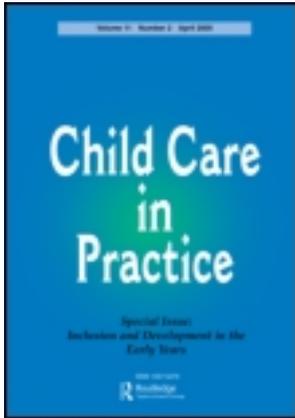


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# Inhibiting Factors in the Prevention of Overweight in Infants: An Explorative Qualitative Study among Child Healthcare Practitioners in the Netherlands

Eveliene Dera de Bie, Maria Jansen & Willem Jan Gerver

*The aim of this study was to explore inhibiting factors in the prevention of overweight in infants younger than one year, among practitioners working for municipal child healthcare organisations in the Netherlands. Twelve in-depth interviews with child healthcare physicians and nurses were conducted. All interviews were tape-recorded, after which the transcripts were thematically analysed. Two investigators separately coded two transcripts to verify coding and a final code book was developed. Finally, general conclusions were drawn from the interviews. The findings indicated that child healthcare practitioners are insufficiently aware that a child's first year is an important period to prevent overweight, and that they find it difficult to discuss the topic with parents. Additionally, the findings suggest that the current local overweight prevention protocols in the Netherlands are not well implemented. This study indicates opportunities to improve the performance of child healthcare practitioners with respect to the early identification of infants at risk for overweight, as well as the communication of this risk to parents and the implementation of overweight-prevention protocols.*

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Eveliene Dera de Bie worked as a student at FHML University Maastricht. Maria Jansen worked at South Limburg Municipal Health Services. Willem Jan Gerver worked at MUMC University Maastricht. Correspondence to: Eveliene Dera de Bie, FHML University Maastricht, Department of Social Medicine, Universiteitssingel (UNS) 40 west, 6229 ER Maastricht, the Netherlands. Email: [eveliene.dera@maastrichtuniversity.nl](mailto:eveliene.dera@maastrichtuniversity.nl).

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## Introduction

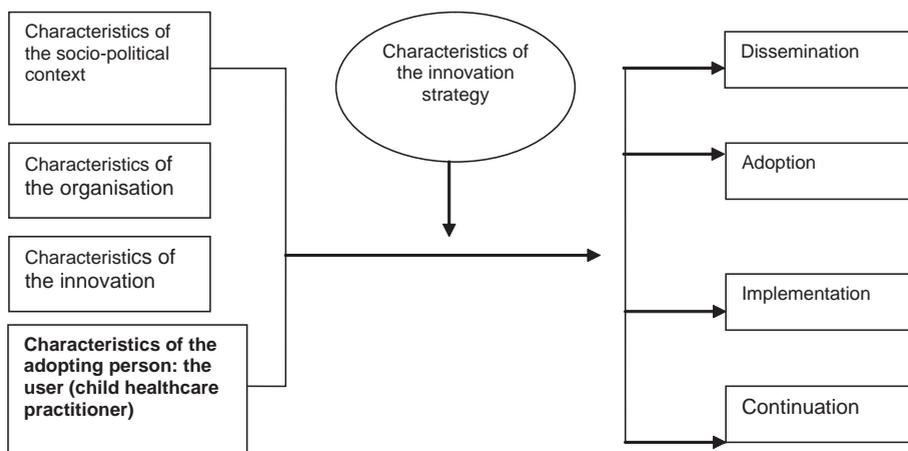
The increasing worldwide prevalence of overweight and obesity has reached epidemic proportions and has become a major public health problem (World Health Organisation, 2000). Overweight occurs not only among adults but also among children (Ebbeling, Pawlak, & Ludwig, 2002). The prevalence of overweight in children in the Netherlands almost tripled between 1980 and 2010, and currently is 14% (van den Hurk, van Dommelen, van Buuren, Verkerk, & Hirasing, 2007; Schönbeck et al., 2010). In the Netherlands, for the age range two to 18 years, the body mass index cut-off points are used to determine whether a child is overweight or obese (Cole, Bellizzi, Flegal, & Dietz, 2000; Cole, Flegal, Nicholls, & Jackson, 2007). For children younger than two years, overweight is defined as  $\geq +2$  standard deviations of the reference population.

The adverse health consequences, such as metabolic syndrome and psychosocial problems, are frequently described (Freedman, Khan, Dietz, Srinivasan, & Berenson, 2001; Reilly & Kelly, 2011; Reilly et al., 2003). Several studies show that an abnormal pattern of weight in the prenatal and early postnatal period is predictive of the development of overweight in later life (Barker, 2007; Gluckman & Hanson, 2004; Hales, 2001). Compared with children of normal weight, overweight children are twice as likely to become overweight adults (Singh, Mulder, Twisk, van Mechelen, & Chinapaw, 2008). Moreover, the development of lifestyle habits in early childhood influences body weight during the entire lifespan, and once a child is overweight it is difficult to reduce its weight to an ideal level (Kelder, Perry, Klepp, & Lytle, 1994). It is in early childhood that parents lay the foundations for their child's later eating and activity habits (Savage, Fisher, & Birch, 2007). Moreover, it is known that overweight runs in families and that parental obesity is a strongly related factor associated with the overweight risk of an infant (Reilly et al., 2005). A parent's nutrition and physical-activity behaviour influence the habits of their children. Because a parent serves as a model for the developing child, it is important that interventions to prevent overweight in children should include the parents. Also, since overweight at a young age tends to persist into adulthood, prevention should start as early as possible, preferably in the first year of life (Lake, Power, & Cole, 1997). Although there is evidence that early prevention is important, there are only a few studies that focus on the benefits of overweight prevention in the child's first year (Kroon et al., 2011). Parents can improve their behaviour by breastfeeding their child and parenting with respect to a healthy lifestyle (Gerards, Sleddens, Dagnelie, De Vries, & Kremers, 2011; Stolzer, 2011).

In the Netherlands, there is a child healthcare system that supports parents through the provision of a free, nationwide programme of preventive health checks for children zero to 19 years. The child healthcare services also monitor more than 95% of Dutch children during their first year of life in a series of nine consultations (Wieringen & Wieren, 2010). The municipal child healthcare practitioners, physicians and nurses assist parents and provide advice on proper nutrition, useful physical activity and ways to establish conditions for the child's optimal

growth and development. The preventive activities implemented by the municipal child healthcare organisations are described in a national document (Dunnink et al., 2008), which distinguishes five different preventive activities regarding overweight: monitoring the growth of the child and early detection of abnormal growth patterns identifying overweight children; preventing overweight; advising parents about nutrition for children aged zero to four years; and supporting breastfeeding. Most of the Dutch municipal child healthcare services have incorporated these activities into their own organisational protocol. However, the implementation of this local overweight protocol tends to be inadequate. Proper implementation of protocols is limited by a number of barriers, such as lack of knowledge, lack of skills and lack of time (Grol, 2001; Story, Sherwood, Sofka, Trowbridge, & Barlow, 2002).

It is known that actual success of the application of an innovation such as the overweight protocol is maximised if it is introduced systematically. The theoretical model developed by Fleuren, Wiefferink, and Paulussen (2004) is used as a framework in this study (Figure 1). Their model offers a useful overview of various factors or “determinants and characteristics” that influence the process, linking an innovation to the actual implementation of an intervention in clinical practice. The model states that the successful application of an innovation depends on how the implementation strategy is tailored to the influencing characteristics. It distinguishes four main types of characteristics that influence an innovation process: characteristics of the socio-political context; characteristics of the organisation; characteristics of the innovation; and characteristics of the adopting person. Indeed, characteristics of child healthcare practitioners (e.g. their attitude, beliefs, knowledge, self-efficacy and skills) affect successful protocol application (Paulussen, 1994). Child healthcare practitioners seem to rely predominantly on their own professional experience rather than on a protocol (Fleuren & de Jong, 2006). So far, little information is available



**Figure 1** Framework Model for the Innovation Process and Related Determinant Categories.

Source: Fleuren et al. (2004).

about the characteristics of child healthcare practitioners and how these characteristics influence the implementation of overweight prevention activities in routine practice. Besides, the relationship between professionals and parents has changed in recent times. More than ever, parents are able to competently discuss complex medical issues with practitioners because of increased public access to information (e.g. through the Internet). In addition, product developments have resulted in a huge and constantly changing fast-food market. These products are affordable for most parents in the Netherlands. However, child healthcare practitioners find it difficult to advise on them because it is almost impossible to keep knowledge about product composition up to date.

The present study tried to explore the characteristics of the adopting persons (e.g. the child healthcare practitioners) by identifying their perceptions on the prevention of overweight in routine practice. Improving the efficacy of overweight prevention in child healthcare consultations requires more information regarding current practice at the child healthcare services and the content of the consultations with parents (Schuller, 2006/2009). In particular, it is important to identify inhibiting factors that influence overweight prevention by child healthcare practitioners. We therefore undertook an explorative qualitative study to investigate the clinical practice of child healthcare practitioners with respect to the prevention of overweight in infants younger than one year of age.

## **Method**

A purposive sample of 12 participants (six nurses and six physicians) was recruited. The local manager selected participants in such a way that there would be sufficient variation in participant characteristics. Participants were selected on the basis of occupation (physician or nurse), working environment (urban or rural area, low or high socio-economic area), age, and the number years they had been in their present occupation. The 12 selected participants were drawn from a total of 105 child healthcare practitioners working in municipal child healthcare services in the Southern Limburg district of the Netherlands. These organisations are all similar in terms of structure and services.

All participants were invited for a face-to-face, in-depth interview, for which a qualitative semi-structured interview topic list was developed focusing on the following items: personal characteristics of the practitioner (e.g. age, gender, years of work experience); current overweight prevention practices; detecting infants at risk for overweight; implementation of overweight prevention protocol; discussing the risk of overweight with parents; overweight interventions; personal perceptions of the prevention of overweight; and external factors that facilitate (e.g. skills training) or impede (e.g. time constraints) overweight prevention. Interviews were undertaken until data saturation was reached. The interviews, which lasted approximately one hour, were conducted between October and December 2007. All interviews were tape-recorded with the respondent's permission and were analysed using qualitative content analysis.

The recordings were first transcribed by the first author and a code was attached to each statement to describe the meaning or context of that statement. The codes included topics such as nutrition, physical activity, behaviour, growth, clinical observation, individual aspects of the child, aspects of the parents and the environment. A coding system in the form of a tree diagram was then developed to structure the codes, and themes were identified. To test the inter-rater reliability, two investigators independently read two transcripts and identified themes, codes and subcodes present in the interviews. They then related the findings to the coding system that had been developed. This resulted in kappa values of 0.66 and 0.75. Differences in themes and codes were discussed until consensus was reached, and a definitive code book was developed (Table 1). This was then used to code the remaining information. Finally, general conclusions were drawn from the interviews.

## Results

### *Personal Characteristics*

The mean age of the practitioners included in this study was 44 years and the mean number of years they had been working in child healthcare was 17 years. All respondents were female (Table 2).

### *Current Practice and Detecting Infants at Risk for Overweight*

All respondents used standardised national reference curves for height and weight according to age to evaluate the growth of infants and to detect abnormal growth patterns. The respondents reported giving consistent attention to feeding patterns and their possible impact on growth. When a disproportional increase in the child's weight to length ratio was noted, they would use a wait-and-see approach with regard to discussing this with the parents and with regard to applying any intervention. Ten of the 12 respondents were unaware of the relation between growth in the first year of life and the risk of overweight in later life.

I am not convinced whether the first year of a child's life is predictive for overweight in adulthood. (Nurse 1)

All respondents reported finding it difficult to focus on overweight prevention in infants under a year old because it is not clear when a given weight implies an increased risk for the infant. Nonetheless, several actual risk factors for developing overweight were mentioned: the infant has a family member who is overweight; the infant cries excessively; and the infant belongs to a family with low socio-economic status. Additionally, parents who are unaware that the first year of life is important for the development of healthy eating and activity habits (i.e. parents who function as "unhealthy role-models") were also considered a risk factor:

The largest risk is probably when obese parents do not consider overweight problematic. Many suppose that because of their own overweight, their children will also be overweight. These parents will not change their lifestyle. (Nurse 3)

**Table 1** Themes, Codes and Subcodes of the Tree Diagram

Theme	Code	Subcode
1. General information	1.1. Function 1.2. Years of work 1.3. Age 1.4. Working area	
2. General information about (early) prevention of overweight	2.1. General information 2.2. Primary prevention	
3. Early detection	3.1. Nutrition 3.2. Physical activity 3.3. Clinical view 3.4. Behaviour/predisposition 3.5. Growth	3.1.1. Artificial feeding 3.1.2. Breastfeeding 3.1.3. Supplementary food 3.4.1. Child 3.4.2. Parent 3.4.3. Environment 3.4.4. Interaction parent and child
4. Discussing overweight	4.1. Nutrition 4.2. Physical activity 4.3. Behaviour/predisposition 4.4. Growth 4.5. Advice 4.6. Use word overweight or obesity 4.7. Risk factors	4.1.1. Artificial feeding 4.1.2. Breastfeeding 4.1.3. Supplementary food 4.3.1. Child 4.3.2. Parent 4.3.3. Environment 4.3.4. Interaction parent and child
5. Use of protocol and additional tools	5.1. Activity relates to prevention of overweight 5.2. Nutrition guideline for children age zero to four years 5.3. Guideline healthy feeding 5.4. Guideline breastfeeding 5.5. Early detection guideline 5.6. Use of digital child record 5.7. Additional tools	5.6.1. Monitoring growth 5.6.2. Registrations
6. Intervention	6.1. Performed an intervention	

Table 1 (Continued)

Theme	Code	Subcode
7. Insight	7.1. Nutrition	7.1.1. Artificial feeding
		7.1.2. Breastfeeding
		7.1.3. Supplementary food
	7.2. Physical activity	7.3.1. Child
7.3. Behaviour/predisposition	7.3.2. Parent	
	7.3.3. Environment	
		7.3.4. Interaction parent–child
	7.4. Growth	
8. Internal factors	8.1. Knowledge	
	8.2. Self-efficacy	
	8.3. Competence	
	8.4. Task division	
	8.5. Attitude	
9. External factors	9.1. Support organisation	
	9.2. Support colleagues	
	9.3. Cooperation partners	
10. Change code	10.1. What would the practitioner like to change	
11. Inhibiting factors	11.1. Insights	
	11.2. Discussing the topic	
	11.3. Support	
	11.4. Early detection	
	11.5. Practical factors	
	11.6. Factors related to child, parent or environment	

### *Perceptions*

Of the 12 practitioners in this study, 10 did not consider overweight in the first year of life to pose real problems for weight in later life.

### *Applying Overweight Prevention Protocols*

None of the respondents reported using the existing overweight protocol as prescribed, with the exception of the topic of breastfeeding. For this, several reasons are mentioned—such as a lack of awareness, the content not being linked enough to the child's first year, or limited time to get familiar with the protocol. As regards feeding practices, they mentioned portion size, diet composition and the age at which fast food is introduced as factors that can affect weight:

I always check child's nutrition. Then I check if they are already started with supplementary feeding, hoping that they will delay it, but if they do want to start it, I check whether it is the right kind of nutrition. Often parents have already started with supplementary feeding, for example with cereal or other snacks. Parents are

**Table 2** Characteristics of Child Healthcare Physicians and Nurses Interviewed ( $n = 12$ )

Profession <sup>a</sup>	
Child healthcare physician	6
Child healthcare nurse	6
Female <sup>b</sup>	
	12
Age	
	Mean = 44 years (SD = 24–62)
< 30 years	1
30–50 years	7
> 50 years	4
Years of profession	
	Mean = 17 years (SD = 2–34)
< 10 years	5
11–19 years	2
> 20 years	5
Working environment	
Urban	6 (3 physicians and 3 nurses)
Rural	6 (3 physicians and 3 nurses)
Low socio-economic area	8 (3 physicians and 5 nurses)
High socio-economic area	4 (3 physicians and 1 nurse)

<sup>a</sup>Child healthcare physicians or nurses specialised in early growth and development of children aged zero to four years. <sup>b</sup>From a total of 105 practitioners working in the Child Health Care Services in the Southern Limburg district, 101 are female and four are male. From tradition, the practitioners in the Netherlands working for child healthcare organisations with children aged zero to four years are almost all female. SD, standard deviation.

afraid that the child does not drink enough and therefore they also offer additional nutrition, such as soft drinks. (Nurse 1)

I often notice that parents offer solid nutrition rather late. They offer readymade mashed nutrition for a long period and because of that, children do not learn to chew and taste fast food. (Physician 3)

Breastfeeding was considered best for the infant. Inadequate physical activity (e.g. poor crawling skills) was mentioned as a risk factor by only three respondents. All respondents regarded providing tailored care and having good contact with the parents as much more important than following any protocol:

I am not the kind of person who closely follows protocols. I try to tailor my advices to what fits into the parent's lifestyle. (Physician 5)

Six respondents reported having noticed differences between their colleagues regarding the overweight-prevention recommendations they provide and the referrals they make.

### *Discussing the Risk of Overweight with Parents*

All respondents except one indicated that discussing overweight with parents was difficult because it is an emotionally charged topic:

The subject of overweight is difficult to discuss, because when you tell an overweight mother her child is overweight, you indirectly tell the mother she is too. (Nurse 3)

Yes, that's the whole problem with overweight. It always feels like a personal message to the parents. I am always very careful to discuss this topic with parents. (Physician 1)

The most frequent barrier to communicating overweight risk was that the respondent had experienced resistance from parents in the past. This was particularly the case with overweight or obese parents and parents with low socio-economic status. Six respondents indicated that they found it very difficult to use the term overweight or heavy. They preferred to discuss overweight in terms of the weight not being in line with the normal values on the growth curve. Almost all respondents claimed that they would hesitate to use the words "overweight" or "obesity" in their consultations with parents. Most respondents conveyed uncertainty regarding the effectiveness of their recommendations.

However, when parents are strongly opinionated, sometimes consultation is not more than advice, because you can't force parents to follow your advice. (Nurse 3)

### *Overweight Interventions*

The respondents mentioned that once an infant has been identified as being overweight or at risk for overweight, a variety of interventions and referral pathways can be employed. However, there was no uniformity regarding the kind of interventions or when and to whom the respondents referred. In fact, there was little consensus regarding who should apply interventions and to whom overweight infants should be referred. Respondents mentioned a broad range of professionals, including paediatricians, general practitioners, midwives, physical therapists, dieticians and the infants' daycare centres:

Actually, there is no cooperation with pediatricians and family doctors concerning the topic overweight. (Physician 6)

Yes, the dietician or physiotherapist, but that's what I am thinking in present. However, I don't know which programs they have for example to stimulate physical activity for the young child. (Physician 1)

### *Inhibiting Characteristics of the Practitioners*

All respondents mentioned that practitioners need additional support to improve their communication skills, especially for cases in which parents do not believe their child is overweight or at risk for overweight. Also, although all expressed the opinion that overweight prevention was part of their job, 10 of the respondents reported that they tended not to focus on overweight in infants younger than one year of age. They considered overweight to be an issue only after the first year. All respondents also mentioned that they lacked sufficient time to engage in adequate overweight prevention:

Another question is whether there is enough consultation time. There are a lot of topics to which attention has to be paid during the consultation with parents. Time is a restrictive factor, but this also counts for more topics. (Physician 5)

More specifically, they mentioned a discrepancy between the amount of time they were allocated for a consultation and the amount of time they need to complete all tasks prescribed for the consultation. Additionally, one-half of the respondents indicated that many new developments had occurred in their municipal child healthcare organisation and that they needed additional time to incorporate new tasks into their work. Accordingly, they reported a need for more support from the organisation; for instance, in the form of training courses in communication skills and in the implementation of protocols.

## **Discussion**

This study aimed to explore inhibiting factors in the prevention of overweight among infants, by interviewing child healthcare practitioners working for municipal child healthcare organisations. Three major impeding factors were identified. First, the practitioners appear to be unaware that overweight prevention should be applied to infants younger than one year of age. Perhaps this is because practitioners do not come into contact with many overweight infants this young and are thus unaware that they should actively try to identify infants at risk for overweight. This lack of awareness may also be exacerbated by the fact that no adequate measure of overweight has been developed for infants younger than one year. At present there is not much information regarding practitioners' practices in the child's first year related to prevention of overweight.

Second, child healthcare practitioners find it difficult to communicate and discuss the risk of overweight with parents. The topic is emotionally charged and parents often express resistance, perhaps because comments about the weight of their child are taken as personal criticism (Mikhailovich & Morrison, 2007).

Third, child healthcare physicians and nurses in our study inadequately implemented the overweight prevention protocol. The successful use of protocols depends, to a large extent, on the way they are implemented, how well they are applied and whether or not they generate good outcomes. Unfortunately, the implementation, application and outcomes seem to be systematically inadequate in the child healthcare organisations in our study (Fleuren, 2010). Child healthcare practitioners are important mediators when it comes to motivating and supporting parents in developing a healthy lifestyle for their child, because they know the child's medical and family history. Furthermore, child healthcare practitioners play an essential role in detecting infants at risk for overweight. In our study, practitioners appeared to be aware of potential risk factors for child overweight, such as the weight of the parents or the protective factor of breastfeeding. However, the relation between risk factors and managing lifestyle overweight risk factors of infants by behavioural change of parents appeared not to be routine in practice.

When child healthcare practitioners endeavour to support parents in raising their children, they must recognise that prevention of overweight can best be initiated in the first year of life, and those infants at risk for overweight need to be identified as early as possible. The current measures used in practice for determining overweight

(e.g. body mass index) are often only applied when a child is already overweight (Cole et al., 2000). Another measure that can be used to determine overweight is the clinical picture or the symptoms with which a child presents. However, results of previous studies suggest that practitioners and parents often incorrectly identify an overweight child when they rely on clinical observation alone (Smith, Gately, & Rudolf, 2008; Carnell, Edwards, Croker, Boniface, & Wardle, 2005). A good practical measure for identifying the risk of overweight in an infant's first year would thus be useful and could also support child healthcare practitioners.

The challenge for child healthcare practitioners will be early detecting an infant at risk for overweight and influencing parents' beliefs regarding current treatments for an infant's health in order to change parenting practices.

In addition, research into the implementation of the overweight prevention protocol in child healthcare practice is still in its infancy (Veldhuis et al., 2009). This is why the present study focused on the characteristics of the adopting persons (i.e. child healthcare physicians and nurses).

Furthermore, protocols are developed to assist practitioners about appropriate care for specific health issues. Although a protocol should be flexible enough to deliver tailored care, it prevents, for example, parent's confusion about different advice. A problem is that, at this point in time, each municipal child healthcare organisation independently translates the national recommendations for preventive activities into a local protocol. Consequently, there is a lack of harmony in the implementation of these preventive interventions and the use of the overweight protocol (Hearn, Miller, & Campbell, 2008).

National guidelines that describe how prevention should be implemented may therefore be beneficial. The development of these national guidelines should be supported by a guideline tool that describes quality aspects and implementation activities for child healthcare organisations on "how to implement a specific guideline". Also, the possibilities of these organisations, the competence of their practitioners, and their financial situations should be taken into account. In this respect, the process linking the development of a protocol with its application in practice could be facilitated by an official supervisor, who should not only coordinate the implementation of the overweight protocol, but also ensure further optimisation of the protocol and its use in routine child healthcare practice.

At the same time, it must be recognised that the successful implementation of a protocol rests not only with national-level actors and organisational managers, but also with those who actually implement the protocol in practice—that is, the child healthcare practitioners. The overweight protocol must take these issues into consideration and must help practitioners discuss overweight with parents even when parents express resistance. If successful, parents will be better informed and better supported in their efforts to develop a healthy lifestyle for their child(ren). This view is supported by a number of studies that have shown parents are indeed receptive to and capable of making behavioural changes that may promote an ideal weight for their child (Campbell & Hesketh, 2007; Savage et al., 2007).

The present study was rooted in both theory and practice. It was conducted among physicians and nurses working in the field and was based on consultations with experts, both academic and practice-based. The findings are very similar to those of studies conducted in other areas in the Netherlands (Brink-Melis, 2009; Boere-Boonekamp et al., 2008), so it appears that the 12 participants included in this study are sufficiently representative of their professional community.

## Conclusion

This study has shown that the early identification of infants prone to develop overweight is currently inadequate; that improvements in the communication of overweight risk to parents are necessary; and that the implementation of the national overweight protocol in the Netherlands requires more guidance and supervision.

Awareness, knowledge and communication skills are important elements to improving the risk of overweight in the first year of a child's life. We suggest that training courses for practitioners and guided practice addressing awareness and communication skills regarding overweight prevention in infants could improve the performance of child healthcare practitioners.

## Key Messages for Practice

- Child healthcare practitioners seem to be unaware of the importance of prevention of overweight in the child's first year.
- To address the problem of excess weight gain, child healthcare practitioners need more guidance and support in the early detection of children at risk for overweight, as well as in discussing the topic with parents and using the overweight protocol in practice.

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