1801-9	- Study does not contain a relevant intervention *Focus on parental perception of weight status*
Ikeda, Joanne P, Crawford, Patricia B, Woodward-Lopez, Gail et al. (2006) BMI screening in schools: Helpful or harmful. Health Education Research 21(6): 761-769	- Review article but not a systematic review
Korhonen, Paivi E; Jarvenpaa, Salme; Kautiainen, Hannu (2014) Primary care-based, targeted screening programme to promote sustained weight management. Scandinavian journal of primary health care 32(1): 30-6	- Not a relevant study design *No suitable control group used*
Lewis, A., Jebb, S., Aveyard, P. et al. (2014) A randomised controlled trial to test the effectiveness of a brief intervention for weight management in primary care. Obesity Reviews 15(suppl2): 148	- Conference abstract
Lewis, A.L., Aveyard, P., Jolly, K. et al. (2013) A randomised controlled trial to test the effectiveness of a brief intervention for weight management for obese adults in primary care. Obesity Facts 6(suppl1): 155	- Conference abstract
Logue, J., O'Donnell, J., Brooksbank, K. et al. (2019) An educational intervention to increase referrals of patients with type 2 diabetes from primary care to weight management (Small Talk Big Difference): Results of a randomised controlled trial. Obesity Facts 12(supplement1): 171-172	- Conference abstract
Lydecker, Janet A and Grilo, Carlos M (2017) The missed diagnosis and misdiagnosis of pediatric obesity. Psychotherapy and Psychosomatics 86(3): 173-174	- Not a relevant study design *retrospective medical record review*
Madsen, Kristine A (2011) School-based body mass index screening and parent notification: a statewide natural experiment. Archives of pediatrics & adolescent medicine 165(11): 987-92	- No relevent outcomes provided *Outcomes linked to BMI z Score*
McGeown, Laura; Ball, Geoff D C; Mushquash, Aislin R (2021) Is There a Role for Self-Referral in Pediatric Weight Management?. Childhood obesity (Print) 17(8): 559-562	- Not a relevant study design *retrospective medical record review*
McLaughlin, Joanna C; Hamilton, Kathryn; Kipping, Ruth (2017) Epidemiology of adult overweight recording and management by UK GPs: a systematic review. The British journal of general practice : the journal of the Royal College of General Practitioners 67(663): e676-e683	- Study does not contain a relevant intervention
Meriaux, Benita Gunnarsson; Hellstrom, Anna-Lena; Marild, Staffan (2008) Identification and follow-up of obesity in ten-year-old school children. International journal of pediatric obesity : IJPO : an official journal of the International Association for the Study of Obesity 3(2): 102-8	- Study does not contain a relevant intervention *Interventions were for weight management. All participants were screened/identified.*

Nguyen, Nam Hoang, Kebbe, Maryam, Peng, Chenhui et al. (2020) Public health nurse referrals for paediatric weight management: A nested mixed-methods study. Journal of clinical nursing 29(1718): 3263-3271	- Not a relevant study design *Descriptive data*
O'Connor, Elizabeth A, Evans, Corinne V, Burda, Brittany U et al. (2017) Screening for Obesity and Intervention for Weight Management in Children and Adolescents: Evidence Report and Systematic Review for the US Preventive Services Task Force. JAMA 317(23): 2427-2444	- SR - checked
O'Connor, Kaitlin Ann, Sahrmann, Julie Marie, Magie, Richard E et al. (2013) Examining body mass index in an urban core population: from health screening to physician visit. Clinical pediatrics 52(4): 315-21	- Not a relevant study design *retrospective chart review.*
O'Grady, Jason S; Thacher, Tom D; Chaudhry, Rajeev (2013) The effect of an automated clinical reminder on weight loss in primary care. Journal of the American Board of Family Medicine : JABFM 26(6): 745-50	- Not a relevant study design *Retrospective analysis of electronic medical records*
Oetzel, Keri Bolton, Scott, Amy Anixter, McGrath, Jane et al. (2009) School-based health centers and obesity prevention: Changing practice through quality improvement. Pediatrics 123(suppl): 267-271	- Not a comparative study *This study looked at outcomes linked to Envision New Mexico, a quality improvement program utilised at a number of school-based health centers (SBHCs)*
Patel, Anisha I, Madsen, Kristine A, Maselli, Judith H et al. (2010) Underdiagnosis of pediatric obesity during outpatient preventive care visits. Academic pediatrics 10(6): 405-9	- Not a relevant study design *Survey*
Perrin, Eliana M, Jacobson Vann, Julie C, Benjamin, John T et al. (2010) Use of a pediatrician toolkit to address parental perception of children's weight status, nutrition, and activity behaviors. Academic pediatrics 10(4): 274-81	- Not a relevant study design *pre-test, post-test study*
Pollak, Kathryn I, Tulsky, James A, Bravender, Terrill et al. (2016) Teaching primary care physicians the 5 A's for discussing weight with overweight and obese adolescents. Patient Education and Counseling 99(10): 1620-1625	- Study does not contain a relevant intervention *The intervention is teaching primary care physicians to better communicate with overweight and obese adolescents through utilising a technique called the 5 A's. The study outcomes are linked to their future usage of the 5 A's when speaking to overweight and obese adolescents.*
Queally, Michelle, Doherty, Edel, Matvienko-Sikar, Karen et al. (2018) Do mothers accurately identify their child's overweight/obesity status during early childhood? Evidence from a nationally representative cohort study. The international journal of behavioral nutrition and physical activity 15(1): 56	- Study does not contain a relevant intervention *Focus on why parents mis-identify*
Slomka, Juliette, McTigue, Kathleen, Hess, Rachel et al. (2011) To refer or not to refer obesity: Are primary care	- Conference abstract

physicians addressing the question?. Journal of General Internal Medicine 26(suppl1): 132-s133	
Smith, Sharon R., Johnson, Stephanie T., Oldman, Samantha M. et al. (2019) Pediatric Adapted Liking Survey: A Novel, Feasible and Reliable Dietary Screening in Clinical Practice. Caries research 53(2): 153-159	- Not a relevant study design *Survey*
Sturgiss, Elizabeth, Haesler, Emily, Elmitt, Nicholas et al. (2017) Increasing general practitioners' confidence and self-efficacy in managing obesity: a mixed methods study. BMJ open 7(1): e014314	- Not a relevant study design *Survey*
Vaughn, Lisa M, Nabors, Laura, Pelley, Terri J et al. (2012) Obesity screening in the pediatric emergency department. Pediatric emergency care 28(6): 548-52	- Not a relevant study design *cross-sectional study*
Villarosa, Amy R, George, David, Ramjan, Lucie M et al. (2018) The role of dental practitioners in addressing overweight and obesity among children: A scoping review of current interventions and strategies. Obesity research & clinical practice 12(5): 405-415	- SR - checked
Viner, Russell M, Kinra, Sanjay, Christie, Deborah et al. (2020) No title provided.	- Not a comparative study *This is a wide-ranging report covering overweight and obesity in children and young people. The relevant chapter for this review is a uncontrolled pilot study of Computer-Assisted Treatment of CHildren tool (CATCH).*
Wake, Melissa (2009) Issues in obesity monitoring, screening and subsequent treatment. Current opinion in pediatrics 21(6): 811-6	- Review article but not a systematic review
Waring, Molly E, Roberts, Mary B, Parker, Donna R et al. (2009) Documentation and management of overweight and obesity in primary care. Journal of the American Board of Family Medicine : JABFM 22(5): 544-52	- Study does not contain a relevant intervention *No intervention tested*
Wein, Lawrence M; Yang, Yan; Goldhaber-Fiebert, Jeremy D (2012) Assessing screening policies for childhood obesity. Obesity (Silver Spring, Md.) 20(7): 1437-43	- Not a relevant study design *Modelling*
Whitlock, Evelyn P, Williams, Selvi B, Gold, Rachel et al. (2005) Screening and Interventions for Childhood Overweight.	- SR - checked
Wylie-Rosett, Judith, Velastegui, Lorena, Grullon, Rosalie et al. (2020) Patient recruitment: Insights from the goals for eating and moving study (GEM); a clusterrct of a health coaching technology-assisted weight-loss intervention in primary care. Journal of General Internal Medicine 35(suppl1): 223-s224	- Conference abstract

Study	Code [Reason]
Albury, Charlotte V. A, Ziebland, Sue, Webb, Helena et al. (2021) Discussing weight loss opportunistically and effectively in family	- Not a relevant study design

Study	Code [Reason]
practice: A qualitative study of clinical interactions using conversation analysis in UK family practice. Family Practice 38(3): 321-328	*Conversation analysis; observational*
Andrade, Lesley, Moran, Kathy, Snelling, Susan J et al. (2020) Beyond BMI: a feasibility study implementing NutriSTEP in primary care practices using electronic medical records (EMRs). Health promotion and chronic disease prevention in Canada : research, policy and practice 40(1): 1-10	- Children under 2 years old *Cannot separate data for 0-2 and 2-5 year olds*
Arora, A., Rana, K., Manohar, N. et al. (2022) Perceptions and Practices of Oral Health Care Professionals in Preventing and Managing Childhood Obesity. Nutrients 14(9): 1809	- Does not ask relevant questions *Focus on prevention and promoting health generally*
Asberg, M.; Derwig, M.; Castor, C. (2023) Parents' recalled experiences of the child centred health dialogue in children with overweight: a qualitative study. BMC health services research 23(1): 289	- Does not ask relevant questions *Engaging children with an existing diagnosis, not identification*
Asselin, Jodie D., Osunlana, Adedayo, Ogunleye, Ayodele et al. (2015) Hidden in plain sight: The embedded nature of obesity in primary care visits. Canadian Journal of Diabetes 39(suppl1): 53	- Conference abstract
Bailey-Davis, Lisa, Pinto, Angela Marinilli, Hanna, David J et al. (2022) Qualitative inquiry with primary care providers and specialists about adult weight management care and referrals. Translational behavioral medicine 12(4): 576-584	- Country not in the selected range *USA*
Bailey-Davis, Lisa, Still, Christopher, Hanna, David et al. (2020) Provider perspectives on weight management referrals: A qualitative analysis. Obesity 28(suppl2): 144-145	- Conference abstract
Berkson, Stephanie S, Espinola, Janice, Corso, Katherine A et al. (2013) Reliability of height and weight measurements collected by physical education teachers for a school-based body mass index surveillance and screening system. The Journal of school health 83(1): 21-7	- Does not contain qualitative data
Bradbury, Daisy, Chisholm, Anna, Watson, Paula M et al. (2018) Barriers and facilitators to health care professionals discussing child weight with parents: A meta-synthesis of qualitative studies. British journal of health psychology 23(3): 701-722	- SR - checked
Camp, Nadine L, Robert, Rebecca C, Nash, Jessica E et al. (2017) Modifying Provider Practice To Improve Assessment of Unhealthy Weight and Lifestyle in Young Children: Translating Evidence in a Quality Improvement Initiative for At-Risk Children. Childhood obesity (Print) 13(3): 173-181	- Country not in the selected range *USA*
Clark, E; Tuthill, D; Hingston, E J (2018) Paediatric dentists' identification and management of underweight and overweight children. British dental journal 225(7): 657-661	- Does not contain qualitative data
Clarke, J, Fletcher, B, Lancashire, E et al. (2013) The views of stakeholders on the role of the primary school in preventing childhood obesity: a qualitative systematic review. Obesity reviews : an official journal of the International Association for the Study of Obesity 14(12): 975-88	- SR - checked

Study	Code [Reason]
Clarke, Joanne L, Griffin, Tania L, Lancashire, Emma R et al. (2015) Parent and child perceptions of school-based obesity prevention in England: a qualitative study. BMC public health 15: 1224	- Based on an ineligible intervention *Data was on a weight management intervention*
Croker, Helen; Lucas, Rebecca; Wardle, Jane (2012) Cluster-randomised trial to evaluate the 'Change for Life' mass media/ social marketing campaign in the UK. BMC Public Health 12(404)	- Based on an ineligible intervention *Intervention for healthy habits*
Cyril, Sheila, Nicholson, Jan M, Agho, Kingsley et al. (2017) Barriers and facilitators to childhood obesity prevention among culturally and linguistically diverse (CALD) communities in Victoria, Australia. Australian and New Zealand journal of public health 41(3): 287-293	- Does not ask relevant questions
Cyril, Sheila, Polonsky, Michael, Green, Julie et al. (2017) Readiness of communities to engage with childhood obesity prevention initiatives in disadvantaged areas of Victoria, Australia. Australian health review : a publication of the Australian Hospital Association 41(3): 297-307	- Does not ask relevant questions *Focus on obesity at a community level*
Davidson, Kamila, Vidgen, Helen, Denney-Wilson, Elizabeth et al. (2019) Who is responsible for assessing children's weight status? - a qualitative study of health professionals in regional Australia. BMC public health 19(1): 1196	- Does not ask relevant questions *Speculation rather than experiences*
Farman, R.; Fitzgerald, H.; Radley, D. (2019) Weight management provision in a special school: Experiences of disabled children and their families. Obesity Facts 12(supplement1): 268	- Conference abstract
Gage, Heather, Erdal, Ebru, Saigal, Priyanka et al. (2012) Recognition and management of overweight and obese children: A questionnaire survey of general practitioners and parents in England. Journal of Paediatrics and Child Health 48(2): 146-152	- Does not contain qualitative data
Gillison F; Beck F; Lewitt J (2014) Exploring the basis for parents' negative reactions to being informed that their child is overweight. Public health nutrition 17(5): 987-997	- Questionnaire study not required
Gray, Lesley; Chamberlain, Rachel; Morris, Caroline (2016) "Basically you wait for an 'in'": community pharmacist views on their role in weight management in New Zealand. Journal of primary health care 8(4): 365-371	- Country not in the selected range *New Zealand*
Greenwood, Nicola and Lewis, Kiara (2015) Opportunistic health promotion among overweight children. Nursing children and young people 27(3): 16-20	- Based on an ineligible intervention *Healthy lifestyle promotion*
Gutin, Iliya (2022) Not 'putting a name to it': Managing uncertainty in the diagnosis of childhood obesity. Social Science & Medicine 294	- Country not in the selected range *USA*
Helseth, Solvi, Riiser, Kirsti, Holmberg Fagerlund, Bettina et al. (2017) Implementing guidelines for preventing, identifying and treating adolescent overweight and obesity-School nurses'	- Themes are specific to a non-UK country

Study	Code [Reason]
perceptions of the challenges involved. Journal of clinical nursing 26(2324): 4716-4725	*Implementing Norway's national guidelines*
Hersch, Derek E., Uy, Marc James A, Loth, Katie A. et al. (2021) Primary care providers' perspectives on initiating childhood obesity conversations: a qualitative study. Family practice 38(4): 460-467	- Country not in the selected range *USA*
Holden, M.A., Waterfield, J., Whittle, R. et al. (2018) A mixed methods exploration of how UK physical therapists address weight loss among individuals with hip osteoarthritis. Osteoarthritis and Cartilage 26(supplement1): 324	- Conference abstract
Isma, Gabriella E, Bramhagen, Ann-Cathrine, Ahlstrom, Gerd et al. (2013) Obstacles to the prevention of overweight and obesity in the context of child health care in Sweden. BMC family practice 14: 143	- Children under 2 years old *Includes ages 0-6, cannot separate the data for different ages.*
Jones, A. R, Parkinson, K. N, Drewett, R. F et al. (2011) Parental perceptions of weight status in children: The Gateshead Millennium Study. International Journal of Obesity 35(7): 953-962	- Does not ask relevant questions *Focus on parental views on weight*
Kass, Andrea E, Wang, Annie Z, Kolko, Rachel P et al. (2015) Identification as overweight by medical professionals: relation to eating disorder diagnosis and risk. Eating behaviors 17: 62-8	- Does not contain qualitative data
Kim, Kyoung Kon, Yeong, Lin-Lee, Caterson, Ian D et al. (2015) Analysis of factors influencing general practitioners' decision to refer obese patients in Australia: a qualitative study. BMC family practice 16: 45	- Does not ask relevant questions *Focused on referrals to surgery*
Knafel, R.M., Coddington, J., Sorg, M. et al. (2023) Introduction of a conversation starter tool to improve health habits in young children. Journal of pediatric nursing 68: 1-9	- Not a relevant study design *Quasi-experimental*
Kubik, Martha Young, Story, Mary, Rieland, Gayle et al. (2007) Developing school-based BMI screening and parent notification programs: Findings from focus groups with parents of elementary school students. Health Education & Behavior 34(4): 622-633	- Country not in the selected range *USA*
Leiter, L A, Astrup, A, Andrews, R C et al. (2015) Identification of educational needs in the management of overweight and obesity: results of an international survey of attitudes and practice. Clinical obesity 5(5): 245-55	- Does not contain qualitative data
Moir, Chris and Jones, Virginia (2019) Experience of nurses measuring preschool body mass index for the Health target: Raising Healthy Kids. Journal of primary health care 11(3): 275-282	- Country not in the selected range *New Zealand*
Nguyen, Nam Hoang, Kebbe, Maryam, Peng, Chenhui et al. (2020) Public health nurse referrals for paediatric weight management: A nested mixed-methods study. Journal of clinical nursing 29(1718): 3263-3271	- Themes are specific to a non-UK country *Canadian referral pathways*
O'Donnell, Jennifer E; Foskett-Tharby, Rachel; Gill, Paramjit S (2017) General practice views of managing childhood obesity in primary care: a qualitative analysis. JRSM Open 8(6)	- Does not ask relevant questions

Study	Code [Reason]
	Focus on managing obesity
O'Shea, Brendan, Ladewig, Emma L, Kelly, Alan et al. (2014) Weighing children; parents agree, but GPs conflicted. Archives of disease in childhood 99(6): 543-5	- Does not contain qualitative data
Po'e, Eli K, Gesell, Sabina B, Lynne Caples, T et al. (2010) Pediatric obesity community programs: barriers & facilitators toward sustainability. Journal of community health 35(4): 348-54	- Country not in the selected range *USA*
Redsell, Sarah A, Swift, Judy A, Nathan, Dilip et al. (2013) UK health visitors' role in identifying and intervening with infants at risk of developing obesity. Maternal & child nutrition 9(3): 396-408	- Children under 2 years old
Royall, D., Brauer, P., Dwyer, J.J.M. et al. (2011) Eliciting provider and patient perspectives to develop an interdisciplinary obesity management planning framework in primary care. Canadian Journal of Diabetes 35(2): 172	- Conference abstract
Schalkwijk, Annemarie A H, Nijpels, Giel, Bot, Sandra D M et al. (2016) Health care providers' perceived barriers to and need for the implementation of a national integrated health care standard on childhood obesity in the Netherlands - a mixed methods approach. BMC health services research 16: 83	- Themes are specific to a non-UK country *Implementing the Netherlands' national guidelines*
Sela, Y.; Grinberg, K.; Nemet, D. (2022) Obstacles Preventing Public Health Nurses from Discussing Children's Overweight and Obesity with Parents. Comprehensive child and adolescent nursing 45(4): 425-436	- Country not in the selected range *Israel*
Smith, S.; Todd, A.; Summerbell, C.D. (2015) What is the impact of a community pharmacy-led weight management service for adults in a deprived urban area in UK? A mixed methods service evaluation. Obesity Facts 8(suppl1): 125	- Conference abstract
Steele, Ric G., Wu, Yelena P., Jensen, Chad D. et al. (2011) School Nurses' Perceived Barriers to Discussing Weight With Children and Their Families: A Qualitative Approach. Journal of School Health 81(3): 128-137	- Country not in the selected range *USA*
Sturgiss, Elizabeth, Haesler, Emily, Elmitt, Nicholas et al. (2017) Increasing general practitioners' confidence and self-efficacy in managing obesity: a mixed methods study. BMJ open 7(1): e014314	- Based on an ineligible intervention *Weight management program delivered by GPs*
Teixeira, F V; Pais-Ribeiro, J L; Maia, A (2015) A qualitative study of GPs' views towards obesity: are they fighting or giving up?. Public health 129(3): 218-25	- Country not in the selected range *Portugal*
Thorstensson, Stina, Blomgren, Carola, Sundler, Annelie J et al. (2018) To break the weight gain-A qualitative study on the experience of school nurses working with overweight children in elementary school. Journal of Clinical Nursing 27(12): e251-e258	- Does not ask relevant questions *Focused on weight management*
Torti, Jacqueline, Luig, Thea, Borowitz, Michelle et al. (2017) The 5As team patient study: patient perspectives on the role of primary care in obesity management. BMC family practice 18(1): 19	- Does not ask relevant questions

Study	Code [Reason]
	Focuses on management in primary care
Traun, Benjamin D, Flood, Tracy L, Meinen, Amy et al. (2016) A Qualitative Pilot Study of Pediatricians' Approach to Childhood Obesity. WMJ : official publication of the State Medical Society of Wisconsin 115(3): 134-139	- Country not in the selected range *USA*
Tucker, C.M., Roncoroni, J., Klein, K.G. et al. (2021) Views of Black women patients with obesity on desired and undesired weight-focused clinical encounters. Clinical Obesity 11(5): e12468	- Country not in the selected range *USA*
Viner, Russell M, Kinra, Sanjay, Christie, Deborah et al. (2020) No title provided.	- Based on an ineligible intervention *Qualitative component is on surgical interventions*
Wake, Melissa, Campbell, Michele W, Turner, Megan et al. (2013) How training affects Australian paediatricians' management of obesity. Archives of disease in childhood 98(1): 3-8	- Does not contain qualitative data
Warr, William, Aveyard, Paul, Albury, Charlotte et al. (2021) A systematic review and thematic synthesis of qualitative studies exploring GPs' and nurses' perspectives on discussing weight with patients with overweight and obesity in primary care. Obesity reviews : an official journal of the International Association for the Study of Obesity 22(4): e13151	- SR - checked
Waterfield, T., Johnston, J., Sweeney, E. et al. (2016) How should we approach obesity in the emergency department?. Archives of Disease in Childhood 101(supplement1): a124	- Conference abstract
Weidmann, A.E., Marshall, S., Gray, G. et al. (2014) Can community pharmacy contribute to weight management? A qualitative study of the perspectives of the pharmacy team. International Journal of Pharmacy Practice 22(suppl1): 53	- Conference abstract
Wills, Wendy J and Lawton, Julia (2015) Attitudes to weight and weight management in the early teenage years: A qualitative study of parental perceptions and views. Health Expectations: An International Journal of Public Participation in Health Care & Health Policy 18(5): 775-783	- Does not ask relevant questions *Focus on parental opinions on weight*

Appendix K – Research recommendations – full details

Research recommendation 1

What approaches are effective and acceptable in identifying overweight, obesity and central adiposity in adults, children and young people from minority ethnic family backgrounds? [2023]

Why this is important

Review question 1.3 aimed to look particularly at people from black Asian and minority ethnic family backgrounds, in both adults and children and young people, but the evidence in these populations was minimal. The majority of the samples in the included evidence were people from white European or white American family backgrounds, which cannot be directly applied to other groups as there are established differences in the risks of developing obesity related health problems. People from minority ethnic family backgrounds are at greater risk at lower BMI status than white people, therefore direct evidence on this population is needed to make appropriate recommendations without disadvantaging them.

Rationale for research recommendation

Importance to 'patients' or the population	Identifying overweight obesity and central adiposity appropriately for people from minority ethnic family backgrounds is an important part of offering patient-centred care and reducing the health inequalities experienced by people in these populations.
Relevance to NICE guidance	The lack of evidence has resulted in this guidance being unable to make strong evidence-based recommendations for this population.
Relevance to the NHS	More specific evidence will enable identification to be done appropriately for people from minority ethnic backgrounds. This would enable intervention at the right time to reduce the chances of developing obesity related health conditions. This in turn would reduce costs and resource use for the NHS.
National priorities	High
Current evidence base	Minimal representation in mixed population studies. No studies of people from minority ethnic family backgrounds specifically.
Equality considerations	Important for the equitable treatment of people from minority ethnic family backgrounds.

Modified PICO table

Population	Children and young people • Children and young people aged under 18 years Where possible, evidence will be stratified by ethnicity: o White o Black African/ Caribbean o Asian (South Asian, Chinese, any other Asian background) o Other ethnic groups (Arab, any other ethnic group) o Multiple/mixed ethnic group • Parents and carers • Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services. Adults

	• Adults 18 years and over. Where possible, evidence will be stratified by ethnicity: o White o Black African/ Caribbean o Asian (South Asian, Chinese, any other Asian background) o Other ethnic groups (Arab, any other ethnic group) o Multiple/mixed ethnic group • Staff undertaking identification of adults with overweight or obesity and engaging them in weight management services.
Intervention	• **Opportunistic identification, including but not confined to:** o When registering with GP o When receiving consultation for health conditions (e.g., chronic health conditions) o During routine check-up/ annual check-up (delivered by GPs, nurses or pharmacists, social care staff) o During medication check (e.g., contraception pill check) o During vaccination appointments o Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments) • **Active case finding** (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to: o Review of medical records o Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers) o audits of other services (e.g. disability services or endocrinology services) • **Self-identification or referral** • **Parent/ carer-initiated identification or referral** • **School nurse/ teacher / health visitor / social services-initiated identification or referrals**
Comparator	• No intervention/usual care • Comparison of interventions
Outcome	Primary outcomes: • Number of adults, children and young people identified as overweight or obese • Referral to weight management service • Health-related quality of life Secondary outcomes: • Adverse events: o Eating disorders or disordered eating o Stigma (including self-stigma and negative body image as defined in studies)
Study design	• RCTs

	• Observational studies (cohort studies) • Mixed methods studies
Timeframe	Commensurate with existing literature
Additional information	None

Research recommendation 2

What are the adverse effects of identifying children and young people as living with overweight or obesity, particularly the risk of disordered eating and eating disorders?

Why this is important

Adverse outcomes are seldom reported in studies of identification of overweight and obesity in children and young people. These outcomes, however, are of particular concern to parents and carers of the children and young people who are identified. The committee agreed with these concerns but felt that more information was needed before this consideration should alter their recommendations. The risk of developing eating disorders was highlighted and thus stated explicitly in the question, because young people are particularly vulnerable to these during their adolescent years.

Rationale for research recommendation

Importance to 'patients' or the population	Qualitative evidence shows that the risk of eating disorders is a serious concern for parents and guardians of children with overweight or obesity.
Relevance to NICE guidance	Recommendations made in this guideline are premised on the assumption of none or negligible harm to patients. It is important to test this assumption.
Relevance to the NHS	There is considerable pressure on children and young people's mental health services. Establishing the adverse impacts of identifying overweight and obesity on mental health will beneficial in preventing development of these outcomes and in turn the need for referral to mental health services.
National priorities	High
Current evidence base	Little direct evidence
Equality considerations	None known

Modified PICO table

Population	• Children and young people aged under 18 years • Parents and carers • Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.

Intervention	• **Opportunistic identification, including but not confined to:**
	  ○ When registering with GP
	  ○ When receiving consultation for health conditions (e.g., chronic health conditions)
	  ○ During routine check-up/ annual check-up (delivered by GPs, nurses or pharmacists, social care staff)
	  ○ During medication check (e.g., contraception pill check)
	  ○ During vaccination appointments

	○ Visits to secondary care (e.g., outpatient clinics and emergency departments or physiotherapist appointments) • **Active case finding** (defined as searching systematically for at risk people, rather than waiting for them to present with symptoms or signs of active disease). This includes but is not confined to: ○ Review of medical records ○ Receiving or received interventions for example brief physical activity advice (delivered by GPs, nurses, pharmacists, activity providers) ○ audits of other services (e.g. disability services or endocrinology services) • **Self-identification or referral** • **Parent/ carer-initiated identification or referral** • **School nurse/ teacher / health visitor / social services-initiated identification or referrals**
Comparator	• No intervention/usual care
Outcome	• Adverse events: ○ Mental health (low mood, anxiety, etc.) ○ Stigma (including self-stigma and negative body image as defined in studies) ○ Disordered eating behaviour (without formal diagnosis) ○ Negative impact on quality of life • Diagnosed eating disorders: ○ Anorexia nervosa ○ Bulimia ○ Binge eating disorder (BED) ○ Other specified feeding or eating disorder (OSFED) ○ Avoidant/restrictive food intake disorder (ARFID)
Study design	• RCTs • Observational studies (cohort studies) • Qualitative studies • Mixed methods studies
Timeframe	Short and/or long term
Additional information	None

Research recommendation 3

What is the effectiveness of children and young people using waist-to-height ratio to measure their own central adiposity and what is the acceptability of this approach among this population?

Why this is important

Recommendations for adults encouraged using waist-to-height ratio to measure their own central adiposity, but there was insufficient evidence to recommend this for children and young people in the same way. This approach to measuring central adiposity has many benefits, so it is important to understand if it is effective and acceptable in this age group.

Rationale for research recommendation

Importance to 'patients' or the population	Waist to height ratio would be an easier and potentially less stigmatising way to identify overweight or obesity in children and young people, and would allow them the agency to take these measures themselves.
Relevance to NICE guidance	The lack of evidence has resulted in this guidance being unable to make a strong evidence-based recommendations on this for children and young people.
Relevance to the NHS	Children measuring their own central adiposity would enable them to be active participants in their healthcare and assist with identifying overweight and obesity at the right time to reduce the chances of developing obesity related health conditions. This in turn would reduce costs and resource use for the NHS.
National priorities	High
Current evidence base	No studies investigate this type of measurement
Equality considerations	None

Modified PICO table

Population	• Children and young people aged under 18 years Where possible, evidence will be stratified by ethnicity: o White o Black African/ Caribbean o Asian (South Asian, Chinese, any other Asian background) o Other ethnic groups (Arab, any other ethnic group) o Multiple/mixed ethnic group • Parents and carers • Staff undertaking identification of children and young people with overweight or obesity and engaging them in weight management services.
Intervention	• Child's self-measurement of waist-to-height ratio
Comparator	• Standard BMI measurement • Healthcare professional's measurement of waist-to-height ratio
Outcome	Primary outcomes: • Accuracy of child's measurements • Number of children and young people identified as overweight or obese • Health-related quality of life Secondary outcomes: • Adverse events: o Eating disorders or disordered eating o Stigma (including self-stigma and negative body image as defined in studies) Qualitative outcomes: • Perspectives, experiences, values, preferences, views, beliefs and considerations about the acceptability of using waist-to-height ratio
Study design	• RCTs

	• Observational studies (cohort studies) • Mixed methods studies • Qualitative studies
Timeframe	Commensurate with existing literature
Additional information	None

Research recommendation 4

How do beliefs and attitudes about weight in families and carers affect identification, uptake and adherence to overweight and obesity management interventions in adults, children and young people? [2023]

Why this is important

Beliefs and attitudes about weight were highlighted in the qualitative evidence as important influences on how families and carers felt about their child being identified as overweight or obese and referred to overweight and obesity management services. This beliefs and attitudes stem from a range of cultures and backgrounds, and understanding how they affect identification and uptake of interventions is crucial to effective interventions for these.

Rationale for research recommendation

Importance to 'patients' or the population	Beliefs and attitudes are important to the people who hold them and addressing them appropriately shapes their experiences of healthcare.
Relevance to NICE guidance	This guideline aims to improve identification uptake and adherence to interventions, so understanding the beliefs and attitudes that affect them is crucial to addressing these potential barriers.
Relevance to the NHS	Increased uptake of overweight and obesity management interventions could prevent children and young people from being exposed to the health risks of weight related comorbidities
National priorities	High
Current evidence base	Some qualitative evidence has identified that these beliefs and attitudes exist, but there is little detail available at present.
Equality considerations	Some beliefs and attitudes may stem from cultural ideas originating in communities from minority family backgrounds, therefore it is important that these are treated sensitively and respectfully.

Modified PICO table

Population	• Children and young people living with overweight or obesity • Adults living with overweight or obesity
Intervention	n/a
Comparator	n/a
Outcome	Beliefs and attitudes about weight in families and carers, including perspectives, experiences, values, preferences, views and considerations
Study design	Qualitative
Timeframe	Any
Additional information	None