Appendix 1. Evidence summary

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
Recommendation 1 Planning lifestyle weight management services for children and young people **evidence statements 1.1.10, 1.1.16, 1.1.33, 1.1.34, 1.1.35, 1.1.36, 1.2.3; EP1**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes** Recommendation 1 provides guidance on local planning of lifestyle weight management services.
Recommendation 2 Commissioning lifestyle weight management programmes for children and young people **evidence statements 2.1.40, 2.1.41, 2.1.42; EP1, EP2, EP4, CR1; IDE**		
No evidence identified	Initial intelligence gathering identified the following: A report on Weight management services: national mapping[1] describes locally commissioned tier 2 and tier 3 weight management services across England: referral routes and entry criteria, service details, costs, exit routes and barriers to commissioning services. Barriers commissioners reported when commissioning tier 2 and tier 3 weight management services for children and/or adults: 'evidence and outcomes, national guidance, funding and resource, commissioning, the obesity pathway and service model'.	**New evidence was identified, that does not have an impact on the recommendation.** Recommendation 2 provides guidance on commissioning lifestyle weight management services, who should design and develop them, their content, staff competencies, monitoring and evaluation. The findings of the study concerning barriers to commissioning support the content of recommendation 2.

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Recommendation 3 Lifestyle weight management programmes: core components **evidence statements 1.1.10, 1.1.16, 1.1.33, 1.1.34, 1.2.2, 1.2.3, 1.4.1, 1.4.2, 2.1.13, 2.1.14, 2.1.15, 2.1.16, 2.1.17, 2.1.23, 2.1.25, 2.1.26, 2.1.27, 2.1.32, 2.1.33, 2.1.34; EP3, EP5, EP6**		
Forty-eight relevant studies were identified: 40 studies (17 SRs[2-12,21-24,35,71] and 23 RCTs[13-20,25-34,36-40]) reported on the effectiveness of lifestyle weight management programmes (LWMPs) in reducing weight in children aged under 18 years old; 3 SRs[41-43] reported on the effectiveness of physical activity interventions in reducing weight in children aged under 18 years old; and there were 5 qualitative studies[44-48] that described practical intervention elements. **Studies reporting a significant effect of LWMP on weight:** A Cochrane systematic review[2] that included 7 RCTs of diet, physical activity, and behavioural interventions for treating overweight or obesity in children aged 0-6 years found that multicomponent interventions were effective at reducing BMI z score at the end of an intervention (Mean Difference -0.3 units; 95% CI -0.4 to -0.2; P < 0.00001), at 12-18 months follow-up (MD -0.4 units; 95% CI -0.6 to -0.2; P = 0.0001) and at 2 years' follow-up (MD -0.3 units; 95% CI -0.4 to -0.1); but noted that most trials were low quality and had a high risk of bias. A systematic review[3] that included 10 papers of 6 RCTs comparing a parent-only intervention versus an intervention including the child for overweight or obese children aged 5-12 years, with at least 6 months follow-up, reported that parent-only interventions were as effective as parent-child interventions in changing the degree of overweight, and may be less expensive. They noted higher attrition rates in some parent-only interventions. A systematic review[4] that included 38 studies (33 for meta-analysis) of lifestyle interventions incorporating a dietary component for treating overweight or obesity in children aged under 18 years old found that they led to significant weight loss compared with no-treatment control conditions: BMI -1.25 (95% CI	Initial intelligence gathering identified the following: A study of A pragmatic evaluation of a family-based intervention for childhood overweight and obesity[49] which described the characteristics of children who took part in Mind, Exercise, Nutrition, Do it! (MEND) when implemented at scale and under service conditions and assessed outcomes according to various factors reported that on average, BMI reduced by 0.76 kg/m2 over the period of the programme (10-week follow-up), reduced on average in all groups, but was greater for boys, and children with higher baseline BMI, younger, white or living in less socioeconomically deprived circumstances, and for those who attended more sessions and participated in smaller programmes. Programme costs were also reported. The above study was also identified by topic experts, who also identified the following studies: After the RCT - who comes to a family-based intervention for childhood overweight or obesity when it is implemented at scale in the community?[50] Reported that the provision and/or uptake of MEND appeared to promote participation of children from disadvantaged circumstances and ethnic	**New evidence was identified that may change the recommendation.** Recommendation 3 provides guidance on the core components of a lifestyle weight management programme: diet, physical activity, reducing sedentariness, behaviour change techniques, parenting skills, taking a whole family approach, tailoring to individual's needs, providing on-going support and follow-up. Overall, the evidence supports the recommendation that LWMPs consisting of diet, physical activity and behaviour change techniques are effective at reducing BMI/stopping further increases in BMI in overweight and obese children <18 years of age. Twenty-one studies (12 SRs[2-12,71] and 8 RCTs[13-20]) reported that LWMPs were effective at reducing BMI in overweight or obese children. Four SRs[21-24] and 9 RCTs[25-34] reported mixed results of effectiveness, depending on outcomes (different measures of adiposity and/or intermediate measures such as diet or physical activity outcomes), according to other factors such as gender or adherence to treatment following a LWMP, or depending on which interventions/intervention components were being compared with one another. Only 1 SR[35] (of 2 RCTs) and 5 RCTs[36-40] reported that LWMPs did not lead to a significant change in BMI in overweight or obese. Two SRs[41,42] found that physical activity-based interventions were effective at reducing weight in children under 18 and 1 SR[43] reported that exercise

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-2.18 to -0.32), BMI z score -0.10 (95% CI -0.18 to -0.02); and vs usual care immediately post treatment: BMI -1.30 (95% CI -1.58 to -1.03) and 1 year from baseline: BMI -0.92 (95% CI -1.31 to -0.54). A meta-analysis[5] of 20 RCTs examining the efficacy of comprehensive behavioural family lifestyle interventions for paediatric obesity compared to control groups was significant over all time points, with a small effect size (Hedge's g=0.473; 95% CI 0.362 to 0.584). Duration of treatment, number of treatment sessions, amount of time in treatment, child age, format of therapy (individual vs. group), form of contact, and study use of intent to treat analysis were all found to be statistically significant moderators of effect size. A systematic review[6] that included 9 RCTs of family and home-based interventions aimed at treating overweight and obesity in children aged 2-7 years reported that 8 interventions led to significant outcomes, with the majority incorporating educational sessions targeting parents, less than a quarter of the interventions included home visitations but all included home-based activities to reinforce behaviour modification. A systematic review[7] that included 43 studies of school-based interventions aimed at reducing BMI in children aged under 18 years old found that in the interventions which 'targeted' overweight or obese children, their BMI was significantly reduced (0.35; 95% CI 0.12 to 0.58; P=0.003). A systematic review[71] that included RCTS and quasi-RCTs of school-based (n=5) and family-based interventions (n=8) for treating overweight or obesity in children aged 6-17 years found that family-based interventions were effective for children under 12 years old and school-based interventions were most effective for those aged between 12 and 17. A systematic review[8] that included 6 RCTs of interventions for treating overweight or obesity in children aged 2-5 years found that 4 resulted in significant weight loss and 5 showed sustained effects over 6 to 24 months. The authors reported that the most common intervention strategy used was behavioural therapy	minority groups; but this tendency was diminished because those living in less favourable socioeconomic circumstances were less likely to complete the programme From trial to population: a study of a family-based community intervention for childhood overweight implemented at scale.[51] reported that when MEND was delivered at scale, it was associated with improved BMI (after adjustment for covariates, z BMI reduced by mean 0.18; SE=0.0038; P<0.0001) and psychosocial outcomes (self-esteem score increased by 3.53 U; SE.=0.13; P<0.0001 and psychological distress score decreased by 2.65 U; SE=0.31; P<0.0001), but may work less well in children from less advantaged backgrounds and in Asian compared with white children, and so has the potential to widen inequalities in these outcomes.	as part of treatment led to significant reductions on percentage body fat, but not BMI. Further details concerning effective **behaviour change techniques** may be an area for update. There was inconsistent evidence from 2 SRs[22,23] and 2 RCTs[17,39] concerning the effectiveness of interventions involving motivational interviewing in weight management of children. Another SR[24] looked at which behaviour change techniques (BCTs) were associated with effective LWMPs. Recommendation 3 (and recommendation 4) highlight the importance of using BCTs and mention goal setting and monitoring, but do not provide many details concerning other potential BCTs; while BCTs for weight management interventions has been covered in Behaviour change: individual approaches (2014) NICE guideline PH49, it only looked at evidence in adults, not children, this may therefore be an area to consider for update. Further details concerning **activities that are enjoyable** may be an area for update. There were 5 qualitative studies[44-48] concerning the experiences of participants in LWMPs that highlighted the importance of enjoyable, and in particular 'fun' activities for staying in a programme (retention). Both recommendations 3 and 4 recommend focussing on physical activities that are 'enjoyable' and recommendation 6 does recommend that publicity about LWMPs should describe 'types of activities involved … and any fun aspects should be emphasised'. The new evidence supports these recommendations but also provide further information about what constitutes enjoyable/fun activities relating to both physical activity and diet. While the recommendations could be strengthened with this additional information, it should be noted that there

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techniques for parents, and interactive education and hands-on experiences involving physical activity and healthy eating for children. A systematic review[9] that included 26 RCTs of educational interventions including behavioural modification, nutrition and physical activity to prevent or treat childhood obesity in children aged 6-12 years found that the treatment interventions were effective in reducing BMI (-0.86; 95%CI -1.59 to -0.14)) and waist circumference (-3.21 cm; 95%CI -634 to -0.07). A systematic review[10] that included 61 RCTs and non-RCTs of childhood and adolescent obesity treatment interventions found that interventions with a 'dietary, exercise, and behavioural component, supported by family involvement and delivered by trained interventionists in specialised or supervised settings, appeared to offer a potentially effective treatment for obesity' (stats=NR) but there are concerns about study quality, dropout rates, study design and lack of consideration for treatment fidelity. A systematic review[11] that included 11 studies with 20 treatment programs for overweight and obese young children for meta-analyses found that the pooled intervention effect showed high heterogeneity - subgroup analysis indicated multicomponent treatment programs that combine dietary and physical activity education and behavioural therapy of moderate or high intensity (n=2 studies) showed the largest pooled change in BMI z-score (-0.46; I-2, 0%). A systematic review[12] that included 4 trials of interventions that compared a parent-only condition with a parent-child condition for treating overweight or obesity in children reported that a meta-analysis showed no significant difference in BMI z score from baseline to end of treatment between conditions (3 trials) or to end of follow up (2 trials). Trials were at risk of bias. A pilot RCT[13] with obese 5-16 year old children (n=52) randomised to a hospital-based multicomponent lifestyle intervention obesity clinic or a nurse-led clinic in primary care in England, both involving five appointments over 12 months, found that there was a significant and similar reduction in BMI at the end		was similar evidence identified in the qualitative evidence review that supported the development of PH47 (Evidence statement 2.1.32 'Facilitator: practical intervention elements') but details were not provided within recommendations. There is only a limited amount of evidence on the effectiveness of LWMPs that include the use of mobile phone technology (e.g. SMS messages or Apps)[25,35,36,70] and while the addition of it to an intervention, does not appear to be associated with successful weight management, there is some evidence that it can reduce intervention dropout rates. This may be an area of research to look out for in a future update/surveillance review.

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of the intervention in both settings (mean change in BMI SD score was -0.17; 95% CI -0.27 to -0.07 in primary care; -0.15; 95% CI -0.26 to -0.05 in hospital intervention). An RCT[14] with obese adolescents and caregivers (n=169) randomised to a lifestyle modification program consisting of meeting 6 times in clinic that was either self-guided (parental support at home) or with a health coach (additional 17 group sessions), reported that there was a significant reduction in BMI at the end of both interventions, but no difference between interventions (mean ± SE reduction of 1.31±0.95% in health coach vs 1.17±0.99% in self-guided). An RCT[15] with overweight 12-17 year old females (n=195 at 6 month follow-up, n=173 at 12 months) randomised to a primary care-based, multicomponent lifestyle intervention or usual care found that there was a significant reduction in BMI z score in the intervention group over time compared to usual care (-0.15 vs -0.08 respectively; P=0.012). An RCT[16] with overweight or obese 6-16 year old Spanish children (n=110) randomised to hospital clinic group, or home-based combined exercise-diet program or a sex-age-matched control group, found that there was a significant reduction in % body fat (4% hospital group, 4.4% in home-based; P<0.0001) and BMI Z-score in both intervention groups (0.16 hospital group, 0.23 home-based; P<0.0001) and a significant reduction in waist circumference in the home-based group (4.4 cm; P=0.019). An RCT[17] with parents of overweight children aged 2-8 years old (n=42 practices) randomised to a provider-only delivered intervention consisting of 4 motivational interview counselling sessions for parents (provider), the same intervention plus 6 MI sessions from a registered dietitian (provider+RD), or usual care found that at 2 year follow-up the provider+RD group had a significantly lower BMI percentile than the usual care group (87.1 vs 90.3; P=0.02; provider group: 88.1%, stats NR). A cluster RCT[18] with obese 6-12 year old children (n=14 primary care practice, USA) randomised to a computerized clinical decision support (CDS) delivered to paediatric clinicians at the		

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point of care of obese children, with (CDS-plus) or without individualised family coaching (CDS-only) or usual care found that at 1 year follow-up there was a significant time by group effect on BMI (P=0.04), with BMI increasing less in CDS-only (-0.51; 95% CI -0.91 to -0.11) and CDS-plus (-0.34; 95% CI -0.75 to 0.07) compared to usual care. An RCT[19] with families of overweight or obese children aged 4-8 years old (n=206) randomised to a tailored intervention (single session to develop goals, then met with a mentor each month for 12 months, and every third month for another 12 months to discuss progress and provide support) or usual care (personalized feedback and generalized advice on healthy lifestyles at baseline and 6 months) found that at 24 months measures of weight were all significantly lower in the intervention vs usual care children: BMI (difference=-0.34; 95% CI -0.65 to -0.02), BMI z score (-0.12; -0.20 to -0.04) and waist circumference (-1.5; -2.5 to -0.5 cm). An RCT[20] with overweight or obese 8-12 year old children (n=105) randomised to a 2-year intervention concerning food habits, physical activity and behavioural change or a control found that the intervention group significantly reduced consumption of sugar-sweetened drink (P=0.015) and increased consumption of foods high in fibre, low in saturated fat, sugar and salt (P=0.031) at the end of the intervention. **Mixed findings** A Cochrane systematic review[21] that included 20 RCTs of diet, physical activity and behavioural interventions delivered to parents only for the treatment of overweight and obesity in children aged 5 to 11 years reported that change in BMI z score was not significantly different in a parent-only vs parent-child intervention with follow-up periods between 10 to 24 months (MD=-0.04; 95% CI -0.15 to 0.08; P = 0.56); was significant in a parent-only intervention Vs a waiting list control, with follow-up periods between 10-12 months (MD=-0.10; 95% CI -0.19 to -0.01; P = 0.04), but not significant when compared with minimal contact control interventions with follow-up periods between 9 to 12 months (MD=0.01; 95% CI -0.07 to 0.09; P = 0.81). Studies were all low quality, intervention content was heterogeneous and there		

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were high rates of non-completion. A systematic review[22] that included 6 RCTs of interventions for treating overweight or obesity in children aged 0-6 years reported that studies using an intensive, multidisciplinary approach over 6 months (n=2 studies) and a study testing parental coaching were effective at decreasing adiposity; A study using education on a dairy-rich diet showed 'a possible effect on adiposity'; and studies using systems changes and motivational interviewing showed no significant effect on adiposity (n=2 studies). A systematic review[23] that included 6 articles of motivational interview (MI) based interventions for treating overweight or obesity in children aged 2-11 years reported that there was a statistically significant positive effect on BMI and on obesity-related behavioural outcomes in 3 studies; but concluded that the efficacy of MI interventions could not be proved due to limited number of studies. A systematic review[24] that included 9 RCTs of behaviour change interventions for treating overweight or obesity in children (age=NR) found six behaviour change techniques that 'may be effective components': provide information on the consequences of behaviour to the individual, environmental restructuring, prompt practice, prompt identification as role model/position advocate, stress management/emotional control training and general communication skills training; and the technique 'providing information on the consequences of behaviour' seemed to be associated with non-effective interventions. An RCT[25] with overweight or obese 13-16 year old children (n=151) randomised to a two-phase community-based behavioural lifestyle intervention (Loozit) with or without additional therapeutic contact (ATC) involving telephone coaching or short-message-service and/or email communication, found that at the end of the 24 month intervention the Loozit group program showed mean reductions in BMI z-score of -0.13 (95% CI -0.20 to -0.06) but that ATC had no impact on outcomes. A cluster RCT[26] with overweight or obese low-income ethnic minority 7-10 year old children and their parents (n=358 parent-		

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child dyads; USA) randomised to an 18 month nutrition and exercise education, coping skills training, and exercise intervention (control not described), found that the intervention group compared to controls at the end of the intervention showed no difference in BMI (P=0.470) but there was a reduction in other measures: growth rate of their triceps (P=0.001) and subscapular skinfolds (P < 0.001), improvement in dietary knowledge (P=0.018) and drinking less than one glass of soda per day (P=0.052). An RCT[27] with overweight 3-17 year old children (n=289) randomised to a family-based yearlong computer-aided telephone counselling and mailed newsletters intervention (T.A.F.F. : Telephone based Adiposity prevention For Families study) or control, found that there were no significant difference in BMI between the groups at the end of the year; when BMI was assessed in children who adhered to the intervention to completion, a significant decrease in BMI in the intervention vs control group was found (mean change in BMI-SDS: -0.09 vs. 0.02 respectively; p = 0.03). An RCT[28] with obese 11-13 year old children (n=106) randomised to a stepped-down weight loss intervention (clinician and health educator counselling in-person and by phone, and mailed content; 4-month 'steps' beginning with intensive contact followed by reduced contact if treatment goals met) or enhanced usual care (initial physician visit, 1 session with health counsellor, monthly mailed materials), found a significant reduction in BMI in boys (P<0.001) but not girls and noted that only 13% of intervention participants succeeded in stepping down from step 1 to step 2 or step 3. A pilot RCT[29] with overweight or obese Hispanic children and their parents (n=118 child/parent dyads; age=NR) randomised to a behavioural intervention or standard care, found that significantly fewer children in the intervention group compared to control gained weight (68.5% vs 89.7%; P=0.009) or increased waist circumference (44% vs 68.6%; P=0.02); there was a non-significant trend in favour of the intervention for BMI z scores. An RCT[30] with overweight or obese 12-16 year old children		

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(n=101) randomised to usual care or one of three forms of an obesity intervention: website only (W), website, monthly group sessions, and follow-up calls (WG) or website and SMS (WSMS), found no intervention effects for BMI, adiposity, physical activity, or diet at 12 months, but did find that compared to usual care the W group significantly reduced sedentary behaviour (4.9 to 2.8 h/day; P=0.006). An RCT[31] with overweight or obese 6-12 year old children (n=113) randomised to an intensive, family-based multi-component behavioural intervention (Nereu Program group) or usual advice from paediatrician on healthy eating and physical activity in primary care settings, found that at the end of the 8 month intervention both groups showed a decrease in BMI, with no difference between conditions; but there were significant increases in physical activity (+6.27% vs. -0.61%; p<0.001) and daily fruit servings (+0.62 vs. +0.13; p<0.026), and decreases in daily soft drinks consumption (-0.26 vs. -0.02; p<0.047) in the intervention vs usual care group. An RCT[32] with parents of overweight or obese 5 year old children (n=637) randomised to a healthy lifestyle counselling intervention delivered by youth health care professionals ('Be active, eat right') or usual care, found that the only significant effects on diet and physical activity were in relation to drinking less than two glasses of sweet beverages at follow-up compared with baseline for children in both the intervention (p < 0.001) and control condition (p = 0.029). Overall, the intervention did not lead to a change in health behaviours. A study reporting 2 year follow-up data[33] for this RCT reported no significant difference in BMI increase between the intervention and control conditions (beta -0.16; 95% CI:-0.60 to 0.27; p = 0.463) but found that children categorised as 'mildly overweight' at baseline showed a significantly smaller increase in BMI in the intervention versus control condition at follow-up. An RCT[34] with parents of obese 7-13 year old children receiving inpatient lifestyle treatment for obesity (n=668) randomised to complementary cognitive-behavioural group sessions or written information only (control) found that while the inpatient treatment		

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was effective, additional parent training did not make any significant difference: there was a significant decrease in BMI overall during the first year (0.24; 95% CI 0.18 to 0.30), but no between group difference (0.02; 95% CI -0.04 to 0.07). **Studies reporting a non-significant effect of LWMP on weight:** A systematic review[35] that included 2 RCTs of interventions that used smartphone devices as part of multidisciplinary treatment of overweight or obesity in children and adolescents (age=NR) found that while it appeared unsuccessful in achieving weight loss, their use was linked to improved engagement and reduced dropout rates during sustainability phases. An RCT[36] with overweight or obese 7-12 year old children (n=141) all receiving 3 months of behavioural lifestyle treatment then randomised to an intervention group receiving an SMS maintenance treatment with personalized feedback for 9 months or control found no effect of intervention on outcome measures. Another publication on this RCT[70] reported that the intervention group had 3.25 times less probability of dropping out after 1 year (P=0.01) than controls, indicating that this may reduce dropout rates. A parallel group RCT[37] with obese children (n=72; age=NR) randomised to a family-based behavioural treatment intervention or waiting-list control found that an intent-to-treat analyses of 6-month data (n=60) showed significant BMI SD score changes (P<0.01) for the intervention and control groups of -0.11 (0.16) and -0.10 (1.6), but no significant differences between the intervention and control groups; and no overall change in BMI or BMI SDSs at 12 months follow-up for the intervention group. An RCT[38] with obese 13-17 year old children (n=145; UK) randomised to a community-based motivational multi-component lifestyle intervention (addressing lifestyle behaviours and focusing on motivation to change and self-esteem rather than weight change) or control (single 2 h nurse-delivered session providing didactic weight management advice), found no significant differences in BMI between the groups at 6 months (effect		

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estimate -0.06 (95% CI: -0.57 to 0.45) p = 0.8). Authors concluded that 'obesity interventions with a strong theoretical basis and evidence of effectiveness when delivered by trained psychologists may not be effective when delivered at lower intensity in the community by entry-level health workers'. An RCT[39] with overweight or obese 4-7 year old children (n=372) randomised to a paediatrician-led intervention consisting of 5 family meetings with motivational interviews or usual care (information leaflet), found that there was a trend towards a smaller increase in BMI over 12 months from baseline in the MI compared to usual care group (0.49 vs 0.79; difference: -0.30; P = .007); but that MI had no effect in boys or in children whose mothers had a low educational level. An RCT[40] with obese 3-10 year old children (n=107) randomised to a tertiary appointment followed by up to 11 general practice consultations over one year, supported by shared care, web based software (intervention) or usual care, found that at 15 months after baseline there were no significant difference in BMI between the conditions (adjusted mean BMI difference= -0.1; 95% CI -0.7 to 0.5; P=0.7 and BMI z score= -0.05; 95% CI -0.14 to 0.03; P=0.2). **Physical activity interventions** A systematic review[41] that included 85 'valid items' relating to physical activity interventions for treating overweight or obesity in children and adolescents (Age=NR) reported that these interventions were effective at reducing weight and that 'the most effective programmes were those combining aerobic and anaerobic exercises' and interventions 'that take account of family involvement are more effective than nutrition education itself or other routine interventions that fail to consider family involvement. The role of parents … is essential to reinforce positive behaviour toward lifestyle change.' In a systematic review[42] that included 20 RCTs of exercise interventions for treating overweight or obesity in children and adolescents (age=NR) a meta-analysis indicated that exercise decreased BMI by 3.6% (mean -1.08; 95% CI -0.52 to -1.64; Q =		

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231.4; p < 0.001); moderate quality evidence. A systematic review[43] that included 2 aggregate data meta-analyses representing 14 and 17 studies on interventions addressing the effects of exercise in the treatment of overweight and obese children and adolescents (age=NR) found that there were significant reductions in % body fat (P=0.006 and P<0.00001 respectively) but no other measures of adiposity (e.g. BMI) were statistically significant. **Practical intervention elements:** A process evaluation[44] of an RCT with obese 13-16 year old children (n=151) randomised to a two-phase community-based behavioural lifestyle intervention (Loozit) with or without additional therapeutic contact (ATC) involving telephone coaching or short-message-service and/or email communication (see [Nguyen B]), found that attendance rates were good for the first phase (0-2 months; 85%) but not phase 2 (3-24 months; 47%). Participants reported enjoying practical activities, fun active games, resistance training and forming new friendships but 'struggled with' setting specific, measurable, achievable, realistic and timely (SMART) goals; they were satisfied with the help received, including telephone and electronic contact. A qualitative study[45] that explored parents' (n=19) and 7-11 year old children's (n=15) perceptions of a family-based multidisciplinary weight management program for children with obesity through telephone interviews post participation reported that families particularly enjoyed exercise and cooking demonstrations, but not self-monitoring activities or learning about behaviour change strategies; parents thought increasing the length of individual sessions would probably be beneficial. Families who didn't complete the program cited transportation barriers (money, distance), scheduling conflicts, and unmet expectations as contributing to their decision to discontinue participation. A qualitative study[46] (focus groups and interviews) that explored views of adolescents (n=44), parents (n=12) and community stakeholders (n=39) on healthy lifestyle programs for adolescents		

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who are overweight found that for retention, barriers: location, timing, high level of commitment needed and social barriers; facilitators: making the program fun and enjoyable, involving the family, having an on-line component, recruiting good staff, making it easy for parents to attend. A qualitative study[47] exploring children's views one year following completion of the childhood obesity programme MEND (Mind, Exercise, Nutrition...Do it!) through interviews (n=14, aged 11-14 years old) found that the most common theme concerned the importance of the treatment being 'fun', subthemes: 'going with the flow', active participating in activities that led to new experiences and the importance of others in the experience of fun. A qualitative study[48] exploring the views of parents (n=38) and adolescents (n=25) who had participated in a paediatric outpatient weight evaluation and reduction program through interviews found that there were 4 main themes: the importance of a supportive environment with a positive, compassionate approach from providers; fun, achievable physical activities were valued and built self-efficacy; for nutrition, hands on demonstrations and tangible suggestions were preferred over activities such as self-monitoring; participants valued the opportunity to hear their peers' experiences but individual/family sessions addressing personal concerns were also viewed as important.		

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Recommendation 4 Developing a tailored plan to meet individual needs **evidence statements 1.1.14, 1.2.3, 1.4.1, 1.4.2, 2.1.5, 2.1.8, 2.1.10, 2.1.13, 2.1.15, 2.1.25, 2.1.26, 2.1.27, 2.1.31, 2.1.33, 2.2.4, 2.2.5; EP3, EP6; IDE**		
Evidence identified for recommendation 3 is also relevant recommendation 4.	Initial intelligence gathering identified the following: A Systematic review to identify and appraise outcome measures used to evaluate childhood obesity treatment interventions (CoOR): evidence of purpose, application, validity, reliability and sensitivity[52] provides guidance on recommended primary and secondary outcome measures; it recommends body mass index (BMI) and dual-energy X-ray absorptiometry (DXA) as primary outcome measures.	**New evidence was identified that may change the recommendation.** Recommendation 4 provides guidance on assessing the body mass index (BMI) of a child/young person, assessing them for obesity-associated diseases or conditions, including mental well-being; determining whether the family recognise the child is overweight/obese, involving the whole family. Around age 12: self-monitoring of diet, physical activity and sedentary behaviour; work with them to identify situations that support healthy eating and activity; for under 12s: work with parents/carers. Aim to increase physical activity to every day; individually tailored appropriate healthy eating advice. Set small realistic goals, monitor progress against goals, provide feedback, ongoing support. PH47 recommendations highlight the need to record BMI, but there is no mention of using DXA measures, which would have associated costs and practical implications for implementing. See recommendation 3 for discussion of the impact on new evidence on details concerning behaviour change techniques and LWMP components that are deemed as enjoyable.
Recommendation 5 Encouraging adherence to lifestyle weight management programmes **evidence statements 1.1.10, 1.1.16, 1.2.3, 1.4.3, 2.1.12, 2.1.13, 2.1.15, 2.1.22, 2.1.23, 2.1.24, 2.1.28, 2.1.29, 2.1.30, 2.1.38, 2.1.39, 2.2.4, 2.2.5; EP5, CR1, IDE**		
Twenty-four relevant studies were identified: 6 studies (3 SRs[3,12,21] and 3 RCTs[17,32,33]) that explicitly assessed the effectiveness of parent-only LWMP interventions; 1 cost-effectiveness study[53] and 17 qualitative studies[45-48,54-66] exploring	Topic experts identified the following studies: A study on What works in practice: user and provider perspectives on the acceptability,	**New evidence was identified that may change the recommendation.** Recommendation 5 recommends that programmes

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
factors associated with adherence to/staying on a LWMP. **Parent-only LWMP interventions**: A systematic review[3] that included 10 papers of 6 RCTs comparing a parent-only intervention versus an intervention including the child for overweight or obese children aged 5-12 years, with at least 6 months follow-up, reported that parent-only interventions were as effective as parent-child interventions in changing the degree of overweight, and may be less expensive. They noted higher attrition rates in some parent-only interventions. A systematic review[12] that included 4 trials of interventions that compared a parent-only condition with a parent-child condition for treating overweight or obesity in children reported that a meta-analysis showed no significant difference in BMI z score from baseline to end of treatment between conditions (3 trials) or to end of follow up (2 trials). Trials were at risk of bias. A Cochrane systematic review[21] that included 20 RCTs of diet, physical activity and behavioural interventions delivered to parents only for the treatment of overweight and obesity in children aged 5 to 11 years reported that change in BMI z score was not significantly different in a parent-only vs parent-child intervention with follow-up periods between 10 to 24 months (MD=-0.04; 95% CI -0.15 to 0.08; P = 0.56); was significant in a parent-only intervention Vs a waiting list control, with follow-up periods between 10-12 months (MD=-0.10; 95% CI -0.19 to -0.01; P = 0.04), but not significant when compared with minimal contact control interventions with follow-up periods between 9 to 12 months (MD=0.01; 95% CI -0.07 to 0.09; P = 0.81). Studies were all low quality, intervention content was heterogeneous and there were high rates of non-completion.	affordability, implementation, and impact of a family-based intervention for child overweight and obesity delivered at scale[63] this was also identified through the literature search, see 'summary of new evidence' column. And Time, monetary and other costs of participation in family-based child weight management interventions:Qualitative and systematic review evidence[62]. - also identified through the literature search	are offered to children/young people and their families on a group or individual basis, depending on age of child, this can be together or separate from parents/carers; highlights importance of flexible times, appropriate venues; stresses the importance of parent/carer support and commitment; highlights need for regular contact and follow-up with participants who miss sessions. Evidence indicates that the recommendation to offer programmes to both children and their families may need to be re-considered for overweight and obese children aged ≤12 years old, for whom parent-only interventions may be as effective at managing weight as parent-child interventions. Three SRs [3,12,21] reported that parent-only interventions were as effective as parent-child interventions in changing degree of overweight, and one SR[21] reported that parent-only interventions were significantly more effective than a waitlist control, but not minimal contact interventions, at changing BMI z score. One RCT[17] reported a significant effect of a parent-only motivational interviewing intervention on BMI percentile, while 2 RCTs[32,33] (reporting on one intervention) indicated that the parent-only intervention did not lead to changes in diet and physical activity, but may have a desired effect on change in BMI in mildly overweight children. It should be noted that in the 5 studies[3,17,21,32,33] which reported the age of the parents' children, all were aged ≤12 years old and included children aged <6 years old (also see discussion under evidence gap 3). While the one cost-effectiveness study found that a family-based treatment was more cost-effective than a treatment delivered to the parent and child separately, this does not seem sufficient to consider updating advice concerning the option to deliver

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
An RCT[17] with parents of overweight children aged 2-8 years old (n=42 practices) randomised to a provider-only delivered intervention consisting of 4 motivational interview counselling sessions for parents (provider), the same intervention plus 6 MI sessions from a registered dietitian (provider+RD), or usual care found that at 2 year follow-up the provider+RD group had a significantly lower BMI percentile than the usual care group (87.1 vs 90.3; P=0.02; provider group: 88.1%, stats NR). An RCT[32] with parents of overweight or obese 5 year old children (n=637) randomised to a healthy lifestyle counselling intervention delivered by youth health care professionals ('Be active, eat right') or usual care, found that the only significant effects on diet and physical activity were in relation to drinking less than two glasses of sweet beverages at follow-up compared with baseline for children in both the intervention ($p < 0.001$) and control condition ($p = 0.029$). Overall, the intervention did not lead to a change in health behaviours. A study reporting 2 year follow-up data[33] for this RCT reported no significant difference in BMI increase between the intervention and control conditions (beta -0.16; 95% CI:-0.60 to 0.27; $p = 0.463$) but found that children categorised as 'mildly overweight' at baseline showed a significantly smaller increase in BMI in the intervention versus control condition at follow-up. **Cost-effectiveness** A cost-effectiveness study[53] comparing a family-based behavioural treatment to separate group treatments of the overweight/obese parent and child aged 8-12 years old (n=50 parent-child dyads) in USA found that family-based treatment was lower cost per unit of weight loss for parents and children than treating the parent and child separately. **Qualitative studies**		interventions separately for parents and children, as this is specifically highlighted as a possibility for adolescents, and the CE study included children who could be considered pre-adolescent (8-12 year olds), and this is only study finding. The themes identified in the qualitative studies support the recommendation content concerning providing age-appropriate and enjoyable activities, considering suitability and accessibility of venues, times at which LWMPs are delivered, flexibility to accommodate participants' other commitments, emphasis on parent/carer commitment and support from staff. There was another potential main theme: costs - costs associated with time spent at a session and transport to and from venues was identified as a barrier to attending and remuneration was identified as a facilitator, in particular in relation to participants from lower SES backgrounds. Studies concerning the effectiveness of remuneration/incentives for participating in a LWMP were not identified. Issues around costs and remuneration may be considered an implementation issue.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
Populations where socio-economic status identified A qualitative study[54] exploring the experiences of low-income majority Hispanic families engaged in community-based, family-based treatment for overweight children through 6 focus groups (n=37) found that participants reported high program satisfaction, parents reported buying less junk/fast food, increased consumption of fruits and vegetables, preparing and eating more meals as a family, and increasing their families' physical activity. Barriers: time and financial cost, parent's lack of time and energy, influence of family members, and challenges regarding physical environment. Facilitators: skill building around healthy eating and parenting, family involvement, and long-term health concerns. Unexpected reported outcomes: parents reported children slept better, felt happier, and were less irritable. A qualitative study[55] exploring factors affecting family enrolment and retention in community-based healthy lifestyle promotion programs for overweight youth and their families through semi-structured interviews with parents of overweight children within 1 year of referral to the program (n=23; 10 completed the program, 9 did not complete, 4 did not enrol; from diverse socioeconomic backgrounds) reported that key reasons for enrolment: addressing both eating and activity, concern about child's weight, seeking help outside the family, and structured parent-child time. Parents perceived a lack of child motivation to enrol, with some opposed attending - overcome through positive program experience. No single program design emerged to address every family's needs. Authors concluded children should be offered LWMPs that varied in intensity level and emphasis on weight loss. A qualitative study[56] with low socio-economic parents with overweight or obese children explored their views of and recommendations for appropriate recruitment and retention strategies found that recruitment facilitators: remuneration,		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
recruitment locations and the use of appropriate weight-related terminology; Retention facilitators: protocol flexibility, ongoing remuneration and learning opportunities. **Barriers & facilitators** A qualitative study[57] examining families' reasons for engaging or not with child obesity services through semi-structured interviews with 15 families whose children attended a childhood obesity service and 17 families whose children withdrew from treatment found that diet and exercise advice tailored to individual family circumstance encouraged clinic engagement, but failed to engage some families who felt their personal circumstances had not been sufficiently considered, and clinic environment was viewed as not age appropriate for some children. Conclusions: involve children in the decision to attend an obesity service, practitioners should tailor advice to the circumstances of each family, consider age in terms of environment and timing of clinics. A qualitative study[58] that explored parent/caregiver reasons for attrition from a tertiary care weight management clinics/programs through telephone surveys (n=147) found that offering alternative visit times, more treatment options, financial and transportation assistance, and exploring family expectations may improve adherence. A qualitative study[59] exploring weight maintenance in obese children and adolescents following a weight reduction and maintenance programme through interviews with participants (n=7) and their parents (n=7) found that motivation was related to success in maintaining weight, successful weight maintainers had higher self-efficacy, internal motivation concerning physical activity and flexible self-control concerning food intake; 'weight gainers' stated a lack of motivation concerning physical activity and lost control over their eating habits; level of parental involvement in the treatment did not predict success, while the		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
relationship between parents and their children, especially concerning the issues of responsibility, seemed more important. Conclusion: attention should be paid to the age (children or adolescents) of participants of therapy programmes, especially concerning the involvement of parents. A qualitative study[45] that explored parents' (n=19) and 7-11 year old children's (n=15) perceptions of a family-based multidisciplinary weight management program for children with obesity through telephone interviews post participation reported that families particularly enjoyed exercise and cooking demonstrations, but not self-monitoring activities or learning about behaviour change strategies; parents thought increasing the length of individual sessions would probably be beneficial. Families who didn't complete the program cited transportation barriers (money, distance), scheduling conflicts, and unmet expectations as contributing to their decision to discontinue participation. A qualitative study[60] that explored reasons for attrition from a paediatric weight management treatment through telephone surveys with parents of children who had started attendance but didn't complete treatment (n=147) found that parents viewed flexibility concerning appointment times and locations as encouraging attendance and wanted changes to make treatment components of nutrition education, exercise, and behaviour education/support individualised. A qualitative study[46] that explored views of adolescents (n=44), parents (n=12) and community stakeholders (n=39) on recruitment, retention in healthy lifestyle programs for adolescents who are overweight and maintenance of healthy change through focus groups and interviews found that for retention, barriers: location, timing, high level of commitment needed and social barriers; facilitators: making the program fun and enjoyable,		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
involving the family, having an on-line component, recruiting good staff, making it easy for parents to attend. A qualitative study[61] that explored the views of parents, children and health trainers of a community child weight management programme (WATCH-IT) through interviews with families who had previously, or were currently attending (n=23) and focus groups with trainers (n=10) found that parents' goals for involvement was on psychological benefits, while children concentrated on goals relating to weight loss and physical fitness; child's commitment to lose weight, support from their family and a good relationship between the child and trainer were viewed as important to successful weight management. **Barriers only** A qualitative study[62] involving interviews with families who attended a weight management intervention in three UK regions (n=NR) found that family costs (time-related, social/emotional and monetary) are a barrier to uptake, completion and maintenance of behaviours to reduce child obesity. A qualitative study[63] exploring acceptability and implementation through interviews with providers (n=29) and families (n=64/23 families) taking part in a child weight management programme found that barriers to participation: transport, work schedules, competing demands on family time and 'emotional work'; providers reported putting efforts into recruiting, retaining and motivating families, which increased uptake but increased cost, some providers made adaptations to meet local social and cultural needs; providers and families valued skilled delivery staff, expressed concerns about long term outcomes, and how this was 'compromised by an obesogenic environment'. A qualitative study[64] exploring views of a childhood obesity intervention through interviews with families (n=11) concluded that		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
services should address any preconceived negative perceptions of clients by 'carefully considering how health information is presented, how it is understood and most importantly how identity may affect motivation to engage in, and sustain, new behaviours.' A qualitative study[65] exploring the reasons for non-adherence to follow-up at a specialized outpatient clinic for obese children and adolescents that included information from medical records and telephone questionnaires (n=41) found that reasons included: view that it took too much time, it was difficult to adjust consultations to patients and parents schedules, children's refusal to follow treatment, dissatisfaction with the result, treatment in another health service, difficulty scheduling return; barriers to healthy eating physical activity: financial difficulty, lack of parents time, physical limitation and insecure neighbourhood; respondents that reported difficulties with obesity also reported emotional disorders such as bullying, anxiety and irritability; fatigue; difficulty in dressing up and referred pain. **Facilitators only** A qualitative study[66] that interviewed obesity treatment clinicians (n=29) on their perceptions of contributors to attrition and ways to maintain family participation reported potential ways to address attrition included the need for clinicians to develop relationships with families, assist in building appropriate expectations, and addressing families' value of treatment. A qualitative study[47] exploring children's views one year following completion of the childhood obesity programme MEND (Mind, Exercise, Nutrition...Do it!) through interviews (n=14, aged 11-14 years old) found that the most common them concerned the importance of the treatment being 'fun', subthemes: 'going with the flow', active participating in activities that led to new experiences and the importance of others in the experience of		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
fun. A qualitative study[48] exploring the views of parents (n=38) and adolescents (n=25) who had participated in a paediatric outpatient weight evaluation and reduction program through interviews found that there were 4 main themes: the importance of a supportive environment with a positive, compassionate approach from providers; fun, achievable physical activities were valued and built self-efficacy; for nutrition, hands on demonstrations and tangible suggestions were preferred over activities such as self-monitoring; participants valued the opportunity to hear their peers' experiences but individual/family sessions addressing personal concerns were also viewed as important.		
Recommendation 6 Raising awareness of lifestyle weight management programmes: commissioners and programme providers **evidence statements 2.1.11, 2.1.18, 2.1.19, 2.1.20, 2.1.32; EP1, CR1; IDE**		
See recommendation 3 for studies relating to 'fun' activities	No evidence identified	**New evidence was identified that is unlikely to impact on the recommendation, no changes** Recommendation 6 provides guidance on maintaining lists of local programmes, promoting them at various local venues and raising awareness of them to healthcare professionals. Any changes that may occur concerning details of what are viewed as 'fun' components of an intervention would not change the fundamental principle in this recommendation, that these components should be emphasised.
Recommendation 7 Raising awareness of lifestyle weight management programmes: health professionals, other professionals and voluntary organisations **evidence statements 2.1.18, 2.1.19; 2.1.20; EP1; IDE**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes**

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
		Recommendation 7 provides guidance on professionals raising awareness of programmes to parents/carers of overweight/obese children, and how they can take part in them.
Recommendation 8 Formal referrals to lifestyle weight management programmes **evidence statements 1.2.7, 1.4.3, 2.1.4, 2.1.7, 2.1.8, 2.1.9, 2.1.10, 2.1.11, 2.1.14, 2.1.16, 2.1.19; EP1, EP3, CR1; IDE**		
There were 7 qualitative studies[46,55,61,64,67-69] identified that addressed factors associated with enrolling on a LWMP: A qualitative study[67] exploring expectations of paediatric weight management before starting treatment through interviews with caregivers of children, aged 8-12 years (n=25) found that motivators for seeking treatment often didn't match clinical measures of success, with caregivers perceiving children's socio-emotional health improvement to be an important success measure. Caregivers were not sure of the commitment required of a program and while confident about competing treatment they were unsure it would be successful. A qualitative study[61] that explored the views of parents, children and health trainers of a community child weight management programme (WATCH-IT) through interviews with families who had previously, or were currently attending (n=23) and focus groups with trainers (n=10) found that parents' goals for involvement was on psychological benefits, while children concentrated on goals relating to weight loss and physical fitness; child's commitment to lose weight, support from their family and a good relationship between the child and trainer were viewed as important to successful weight management. A qualitative study[68] which explored the reasons and facilitators of enrolment in paediatric weight management, through interviews	No evidence identified	**New evidence was identified that does not have an impact on the recommendation** Recommendation 8 provides guidance on determining whether a child/young person is overweight or obese; and if they are overweight/obese, how to communicate this to them and their parents/carers and about referrals to lifestyle weight management programmes or specialist obesity services. The evidence from the qualitative studies supported the content of recommendation 8. The evidence addressed factors associated with enrolling on a LWMP that are of relevance to anyone referring a child and/or their parents/carers to a LWMP. Themes included the importance of exploring expectations that both parents/caregivers and children referred to a LWMP may have, recognising that they may have different goals (e.g. psychological benefits vs weight loss goal); healthcare professionals highlighting the reasons for needing to attend a LWMP was viewed positively; recognising that there can be a stigma associated with being overweight, that changes can also impact on someone's perception of identity; and that parents'/caregivers' perceptions of weight and its impact on health can determine LWMP uptake.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
with parents of 10-17 year olds who were referred to, and enrolled in, weight management clinics (n=65) found that reasons for enrolment included weight concern, weight loss expectation, lifestyle improvement, health concern and need for external support. Facilitators: the absence of major barriers, parental control over the decision to enrol, referring physicians stressing the need for specialised care and parents' ability to overcome enrolment challenges. A qualitative study[55] exploring factors affecting family enrolment and retention in community-based healthy lifestyle promotion programs for overweight youth and their families through semi-structured interviews with parents of overweight children within 1 year of referral to the program (n=23; 10 completed the program, 9 did not complete, 4 did not enrol; from diverse socioeconomic backgrounds) reported that key reasons for enrolment: addressing both eating and activity, concern about child's weight, seeking help outside the family, and structured parent-child time. Parents perceived a lack of child motivation to enrol, with some opposed attending - overcome through positive program experience. No single program design emerged to address every family's needs. Authors concluded children should be offered LWMPs that varied in intensity level and emphasis on weight loss. A qualitative study[46] that explored views of adolescents (n=44), parents (n=12) and community stakeholders (n=39) on recruitment, retention in healthy lifestyle programs for adolescents who are overweight and maintenance of healthy change through focus groups and interviews found that for recruitment, barriers: stigma associated with overweight, difficulty defining overweight, lack of current health services and broader social barriers; facilitators: strategic marketing, a positive approach and subsidising program costs A questionnaire study[69] reporting on factors that drive		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
participation in an RCT of a family-based weight management program for 4- to 8-year-old children following screening for overweight or obesity reported that 27.3% of parents of overweight or obese children (n=74/271) were not willing to agree to the intervention; they were less likely than participating parents to believe their child was overweight (23% vs 49%; < .001), be concerned about it (16% vs 43%; < .001) even though their children had an average BMI indicating obesity, less likely to expect their child to be overweight (P=0.002) and rated receiving information on weight status as less useful (P=0.008). The authors concluded that 'Preconceptions about child weight and reactions to feedback determined intervention uptake more than parenting or motivation for health'. A qualitative study[64] exploring views of a childhood obesity intervention through interviews with families (n=11) concluded that services should address any preconceived negative perceptions of clients by 'carefully considering how health information is presented, how it is understood and most importantly how identity may affect motivation to engage in, and sustain, new behaviours.'		
Recommendation 9 Providing ongoing support: health professionals **evidence statements 1.1.33, 1.1.34, 1.4.1, 1.4.2, 1.4.3, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.34; EP3, CR1; IDE**		
There was only 1 study[40] identified that was relevant to on-going support from health professionals: An RCT[40] with obese 3-10 year old children (n=107) randomised to a tertiary appointment followed by up to 11 general practice consultations over one year, supported by shared care, web based software (intervention) or usual care, found that at 15 months after baseline there were no significant difference in BMI between the conditions (adjusted mean BMI difference= -0.1; 95% CI -0.7 to 0.5; P=0.7 and BMI z score= -0.05; 95% CI -0.14 to	No evidence identified	**New evidence was identified that does not impact on the recommendation, no changes** Recommendation 9 provides guidance on health professionals providing ongoing support when the opportunity arises and at 6 months and 1 year post programme completion; providing feedback and monitoring changes in weight, taking into consideration if the child is still growing taller; considering re-referral if necessary.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
0.03; P=0.2).		While the identified evidence indicates that follow-up support provided by a GP is not effective for weight management in obese children, this is based on only 1 study, and as such does not impact on the content of recommendation 9.
Recommendation 10 Providing ongoing support: lifestyle weight management programmes **evidence statements 1.1.33, 1.1.34, 1.4.1, 1.4.2, 2.1.34, 2.1.35, 2.1.36, 2.1.37; CR1; IDE**		
Four relevant studies (1 RCT[19] and 3 qualitative studies[46,59,62]) were identified: An RCT[19] with families of overweight or obese children aged 4-8 years old (n=206) randomised to a tailored intervention (single session to develop goals, then met with a mentor each month for 12 months, and every third month for another 12 months to discuss progress and provide support) or usual care (personalized feedback and generalized advice on healthy lifestyles at baseline and 6 months) found that at 24 months measures of weight were all significantly lower in the intervention vs usual care children: BMI (difference=-0.34; 95% CI -0.65 to -0.02), BMI z score (-0.12; -0.20 to -0.04) and waist circumference (-1.5; -2.5 to -0.5 cm). A qualitative study[59] exploring weight maintenance in obese children and adolescents following a weight reduction and maintenance programme through interviews with participants (n=7) and their parents (n=7) found that motivation was related to success in maintaining weight, successful weight maintainers had higher self-efficacy, internal motivation concerning physical activity and flexible self-control concerning food intake; 'weight gainers' stated a lack of motivation concerning physical activity and lost control over their eating habits; level of parental involvement in the treatment did not predict success, while the relationship between parents and their children, especially	No evidence identified	**New evidence was identified that is unlikely to impact on the recommendation, no changes** Recommendation 10 provides guidance on lifestyle weight management programme staff sending feedback to referring GPs/healthcare professionals and provide ongoing support for at least 1 year post completion to all participants; highlighting local services and activities that may support weight management. The evidence identified supports the content of recommendation 10 and indicates that the following may need to be considered as part of on-going support: the motivation of participants and their families, degree of parental involvement, relationship between participants and their families, consideration of providing support via electronic media (also see recommendation 3), consideration of costs. While recommendation 10 does not provide details about the content or format of on-going support, the above factors (except costs) are covered by recommendations 3-5.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
concerning the issues of responsibility, seemed more important. Conclusion: attention should be paid to the age (children or adolescents) of participants of therapy programmes, especially concerning the involvement of parents. A qualitative study[46] (focus groups and interviews) that explored views of adolescents (n=44), parents (n=12) and community stakeholders (n=39) on healthy lifestyle programs for adolescents who are overweight found that for maintenance, barriers: difficulty sustaining change and limited services to support change; facilitators: on-going follow up, focusing on positive change, using electronic media, transition back to community services. A qualitative study[62] involving interviews with families who attended a weight management intervention in three UK regions (n=NR) found that family costs (time-related, social/emotional and monetary) are a barrier to uptake, completion and maintenance of behaviours to reduce child obesity.		
Recommendation 11 Lifestyle weight management programme staff: training **evidence statements 2.1.8, 2.1.10, 2.1.11, 2.1.38, 2.1.39, 2.1.41, 2.1.42; EP1, EP5, CR1; IDE**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes** Recommendation 11 provides guidance on training staff on accurately determining BMI centiles, identifying any other comorbidities or mental wellbeing issues, treating children/young people and their families with empathy, safeguarding and information governance compliance. The training recommendation reflects LWMP requirements – that staff are expected to have skills required to deliver LWMPs, therefore evidence identified for recommendations 3-5 and 10 are relevant to this recommendation, but nothing

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
		indicates that changes to this recommendation are required.
Recommendation 12 Lifestyle weight management programme staff: knowledge and skills **evidence statements 2.1.38, 2.1.39, 2.1.41, 2.1.42; EP1, EP3, EP5, EP6, CR1; IDE**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes** Recommendation 12 provides guidance on training staff on childhood obesity management, diet, physical activity, behaviour change techniques and parenting skills. The training recommendation reflects LWMP requirements – that staff are expected to have skills required to deliver LWMPs, therefore evidence identified for recommendations 3-5 and 10 are relevant to this recommendation, but nothing indicates that changes to this recommendation are required.
Recommendation 13 Training in how to make referrals to a lifestyle weight management programme **evidence statements 1.2.4, 2.1.8, 2.1.10, 2.1.19; EP1; IDE**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes** Recommendation 13 provides guidance on training health professionals on understanding difficulties children can face with weight management, cultural sensitivity, determining BMI centile, how to raise the issue of weight, knowledge of local services, referrals. This recommendation reflects skills required to appropriately refer a child to a LWMP (See recommendation 8).

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
Recommendation 14 Supporting lifestyle weight management programme staff and those making programme referrals **evidence statements EP1; IDE**		
No evidence identified	No evidence identified	**No new evidence was identified, no changes** Recommendation 14 provides guidance on providing lifestyle weight management staff with support and training, access to weight management programmes if they need them.
Recommendation 15 Monitoring and evaluating programmes **evidence statements 1.4.1, 1.4.2; EP1, EP4, EP5 CR1; IDE**		
No evidence identified	Initial intelligence gathering identified the following: A Systematic review to identify and appraise outcome measures used to evaluate childhood obesity treatment interventions (CoOR): evidence of purpose, application, validity, reliability and sensitivity[52] provides guidance on recommended primary and secondary outcome measures; it recommends body mass index (BMI) and dual-energy X-ray absorptiometry (DXA) as primary outcome measures. A report on Weight management services: national mapping[1] describes locally commissioned tier 2 and tier 3 weight management services across England: referral routes and entry criteria, service details, costs, exit routes and barriers to commissioning services. Barriers commissioners reported when commissioning tier 2 and tier 3 weight management services for children and/or	**New evidence was identified that does not have an impact on the recommendation.** Recommendation 15 provides guidance on monitoring and evaluating programme outcomes at recruitment, completion, 6 months and 1 year after completion. PH47 recommendations highlight the need to record BMI, but there is no mention of using DXA measures. DXA measures would have associated costs. The finding that commissioners feel that a lack of consistent reporting of outcomes is a barrier, supports the content of this recommendation as it highlights when and how to evaluate LWMPs.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
	adults: 'evidence and outcomes, national guidance, funding and resource, commissioning, the obesity pathway and service model' and 'an observation, based on respondent feedback, was an inconsistency in the reporting of outcomes for weight management services.'	
Research recommendations		
RR – 01 **Research studies and trials (methodology)**		
No evidence identified	No evidence identified	**No new evidence was identified**
RR – 02 **Longer-term programme evaluation (studies lasting 5-10 years)**		
No evidence identified of studies lasting ≥ 5 years	No evidence identified	**No new evidence was identified**
RR – 03 **Barriers and facilitators (by SES, special needs)**		
There were 3 qualitative studies[54-56] identified that identified barriers and facilitators to participating in a LWMP relating to socio-economic status: A qualitative study[54] exploring the experiences of low-income majority Hispanic families engaged in community-based, family-based treatment for overweight children through 6 focus groups (n=37) found that participants reported high program satisfaction, parents reported buying less junk/fast food, increased consumption of fruits and vegetables, preparing and eating more meals as a family, and increasing their families' physical activity. Barriers: time and financial cost, parent's lack of time and energy, influence of family members, and challenges regarding physical environment. Facilitators: skill building around healthy eating and parenting, family involvement, and long-term health concerns. Unexpected reported outcomes: parents reported children slept	No evidence identified	**New evidence was identified that may have an impact on the guideline** The evidence identified themes concerning barriers and facilitators to participating in a LWMP that are similar to those identified across the population (see recommendation 5); again, the issue of costs as a barrier and remuneration as a facilitator were identified.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
better, felt happier, and were less irritable. A qualitative study[56] with low socio-economic parents with overweight or obese children explored their views of and recommendations for appropriate recruitment and retention strategies found that recruitment facilitators: remuneration, recruitment locations and the use of appropriate weight-related terminology; Retention facilitators: protocol flexibility, ongoing remuneration and learning opportunities. A qualitative study[55] exploring factors affecting family enrolment and retention in community-based healthy lifestyle promotion programs for overweight youth and their families through semi-structured interviews with parents of overweight children within 1 year of referral to the program (n=23; 10 completed the program, 9 did not complete, 4 did not enrol; from diverse socioeconomic backgrounds) reported that key reasons for enrolment: addressing both eating and activity, concern about child's weight, seeking help outside the family, and structured parent-child time. Parents perceived a lack of child motivation to enrol, with some opposed attending - overcome through positive program experience. No single program design emerged to address every family's needs. Authors concluded children should be offered LWMPs that varied in intensity level and emphasis on weight loss.		
RR – 04 **Weight management programmes (e.g. which components are effective? Effectiveness of LWMP for under 6s, children with special needs, long-term effectiveness, how to encourage recognition of overweight/obesity and participation in LWMPs)**		
No evidence was identified concerning effectiveness of LWMPs in children with special needs. Evidence was identified in the following: - Components of an effective programme (see recommendation 3 for studies/discussion on behaviour change techniques associated with effective interventions)	No evidence identified	**New evidence was identified that may have an impact on the recommendations** Overall, the findings of studies reporting at least 12 months follow-up data (4 SRs and 7 RCTs) indicate that LWMPs can be effective at weight management in the long-term. The evidence review that supported PH47 undertook a meta-analysis and concluded that

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
- Effectiveness of LWMPs for under 6s (see Gap-03 below) - There was some qualitative evidence concerning encouraging parents to recognise overweight/obesity in their children and encouraging participation in LWMPs (see recommendation 8) - There were 11 studies (4 SRs[2,4,8,21] and 7 RCTs[15,17-19,33,34,37]) that included long-term follow-up of participants in a LWMP (i.e. for at least 12 months): **Studies reporting a significant effect of LWMP on weight:** A Cochrane systematic review[2] that included 7 RCTs of diet, physical activity, and behavioural interventions for treating overweight or obesity in children aged 0-6 years found that multicomponent interventions were effective at reducing BMI z score at the end of an intervention (Mean Difference -0.3 units; 95% CI -0.4 to -0.2; P < 0.00001), at 12-18 months follow-up (MD -0.4 units; 95% CI -0.6 to -0.2; P = 0.0001) and at 2 years' follow-up (MD -0.3 units; 95% CI -0.4 to -0.1); but noted that most trials were low quality and had a high risk of bias. A systematic review[4] that included 38 studies (33 for meta-analysis) of lifestyle interventions incorporating a dietary component for treating overweight or obesity in children aged under 18 years old found that they led to significant weight loss compared with no-treatment control conditions: BMI -1.25 (95% CI -2.18 to -0.32), BMI z score -0.10 (95% CI -0.18 to -0.02); and vs usual care immediately post treatment: BMI -1.30 (95% CI -1.58 to -1.03) and 1 year from baseline: BMI -0.92 (95% CI -1.31 to -0.54). A systematic review[8] that included 6 RCTs of interventions for treating overweight or obesity in children aged 2-5 years found that 4 resulted in significant weight loss and 5 showed sustained effects over 6 to 24 months. The authors reported that the most common intervention strategy used was behavioural therapy techniques for parents, and interactive education and hands-on experiences involving physical activity and healthy eating for children. They concluded that 'Management interventions should		there was 'inconsistent evidence as to whether the effects of weight management programmes are sustained long-term. There is strong evidence from meta-analyses of 18 programmes … with BMI-z outcomes, indicating improvements decrease the longer the length of follow-up.' There does appear to be new evidence that could contribute to an up-date of the meta-analysis, outcomes of which cannot be currently determined, however findings from two of the new SRs[2,4] assessing effectiveness at the end of the intervention and at various follow-up periods does not indicate that improvements in BMI-z outcomes significantly decrease with longer follow-up.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
focus on parents as the "agents of change" for physical activity and nutrition while integrating behavioral therapy techniques and interactive education'. An RCT[15] with overweight 12-17 year old females (n=195 at 6 month follow-up, n=173 at 12 months) randomised to a primary care-based, multicomponent lifestyle intervention or usual care found that there was a significant reduction in BMI z score in the intervention group over time compared to usual care (-0.15 vs -0.08 respectively; P=0.012). A cluster RCT[18] with obese 6-12 year old children (n=14 primary care practice, USA) randomised to a computerized clinical decision support (CDS) delivered to paediatric clinicians at the point of care of obese children, with (CDS-plus) or without individualised family coaching (CDS-only) or usual care found that at 1 year follow-up there was a significant time by group effect on BMI (P=0.04), with BMI increasing less in CDS-only and CDS-plus compared to usual care (-0.51; 95% CI -0.91 to -0.11; and -0.34; 95% CI -0.75 to 0.07 respectively). An RCT[17] with parents of overweight children aged 2-8 years old (n=42 practices) randomised to a provider-only delivered intervention consisting of 4 motivational interview counselling sessions for parents (provider), the same intervention plus 6 MI sessions from a registered dietitian (provider+RD), or usual care found that at 2 year follow-up the provider+RD group had a significantly lower BMI percentile than the usual care group ((87.1 vs 90.3; P=0.02; provider group: 88.1%, stats NR). An RCT[19] with families of overweight or obese children aged 4-8 years old (n=206) randomised to a tailored intervention (single session to develop goals, then met with a mentor each month for 12 months, and every third month for another 12 months to discuss progress and provide support) or usual care (personalized feedback and generalized advice on healthy lifestyles at baseline and 6 months) found that at 24 months measures of weight were all significantly lower in the intervention vs usual care children: BMI (difference=-0.34; 95% CI -0.65 to -0.02), BMI z score (-0.12; -0.20 to -0.04) and waist circumference (-1.5; -2.5 to -0.5 cm).		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
Mixed results: A Cochrane systematic review[21] that included 20 RCTs of diet, physical activity and behavioural interventions delivered to parents only for the treatment of overweight and obesity in children aged 5 to 11 years reported that change in BMI z score was not significantly different in a parent-only vs parent-child intervention with follow-up periods between 10 to 24 months (MD=-0.04; 95% CI -0.15 to 0.08; P = 0.56); was significant in a parent-only intervention Vs a waiting list control, with follow-up periods between 10-12 months (MD=-0.10; 95% CI -0.19 to -0.01; P = 0.04), but not significant when compared with minimal contact control interventions with follow-up periods between 9 to 12 months (MD=0.01; 95% CI -0.07 to 0.09; P = 0.81). Studies were all low quality, intervention content was heterogeneous and there were high rates of non-completion. A study reporting 2 year follow-up data[33] of an RCT[32] with parents of overweight or obese 5 year old children (n=637) randomised to a healthy lifestyle counselling intervention delivered by youth health care professionals ('Be active, eat right') or usual care, reported no significant difference in BMI increase between the intervention and control conditions (beta -0.16; 95% CI:-0.60 to 0.27; p = 0.463) but found that children categorised as 'mildly overweight' at baseline showed a significantly smaller increase in BMI in the intervention versus control condition at follow-up. An RCT[34] with parents of obese 7-13 year old children receiving inpatient lifestyle treatment for obesity (n=668) randomised to complementary cognitive-behavioural group sessions or written information only (control) found that while the inpatient treatment was effective, additional parent training did not make any significant difference: there was a significant decrease in BMI overall during the first year (0.24; 95% CI 0.18 to 0.30), but no group difference (0.02; 95% CI -0.04 to 0.07). **Studies reporting a non-significant effect of LWMP on weight:** A parallel group RCT[37] with obese children (n=72; age=NR) randomised to a family-based behavioural treatment intervention		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
or waiting-list control found that an intent-to-treat analyses of 6-month data (n=60) showed significant BMI SD score changes (P<0.01) for the intervention and control groups of -0.11 (0.16) and -0.10 (1.6), but no significant differences between the intervention and control groups; and no overall change in BMI or BMI SDSs from 12 months follow-up for the intervention group.		
Gaps in the evidence		
Gap – 01 There is a lack of data on how to involve male children and young men in lifestyle weight management programmes. (Source: evidence review 1)		
No evidence identified	No evidence identified	**No new evidence was identified**
Gap – 02 There is a lack of data on effective lifestyle weight management programmes for children and young people with disabilities, learning difficulties or other special needs. (Source: evidence reviews 1 and 2)		
No evidence identified	No evidence identified	**No new evidence was identified**
Gap – 03 There is a lack of data on effective and cost effective approaches to weight management for children younger than 6 years, including the views of their parents and families. In addition, there is a lack of data on the barriers to, and facilitators for, encouraging these children to complete a lifestyle weight management programme. (Source: evidence reviews 1 and 2)		
Sixteen studies were identified (7 SRs[2,3,6,8,21-23], 8 RCTs[13,17,19,27,32,39,40,69] and 1 questionnaire study[69]) that included overweight or obese children aged less than 6 years old. There was 1 SR[8] and 1 RCT[32] that only included children aged less than 6 years old and 6 SRs, 7 RCTs and 1 questionnaire study[69] which included children with an age range which include under 6 year olds and older. A systematic review[8] that included 6 RCTs of interventions for treating overweight or obesity in children aged 2-5 years old found that 4 RCTs resulted in significant weight loss and 5 showed sustained effects over 6 to 24 months. The authors reported that the most common intervention strategy used was behavioural therapy techniques for parents, and interactive education and hands-on experiences involving physical activity and healthy eating for children. They concluded that 'Management	Initial intelligence gathering identified the following: Obesity prevention (2006) NICE guideline CG43, section 1.1 has public health recommendations, with generic, principle-based recommendations concerning physical activity and diet in early years setting (rec 1.1.4).	**New evidence was identified that may have an impact on the recommendations** PH47 states in the background section of the recommendations that 'no evidence was identified about the effectiveness of such programmes [lifestyle weight management services] specifically aimed at children under 6. The absence of such programmes from the recommendations is a result of this lack of evidence and should not be taken as a judgement on whether or not they are effective and cost effective.' The evidence review for PH47 stated that 'Although several programmes were open to children in this age group, the mean age of participants in all studies was at least six years.'

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
interventions should focus on parents as the "agents of change" for physical activity and nutrition while integrating behavioral therapy techniques and interactive education'. A Cochrane systematic review[2] that included 7 RCTs of diet, physical activity, and behavioural interventions for treating overweight or obesity in children aged 0-6 years found that multicomponent interventions were effective at reducing BMI z score at the end of an intervention (Mean Difference -0.3 units; 95% CI -0.4 to -0.2; P < 0.00001), at 12-18 months follow-up (MD -0.4 units; 95% CI -0.6 to -0.2; P = 0.0001) and at 2 years' follow-up (MD -0.3 units; 95% CI -0.4 to -0.1); but noted that most trials were low quality and had a high risk of bias. A systematic review[22] that included 6 RCTs of interventions for treating overweight or obesity in children aged 0-6 years reported that studies using an intensive, multidisciplinary approach over 6 months (n=2 studies) and a study testing parental coaching were effective at decreasing adiposity; A study using education on a dairy-rich diet showed 'a possible effect on adiposity'; and studies using systems changes and motivational interviewing showed no significant effect on adiposity (n=2 studies). A systematic review[23] that included 6 articles of motivational interview (MI) based interventions for treating overweight or obesity in children aged 2-11 years reported that there was a statistically significant positive effect on BMI and on obesity-related behavioural outcomes in 3 studies; but concluded that the efficacy of MI interventions could not be proved due to limited number of studies. A systematic review[3] that included 10 papers of 6 RCTs comparing a parent-only intervention versus an intervention including the child for overweight or obese children aged 5-12 years, with at least 6 months follow-up, reported that parent-only interventions were as effective as parent-child interventions in the treatment of childhood overweight/obesity, and may be less expensive. They noted higher attrition rates in some parent-only interventions.		The finding that there are 15 studies (7 of which are systematic reviews) which assess the effectiveness of weight management interventions for overweight or obese children aged under 6 years old indicates that there is now a substantial body of evidence for this age group which assesses the effectiveness of parent-only interventions, parent and child-based interventions, multicomponent interventions, motivational interviews, and other types of intervention, provided across various settings. It should however be noted that many studies included children aged 6 years old and over as well as under. There was also one questionnaire study addressing reasons for parents not participating in these interventions. Three of the SRs also reported that they have identified on-going relevant trials (4^{2}, 2^{3} and 10^{21} studies), indicating that there may be further research available in the near future concerning weight management interventions for children under 6 years old. Obesity prevention (2006) NICE guideline CG43 does not cover LWMPs for under 6s.

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
A Cochrane systematic review[21] that included 20 RCTs of diet, physical activity and behavioural interventions delivered to parents only for the treatment of overweight and obesity in children aged 5 to 11 years reported that change in BMI z score was not significantly different in a parent-only vs parent-child intervention with follow-up periods between 10 to 24 months (MD=-0.04; 95% CI -0.15 to 0.08; P = 0.56); was significant in a parent-only intervention Vs a waiting list control, with follow-up periods between 10-12 months (MD=-0.10; 95% CI -0.19 to -0.01; P = 0.04), but not significant when compared with minimal contact control interventions with follow-up periods between 9 to 12 months (MD=0.01; 95% CI -0.07 to 0.09; P = 0.81). Studies were all low quality, intervention content was heterogeneous and there were high rates of non-completion. A systematic review[6] that included 9 RCTs of family and home-based interventions aimed at treating overweight and obesity in children aged 2-7 years reported that 8 interventions led to significant outcomes, with the majority incorporating educational sessions targeting parents, less than a quarter of the interventions included home visitations but all included home-based activities to reinforce behaviour modification. An RCT[32] with parents of overweight or obese 5 year old children (n=637) randomised to a healthy lifestyle counselling intervention delivered by youth health care professionals ('Be active, eat right') or usual care, found that the only significant effects on diet and physical activity were in relation to drinking less than two glasses of sweet beverages at follow-up compared with baseline for children in the intervention ($p < 0.001$) and control condition ($p = 0.029$). Overall, the intervention did not lead to a change in health behaviours. A study reporting 2 year follow-up data[33] for this RCT reported no significant difference in BMI increase between the intervention and control conditions (beta -0.16; 95% CI:-0.60 to 0.27; $p = 0.463$) but found that children categorised as 'mildly overweight' at baseline showed a significantly smaller increase in BMI in the intervention versus control condition at follow-up. An RCT[39] with overweight or obese 4-7 year old children (n=372)		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
randomised to a paediatrician-led intervention consisting of 5 family meetings with motivational interviews (MI) or usual care (information leaflet), found that there was a trend towards a smaller increase in BMI over 12 months from baseline in the MI compared to usual care group (0.49 vs 0.79; difference: -0.30; P = .007); but that MI had no effect in boys or in children whose mothers had a low educational level. An RCT[40] with obese 3-10 year old children (n=107) randomised to a tertiary appointment followed by up to 11 general practice consultations over one year, supported by shared care, web based software (intervention) or usual care, found that at 15 months after baseline there were no significant difference in BMI between the conditions (adjusted mean BMI difference= -0.1; 95% CI -0.7 to 0.5; P=0.7 and BMI z score= -0.05; 95% CI -0.14 to 0.03; P=0.2). An RCT[27] with overweight 3-17 year old children (n=289) randomised to a family-based yearlong computer-aided telephone counselling and mailed newsletters intervention (T.A.F.F. : Telephone based Adiposity prevention For Families study) or control, found that there were no significant difference in BMI between the groups at the end of the year; when BMI was assessed in children who adhered to the intervention to completion, a significant decrease in BMI in the intervention vs control group was found (mean change in BMI-SDS: -0.09 vs. 0.02 respectively; p = 0.03). An RCT[17] with parents of overweight children aged 2-8 years old (n=42 practices) randomised to a provider-only delivered intervention consisting of 4 motivational interview (MI) counselling sessions for parents (provider), the same intervention plus 6 MI sessions from a registered dietitian (provider+RD), or usual care found that at 2 year follow-up the provider+RD group had a significantly lower BMI percentile than the usual care group (87.1 vs 90.3; P=0.02; provider group: 88.1%, stats NR). A pilot RCT[13] with obese 5-16 year old children (n=52) randomised to a hospital-based multicomponent lifestyle intervention obesity clinic or a nurse-led clinic in primary care in		

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
England, both involving five appointments over 12 months, found that there was a significant and similar reduction in BMI at the end of the intervention in both settings (mean change in BMI SD score was -0.17; 95% CI -0.27 to -0.07 in primary care; -0.15; 95% CI -0.26 to -0.05 in hospital intervention). An RCT[19] with families of overweight or obese children aged 4-8 years old (n=206) randomised to a tailored intervention (single session to develop goals, then met with a mentor each month for 12 months, and every third month for another 12 months to discuss progress and provide support) or usual care (personalized feedback and generalized advice on healthy lifestyles at baseline and 6 months) found that at 24 months measures of weight were all significantly lower in the intervention vs usual care children: BMI (difference=-0.34; 95% CI -0.65 to -0.02), BMI z score (-0.12; -0.20 to -0.04) and waist circumference (-1.5; -2.5 to -0.5 cm). A questionnaire study[69] reporting on factors that drive participation in an RCT of a family-based weight management program for 4- to 8-year-old children following screening for overweight or obesity reported that 27.3% of parents of overweight or obese children (n=74/271) were not willing to agree to the intervention; they were less likely than participating parents to believe their child was overweight (23% vs 49%; < .001), be concerned about it (16% vs 43%; < .001) even though their children had an average BMI indicating obesity, less likely to expect their child to be overweight (P=0.002) and rated receiving information on weight status as less useful (P=0.008). The authors concluded that 'Preconceptions about child weight and reactions to feedback determined intervention uptake more than parenting or motivation for health'.		
Gap – 04 There is a lack of data on how the barriers to, and facilitators for, participating in a lifestyle weight management programme vary according to socioeconomic group, ethnicity, gender and age. (Source: evidence review 2)		
See research recommendation 3	No evidence identified	**New evidence was identified that may have an impact on the recommendations**

Summary of new evidence from 4-year surveillance	Summary of new intelligence from 4-year surveillance (from topic experts or initial internal intelligence gathering)	Impact
		See discussion under research recommendation 3
Gap – 05 There is a lack of standardised reporting for the behavioural therapy and cognitive behavioural therapy (CBT) components used by programme developers. This makes it difficult to evaluate these components of a lifestyle weight management programme. (Source: expert paper 6)		
No evidence identified	No evidence identified	**No new evidence was identified**
Gap – 06 There is a lack of evidence on the lifetime effects of weight management programmes. (Such data are crucial for assessing cost effectiveness.) (Source: Economic modelling report)		
No evidence identified	No evidence identified	**No new evidence was identified**

Ongoing research

Ongoing research was identified through the initial intelligence gathering (NIHR research in progress). If this was within the scope/Department of health referral for PH47 it has been included. Ongoing research was identified on the effectiveness of physical activity, website-based, family-based, diet & physical activity interventions for overweight or obese children, including those aged under 6 years old and on whole systems approaches to obesity.

- Public health interventions for increasing physical activity in children, adolescents and adults: an overview of systematic reviews. If interventions described by population age and baseline weight, this will be relevant. Protocol published January 2015, no anticipated publication date given.
- Child weigHt mANaGement for Ethnically diverse communities: CHANGE. This study will develop and test a programme for parents with an overweight/obese child that aims to help them reduce their child's weight through improved diet and increased activity, with Bangladeshi and Pakistani families in Birmingham. Due to complete 2017.

- An electronic tool for the management of child overweight. The aim of this study is to test a new website to improve childhood obesity management in primary care and assess the need for a larger study. Waiting to publish.
- Randomised controlled trial evaluating the effectiveness and cost-effectiveness of Families for Health, a family-based childhood obesity treatment intervention. An RCT assessing the effectiveness and cost-effectiveness of the 'Families for Health' community-based programme in the treatment of overweight and obesity in 7-11 year olds, compared with usual care, with 12 months follow-up. Waiting to publish.
- Whole systems approach to obesity: pilot programme invitation. A pilot programme investigating whole systems approaches to obesity, funded by Public Health England, collaboration with Leeds Beckett University. Completion date unknown.

The following systematic reviews also identified that there is on-going research relating to weight management interventions for children, including those aged under 6 years old: Diet, physical activity, and behavioural interventions for the treatment of overweight or obesity in preschool children up to the age of 6 years (four studies); Parent-only interventions in the treatment of childhood obesity: a systematic review of randomized controlled trials (two studies); and Parent-only interventions for childhood overweight or obesity in children aged 5 to 11 years (10 studies).