Volume 8

METHODS OF HEALTH PROMOTION

The treatment of overweight and obese children and young people in Germany

Federal Centre for Health Education BZgA

The number of overweight and obese children and young people, which has been rising for years, means that there is a need for nationwide provision with treatment initiatives, tailored to individual requirements. Consequently, there are already numerous inpatient, outpatient or day care combined forms of initiatives on offer in the Federal Republic of Germany. The structure of provision in Germany is heterogeneous.

However, little is known about current provision as a whole. Above all, it is not clear how dense provision as a whole is, which programmes are distributed in which way and how many people they reach, which opportunities for provision exist with the different forms of treatment (outpatient, inpatient) and to what extent fundamental evidence-based quality criteria are met, in order to create the preconditions for effective provision.

In order to answer these questions in a qualified way and on the basis of scientifically secured findings, the BZgA commissioned University Medical Centre Hamburg-Eppendorf to carry out a national study of provision, in order to determine the current status of provision. The findings compiled in this specialist booklet will make a contribution towards ensuring that the children and young people affected and their parents can orientate themselves more easily, as can the specialists providing treatment and advice. In conjunction with increased opportunities for orientation, these findings create the basis for an active debate on quality.

BZgA
Federal Centre
for
Health Education

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The Federal Centre for Health Education is an authority set up within the Federal Ministry of Health, located in Cologne. It carries out both information- and communication-related tasks (educational function) as well as carrying out quality assurance exercises (clearing and coordination function) in the area of health promotion.

As far as quality assurance is concerned, the drawing up of fundamental scientific principles and the development of guidelines and quality assurance tools form the main focus of the BZgA's work. Market observation and market analysis are also becoming increasingly significant. The aim of market observation and market analysis is to shed light on the confusing market of health promotion initiatives.

A large proportion of the results and experiences from these activities are published in the series "Specific elements of health promotion", e. g. in the form of subject- and target group-specific market overviews or in the form of the documentation of selected projects and models. The aim of this series is to provide practical support to disseminators of information in their work in the area of health promotion and to provide suggestions for use in day-to-day practice.

Volume 8

METHODS OF HEALTH PROMOTION

The treatment of overweight and obese children and young people in Germany

Quantity and quality of initiatives in 2004–2005

A research project carried out by the University Medical Centre Hamburg-Eppendorf, the Centre for Psychosocial Medicine, the Institute and Policlinic for Medical Psychology and the research group for quality assurance research led by Dipl.-Pol. Dipl.-Psych. Thomas Kliche and Prof. Uwe Koch, on behalf of the Federal Centre for Health Education

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Foreword

Overweight and obesity are becoming increasingly prevalent among all age groups. The data gathered over the past 25 years point to this fact. Children and young people who are overweight suffer from teasing, are often excluded from games and arrangements and often fall behind in sporting activities. This not only gives rise to considerable mental health problems, but may also subsequently lead to chronic diseases such as orthopaedic complications, high blood pressure, coronary heart disease, diabetes mellitus type II, sleep apnoea, as well as anxiety and depression.

Given the high prevalence of overweight and obese children and young people and the great need for treatment, it is necessary to examine the corresponding treatment options. How should we actually evaluate the initiatives on offer and the treatment situation? Are there sufficient treatment initiatives available? At which target groups are the initiatives aimed? What differences exist as far as treatment concepts, the quality of diagnosis and the qualifications possessed by the treatment team are concerned? To what extent is it possible to selectively distinguish between the types of treatment? Do they simply differ in the form they take or also in their quality? Where can gaps in treatment be recognised? What optimisations are required in order to ensure that children and young people receive treatment that is tailored to their individual needs? How clear and transparent is the range of initiatives available for specialists, parents and ultimately the children and young people requiring treatment?

Overweight and obese children and young people, their parents, but also medical specialists, dieticians and health officials need answers from professionals to these questions, in order to develop and improve suitable treatment initiatives or to make a treatment recommendation.

For this reason, the Federal Centre for Health Education commissioned the University Medical Centre Hamburg-Eppendorf to carry out a nationwide study in order to determine the current status of provision of treatment initiatives for children and young people. Following the formulation and adjustment of the quality criteria for the programmes aimed at the prevention and treatment of overweight and obesity (see volume 4 of this specialist booklet series), this appraisal represents the second stage of a comprehensive quality assu-

rance process that is being carried out by the BZgA and is likely to be rounded off in 2008 with the results of a study regarding the effectiveness of the treatment initiatives offered in Germany.

The study of provision is now available and it is essential that the results are made available to a wide specialist audience. The data make it possible to create transparency and to compare the initiatives as well as permitting substantiated descriptions of initiatives, cost-benefit considerations and providing choices.

The evaluation is based on data gathered from just under 500 institutions that work with children and young people who are overweight in Germany. The majority of the initiatives are outpatient-based; inpatient and day care-based initiatives are offered much more rarely. The results show a wide range of differences in quality in the case of all types of treatment on offer.

I would like to thank the treatment facilities involved in the study, the experts involved in the working groups responsible for formulating the quality criteria and the research group for their contributions. It is only by disclosing information and professionals discussing basic treatment concepts and their implementation that gaps in provision can be recognised and closed. Given the increasing prevalence of overweight and obese children and young people, we must continue to place a great deal of emphasis and invest a great deal of commitment in this quality assurance strategy.

Cologne, November 2007

Prof. Dr. Elisabeth Pott
Director of the Federal Centre
for Health Education

Contents

Introduction

The growing number of overweight and obese children and young people requires the nationwide provision of treatment initiatives that are tailored to the needs of individuals. A number of models are already offered in the Federal Republic of Germany in the form of inpatient, outpatient and combined day care initiatives. Here a heterogeneous range of initiatives can be seen which includes doctors' surgeries, hospitals, nutritional advisory centres and online advice. The quality of treatment provided and the approaches adopted by these initiatives are not transparent which is what makes providing an overview of the state of provision and the opportunities for comparison so difficult.

However, the children and young people affected, their parents and specialists who indicate the urgent need for treatment during the patient or counselling interview, are relying on one clear focus and that is to be able to choose a treatment that is tailored to their needs from the existing range of treatments. It is, not least, barely possible for the individual treatment providers to position themselves in terms of their quality and to critically evaluate, and if necessary, optimise and develop, their own initiatives and the way in which they implement their initiatives.

This means that little is known about the state of initiatives. Above all, there is no information regarding how dense the overall range of initiatives is, which programmes exist and how prevalent they are and how many people have access to them, what possibilities there are to be provided with different types of treatment (outpatient, inpatient), to what extent fundamental evidence-based quality criteria are complied with in order to create the preconditions that are required for effective provision. A current, quality-oriented appraisal of the state of provision is therefore urgently required. The Federal Centre for Health Education addresses, with the present analysis of provision, this need. The most important objectives include:

1. To determine the scope of the range of provision
2. To assess the quality of the initiatives and examine any differences in the treatment framework (outpatient, day care and inpatient initiatives) and the differences between the most significant contributors (hospitals, nutritional advisory centres and other advisory centres)
3. To establish the strengths and weaknesses of different initiatives and to establish possibilities for optimising provision.

The results that are now available should help to better inform the affected children and young people and their parents, as well as the specialists providing treatment and advice, on how to proceed in addressing the problems they face. Besides improved orientation possibilities, basic principles for creating an active debate on quality should also be established at the same time. The study can therefore also be used above all to provide specific recommendations for optimisation that should be evaluated by practitioners, reflected upon in a critical manner and (in so far as they are met with specialist approval) subsequently implemented.

The assessment of the quality of the initiatives discovered and the examination of the framework of provision were preceded by intensive discussion of the technically permissible assessment criteria. It was necessary here to define the quality aspects that cover all of the dimensions that are technically relevant. These criteria were put together under the moderation of the BZgA and the Federal Ministry of Health (BZgA 2006) and form the basis of this scientific analysis of the initiatives discovered.

The study of provision is therefore to be understood as being one component of a comprehensive quality assurance process. The study of provision enables statements to be made regarding the characteristics of the structure, concept, process and results of the interventions offered in Germany. An examination of the effectiveness of these initiatives is yet to be carried out. In addition, a multicentric observational study has been commissioned, the results of which are expected in 2008.

The study of provision is aimed at disseminators of information at various institutions and in various specialist settings who are responsible for dealing with children and young people affected by overweight and obesity. These range from paediatricians to specialist staff in nutritional advisory centres to treatment teams at inpatient and day care facilities. However, the results of the study of provision should also provide disseminators of information with responsibility for planning and developing interventions and making decisions regarding financial support with technical criteria for assessment.

1 Epidemiology of overweight and obesity

1.1 Defining overweight and obesity

The terms "overweight" and "obesity" and their limitations will be defined in this study in accordance with the WHO conventions and the reporting of the Federal Ministry of Health (Benecke and Vogel 2005). In order to determine overweight and obesity, reference values for the body mass index of children and young people in Germany are recommended (Walter *et al.* 2005), developed and empirically validated by the *Arbeitsgemeinschaft Adipositas im Kindes- und Jugendalter, AGA* [Working Group on Obesity in Childhood and Adolescence] (Kromeyer-Hauschild et al. 2001). A pool of over 34,000 up-to-date individual records of height and weight formed the basis for calculating these values. The specialist group AGA recommends that the limit values for defining overweight and obesity are derived from the 90th and the 97th percentile respectively. This definition is customary at present (Goldapp and Mann 2004) and the following study is also based on this definition. However, as a purely statistical definition, it throws up a few problems:

1. While the limit values have cut-off values, a continuation of overweight and obesity into adulthood that is rarely stepped can been seen in the majority of random samples taken of adults (WHO 2000). The precise fixing of the limit values therefore represents an arbitrary classification.
2. The fact that health problems are connected to average population values means that the need for treatment must be proven independently of these (Goldapp and Mann 2004). International comparative data shows that the increase in the average weight of the population is above all accounted for by the group that is extremely overweight and is therefore not evenly distributed across the entire population. For this reason, it is more meaningful to address diseases that accompany overweight and obesity than to focus on cohort-specific emerging population data (Wabitsch 2004) in order to determine the health risks and in order to define the limit values. However, those who are at the opposite end of the weight distribution scale, i.e. those who weigh the least, disappear from view.

For these reasons, other additional measures are also proposed that have proven clinical, epidemiological and psychosocial relevance (Gill *et al.* 2003; Goldapp and Mann 2004; Walter *et al.* 2005). However, the difficulties mentioned in defining and assessing the health issue of obesity/overweight do not affect, or only indirectly affect, the usefulness of analyses of provision like

those presented here. In the form of a cross-section survey, they aim to assess the scope and quality of the treatment options available. Their results can then be applied to various epidemiological approaches and scenarios which imply various extents of need.

1.2 Prevalence

The results of the German Health Interview and Examination Survey for Children and Adolescents carried out by the Robert Koch institute (Kurth and Schaffrath Rosario 2007) mean that representative figures are available for the first time for all age groups throughout Germany. In the 13–17 age group, 15% of children and young people are overweight. This corresponds to an absolute figure of 1.9 million children and young people who are overweight.

When these figures are compared with reference data gathered between 1985 and 1999, an increase of 50% can be seen. Of the 1.9 million children and young people who are overweight, approx. 800,000 of them are affected by obesity, which, compared with the reference data mentioned, represents double the number of children and young people. As far as the prevalence of overweight and obesity is concerned, there are no differences between girls and boys. If the spread of overweight is considered according to age groups, a sharp increase can be seen at primary school age, which continues to increase very gradually later on. This sharp increase is particularly noticeable in boys of primary school age.

However, even higher figures are reported (Blättner *et al.* 2006; Böhler *et al.* 2003). Based on data collected by the AGA, in 2004, 1 in 5 children and 1 in 3 young people were overweight and 4–8% of all school-aged children were obese (Wabitsch 2004). Reinehr and Wabitsch estimate the number of children and young people affected in Germany to be one million. Only a small proportion of these, 0.7%, were provided with treatment (Reinehr and Wabitsch 2003, p. 758, with reference to Kromeyer-Hauschild *et al.* 2001).

We must look to various random samples and empirical principles for estimating prevalence in order to determine the reasons behind the differences in the estimates (Goldapp and Mann 2004).

The Kiel Obesity Prevention Study (KOPS) reports a two-fold increase in the proportion of children that are obese between the initial examination and the 4-year follow-up examination (Czerwinski-Mast *et al.* 2003; Danielzik 2003). The Cresc-Net project (Kiess *et al.* 2001) reports a continual increase in the prevalence of obesity in children and young people up until 2001. Above all, the 90th and 97th percentiles of the current data from the CrescNet programme are significantly higher, whilst the differences between the lower percentiles are marginal. Comparative surveys of tests carried out on children at school entry age in Bavaria between 1982 and 1997 confirm an increase in the level of obesity from 1.8% to 2.8% and an increase in overweight from 8.5% to 12%, likewise due to a larger number of children and young people found in the higher percentiles (von Kries 2004). For a city and a rural district in Northern Bavaria, the increase in the 5-year comparison from 1995 to 2000 was confirmed to be highly significant (Knerr *et al.* 2005). The ability of the increase to be generalised and the speed of the increase will be discussed further. Some works cite the increase in prevalence as 0.2% per year (Blättner *et al.* 2006). Others cite the average increase in prevalence of overweight in children and young people over the past 25 years as being 10%, taking the prevalence to between 20 and 33% and fluctuating according to age and region, which is equivalent to an annual increase of 0.4 to 0.92% (Müller, Reinehr and Hebebrand 2006).

The estimation of a significant, long-term stable increase in the number of overweight and obese children and young people is generally a view that is shared worldwide considering the findings of other OECD countries (Chittleborough *et al.* 2004; D'Amicis *et al.* 2003; Döring *et al.* 2005, p. 52; Eurodiet 2000; Galuska 2003; Nestle and Jacobson 2000; Petkeviciene and Klumbiene 2003; Sherry *et al.* 2004; Shields 2005; Sturm 2005). The international and intercultural transferability of the findings in individual cases should likewise be critically examined. International studies therefore demonstrate considerable differences between the national point prevalences: Lithuania has the lowest rates, whilst the USA has the highest rates and also demonstrates a significant increase (Lissau *et al.* 2004). In a study carried out in Brazil (n = 1935), age and marital status were the greatest predictors. In contrast, a low level of education was only found to have an effect in the case of men, whilst a negative correlation was found between a low family income and overweight (different to the case in developed nations) in the case of women (Olinto *et al.* 2006, June). Ethnocultural differences in the prevalence of overweight and the lifestyles associated with it (Sturm 2005) could be observed in the USA, for example, in the fourth and sixth years of education, significant, albeit small,

particularities of ethnocultural groups were found in eating habits as far as fruit, vegetables and juice were concerned (Cullen *et al.* 2002).

The fact that it is difficult to establish exact prevalence and growth rates due to variations in initial measurements and reference data, which lead to significant spread, makes it more difficult to make overall estimations (Benecke 2003). Empirically reasoned questions have been asked regarding the claimed sharp increase (which can be proven in other developed nations) in the prevalence of overweight and obesity even in the Federal Republic of Germany (Böhler, Wabitsch and Winkler 2004) as well as regarding the extent of the burden of morbidity and the consequences for mortality (Flegal *et al.* 2005). The different rates in different federal states of the Federal Republic also require further clarification in this context (Böhler *et al.* 2003, p. 13).

1.3 Health and health economic consequences

Significant psychosocial problems and restrictions posed to quality of life that are directly related to overweight and obesity are prevalent among the children affected (Blättner *et al.* 2006; Goldapp and Mann 2004). In addition, a range of long-term, drawn-out and often chronic secondary illnesses are described in relation to obesity: high blood pressure, coronary heart disease, diabetes mellitus type II, lipometabolic disorders, stroke, sleep apnoea, hyperuricamia and gout, gallbladder diseases, various types of cancer, orthopaedic and psychosocial complications such as a two-fold increase in the prevalence of anxiety and depression and an increased rate of mortality (Benecke and Vogel 2005). This was proven for Germany by the Murnau Comorbidity Study 1998–2001 (Wabitsch 2004), among other things.

In the long term, overweight and obesity result in severe, rarely reversible, and sometimes chronic concomitant and secondary diseases (Campbell *et al.* 2002; Summerbell *et al.* 2005). The risk of obesity persisting into adulthood is higher the older the child affected. A study carried out over 20 years involving 485 study participants from Norway documented a product-moment correlation of $r = 0.54$ between obesity at age 15 and age 33 (Kvaavik, Tell and Klepp 2003). A person's BMI between the ages of 30 and 49 is also a good predictor of a person's weight between the ages of 50 and 69 (Peeters *et al.* 2003). Irres-

pective of the persistence of overweight, that is to say even in the case of a return to a normal weight, childhood obesity increases the risk of cardiovascular diseases in adulthood. The additional risks to health continue to be present in cases where body weight returns to normal later on in life (Müller and Danielzik 2005). According to data gathered from 3457 participants that took part in the Framingham Heart Study, the life expectancy of 40 year-old non-smokers was, on average, reduced by 3.1 to 3.3 years due to overweight, whilst the life expectancy of smokers was reduced by 13.3 to 13.7 years due to a combination of overweight and the high risks associated with nicotine (Peeters *et al.* 2003).

The long-term economic consequences are considerable, but difficult to calculate, since they differ, first of all, according to the survey year and the fundamental prevalences, secondly, according to the catalogue of services offered by the national health system, and thirdly, according to the attribution of causes and the incorporation of concomitant and secondary diseases into the model. Overweight contributes, in particular, to the health and economic burdens in the form of diabetes. According to a number of well-respected international studies, changes in lifestyle, made by way of prevention, (exercise and eating habits) and weight, can prevent 43 to 58% of cases of diabetes mellitus type II (Schwarz *et al.* 2005). The overall cost to Germany in 1998 due to diabetes mellitus type II alone was calculated as approximately 16 billion euros a year, based on hospital statistics and 7000 case assessments (Hillenbrand and Standl 2005).

In the mid-1990s, obesity was the seventh most frequently diagnosed condition in GP surgeries in Germany and required over 80,000 care days of inpatient treatment. In 1995, the cost of illness and subsequent costs related to concomitant diseases was estimated at 7.75 to 13.55 billion euros, which was the equivalent of 3.1 to 5.5% of the overall morbidity costs at that time (Benecke and Vogel 2005).

The majority of model calculations are based on data from the 1990s. As the prevalences and level of prominence have increased since then, these calculations must grossly underestimate the true extent of the subsequent health economic costs. In addition, they do not take into account the overall economic deficits (lost working days, early retirement on the grounds of ill health, care provided by relatives, etc.). Another cause behind the spread of national variations in cost estimates can be seen in the international distribution of incidence rates (the earliest and highest being in the USA followed by other

OECD countries). However, despite the wide confidence interval, the model calculations show the considerable and long-term significance of the health problems of overweight and obesity as far as overall provision is concerned.

1.4 Causes and risk factors

Overweight is caused by a multitude of factors and should not be viewed as an isolated problem, but rather should be considered within the context of complex lifestyles (Mann-Luoma *et al.* 2002). Besides biological or genetic causes, changes to exercise and eating habits are, first and foremost, the principal cause of overweight and obesity. An increasing lack of physical activity, which is the result of a passive lifestyle, combined with an increase in the amount of television watched and computer games played, (Crespo *et al.* 2001; Moraes *et al.* 2006) and the increasing availability and prevalence of (fast food) meals that are high in calories and low in nutritional value, is affecting the metabolism of children and young people in such a way as to promote overweight (Goldapp and Mann 2004; Müller and Danielzik 2005).

A growing number of marketing campaigns by the food industry are also contributing to this. According to a study conducted in Australia, an average of six advertisements for food that is high in calories were broadcast during the main period in which children and young people viewed television (Chapman et al. 2006). These basic factors are also listed as major causes for the rise in diseases caused by obesity, particularly diabetes mellitus type II (Liebermeister 2005; Schulze and Hu 2005).

However, these basic conditions alone do not sufficiently explain overweight. The complex factors that lead to overweight are influenced namely by family systems and their sociocultural characteristics, among other things (Benecke and Vogel 2005; Sturm 2005). Certain groups are particularly at risk, with children who eat outside the home from a very young age and whose families rarely eat dinner together appearing to have an above average risk (Veugelers and Fitzgerald 2005). The family atmosphere in which children are raised, the use of material rewards and the integration of foodstuffs, as incentives, into family-based systems for controlling behaviour play a significant role in developing children and young people's awareness of their own physical boun-

daries and homeostasis (Benecke 2003). The risk of obesity is therefore particularly high for the children of overweight parents (Böhm 2001; Danielzik *et al.* 2002; Müller and Danielzik 2005). The data collected from the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) show that overweight and obesity occur more frequently in children whose mothers are also affected by it (Kurth and Schaffrath Rosario 2007). The BMI of the parent is therefore a good predictor of the BMI of the child and for this reason also serves as an indicator of the need for intervention (Wrotniak *et al.* 2004).

With regard to gender-specific prevalences, epidemiological findings from up to the end of the 1990s show a roughly equal distribution between the sexes, particularly at school entry age and in younger cohorts (Czerwinski-Mast *et al.* 2003; G+G 2003; Wabitsch *et al.* 2002). In contrast, in more recent surveys dating back to 2002, the HBSC study identified that, throughout Germany, a significantly higher proportion of boys in the 5th, 7th and 9th years of education (n = 5650) are overweight or obese: 7–10% of boys, but only 5–6% of girls are overweight or obese according to the data collected by the HBSC study (Zubrägel and Settertobulte 2003, p. 165). Girls consume more fruit and vegetables as they are more concerned about their weight and miss breakfast more often. On the other hand, they exercise less regularly (Langness, Richter and Hurrelmann 2005, p. 429).

Comparative surveys carried out on children of school entry age (5 to 6 year olds) in Bavaria, Brandenburg and Kiel also found that boys were more affected by overweight and obesity even at an early age (Knerr *et al.* 2005; Wabitsch *et al.* 2002, Tab. 1, p. 100). In contrast, the MONICA/KORA study which was carried out between 1984 and 1999 in the Augsburg region identified a sharper increase in overweight and obesity in younger women (Döring *et al.* 2005). The preliminary results of the German Health Interview and Examination Survey for Children and Adolescents carried out by the Robert Koch Institute (KiGGS) confirm the fact that a greater number of primary school age boys are affected by overweight and obesity. According to this, the strong increase in obesity and overweight is particularly pronounced in this group at 7.0%. Only 5.7% of girls of the same age are affected. This marked difference becomes less pronounced the older the children become.

Boys and girls differ in the way in which they experience, interpret and manage weight gain, particularly during adolescence (Alsaker and Bütikofer 2005). The fact that the accompanying health problems differ between the

sexes also supports the case for a differentiated consideration according to gender. This means that there may be a correlation between overweight and behavioural problems in girls of school entry age, without this link being present in the case of boys (Datar and Sturm 2004). Physical and weight-related syndromes are associated with various stereotypes and stigma as far as girls and young women are concerned (Münstermann and Steins 2003). Moreover, Myers *et al.* (1998) work on the assumption that certain interventions can vary in their effects according to gender.

1.5 Health inequality

In the developed nations and in Germany, clear social differences can currently be seen as far as overweight and obesity are concerned (Meyer-Nürnberger 2002; Moebus *et al.* 2005; Müller and Danielzik 2005; Sturm 2005; Veugelers and Fitzgerald 2005; Walter *et al.* 2005). The problem of overweight and obesity occurs more frequently in children from families with low social status (Czerwinski-Mast *et al.* 2003). Some international studies report a two-fold increase in incidence rates in families with low incomes (Veugelers and Fitzgerald 2005). 18.5% of 5–7 year olds from these families were identified as being overweight (Langnäse *et al.* 2002). A further 3.5% of children in this age group were identified as being obese (Danielzik *et al.* 2002). *The Health Behaviour in School-age Children study* (HBSC study) also confirms that there is a link between overweight and low social status in Germany (Zubrägel and Settertobulte 2003). Although the random sample of n = 5650 young people aged 11, 13 and 15 is formed as a random representative sample, it only includes the federal states of North Rhine-Westphalia, Hesse, Berlin and Saxony. It is therefore only denoted as having a "typical structure", not as being representative, and is restricted to the 11–15 age group (Langness *et al.* 2005, p. 424). Specialist information provided by the Federal Association of the AOK indicates that the social gradient of the distribution of overweight is affected by other inequalities that exist in health opportunities (G+G 2003). Wabitsch adds to this by saying that overweight and obesity is significantly more widespread in children from families facing difficult circumstances and/or with an immigrant background (Wabitsch 2004). The results of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) confirm these data. The survey identified children from families

with low social status and children with an immigrant background as having a higher risk of being affected by overweight and obesity (Kurth and Schaffrath Rosario 2007). This suggests that target-group specific aspects should be incorporated into interventions, as this can have a significant impact on the effectiveness of programmes.

2. Strategies and tools for ensuring the quality of preventative measures and treatment

2.1 Unexplained effectiveness of prevention programmes

The number of children affected by overweight and obesity is constantly and rapidly increasing. This means that it is necessary to develop and implement high-quality measures for the prevention and treatment of overweight and obesity. However, little is yet known about the spread, quality and success indicators of the various types of provision for children and young people affected by obesity and overweight. Up until 2002, there was no conclusive evidence for the effectiveness of targeted prevention programmes aimed at children and young people (Campbell *et al.* 2002). Although the effectiveness of well-designed interventions can be considered to have been proven, as evidenced by sample studies, (e.g. Czerwinski-Mast *et al.* 2003; Tiedjen *et al.* 2000), the effects, which are generally weak and short-term, depend on high-quality design and the reliability of the programme during the implementation phase. Of the long-term studies that were available worldwide up until 2005, five of them showed that the programmes had no effect upon BMI, one of them showed that the programmes had an effect, but only in girls (Summerbell *et al.* 2005).

There is therefore insufficient evidence or only patchy evidence to support the assumption that the degree of effectiveness of different approaches to prevention and treatment varies. In particular, there are too few long-term observational studies available in order to assume that the prevention programmes are generally effective (Goldapp and Mann 2004: Summerbell *et al.* 2005: Walter *et al.* 2005).

A large number of studies on indicated prevention (for groups at risk), secondary and tertiary prevention (treatment aimed at children and young children who are already overweight) have little internal or external validity and are of a low methodical quality (Böhler *et al.* 2003; Hutzler 2004; McTigue *et al.* 2003). The effective parameters are generally restricted to BMI, whilst changes in quality of life, self-esteem or eating habits are neglected in evaluations and meta-analyses (Benecke 2003). The effect sizes are often low and success unstable or only able to be stabilised with considerable additional interventions. Sometimes, success is only achieved in some of the target groups, in particular in girls and children from families of a higher social class (Blättner *et al.* 2006; McTigue *et al.* 2003; Müller *et al.* 2006; Thomas *et al.* 2004). It is methodically difficult to compare different approaches due to their different structural characteristics and the fluctuation in the reliability of programmes

(Benecke 2003; Thomas *et al.* 2004). Therefore, frameworks of provision for inpatient care have lower drop-out rates. Intention-to-treat analyses[1] therefore assume different preconditions.

There is still insufficient information regarding the extent of undesired side effects of various programmes. This means that different treatment approaches can work in a group-specific manner and therefore be contraindicated for certain target groups. The majority of these side effects are connected to the intervening variables of self-image, personal expectations of effectiveness and self portrayal as aspects of the formation of identity (Leary *et al.* 1994). Unintended side effects can therefore occur through the neglect or lack of awareness of such variables. Therefore, the participation of children from families with low socio-economic status, in some, otherwise effective, prevention initiatives may even lead to an increase in overweight (Müller and Danielzik 2005). Furthermore, it can be seen that interventions may work on a gender-specific basis (Summerbell *et al.* 2005), for example, one highly effective programme (20% reduction in BMI in annual follow-up history) had a significantly greater impact on body image and overall perception of personal competence in girls (Myers *et al.* 1998).

2.2 Gaps in knowledge of the state of provision

"In the case of the majority of treatment initiatives, there is no evidence to suggest that they have a long-term impact. There are also no national treatment initiatives." (Müller *et al.* 2006). For these reasons, over the past few years, quality criteria for relevant provision have been established by means of meta-analyses and consensus processes (Böhler *et al.* 2003, 2004; Böhler, Wabitsch and Winkler 2004). These quality criteria are differentiated according to the extent of overweight and have been collated in the BZgA specialist booklet (2006). By working upon the basis of a clear core of relevant criteria, it is now possible to narrow down the number of relevant interventions and begin to analyse the provision of heterogeneous initiatives.

1 The term is used in connection with randomised controlled trials. The results of the trial are calculated in such a way as to correspond to the "original intention to treat". This approach corresponds most closely to the circumstances in reality. The intention-to-treat analysis guarantees the comparability of the groups achieved by the randomisation.

To date, only a small number of surveys of the state of provision are available and these are subject to methodological restrictions. However, simply because they flag up questions that remain to be answered, these surveys provide a good basis upon which we can now build:

1. The Federal Ministry of Food, Agriculture and Consumer Protection has compiled a list of initiatives. It contains around 50 initiatives of varying size and focus distributed across the whole of Germany. The selection criteria have not been disclosed, which means that semi-commercial initiatives have also been included (www.besseressenmehrbewegen.de).
2. Another study evaluates available programmes from the point of view of providing for socially disadvantaged sections of the population (Moebus *et al.* 2005). It can only be compared to a limited extent with the present analysis of provision: The surveys for this study clearly took place before the results of the MDK meta-analysis were available (Böhler *et al.* 2003). The survey is not as comprehensive as the survey presented here and comprises 73 initiatives, which cannot, however, be understood to be "real programmes" without more in-depth examination (Moebus *et al.* 2005).
3. One structured survey of relevant treatment initiatives, which was jointly carried out by the *Arbeitsgemeinschaft Adipositas im Kindes- und Jugendalter* [Working Group on Obesity in Childhood and Adolescence], was presented in 2003 (Reinehr and Wabitsch 2003). It provides initial findings for evaluating the field development in 2002 to 2005, as it provides average values for patient numbers and treatment places, differentiated according to whether the initiatives are outpatient or inpatient-based, which can be compared with the values determined here. With around 200 initiatives covered by the data set, the results include over 40% of the measures forming part of the present analysis.

One result of these studies, which is found consistently and is affected by the methodical difficulties, shows that setting programmes and target group-specific interventions, which are aimed at socially disadvantaged groups and take account of the social aspects associated with obesity, are few and far between in Germany. This goes against strong evidence to support the effectiveness of setting-based approaches for socially deprived groups, in particular via the school setting (Austin *et al.* 2005; Coleman *et al.* 2005). Combined approaches involving both behaviour-oriented prevention and socially-oriented prevention are also underdeveloped at present (Blättner *et al.* 2006). Overall, it can therefore be said that there is little knowledge available of this field of provision.

3. Scientific approach to the two-stage study of provision

3.1 Two-stage approach

The study of provision is based on a two-stage approach. Whilst the first stage of the analysis is initially about obtaining as comprehensive and complete an overall picture as possible of the general state of provision in Germany, the second stage focuses on carrying out an in-depth quality analysis of the initiatives. Here, the focus is on being able to come up with differentiated and assured statements about programmes and types of work.

The first step (stage A) involved researching all of the providers throughout Germany that form part of the 15 most important branches of provision and carrying out a survey with the aid of a brief two-page questionnaire. The questionnaires returned by 1096 facilities (initial survey) revealed 417 initiatives, which, once follow-up surveys had been conducted, rose to a total of 492 initiatives by the start of 2005. This is the broadest and most differentiated data set regarding this area of provision available to date in Germany. The initial survey was validated by follow-up surveys and examinations of the drop-out and fluctuation rates. These were then taken as a basis for carrying out a Germany-wide extrapolation (this will be discussed further in section 3.2).

The second step (stage B) involved carrying out an in-depth quality analysis of the 38 representative initiatives in order to validate the findings regarding the strengths and need to improve the types of work and programmes. The information system for prevention and health promotion (QIP), developed jointly by the BZgA and the University Medical Centre Hamburg-Eppendorf, was also implemented within this context. 19 experts from leading professional associations who carried out expert assessments were also drafted in for this purpose.

The criteria requested during both stages are based on the evidence available, that is to say, they are based on meta-analyses and guidelines relating to the design of effective and successful programmes. As mentioned in section 2, the following were incorporated, in particular the studies carried out by the Medical Service of the Head Organisations of the Health Insurance Funds (MDS), the treatment guidelines issued by the Working Group on Obesity in Childhood and Adolescence (AGA), the Federal Ministry of Health (BMG) consensus paper and the quality grid compiled by the Federal Centre for Health Education (BZgA) in 2005.

The BZgA group of experts was involved in and discussed all stages of the study, and the selection of criteria for the tools was also validated several times by experts. The study used this broad database and the two-stage approach to clarify the initial situation for future evaluations of preventative programmes and as evidence to support their effectiveness. Since we are dealing with a survey, it does not yet include the outcome measurements. With reference to

Stage	Step	Time	Partial random sample	Evaluation result
Stage A	**Research** in specialist indexes and data sets	January 2004	4657 providers	Number of relevant initiatives recorded
	Exploration of the 15 most important branches of provision	February to March 2004	2374 providers	Determination of random samples in the relevant branches of provision
	Initial survey for stage A accompanied by follow-up questionnaires and monitoring of drop-out rates	March to July 2004	417 initiatives	Extrapolation of overall provision → 708 initiatives and typification
	Follow-up survey in order to complete stage A	October 2004 to January 2005	A further 56 initiatives resulting from the poll conducted via specialist journals, 19 initiatives resulting from the comparison with the data set for the evaluation of the results	Description of the state of provision and quality, data gathered from 492 initiatives
	Continuity survey for stage A	February/ March 2005	88 facilities from the initial survey (random sample taken: 93)	Estimation of rate of fluctuation (examination of the continuity of initiatives)
Stage B	**In-depth quality analyses**	January to April 2005	38 initiatives from 34 facilities (from all of the 492 facilities)	Structured quality profiles backed up by experts in order to provide a representative spectrum of the types of initiative from stage A

Tab. 1: Steps involved in the survey

the results, the 2005 BZgA Steering Committee designed and launched the ongoing observational study mentioned.

Table 1 on page 27 provides an overview of all of the steps involved in both stages of the investigation.

3.2 Approach to conducting the survey (stage A)

The aim of the first stage (stage A) is to obtain a picture of the state of provision throughout Germany, the initiatives available, their working framework, the types of facility and central quality characteristics. Based on this, a typification exercise is carried out which corresponds to the actual state of provision. How the database came about, how the questionnaire was developed, which facilities were surveyed, how the representative checks were carried out, what the return looked like and the bases upon which the evaluation and typification/cluster formation were carried out are depicted below.

Of the 4657 relevant initiatives mentioned in various specialist indexes and data sets researched, 2374 initiatives were included in the random sample (51%). Once this number had been adjusted to take account of incorrect addresses, this gave a net return of around 44% of this random sample. Of those that "failed to respond", 29% were systematically contacted, which gave an average margin of error (discontinuation of real initiatives) of 25% once the initial survey had been carried out. From the initial survey and its margin of error, the "true level of provision" provided by the various branches of provision and the number of people having access to this provision each year can be estimated, in conjunction with the average number of participants according to the main data set. The 417 questionnaires included in the final evaluation account for approximately 59% of the actual initiatives across Germany. The success of the survey varied for the different branches. It is particularly high for large-scale facilities that operate on a continuous basis, such as health authorities and hospitals, whilst there is a high proportion of "incorrect" values in the case of the various advisory centres due to the level of fluctuation. The return of around 30% is above that of the survey conducted by Reinehr and Wabitsch (2003), which received a return of around 20%. The return can therefore be considered to be fairly good, particularly since the sig-

nificance of the data is ensured by means of a systematic representativity check. This makes it possible to guarantee a high degree of reliability, at least as far as the overall provision is concerned.

As part of the random sampling exercise carried out in stage B (see section 3.3), a fluctuation check took place just under a year after the start of stage B. 95 projects were selected at random from the eight types of provision generated upon the basis of a quota system and contacted by telephone. One week was allowed in order to ensure the accuracy of the survey. During this time, it was possible to contact 88 facilities (93%). It was checked whether or not the initiative entered in the survey still existed at the facilities.

In order to complete the data set of the initial survey, two follow-up surveys were conducted. At the end of 2004, an invitation appeared in specialist journals calling for facilities to take part in the survey, in order to provide fundamental data required for a scheduled observational study to be carried out by the BZgA. A further 56 initiatives responded to this advertisement. At the beginning of 2005, the data sets available were compared with the centres that had expressed their willingness to take part in this study to the head of the observational study. Initiatives for which no information had yet been received were contacted and asked to return the brief questionnaire. In response to this letter, 19 initiatives returned questionnaires that could be evaluated, a further seven initiatives were already incorporated in the data set under another name or another contact person and three were deleted.

492 initiatives formed the basis of the analysis of the state of provision (stage A), including the returns received from the follow-up questionnaires and the late registrations up until February 2005. Projects that focus exclusively on prevention and do not provide any explicit treatment for obesity and overweight, diseases associated with obesity and overweight or do not provide any explicit support to the parents of children affected have already been excluded from this group. The characteristics of the random sample emerge from the descriptive evaluation.

3.2.1 Development of the questionnaire and design criteria

In order to do justice to the number of and variation between initiatives, the initial screening of the questionnaire (see section 7.1) was validated in collaboration with experts from the BZgA and the group of experts involved in the project (see section 7.2).

As mentioned previously, the questionnaire builds on the structure of the QIP. It comprises two sides, each containing 150 items, which were validated by the abovementioned BZgA expert group according to technical aspects, but also manageability. It includes:

- Basic conditions of the initiative (type of facility, number of participants, duration and costs of the initiative, annual utilisation of the initiative),
- Characteristics of the quality of treatment as revealed by manageable quality criteria upon which a consensus can be reached, contained in the treatment guidelines of leading professional associations and the medical service of health insurance funds (e.g. handbook, parental involvement, combined approach consisting of modules that focus upon changing exercise, eating and behavioural habits).

The questionnaire makes it possible to address the entire field, including all relevant types of facility and occupational groups. It consists of 21 main categories of varying scope containing individual items, which are generally based on a nominal scale. Questions were asked primarily relating to criteria concerning the structural quality and quality of design, the quality of diagnosis and the quality of processes. In addition, questions were asked regarding the quantitative characteristics of provision, particularly dose, costs, drop-out rates, number of measures per year and number of participants (see section 7.1).

The criteria used in the survey were compared with more recent reports on the treatment and prevention of obesity in children and young people, which were published during the course of the project. No discrepancies could be identified, that is to say that none of the requested criteria were refuted as being invalid in more recent publications backed up by empirical evidence, rather the literature thoroughly confirms that a target group-oriented, structured, multimodal, and therefore also interdisciplinary, intervention concept is the basis for an effective approach (Östman *et al.* 2004). However, the relevant studies and reports also show that an approach that is purely focussed on behavioural prevention and focussed on treatment reaches fewer people than an approach which combines behavioural and socially-oriented prevention, for example by designing transport routes and initiatives that focus on the promotion of healthy eating habits within the community, through the incorporation of setting projects and community campaigns (Connolly 2005).

In addition to the questionnaire, providers received a motivational letter from the BZgA that made reference to the necessity of the study and to the relevance

for the provider of collaborating on the study. Furthermore, the appendix to the letter contained a brief summary of the BZgA's plans for the project as a whole, as well as information regarding how this study fits in with the quality assurance process and an introduction to the members involved in the working group. Facilities therefore received information about the BZgA's quality assurance process and its cooperation partners at the same time and were actively involved in the survey process.

3.2.2 Research and exploration of relevant providers and initiatives

The approach for developing the field and forming random samples involves a two-stage selection process for selecting random samples as part of the market and opinion research process, in particular the selection of what are known as clumped random samples defined by characteristics, followed by selection at random (Löffler 1999). In principle, all services can, in institutional terms, initially be described in terms of (at least) three dimensions:

1. Type of facility providing the service (for example, doctor's surgery, hospital, health authority).
2. Sponsors (health insurance funds).
3. Membership of a programme introduced or a centrally organised branch of study (for example, following a quality assurance exercise as part of a certification process in collaboration with a professional association).

It is therefore possible to research and understand a service in terms of each of these three dimensions. Which of the dimensions is well-suited depends on the level of organisation of the field and on the knowledge of the people involved. For example, health insurance funds do not keep a central register for prevention, but rather annual reporting is simply based on the documentation regarding various plans that has been accumulated. This does not enable individual initiatives to be traced back. Data gathered on the basis of membership of a programme also did not enter the equation as far as the survey was concerned because it was not certain whether all of the relevant initiatives actually belonged to the particular programmes.

The survey is therefore based on systematically researching facilities providing services from all available sources. Initiatives run by health insurance funds were not included in the analysis if it could not be established for certain by interpreting the questionnaire or follow-up survey that they involved

projects run by members of the health insurance fund that had not yet been contacted as part of the survey. This was done so as to avoid initiatives being named twice by providers and the facility providing the service. In future further developments of the analysis of provision in the field, it will now be much more possible to systematically link data from the different dimensions described (facility, sponsors, programme membership) to one another, given the increasing level of transparency regarding the state of provision.

"Active advertisers" formed the basis of the data sets, that is to say those facilities that actively advertised their initiatives in specialist indexes or on websites or that were known from publications (Reinehr *et al.* 2002; Venhaus and Wickenkamp 2002). Several hundreds of websites and indexes of relevant professional and specialist associations, authorities and specialist databases were looked at. The approach was based on two assumptions:

1. Even smaller providers must have a web presence or be featured in specialist indexes in order to maintain their professionalism and ensure that their measures are visible to customers and collaborators, for example doctors or health insurance funds. This is why corresponding indexes are highly likely to be relevant in terms of their content and to be reasonably comprehensive.
2. In the event that initiatives and quality criteria are seen to be lacking among the "active advertisers", it is highly likely that such shortcomings are much greater in less active facilities that do not go to the trouble of advertising themselves widely in specialist and general circles. Accordingly, the survey provides a realistic picture of the scope and quality of provision.

The results of the review showed eight branches of provision that play a considerable role in the treatment of overweight and obese children and young people:

- Hospitals
- Paediatric practices
- GP's surgeries
- Nutritional advisory centres and
- Other non-specific advisory centres (for example, addiction advisory centres)
- Psychotherapy practices
- Health authorities and
- Social-paediatrics centres.

Following the internet-based research of the most important providers involved in the treatment of overweight and obese children and young people, the actual number of initiatives in the individual branches was determined by making

telephone contact with the providers at random. Against this background, it was decided which branches would be surveyed in full due to the large number of initiatives offered by them and from which branches just random samples should be taken from the full range of initiatives offered, due to the small number of initiatives offered by them. Some branches were excluded from the survey due to the marginal number of initiatives they offered (for example, schools, nursery schools, adult education centres and sports clubs).

A full survey was carried out for the following branches:
- Children's hospitals specialising in eating disorders
- Advisory centres – providing both nutritional advice and advice on other nutrition-related matters (family advisory centres) and
- Nutritional scientists and dieticians

Random samples were taken for the following areas due to the small number of initiatives or due to their lack of uniformity
- Health authorities
- Paediatricians
- Child and adolescent psychotherapists
- Psychiatric facilities for children and adolescents and
- Children's hospitals not specialising in eating disorders

3.2.3 Representativity check and extrapolation

In order to ensure the representativity of the return, a random sample of approximately 20% of the net initiatives that dropped out (total number of initiatives that dropped out adjusted in order to take account of incorrect addresses) was taken for each branch of provision by way of a follow-up survey following the initial survey. These selected follow-up surveys were used to check the following:
1. To what extent it is actually the case that potential providers that failed to respond to the letter and questionnaire do not offer any initiatives aimed at the relevant target group,
2. In the event that the provider does in fact offer initiatives that are aimed at the relevant target group, what the reasons are for the provider choosing not to take part in the survey.

At the same time, a follow-up survey was carried out by way of a questionnaire for the initiatives that were newly identified by this process. In the majority of

branches of provision, facilities that did not respond did not actually offer any initiatives. The facilities that did not respond to the initial survey, but sent details of an initiative in response to the follow-up survey, were expressed as a percentage of the scope of the random sample (follow-up survey) and were used as the error of margin for the extrapolation.

It was necessary to carry out a further subsequent check by telephone after the final evaluation, as the BZgA's accompanying group of experts had excluded primary prevention initiatives, since the intention was to only include secondary and tertiary prevention initiatives in the survey. Thereupon, non-specific or primary prevention initiatives were excluded from the evaluation (approx. 40 questionnaires or 9% of the scope of the data collected from the initial survey).

The results of the subsequent check carried out by telephone made it possible to extrapolate the existing initiatives in Germany. Against this background, it was possible to determine representative data for the state of provision in the whole of Germany. Besides the question of how many of the providers actually treat affected children, using the evaluation, it was also possible to calculate the average number of participants from the facilities that took part in the survey and the annual mean of the number of children in Germany who are able to access treatment.

The extrapolation process was designed conservatively in order to limit the sources of error:

- The extrapolation is based on the formation of random samples and subsequent checks (surveys of providers that failed to respond to the initial survey) carried out in connection with the initial survey. It was concluded at the end of July 2004. The number of social-paediatric centres and health authorities was updated for this purpose because they were surveyed up until this point, due to the relatively late start of the survey and the internal particularities of authorities as far as the forwarding of the questionnaires was concerned.
- The additional return of questionnaires from the other branches served merely to enhance the data available, that is to say, the number of initiatives documented from the random sample carried out as part of the initial survey increased, whilst there was a corresponding slight reduction in the margin of error.
- All primary prevention initiatives were removed from the initiatives that formed part of the initial survey. This served mainly to reduce the number

of outpatient initiatives (in particular those offered by doctors' surgeries and psychotherapists' practices). There was therefore approximately a 10% reduction in the number of "true" initiatives evaluated compared with the scope previously discussed by the working group involved in the project.

3.2.4 Quality assessors for the purposes of evaluating the measures

Clear and reliable criteria are necessary in order to be able to evaluate the quality of an initiative impartially, as emphasised several times in the study of provision (see figure 1). Poorly selected criteria may favour certain initiatives and therefore show other initiatives to be comparatively worse than they actually are. Since the use of fewer individual criteria poses the risk of distorting the results, several criteria should be used. The main criteria should also cover all of the important areas of provision, if possible. That is to say: structural quality, quality of design and quality of process, in addition to quality of results, if possible (or at least the way in which they are recorded indirectly by the facilities). Three indicators (also referred to as quality assessors below) were established based on these requirements and were referred to in the questionnaires submitted during the examination of the initiatives:

1. **Simple indicator – quality assessor I:** In the first step, a quality assessor was determined for this purpose from 14 evidence- and guideline-based main criteria. This quality assessor covers the most important aspects of treatment, including structural features (interdisciplinary team), definition of aims, diagnostic tests before and after treatment, the treatment process (multimodal approach, parental involvement) and aftercare (see figure 1). The missing questionnaire values were initially defined as "not possible to answer question" and the questionnaires were then not taken into account in the evaluation. The summarising indicator which results from this interpretation of the missing values is labelled as quality assessor I. It was used in order to evaluate the random sample from the initial survey of 417 facilities (for example, for the regression analysis of the quality against the costs specified).
2. **Conservative indicator – quality assessor II:** The use of quality assessor I resulted in a large number of questionnaires being discounted. For this reason, quality assessor II was used in order to carry out a further evaluation. It is calculated conservatively: missing information was simply understood to represent non-compliance with the quality criteria. This is fit for purpose, as a provider must be able to describe simple, objective characteristics of

Main criterion with number of sub-criteria (in brackets)	Jointly required sub-criteria in order to fulfil the main criterion
Work according to manual (1)	
Age limits defined for treatment (1)	
Exclusion criteria are defined for a treatment (1)	
Drop-out rate is determined (1)	
Intervention aims based on guidelines (4)	• Maintain weight • or (alternatively) lose weight • Modify exercise habits • Modify eating habits
Parents involved in the intervention (2)	• Parents defined as target group • Parents included (modules with parents)
Survey of motivation to change (1)	
Exclusion of somatic diseases (1)	
Diagnostic test for mental health problems (1)	
Initial diagnostic test based on guidelines (4)	• Diagnostic test for BMI • Eating habits • Physical activity • Psychosocial problems
Interdisciplinary team (6)	• Doctor • Psychotherapist • Exercise therapist • Nutritional specialists, i. e. alternatively: – nutritional scientist – or dietician – or nutritionist
Multimodal therapy approach (8)	• Module(s) on exercise/sport • Module(s) on nutrition • Module(s) on modifying behaviour or individual or group therapy • Module(s) on health-related information or psychoeducation
Diagnostic test after treatment (4)	• BMI • Eating habits • Exercise/physical activity • Psychosocial status/problems
Aftercare (1)	
Additionally, in the case of quality assessor III: Laboratory diagnostic test (1)	

Figure 1: Structure of quality assessors I, II and III

the programme that it uses (for example, type and scope of the diagnostic tests used, profile of the drop-out rate, availability of a handbook, determination of the age limits of its own target group, etc.). Since missing values could be recoded to zero ("criteria not fulfilled"), the size of the random sample also increased. At the same time, the average number of criteria fulfilled decreased by an average of 10% (this was previously the number of questions that were left unanswered). Quality assessor II was used for the evaluations of the overall random sample of 492 facilities and for the cluster analysis. It therefore forms the basis of the descriptions of the state of provision.

3. **Extended conservative indicator – quality assessor III:** Following discussions by the BZgA's group of experts involved in the project, a further guideline-based criterion was incorporated: the performance of a laboratory diagnostic test. It is particularly important for diagnosing the treatment of concomitant diseases that is funded in accordance with Section 43 SGB V [*German Social Code*] and helps to determine the characteristics of these diseases (for example, the early forms of diabetes mellitus type II) in a manner focussed on secondary and tertiary prevention. The third extended indicator was labelled as quality assessor III. Whilst quality assessors I and II comprise 14 guideline-based quality criteria, 15 main criteria are taken into consideration here. The reliability and distribution characteristics of the three indicators were checked several times against the data set.

3.2.5 Cost assessors for the purposes of evaluating the measures

The information relating to the costs of the treatment was based on three different predefined categories:
1. Costs per hour
2. Costs per month and
3. Costs per year.

Both the providers of a treatment and those receiving the treatment were surveyed according to these three categories. In order to enable useful comparisons to be made between the types of facility and in order to make statements regarding the costs, based on a broader survey basis, it was, however, necessary to perform a standardisation exercise. The point of calculating a cost assessor was to collate the various information relating to the costs per hour of treatment. It must be remembered that a great deal of individual items of

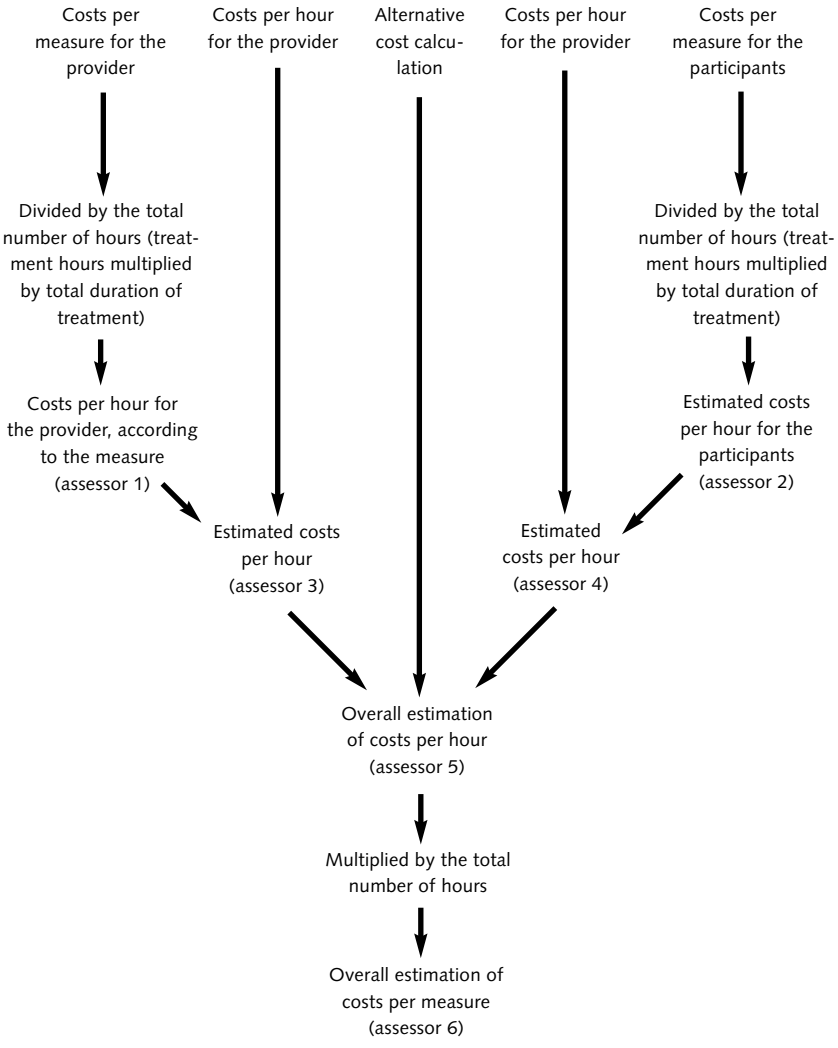

Figure 2: Calculation of the cost assessor

information may get lost during a standardisation process of this kind, which represents a potential source of error. It is therefore necessary to understand the standardised calculation with the cost assessor simply as a way of being able to perform an analysis of the field, and therefore at the same time, to have an idea of any potential interactions. Figure 2 shows the steps involved in calculating the costs of the measure.

3.2.6 Definition of quality profiles/types of initiatives

Complex analyses of provision in fields containing multiple and unstructured treatment programmes often produce individual findings that are very difficult to interpret, provide no clear overall picture and do not enable comparisons to be made.
If one only takes the most important descriptive characteristics of institutions into account (frameworks of provision, type of facility), this generally produces ambiguous and overlapping profiles. The various quality criteria are sometimes fulfilled by one group of providers and sometimes by another. The distances between them and the sequence in which they appear vary in each case. The marked variation within groups makes it difficult to isolate clear quality profiles for the initiatives offered there. This makes it difficult to manage provision because conclusions can only be drawn with great difficulty, particularly if there is a large spread within the individual characteristics. For this reason, a multivariate summary of the types of initiative together with a typification process and/or the development of meaningful quality profiles is necessary. The particular advantage of this test is therefore the fact that it allows a clear distinction to be made between initiatives based on quality profiles rather than purely focussing on formal criteria such as frameworks of provision or cost levels (which can lead, moreover, to incorrect conclusions being drawn).

Only the main quality characteristics of the provision initiatives were used as individual factors for carrying out the typification exercise in each case (see Table 2 on page 40).

The typification exercise was based exclusively on these clearly documented quality characteristics. At the same time, particular attention was paid, when developing meaningful qualification profiles, to finding a stable solution, which, on the one hand, withstands a wide range of validity checks, and on the other hand, also ensures an increased level of transparency and clarity. The following were therefore considered and checked during the typification and establishment of quality profiles:

- The collation of different types of facility and frameworks of provision within one individual type works well with eight types or more. However, there has proven to be too little differentiation when validity checks are undertaken in the case of six or seven types.
- For reasons of clarity, no type should comprise fewer than 5% of the initiatives tested (that is to say, approximately 20 initiatives in the initial survey.)

- The allocation of items (division into clusters) to eight types was compared with other solutions and showed the lowest loss of information.
- The conclusiveness of the classification into eight quality profiles/types was successfully checked for selected variables based on their ability to be differentiated.

Quality dimension	Quality criterion	Items included
Quality of design	1. Compilation of a manual (written concept)	1
	2. Existence of criteria for exclusion from taking part in the programme	1
	3. Four main aims in accordance with guidelines (improving exercise and eating habits, losing weight and stabilising weight	7
Selection of target groups	4. Limited age group	1
	5. Parents included as a target group	1
Quality of diagnosis	6. Tests carried out by a doctor to exclude the possibility of somatic disease	1
	7. Diagnostic test to exclude psychiatric illnesses	1
	8. Determination of initial motivation to change (discussion or test)	5
	9. Diagnostic test before and after treatment (BMI, eating habits, exercise, problems, laboratory diagnostic test)	17
Quality of process	10. Multimodal approach, i.e. modules for the four main items of content in accordance with guidelines: exercise, nutrition, health-related information, modification of behaviour (psychotherapy, one-to-one advice or psychosocial measures)	8
	11. Initiative aimed at parents offered for at least one area of intervention	7
	12. Recording of drop-out rates	1
Structural quality	13. Multidisciplinary team (medical specialists, exercise specialists, psychologists, nutritional specialists)	10
	14. Aftercare treatments are available	3
	Total number of items to be taken into account in the typification exercise:	**64**

Tab. 2: Quality criteria for the formation of clusters

The established qualification profiles, which can be broken down into eight types of initiative, made it possible for the first time to carry out differentiated quality assessments that enable well-founded conclusions to be drawn. The results of the study of provision (see section 4) clearly show that focussing purely on formal criteria, such as cost or type of facility, can be misleading, and that in order to develop high-quality initiatives, concrete and comprehensible quality characteristics are required as a matter of urgency (see in relation to this, section 4.1.7, Table 8).

3.3 Stages involved in the in-depth quality analysis (stage B)

The aim of the in-depth quality analysis in stage B is to validate the results of the Germany-wide survey carried out in stage A by performing in-depth quality analyses of representative individual initiatives and to develop optimisation approaches. At the same time, this provides the possibility of using the "QIP" system, jointly developed by the BZgA and the University Medical Centre Hamburg-Eppendorf, and to gather additional experience in the field. It is therefore possible to determine the advantages of using this tool to perform evidence-based quality assurance in the areas of prevention and health promotion. As the tool will also be used to perform quality assurance in the future, information will be provided on the new survey tool below.

3.3.1 QIP – Quality assurance in prevention and health promotion

As mentioned at the outset, up until now, there has been a lack of suitable methods for performing quality assurance in the areas of prevention and health promotion. The tools and methods that are currently available for assessing quality are characterised by their extreme diversity. Approaches to performing quality assurance at various levels have rarely been linked, up until now, to the formulation of comprehensive, uniform quality criteria. It is for this reason that it was necessary to develop a method which

- Surveys central aspects of preventative work in a systematic and differentiated manner,
- Summarises the data relating to comparable characteristics and descriptions of the activities and

- Can feed back the findings in a practical manner to providers and sponsors with a view to continually improving the quality of all levels of prevention and health promotion.

In order to close this gap, the BZgA and the Medical Sociology Department at the University Medical Centre Hamburg-Eppendorf have been developing the information system for quality assurance in prevention and health promotion since 1999. This system aims to continually improve prevention by providing feedback on recognised strengths and weaknesses. For this purpose, it incorporates tried-and-tested methodical approaches from various fields of provision, including from the pension scheme's quality assurance programme for medical rehabilitation. The quality assurance system comprises three stages: survey, evaluation and feedback, all of which are involved in the current study of provision.

The content of this quality assurance system focuses on the aspects of structural quality, quality of process and quality of results, which are interrelated. The interplay of these superordinate criteria is the only way of ensuring the effectiveness of prevention and health promotion. Based on this assumption, the following aims can be derived for practice, which can be better observed with the aid of this tool:

- **Evidence-based practice**
  Only the most effective interventions are selected, which build on current specialist knowledge.
- **Focus upon need**
  The activities are based upon priority indications, programmes and target groups in the areas of healthcare policy and epidemiology.
- **Adaptation to context**
  The preparation and procuration of initiatives and interventions tailored to the particular conditions and requirements of the target groups and settings.

These aims must also be closely linked to quality assurance in prevention and health promotion and be closely related to one another as far as the various areas of work are concerned.

The assessment, which was backed up by experts and used in the study of provision, has proven to be useful for many purposes in psychosocial provision, since it provides a framework for a controlled, evidence-based approach, which, at the same time, combines multidimensional data. It incorporates the variables and aims that influence one another into overall judgements. In this

way, it is possible to go into detail on the specific individual case and develop practical, constructive proposals for the further development of specific projects.

As far as the current study of provision is concerned, this tool provided a tried-and-tested, evidence-based survey process for evaluating 28 aspects of preventative work (Kliche *et al.* 2004). The guideline-based quality criteria were incorporated into this overall framework. The guideline-based quality criteria consist of 70 individual criteria which reproduce the particularities of obesity provision as well as secondary and tertiary prevention and can also be used in the future for survey purposes. The assessment tool is therefore divided into seven main aspects of a preventative nature comprising a total of 21 sub-aspects which are operationalised by additional, indication-specific (obesity-related) sub-criteria (see section 7.3).

In order to use this assessment tool, a number of steps had to be taken:

1. Definition of a representative random sample of the range of initiatives offered. In relation to this, suitable programmes for describing various types of initiative should be defined according to the data available.
2. Recruitment of projects and evaluators who are prepared to enter into co-operative programmes.
3. Survey conducted by means of project documentation and evaluation. Since the in-depth analysis focussed on involvement in selected programmes, it was necessary to obtain as broad a random sample for this as possible.
4. Quality analysis. The selected initiatives were analysed with the aid of the evidence-based assessment "QIP" (see above).
5. Feedback. The quality profiles of the various initiatives derived from the analysis were fed back to the facilities.
6. Evaluation. The results of the survey produced with the aid of QIP cover indicators comprising 28 aspects of the quality of provision of preventative work. It was possible to relate these indicators to the findings of the nation-wide survey (stage A) (see section 4).

3.3.2 Selection and recruitment of initiatives

The in-depth quality description should reflect the entire spectrum of quality of provision that is actually available, that is to say, in different frameworks of initiatives and types of facility. In order to achieve this, an apportioned random sample was taken. The comprehensive cluster analyses of the Germany-

wide survey were used as the basis for apportionment. Eight initiatives were taken from each group and an attempt was then made to recruit the providers to stage B. In the event that a provider declined, another single initiative was selected.

In order to check the representativity of the sample, any differences in the frequency values and average values between the selected projects and the data set as a whole were calculated. No significant differences were found for a large number of individual characteristics (distributed according to federal state, type of facility, framework of provision, integration into a treatment programme, setting initiatives for particular target groups, types of initiative and similar). The formation of a random sample for stage B can therefore be deemed to be representative as far as the initiatives included in stage A are concerned.

The project providers were contacted by telephone and asked to take part. The contact partners were then advised of the tight schedule of three weeks that was necessary for reasons of accuracy. Following this, less motivated projects immediately decided not to take part. Four projects wished to look through the survey tool first of all and then also decided not to take part. In order to balance out data shortfalls and in order to carry out the fluctuation check on the 2004 screening survey at the same time, a large number of projects, 83 in total, were contacted; 74 of which initially agreed to take part.

Of the 74 facilities that agreed to take part and received a questionnaire, 34 facilities returned 40 documentation forms detailing their obesity-related initiatives. Clear shortfalls in the willingness to take part mainly affected clusters in which a particularly large number of quality deficits (types 2 and 6) and a low level of willingness to take part (only at the follow-up survey stage) could be seen according to the results from stage A.

The random sample used for stage B therefore consists of 36 initiatives from 34 facilities. Approximately 40% of these are initiatives in hospitals, plus nutritional advisory centres, two health authorities, an adult education centre and various other advisory centres and facilities.

4. Results of the two-stage survey

4.1 Findings from the preliminary survey

The following results reflect the current situation as regards treatment initiatives for overweight and obese children and young people in Germany. On the recommendation of the BZgA's group of experts, which supported the study with its specialist expertise, initiatives that are primarily preventative were not taken into consideration here, as they do not permit a clear focus on the issues of obesity and overweight, meaning that distortions in the overview of provision could result.

4.1.1 Scope, development and fluctuation in provision

The representative monitoring carried out for the initial survey enabled the density of provision to be determined. From this, it was possible to calculate the actual density of initiatives in the branches of provision. The extrapolation gave 708 actual initiatives for overweight or obese children and young people or their parents across the Federal Republic of Germany. The initiatives reach approximately 44,000 people each year. Hospitals make the greatest contribution to provision, with one third of the initiatives, whilst the various nutritional advisory centres and health authorities each provide one fifth of the places.

In contrast to their high number and their accessibility to a broad public, specialist practices in the various therapeutic fields such as general medicine, paediatrics and psychotherapy reveal a low density of provision when it comes to specific treatment initiatives for overweight and obesity: this ranges from approximately 8% in general medical practices and 17% in paediatric practices to around 24% in nutritionists' practices. Practices specialising in paediatrics, paediatric psychotherapy and paediatric psychiatry therefore each reach around 500 affected persons each year with their initiatives; general medical practices reach just under 2200 people every year, yet they have a similarly low density of provision.

The complete mailing list forming the basis of the investigation was built up using specialist lists, websites and databases that are responsible for the prevention and treatment of overweight and obesity. However, the true density of provision in these basic units was far lower; even the available directories for programmes (which also serve as sources of information for those affected)

only actually contained approximately two thirds of real initiatives, with the remainder having been discontinued. These data are evidence of extremely low reliability when it comes to self reports and a great lack of transparency of the initiatives actually available for the persons affected.

If we assume, as our starting point, that around one million people are affected (Reinehr and Wabitsch 2003), this means that, with 44,000 treatment places available per year (in accordance with the extrapolation), a total of 4.4% of the children and young people affected receive treatment each year. Furthermore, if we assume that the interventions are carried out between the 8th and 18th years of life, approximately 44% of those affected can receive treatment; taking the estimation error of 25% into account in the calculation, this means that treatment is currently available for between 33% and 55% of those affected. The lower value of this assumption (8th year of life) can be empirically secured, as it constitutes the mean value of the lower age limit given in the survey of the initiatives. The upper value of the assumption is two years above the given empirical mean value for the facilities, yet there are initiatives for 16 to 18-year olds, meaning that the upper age limit of the estimate is also realistic.

In accordance with information from the AGA survey (Reinehr and Wabitsch 2003) and from Reinehr (cited after Hoffmann La-Roche AG 2004), offers of provision arise for approximately 1% of those affected each year. From this, we can calculate that there is 10% overall provision across the age range (the sources listed do not translate the figures to the whole period of youth, but rather calculate using overall prevalences and annual treatment places).

In the survey cited here, the number of initiatives present is higher than in other surveys where similar questions were posed. However, this enables us to accurately isolate the causes of the size differences in the comparison of the surveys and to use these to describe the development in provision: in a data collection from 2002, Reinehr and Wabitsch (2003) found 119 outpatient and 56 inpatient initiatives, giving a total of 175 initiatives.

In a more recent investigation, Reinehr found 153 outpatient and 96 inpatient initiatives, giving a total of 249 initiatives (Hoffmann La-Roche AG 2004). With approximately 7100 participants overall, their data reveal an average of approximately 23 participants for outpatient initiatives and approximately 78 for inpatient initiatives each year. The extrapolation employed in the present study estimates the true number of initiatives and persons obtaining

treatment within Germany – two years later – to be significantly higher, at approximately five times this figure.

In a BKK survey looking at the treatment of overweight children from socially disadvantaged backgrounds, it was not possible to contact 28% of the programme sponsors listed in the BZgA's database for health promotion among socially disadvantaged persons, despite multiple attempts (Moebus *et al.* 2005). The fluctuation control (see Section 3.2) carried out slightly less than one year after the initial survey revealed that, of the 88 facilities contacted, 16 initiatives or at least 18.2% had been discontinued in the course of 2004. With regard to discontinued programmes, we can assume an approximate fluctuation rate of 20% in one year. Consequently, the fluctuation rate of between 20 to 30% can be regarded as plausible.

In the telephone interviews carried out for the purposes of fluctuation control in the survey, those questioned gave the following reasons for the discontinuation of initiatives:
– A lack of demand, for example in rural areas,
– Termination of programmes following cuts in jobs or resources, for example in all Bavarian health authorities,
– Closure of a hospital and cut-back in services in two further hospitals.

The initiatives that had been discontinued were examined with the ongoing initiatives with regard to working framework, process quality and structural quality, in order to ascertain differences in average values. This comparison did not reveal any significant differences between the discontinued and ongoing initiatives, not even so far as the types of facility were concerned. Furthermore, no differences were found between discontinued and ongoing initiatives with regard to the initiative framework (outpatient, inpatient or combined), integration into the programme, work for particular target groups such as the socially disadvantaged or the region where provision was offered (federal state).

4.1.2 Most important structural characteristics of provision as a whole

The following evaluation pertains to the data set containing 492 measures, which takes only treatment initiatives for affected children and young people into account. Exclusively preventative initiatives with no specific target group

were separated by means of a subsequent check; however, initiatives that registered at a later date were included, in order to obtain the broadest possible description of the field (see Section 3.2.2).

Most important providers

The greatest number of initiatives can be found in hospitals (37%), followed by nutritional advisory centres (25%). Some way behind these come advisory centres (7%), psychotherapists' practices (7%) and health authorities (5%).

Distribution of initiatives by federal state

The federal states with the largest populations have the greatest number of initiatives. However, it would be misleading to break down the initiatives by population density, as many inpatient facilities are located in regions with attractive countryside (coast, alps, low mountain ranges), meaning that no conclusions regarding the local or regional initiatives accessible to those affected can be drawn from the number of initiatives in a federal state.

Framework of provision

Of 492 initiatives, 392 work with outpatients, 90 work with inpatients and 49 combine outpatient and inpatient modules. 24 of the providers state "other"; these include, for example, cooking and sports courses, projects in schools or nurseries or individual workshops for specific facilities.

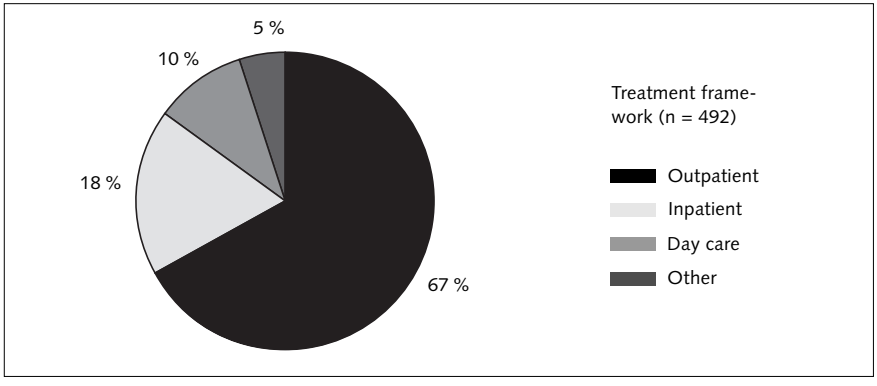

Fig. 3: Proportion of treatment frameworks for all initiatives

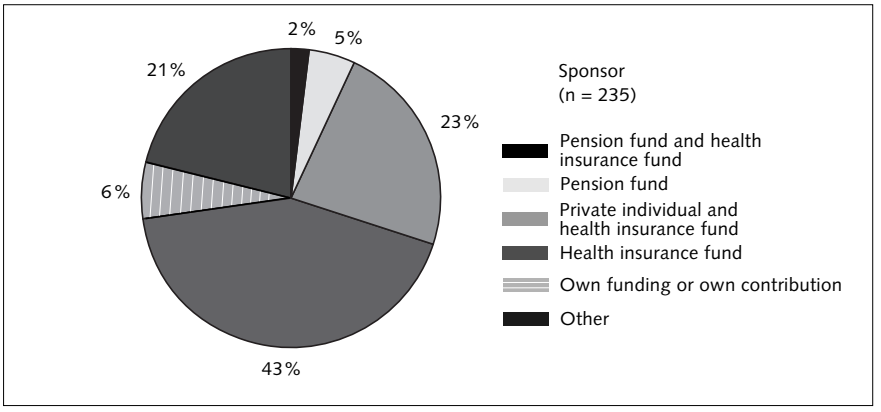

Fig. 4: Proportion of various sponsors with regard to provision

Funding the initiatives

For 43% of the initiatives, the health insurance funds were revealed to be the most important group of sponsors. A further 23% of measures were sponsored jointly by health insurance funds and personal contributions, whilst 5% of initiatives were funded by pension funds and 6% by the families alone. The remaining 21% were funded from various sources, including exclusively from personal funding, by health authorities, local authorities and donations (see Figure 4).

4.1.3 Distribution of structured treatment programmes

For treatment, a range of structured programmes accompanied by manuals are available. These programmes have been prepared using their own materials and some have already been evaluated, for example Moby Dick (Petersen and Hamm 2003) or Obeldicks (Reinehr *et al.* 2003). However, taken together these programmes only account for slightly less than one third (32%) of the measures implemented. The most frequently used programmes employ the obesity-training programme from the Consensus group (KGAS), at 11.4%, followed by the "Power-Kids" programme from the AOK, at 10.1%, the KIDS programme at 7%, Moby Dick at 5.7% and FITOC at 5.1%.

Approximately 9% of providers name one of the programmes above, but are not implementing it, instead merely using it as a starting point. Or they may

name two programmes at the same time, meaning that they adapt and mix both of them together. The majority of facilities (43%) state that treatment is focused on "another" programme. The diversity and large number of programmes named here shows that these are not generally programmes which have been set out in manuals, standardised or evaluated, but rather individual collections of materials bearing their own name. Correspondingly, on reviewing the structural characteristics and quality criteria of the self-designed "other" programmes in question, it is clear that these frequently have only a small number of participants per year, do not have a manual, and display further conceptual, procedural and diagnostic flaws (see Table 5).

4.1.4 Participants, term and frequency of treatments

The average annual number of participants is 87 persons, with a very large statistical spread (between 1 and 3000 persons). Around half of the initiatives treat fewer than 20 people each year and therefore make a relatively small contribution to provision as a whole. Approximately one quarter of providers treat 21 to 50 people a year, whilst one quarter treat more than 50 people every year.

Around two thirds of the measures are only carried out in the relevant facilities up to six times a year. There is also a wide range here. One third of the facilities only carry out one measure per year, 29% two to six measures, whilst 38% of the facilities offer more than six measures each year.

On average, a unit of treatment lasts for approximately 3 hours. Around one third of those questioned (38%) work with the affected children for between 0.5 and 1.5 hours, whilst 21% indicate a duration of more than 2.5 hours.

The average number of contacts between provider and participant during the course of treatment is 25 (between 1 and 212). On average, a complete course of treatment takes 72 hours.

With regard to the frequency of treatment, approximately half of all those questioned (56%) stated that they saw their participants at least once a week (23% daily). Only 25% described treatment contact that took place at least once a month (as a result of multiple responses by certain providers, the figures add up to more than 100% in the evaluation; see Table 3 on page 52).

Length of a unit of treatment	Frequencies	
	n	%
0.5 – 1.5 hours	143	38.3
1.5 – 2.5 hours	152	40.8
> 2.5 hours	78	20.9
	M	SD
Average length of a unit of treatment (hrs)	3.1	6.3

Number of contacts	Frequencies	
	n	%
< 10 contacts	132	40.1
11 – 21 contacts	74	22.5
> 22 contacts	123	37.4
	M	SD
Average number of contacts	24.8	28.9
Number of treatment hours (duration × contacts)	72.3	166.6

Frequency of treatment	Frequencies	
	n	%
Daily	99	23.1
At least once a week	240	56.1
At least once a month	107	25.1

Table 3: Length of treatment unit and number of contacts

4.1.5 Structure, concept and process quality of provision as a whole

Overall quality

The indicator "Quality assessor II" draws together 14 central quality criteria which the experts consulted agreed are necessary for successful treatment (see Section 3). Thus, missing information on the relevant quality criteria is evaluated as "not present". The average percentage of quality criteria met is 51.4%

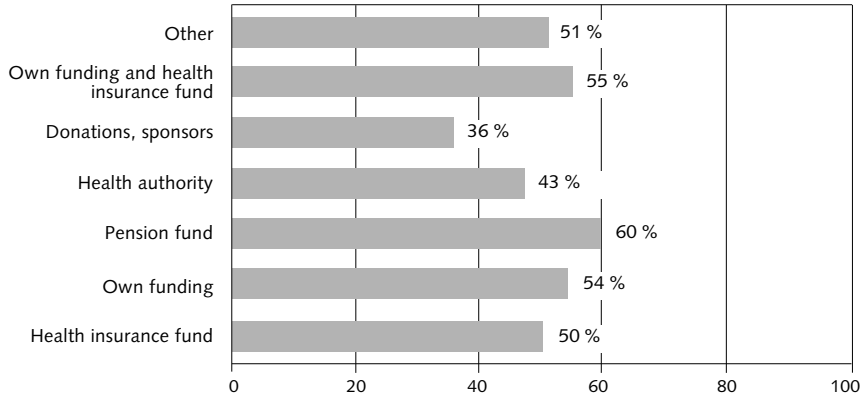

Fig. 5: Overall quality of initiatives (Quality assessor II), broken down by sponsors (in % of quality criteria)

(n = 492, standard deviation = 21.6%). Consequently, on average only just over half of all criteria are met by the services offered by all facilities.

This result confirms the picture of significant flaws in provision reported by a previous survey, which found that 51% of inpatient and 27% of outpatient initiatives satisfied the AGA guidelines (Reinehr and Wabitsch 2003). Looked at from the other angle, this means that 49% of inpatient and 73% of outpatient initiatives failed to meet the quality criteria.

When the measures are broken down by sponsor, it becomes clear that the extreme differences in cost are not always reflected in proportionate quality differences. Although the most expensive initiatives – funded by the pension funds – attain the highest average value for quality (approx. 60% of criteria met), and some cheap (health authority) initiatives are also in the lowest part of the table for quality (below 43% of the criteria), the measures funded by most sponsors satisfy between 50% and 55% of the quality criteria in question (see Figure 5). In concrete terms, this means that higher costs make only a small contribution towards higher quality.

Diagnostic tests and structural characteristics

The majority of providers (72%) state that their work is based on a written manual that has been drawn up. With regard to the presence of somatic illnesses, 82% state that they exclude this by means of a medical examination.

However, the number who carry out a diagnostic examination to investigate possible mental disorders is much lower, at 63%. 60% of all the measures under consideration applied certain exclusion criteria with regard to their treatment. The exclusion criteria mentioned most frequently included: eating disorders, lack of motivation, a BMI that is too low, psychiatric illnesses and drug or alcohol abuse or dependency. For 65%, a certain age limit constituted an important exclusion criterion. 73% of providers stated that the parents were included in the work undertaken with the affected children. The drop-out rate was determined for 42% of all participating facilities.

Main target groups

Within the framework of the treatment of obesity, it can be seen that the initiatives have different focuses. 43% and 45% of providers, respectively, targeted their measures specifically at overweight or directly at obese children and young people. In just under 45% of the measures, the parents were explicitly defined as a target group. 17% of all providers classify themselves in the "other groups" category, with the most frequently cited groups here being socially disadvantaged children and young people and "other eating disorders". 26% of those questioned stated that they also treated the illnesses associated with obesity.

On average, more girls than boys participated in the measures on offer (63%). The proportion of those who did not complete the treatment averaged 10%.

Aims of the measure

Improving eating habits was most frequently cited as the aim of the measure (just under 91%), followed by the aims of improving exercise habits (just under 83%) and quality of life (approx. 76%). The "QS aims" variable is made up of the individual aims of improving eating habits, improving physical activity and weight stabilisation or weight reduction. 74% of providers state that they pursue these three objectives simultaneously. On average, providers state that four and a half objectives are implemented per measure.

Focuses of content and working methods

The results of the study show that particular importance is accorded to the components nutrition, physical activity and psychotherapy. Whilst these three components are regarded as being equally important for the treatment of overweight and obese children, advice, psychosocial measures and information are regarded as less important. When it came to the "other approaches", no percentage accumulation could be ascertained, as the individual mentions

occurred too infrequently (some examples: training kitchen, relaxation techniques, play therapy and ergo-therapy and perception of the body).

From the information given, it becomes clear that sports measures, nutrition-physiological and psychosocial measures primarily take place in groups, whilst personal advice and psychotherapy, on the contrary, mainly take place during individual treatment sessions. Parents only rarely participate in sport and physical exercise initiatives, whilst in the majority of the initiatives they are included in nutrition physiology and psychosocial measures, health information and education.

The didactic methods of disseminating information are generally wide ranging. Across all areas of content in the interventions, we find group work and individual work; there are almost no measures comprised of "purely" individual or group initiatives. Two thirds develop up to three approaches to the content in individual sessions (average: 2.65 topics in individual work), three quarters use up to four approaches in group sessions (average: 3.0 topics in group work).

In addition, the aspect of the diversity of content in the interventions was determined by looking at the number of initiatives that offered corresponding intervention modules in their treatment. The results show that the measures using nutrition physiology (just under 59%) played the greatest role in the treatment of obese children. In second place, with relatively equal shares, are sport and physical exercise initiatives (50%), health information and education (47%) and personal advice (45%). Psychotherapeutic (27%) and medical interventions (17%) were seen as less significant.

The variable "QS contents" is made up of the components nutrition, physical exercise, treatment and advice or education and contains those procedures considered to be particularly relevant for the treatment of overweight and obese children by both the AGA guidelines and the MDK quality criteria. 19% of all providers, i.e. far less than one fifth, take all the above elements into account in their initiatives. That means that 81% of those questioned do not follow a multi-modal treatment model, yet meet 74% of the QS targets. The dissemination of information is most frequently given as a follow-up measure (81%). Self-help groups are recommended or arranged least frequently (30%). Within the category "others" a heterogeneous picture appears, with a range of responses. For example, these include: targeted preparatory care and aftercare, contacts with general practitioners, paediatric psychotherapy, facilities in the

local area in the case of inpatient facilities. However, there is a small cluster for participation in a programme offered by the health insurance funds, arranged or recommended following treatment. Nearly all providers (89%) discharge the children they have treated with informative material, whilst three quarters (74%) of all providers recommend measures for further treatment. Overall, those questioned give an average aftercare time of significantly more than 9 months (45 weeks). Of the facilities that offer aftercare, 50% monitor the affected children for at least 6 months; 19% even report that they continue to provide support to the children more than 52 weeks after the treatment itself.

Type of diagnostic tests and point at which they are carried out

In each case, more than two thirds of all providers (between 70% and 90%) report that they conduct a discussion with the affected children and young people, for the purposes of diagnostic clarification of the areas of eating habits, physical exercise, motivation for change and psychosocial problems. With regard to diagnostic tests at the start of treatment, the proportion of providers is between 52% (laboratory diagnostics) and 79% (diagnostic investigation of eating habits). At the end of treatment the frequencies with which certain diagnostic investigations are carried out vary between 29% (laboratory diagnostics) and 63% (diagnostic investigation of eating habits). The implementation of follow-up investigations over several weeks is between 12% (laboratory diagnostics) and 33% (diagnostic investigation of eating habits). On average, the follow-up investigations, which are dependent on the focus of the investigations, take place no earlier than 16 weeks after the end of treatment (determination of BMI) and no more than 27 weeks after the end of treatment (laboratory diagnostics). The number of mentions shows that, with the exception of BMI and diagnostic investigation of eating habits, only a very small number of providers carry out a further extensive diagnostic investigation after several weeks.

When we look at the number of facilities that carry out diagnostic tests both before and after treatment, it becomes apparent that more than half of all providers calculate the BMI both times and carry out diagnostic investigations into eating habits and physical activity. The remaining areas receive only marginal coverage.

Only 29.5% of the initiatives incorporate diagnostic investigations based on the guidelines in all four relevant areas, namely eating habits, physical exercise, psychosocial problems and BMI, at both the start and end of treatment.

Professional groups in training or treatment team

Doctors constitute the largest professional group involved in the treatment of obese children, at just under 68%. In second place come psychotherapists (56%) and in third place exercise therapists (53%). Specialists from the fields of nutritional advisory services, nutritional science and home economics, dieting assistance and social pedagogy still represent more than one third of the professionals involved. If the experts in nutrition are drawn together into one group, this constitutes the greatest proportion. The group of "others" is largely made up of specialists from the fields of sport, psychology, education and therapeutic education, physiotherapy and music therapy, as well as nurses.

On average, just under four professions are represented in the treatment teams. However, if the variable "Team in accordance with QS criteria" is used to investigate how many providers include in their teams the professional groups classed as central for the treatment of obesity, namely doctors, therapists, nutritional experts and exercise therapists, this reveals that fewer than one third (31%) of the providers incorporate all the professional groups recommended in the guidelines in their teams.

4.1.6 Comparisons of different forms of provision

Comparison of the frameworks of provision

The study of provision reveals evidence of clear deficits in all frameworks of provision. However, it is scarcely possible to associate these deficits selectively to the respective frameworks of provision, as although some frameworks satisfy a high number of important quality characteristics, they do not take other characteristics into account. Consequently, specific strengths and weaknesses are dispersed across all providers. The aim of the following list is to make it clear that it is not possible to draw conclusions regarding the quality of provision that are closely associated with the framework of provision:

- Within outpatient measures, the proportion of overweight patients versus obese patients is significantly higher than in the other frameworks of treatment; the treatment units are shorter, there are half as many treatment hours.
- Within outpatient frameworks, there is a preponderance of weekly contact, in contrast with the daily contact that is usual in the other frameworks.
- For each outpatient measure, the costs for the sponsor are approximately one third of the average for the other frameworks of provision. On the other hand, participants must, on average, pay several times more than it costs to take part in measures within the other frameworks of provision (238 euros com-

pared to 56 or 50 euros). Only one third of funding is provided solely by the health insurance funds (59% or 71% for other frameworks), whilst one third is provided jointly by the health insurance funds and the participants.
- Outpatient initiatives provide the longest period of aftercare for the children treated (52 weeks against 22 in inpatient and 45 in combined frameworks of treatment).
- Outpatient initiatives are somewhat more likely to define clear exclusion criteria.
- The contents of the outpatient initiatives are less likely to comply with the guidelines.

Across the different frameworks of provision there are also quality characteristics that are consistently neglected. This principally concerns psychotherapy measures involving the modification of behaviour and psychosocial measures. Moreover, work with parents is not accorded sufficient importance in any of the different frameworks, only being available in between 20% and 48% of initiatives. There are also deficits across the board in the area of diagnostics. The proportions of comprehensive diagnostic investigations, based on the guidelines, carried out at both the start and end of treatment and in subsequent examinations is between 27% (outpatient framework of provision) and 33% (combined framework of provision).

Inpatient initiatives attain approximately 62% of the required quality criteria, determined in accordance with the quality assessor II, whilst outpatient initiatives attain 49% and combined outpatient and inpatient measures attain 56% of the criteria (see Figure 6). Although the differences are highly significant, they have only an average magnitude of effect, as the initiatives themselves also display considerable variance within the frameworks of provision, as shown by the standard deviations. For this reason, it is important to undertake typification or to develop a quality profile that can be used as a basis for analysis of all facilities, irrespective of the framework of provision.

Comparison of types of facility

The following section compares the types of facility with one another, with regard to the quality criteria in question. This is useful in order to investigate whether certain working methods and quality requirements can be implemented particularly well within certain facilities. The most important differences or common factors between the types of facility, which are summarised again at the end of the section, make it possible to determine whether "fair comparisons" can be made between the types in spite of significant structural differences.

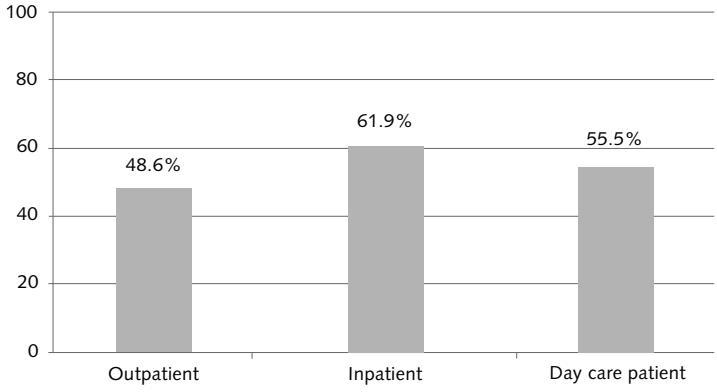

Fig. 6: Total number of criteria met (in %); (Quality assessor II), broken down by treatment frameworks

The overall quality of facilities differs greatly (see Table 4). The percentage of quality criteria that are satisfied (determined by quality assessor II) ranges from approx. 37% in unspecified advisory centres, just under 40% in health authorities and around 42% in psychotherapists' practices to 63% in social paediatric centres and hospitals. The remaining types of facilities, particularly nutritional advisory centres, paediatric practices and general practices, fall between these values.

	Average (proportion of quality criteria met, in %)	Statistical spread (in %)	Coefficient of variation
Social paediatric centre	63.2	22.4	0.35
Hospital	62.1	19.0	0.31
Paediatric practice	53.4	21.3	0.40
General practice	50.6	10.8	0.21
Other facility	52.5	22.4	0.43
Nutritional advisory centre	46.5	19.8	0.43
Psychotherapist's practice	41.8	17.2	0.41
Health authority	40.6	22.3	0.55
Other advisory centre	36.7	20.6	0.56

Table 4: Overall quality for different types of facility (quality assessor II)

Although the differences are highly significant, they have only a small magnitude of effect, as the average values for several types of facility are very similar (social paediatric centres and hospitals; nutritional advisory centres and general practitioners' practices, among others). The types of facility also display great differences in quality among themselves, as the standard deviations show. Consequently, generalisations about types of facility fail to take into account significant quality overlap between types of facility and their differences in quality.

The differences between types of facility extend across all areas that are relevant to quality, including structure, concept, selection of target group, diagnosis and treatment. Although hospitals satisfy most of the quality criteria that are based on guidelines better than other facilities, the differences do not reveal a clear pattern beyond this.

In some criteria, nutritional advisory centres or other advice centres even have a slight lead over hospitals. This is the case, for example, with regard to setting out procedures in a handbook, provision of aftercare treatment, compliance with all treatment aims based on guidelines, a definition of clear age limits and focus on the parents as a target group. Here the scale of the differences varies from criterion to criterion, but the effect sizes are mostly small.

Comparison of structured programmes and other initiatives

The comparison of overall quality between initiatives with structured programmes, programmes that have been developed by the providers themselves and no programmes shows that measures implementing a standard programme based on a handbook display higher overall quality than all others. Such programmes meet 57.2% of the criteria in question, followed by programmes that have been developed by the providers themselves, which meet 54.6% of the criteria, in contrast to 49.3% of initiatives not based on a programme (see Table 5).

On reviewing the individual criteria, which vary significantly, the order generally remains the same, with structured programmes meeting the criteria more often, followed by programmes that have been developed by the providers themselves, whilst initiatives with no programme structure fail to meet the criteria most frequently.

	Average value (proportion of criteria met)	N	Statistical spread	Minimum (poorest initiative)	Maximum (best initiative)
No programme	49.3 %	338	22.0	0 %	100 %
Programme developed by the provider	54.6 %	68	18.5	14.3 %	85.7 %
Structured standard programme	57.2 %	86	20.9	0 %	100 %
All	51.4 %	49	21.6	0 %	100 %

Table 5: Differences in quality between structured and other initiatives (quality assessor II)

Comparison by costs of initiatives

The research situation shows a heterogeneous spectrum of effects for the interventions evaluated under various usage conditions and equipment characteristics. Information pertaining to health economics is important in order to select suitable approaches and make targeted improvements to provision. Among other aspects, this concerns the breadth, depth and stability of the desired changes that can be achieved with a particular approach (Östman *et al.* 2004). The survey therefore also contains questions on the costs of the initiatives:

- Costs per sponsor for each measure
- Hourly costs for the sponsor

	n (facilities)	Average costs (€)	SD
Costs for the sponsor			
per measure	123	**935.6**	1204.9
per hour	38	**54.6**	34.6
per year	39	**1104.5**	767.7
Costs for the participants			
per measure	158	**206.5**	280.4
per hour	40	**35.8**	24.9
per year	51	**350.3**	389.2

Table 6: Costs of the initiatives for sponsors and participants

- Costs for the participants per measure
- Hourly costs for the participants and
- Annual all-inclusive costs for sponsors and/or participants.

Costs for sponsors and participants

On average, each measure costs the sponsor 936 euros (see Table 6 on p. 61). The high standard deviation (SD = 1204.9) shows that the costs for the measures range widely, from nothing to four figure sums. On average, a measure costs the participants a maximum of 690 euros and the sponsor 5250 euros. Where participants fund a measure themselves, they pay on average around 207 euros, although there is also considerable variation here. Different sponsors pay very different prices for their measures. Within the field of inpatient initiatives in hospitals, for example, the difference between measures financed by health insurance funds and pension funds is between 800 and 2300 euros (see Figure 7).

The average costs per measure for the sponsors vary significantly with the type of facility and treatment framework (see Table 7). Inpatient and combined outpatient and inpatient initiatives cost more than three times as much for one measure as outpatient ones. In hospitals, the costs for the sponsor per measure are three times as high as in other facilities: 1573 euros in hospitals, 187 euros in nutritional advisory centres and 427 euros in other advisory centres.

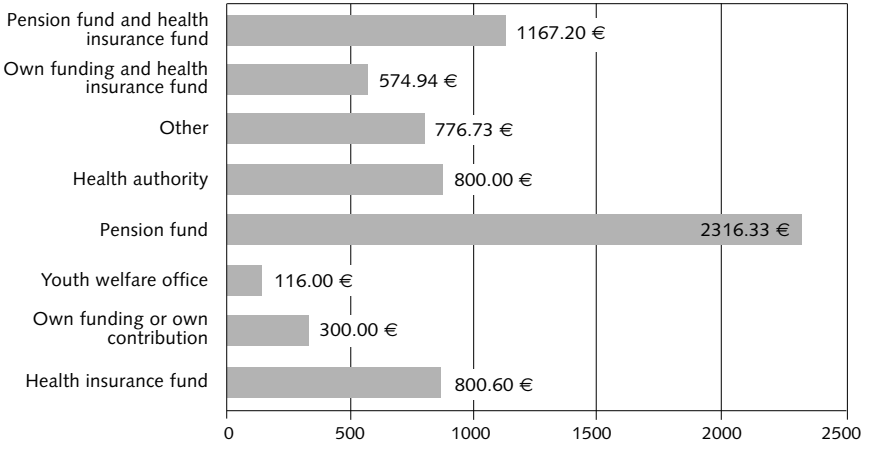

Fig. 7: Average costs (in euros) of the measures for various sponsors

Form of programme	Costs per measure for the sponsor		Costs per measure for the participants		Costs per hour for the sponsor		Costs per hour for the participants	
	n	€	n	€	n	€	n	€
Outpatient	81	674	111	315	37	56	42	40
Inpatient	24	2192	1	5	–*	–	–	–
Outpatient and inpatient	6	2129	1	99	–	–	–	–
Hospital	43	1573	22	275	1	55	1	55
Nutritional advisory centre	34	427	52	322	24	45	30	40
Advisory centre	3	187	9	188	5	60	5	34
Facilities (number of responses that can be evaluated)	116	1055	120	297	39	55	43	40

* no information on this is available

Table 7: Direct individual cost information, broken down by type of facility and framework of provision

For the participants themselves, however, the measures offered by the advisory centres are the most expensive.

In conclusion, it can be seen that the only connections between quality and costs that can be deemed to have been confirmed to a significant extent are of minor to average importance. In hospitals and for inpatient work in general, there is absolutely no recognisable link between better financial endowment of the initiatives and a higher proportion of quality indicators being met. On the other hand, with better financial endowment outpatient initiatives offer slightly higher overall quality, meaning that they respond – unlike inpatient initiatives – to increased funding.

4.1.7 Comparison of types of provision quality

The results show that the quality of provision cannot be derived directly from the framework of provision or from the type of facility. Consequently, it is vital

to have a typification that allows admissible comparisons and assessments of the situation. Statements on the quality of provision cannot be disclosed on the basis of external "formal criteria", but only with regard to specific characteristics and profiles. By considering differentiated quality characteristics, it is now possible to trace which strengths and weaknesses are recognisable for

Characteristic	**Type 1**	**Type 2**	**Type 3**	**Type 4**	**Type 5**	**Type 6**	**Type 7**	**Type 8**
Framework	**outpatient**		**inpatient**	**outpatient**				**in/outp. + inpat.**
Predominant facilities	**NA (47 %) oA (15 %) HIF (11 %)**	**H (32 %) PTh (21 %) NA (15 %)**	**H (60 %) NA (19 %) PP (5 %)**	**H (31 %) NA (28 %) oA (10 %)**	**NA (32 %) oA (23 %) H (10 %)**	**NA (36 %) C (27 %) PTh (21 %)**	**H (45 %) NA (28 %) SpC (6 %)**	**H (76 %) NA (5 %) oA (5 %)**
Number of providers	49	75	79	75	31	33	54	21
Participants per annum (per provider)	95.54	26.08	120.77	62.82	75.63	38	47.06	79.94
Participants per annum (for type overall)	4681.46	1956	9540.83	4711.5	2344.53	1254	2541.24	1678.78
Costs for the sponsor per measure (€)	310	507	2370	712	90	427	770	834
Dose (hours)	58 hrs	60 hrs	85 hrs	46 hrs	11 hrs	78 hrs	68 hrs	79 hrs
Quality of concept	+/–	–	+	+	– –	+/	+	+ +
Selection of target groups	+/–	–	+/–	+ +	–	+/	+ +	+/–
Quality of diagnosis	– –	+	+	+/–	– –	+/	+ +	+ +
Process quality	+/–	–	+ +	+/–	–	+/	+	+ +
Quality of structure	+/–	+/–	+	+	–	– –	+	+ +
Overall quality in %	**46%**	**45%**	**71%**	**64%**	**21%**	**47%**	**79%**	**87%**

NA = Nutritional advice, H = Hospital, oA = Other advice, PTh = Psychotherapy, HIF = Health insurance fund, PP = Paediatric physician, SpC = Social paediatric centre
Quality + + : very good, + : good, +/– : satisfactory, – : deficient, – – : inadequate

Table 8: Principal results of the cluster analysis

each type, in a specific and detailed manner. In this way, extremely differentiated quality profiles are created that show the respective strengths and weaknesses of recognised types of initiatives in a traceable and transparent manner.

The basis for the typification was the first stage of the survey of 417 provision initiatives, controlled for drop-outs; those registering subsequently were not taken into account. Viewed together, these data show eight types of provision initiatives, each with particular strengths and weaknesses (see Table 8). The depiction was simplified in accordance with the model and determined in accordance with quality assessor II. The variables of the description of provision, such as framework of provision, facility, costs and number of participants did not form part of the typification. Nevertheless, they display strong and systematic differences between the quality types. This criterion of construct validity proves that the types summarise existing provision profiles and therefore are a very close representation of reality.

Almost all types are made up of various facilities. This indicates that the quality profile of the provision is not characterised by the difference between outpatient, inpatient and combined outpatient and inpatient provision, but rather that differing initiative profiles are apparent across all frameworks of provision. Differing strengths and weaknesses in the initiatives can indeed also be found in different frameworks of provision. The framework of provision is therefore emphatically no longer regarded as the deciding factor for the occurrence of certain qualities. Consequently, it would be demonstrably incorrect to regard inpatient, outpatient or combined measures as of particular high quality *a priori*.

Moreover, with regard to the type of facility providing the initiative, the eight types are not "pure"; there are similar initiative profiles within various types of facility.

The "characteristics" of the eight types of provision identified are defined as follows (see also Table 8):

1. Larger, mediocre, rather less expensive outpatient treatment (weakness lies in diagnostics)
2. Small, mediocre outpatient advice and psychotherapeutic practices (strengths lie in diagnostics, weaknesses in the concept, selection of target groups and multi-modal treatment)
3. Good, extremely expensive hospitals (particular strength lies in process quality)

4. Short, good, averagely expensive outpatient initiatives (strength lies in selection of target groups)
5. Very cheap, very short, inadequate outpatient advice (with deficits across the board)
6. Smaller, mediocre, medium-length, rather less expensive outpatient initiatives in hospitals, nutritional advisory centres and psychotherapy (weakness lies in the quality of structure)
7. Good, averagely expensive hospitals and nutritional advisory centres (outpatient, particular strengths lie in selection of target groups and diagnostics)
8. Good, averagely expensive hospitals (inpatient and combined inpatient and outpatient, all aspects of quality are very good apart from the selection of target groups).

The following statements may be regarded as the principal results of this cluster analysis or typification:

1. The initiatives are grouped into three quality fields: a lower field (type 5), a mid field (types 1, 2, 6) and an upper field (types 3, 4, 7, 8). Whilst the index of overall quality follows continuous normal distribution, clearly defined performance groups can be identified and compared in line with the aggregation of strengths and weaknesses of the initiatives.
2. On average, the inpatient or combined outpatient and inpatient types achieve the best quality of provision. This finding confirms the comparative analysis looking at frameworks of provision. Hospitals and nutritional advisory centres receive the best quality profile (types 3, 4, 7, 8). This observation also confirms the previous analyses.
3. Possible steps towards improvement can be seen in all areas: on average, even the best types only realise 79% (type 7) or 87% (type 8) of the 14 criteria required, determined using the methodology of quality assessor II. There are major differences within the frameworks of provision; it is therefore also possible for many quality criteria to be met by outpatient treatment (type 7); the leading group of day care and inpatient providers reveals weaknesses in the selection of target groups. Nutritional advisory centres reveal opportunities for improvement in several aspects (types 1, 2, 6) (although this is not the case for all such centres).
4. The costs vary widely within the eight different types: in the lowest field for quality they are between 90 and 507 euros, in the middle field between 310 and 712 euros, and in the leading field between 770 and 2370 euros per measure (for the sponsor). There is a low correlation between costs and quality, although this is highly significant. The most expensive type of provision reaches the greatest number of participants, at approximately

9540 euros per year. It takes place principally with inpatient initiatives and in hospitals. The large spread in configuration of high-quality initiatives at very different prices is highlighted by type 8: similarly to type 3, it consists of hospitals with inpatient and combined outpatient and inpatient initiatives, yet the initiatives of this type cost only a third of those in type 3. At approximately 1680, the number of people reached by this type of provision is only one quarter of those treated under type 3.

5. In general, there is no clear connection between the contribution made to provision (by participants each year) and the quality of provision. With 75 to 95 participants per year, outpatient initiatives with a focus on advice receive large contributions to provision and are also the cheapest (types 1, 5). Within outpatient provision, which is heterogeneous with regard to quality, initiatives of average or moderate quality have an important place overall; they provide treatment to approximately 10,000 persons affected by obesity or overweight every year, which is around one third of all participants reached (types 1, 2, 5, 6; without extrapolation).

Consequently, the shortages in high-quality provision cover all the aspects of quality under consideration: quality of concept, selection of target groups, diagnostics, organisation of treatment and structural quality. However, the weaknesses vary significantly from type to type. As a result, the highest-priority starting points for improvements can be identified.

The types of initiative/quality profiles also highlight the significance of considering health economics and the density of provision when selecting suitable optimisation strategies as part of healthcare policy. The considerable differences in cost even between similar facilities (for example between different types of inpatient provision or types of provision dominated by hospitals) and the significant impact made by outpatient initiatives of average and moderate quality on the quality of provision as a whole lead to the following conclusion: an expansion concentrating exclusively on the best initiatives, and not taking existing patterns of provision into account, could result in undesirable secondary effects. These would include opportunities for rationalisation being neglected by high-quality providers and shortages in broad provision in patients' local areas.

The results of the cluster analysis confirm the findings that have been reported to date. They also show that initiative profiles with certain strengths and weaknesses are not found only within one individual framework of provision (outpatient/inpatient) or in particular types of facility. It is not only in the

spreads of quality for the individual criteria and the overall indicators of quality that these strengths and weaknesses overlap with regard to frameworks of provision and types of facility, but also within the profiles themselves (combinations of criteria) and the measures implemented there. Consequently, a "separate" process of quality assurance and assessment of the respective types of facility or the frameworks of provision, with each division being considered individually, is not in line with the reality of provision.

4.2 In-depth quality analysis (stage B)

The in-depth quality analysis, which was carried out on the basis of QIP (see Section 3.3 on this matter) was intended to show whether the clusters formed or the type profiles remain valid even when "looked at more closely" and when further differentiation was carried out. To achieve this, 38 representative initiatives (see Section 3.3) were selected. The following section retraces this validation of the survey and typification.

Firstly, it must be stated that the descriptions of the quality of the 38 initiatives largely confirm the most important findings of the survey and the typification in stage A.

1. The assessments of the individual initiatives from the two stages of the investigation indicated *significant match*. The index for overall quality (quality assessor I) correlated between the national survey (stage A) and the index for overall quality from the in-depth description of quality (stage B), with great significance and with considerable effect size. *The product-moment-correlation was r = 0.648*** ($p = 0.01$, $n = 37$). In both measurements of quality, therefore, 42% of the variance is identical in the quality differences measured. Given the differences between the two measuring instruments (short survey and in-depth quality assessment), a higher correlation would be rather surprising. The survey indicators only capture selected criteria.
2. Furthermore, the partial indicators from both measuring processes which logically correspond to one another display highly significant correlations of considerable effect size, in spite of differing composition (individual criteria) and methods of calculation. No negative correlations or connec-

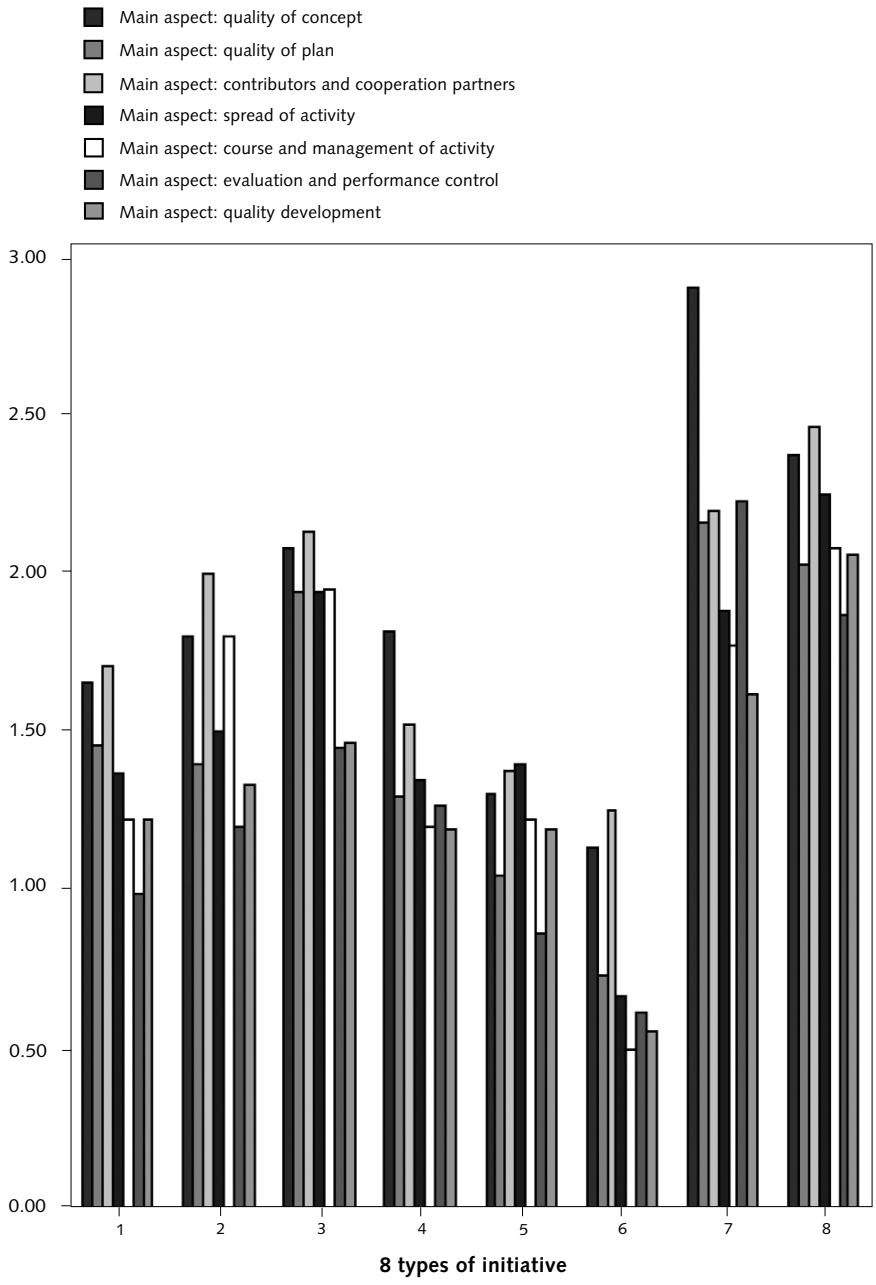

Fig. 8: Main aspects with regard to quality of provision for the types of initiatives in stage B

tions can be seen which might indicate divergences of the instruments used in the two stages of the survey. The index of overall quality in the survey can be predicted from the seven main aspects of QIP highly significantly and with considerable fit.

3. All of the types or clusters of initiatives from stage A also display different quality profiles in stage B (see Figure 8). The relationships between the types of initiatives remain even when they are described in a differentiated manner. On average, clusters 3, 7 and 8 achieve the best results, whilst types 1, 2, 5 and 6 attain the worst. Only three types of initiatives (3, 7, 8) would attain the stage 2 "standard".
4. Furthermore, the various quality aspects of the eight types of initiatives diverge; this means that the types do not have any clear profile, but rather each had pronounced strengths and weaknesses in specific areas.
5. As a result, the characteristics of the initiative types overlap in their ranges. There are therefore hardly any types of initiative that are completely exemplary or completely inadequate, but rather the various groups of providers all display a need for optimisation.
6. At the level of individual initiatives or programmes it is possible to distinguish between better and worse interventions. However, no clear cut-off values or leaps in quality can be determined. Instead of this, the empirical image shows smooth transitions from the inadequate to the high-quality interventions. A similar picture had already been gained from the survey.

However, small differences in the findings of the two investigations can also be determined. On average, individual types attain higher or lower profile values using the data from the survey than on the basis of the cluster analysis; type 1 (average) and 2 are close to type 3, type 5 (inadequate) achieves a better score, type 6 (average) does worse than in the cluster analysis. The differences in the types of initiative (stage A) become less marked in the differentiated examination (stage B).

The reasons for this levelling out may lie in the fact that a greater number of criteria are included, meaning that more accurate measurements can be made. It may also be due to the grouping of the 28 quality aspects, which have a slightly different composition to the indicators in stage A. Further reasons could lie in effects of selection arising during the course of recruiting initiatives for stage B. For example, such effects of selection occur as a result of project sponsors who did not return their data as they gained the impression, at the survey stage, that they are failing to meet a large number of criteria and therefore were not interested in further feedback.

4.2.1 Quality analysis by framework of initiative and type of facility

Around half of the projects assessed in stage B more or less attain the "standard" when the main aspects are averaged out, and would therefore qualify for funding in accordance with programme quality criteria based on guidelines, although not in all aspects. As a result, the mean score for the assessments is M = 1.67; even when QIP aspects are considered, the initiatives assessed fail to meet the desirable organisation criteria in many cases (see Table 9).

	N	Average	Standard deviation	Standard error
Outpatient	21	1.6486	0.68928	0.15041
Outpatient and inpatient	4	1.5381	0.88344	0.44172
Inpatient	9	1.7888	0.57335	0.19112
Overall	34	1.6727	0.66695	0.11438

Table 9: Overall quality (QIP) by framework of initiative (stage B)

When considered using the index for overall quality from the in-depth assessment, no significant difference is generally found between the quality of outpatient, inpatient and combined outpatient and inpatient measures.

However, the comparison by types of facility does reveal significant differences (see Table 10). Hospitals, advisory centres and other facilities score significantly higher than other providers. The differences between the types of facility are highly significant; however they can only be reliably interpreted for the hospitals, at best, as the case numbers in the other groups are too small to draw meaningful generalisations.

Both findings – a somewhat better result for inpatient initiatives and the differences between various types of facility, with a good score for hospitals – again confirm the survey findings.

	N	Average	Standard deviation	Standard error
Hospital	15	1.9113	0.48466	0.12514
Practice of paediatric physicians	2	0.8595	1.01352	0.71667
Nutritional advisory centre	7	1.2541	0.62693	0.23696
Health authority	2	1.0952	0.47140	0.33333
Adult education centre	1	0.6071	.	.
Other advisory centres	3	1.8865	0.21461	0.12390
Other facility	6	2.0647	0.54307	0.22171
Overall	36	1.6670	0.64866	0.10811

Table 10: Overall quality (QIP) by type of facility

4.2.2 Costs, structural characteristics and quality profiles

In turn, as an important individual finding, a moderate link between the costs of the measure for the sponsor and the overall quality can be determined. As a result of the low number of cases (n = 12), the indication remains insignificant, yet it is on the same scale as the observations made in stage A.

Furthermore, a clear correlation between the costs for the participants and the quality can be noted. Whilst sponsors obtain less certainty of quality for their funding, projects that are also funded by means of personal contributions from their target groups appear to offer significantly higher quality. However, the extremely small sub-group makes it necessary to obtain confirmation of this finding on the basis of a larger number of projects.

When the distributions of values are considered, several findings concerning the links between quality and costs of measures from the survey in stage A are confirmed. Once again, the data show that significantly higher funding is not necessarily linked to significantly higher quality. The very low number of cases makes it impossible to draw generalisations from this finding, yet it should be noted that the measurement of quality carried out here reproduces the findings from the national survey. This speaks for their tenability.

The quality insurance instrument QIP collects structural characteristics in a more differentiated manner than the short questionnaire that constituted the

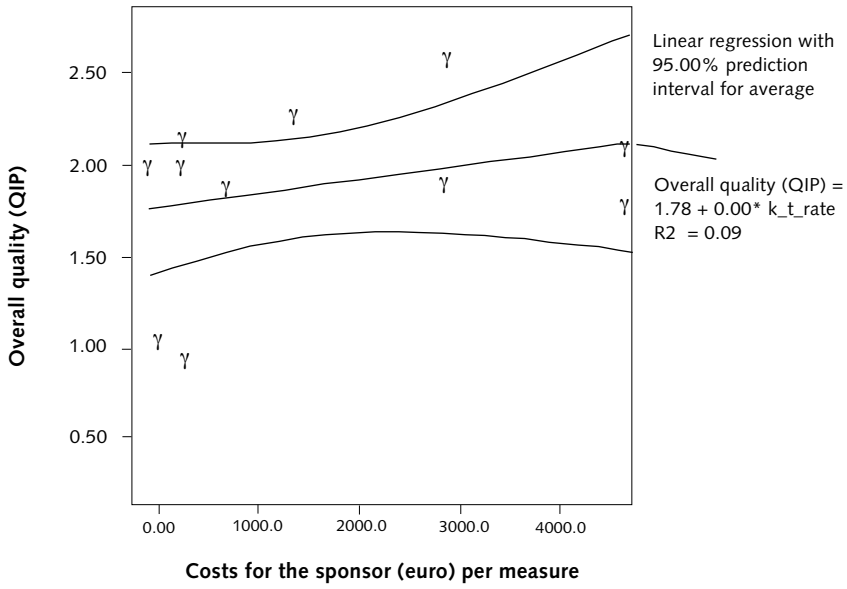

Fig. 9: Regression of initiative qualities over costs (for sponsors for each measure)

survey; this means that it is easier to make estimates based on confounder variables. Some correlations show that a higher quality of prevention is more likely to be attained by larger facilities with differentiated organisation and larger treatment capacities. However, with the small number of facilities involved these connections do not become consistently significant and therefore do not permit the necessary modellings to examine complex models.

5. Conclusions and recommendations for optimisation

The following section will give a brief summary of the most striking results of the two-stage study of provision. In some cases, in the process of collating these central results, we have already "found the sore point", by indicating recognised gaps in provision. On this basis, the authors of the study hereby issue their initial recommendations for optimisation, which build on the concomitant specialist discussion with the BZgA's group of experts. These recommendations were preceded by investigation of and agreement on acceptable criteria for evaluating quality, and questions of practical and everyday uses of the QIP. It is now necessary to evaluate these results from the study of provision, to ensure that the important findings are mirrored in practice and to initiate a wide-ranging debate on the issue.

As the present findings from the study of provision do not yet say anything about the actual "outcomes", the BZgA has already commissioned a follow-up study. The complete results of this observational study will be available in 2008.

As an outcome of this study of provision, it is already possible to determine that from now on it will be easier to conduct an investigation into appropriate provision for overweight and obese children and young people, as quality characteristics have been defined and applied that could now be used to evaluate initiatives and concepts. The typification also facilitates the process of optimising initiatives, as programmes will no longer have to be "lumped together", but rather a differentiated consideration that is independent of the type of facility and framework of provision will now be possible. This can only result in a positive increase in competition for good programmes, as the study also clearly shows that "more expensive is not always better!"

5.1 Summary/overall picture

Scope of provision

1. The extrapolation gives 708 initiatives across the Federal Republic of Germany, which are estimated to reach around 44,000 people each year. With the provision currently available – converted for the period of 10 years of childhood and youth – between 33% and 55% of juveniles suffering from overweight and obesity can receive treatment.

2. Two thirds of providers work with outpatients, 19% purely with inpatients and 11% use combined forms of provision. 4% work in another form, particularly one that is related to the setting or environment (for example in nurseries, schools and clubs).
3. The initiatives run by hospitals reach one third of the affected people who receive treatment, followed by nutritional advisory centres and health authorities with around one fifth each. Established specialist practices make a very small contribution to provision.
4. The number of treatment places on offer has increased sharply between 2002 and 2004 (by approximately 70%).
5. It remains to be seen how far provision will be able to keep pace with the rapidly growing rates of prevalence, and to what extent there would be genuine demand for further provision. The growth in the number of initiatives and of participants speaks for increasing demand, yet the number of "false" announcements made by providers (initiatives that are not really available) and the statements made by some providers during the follow-up survey conducted by telephone suggest that such genuine demand may not truly exist.

Widespread quality deficits

1. When all of the available measures are considered together, the initiatives offered by all providers satisfy, on average, only around 51% of the required quality criteria, supported by guidelines, with a standard deviation of just under 22%. This means that, on average, around half of the quality criteria are neglected.
2. There is a smooth transition between inadequate initiatives and those focused on quality; the overall picture of all facilities does not show any clear gradation in quality of provision. No groups that can be separated are apparent in the overall picture of the facilities. Consequently, there is no empirical foundation for a strict division of initiatives into grades based on their overall quality.
3. Almost nowhere are socially disadvantaged children and young people targeted with specific initiatives. To a large extent, other initiatives targeted at distinct groups, such as those tailored to people of one sex or those of immigrant origin are also missing. Only twelve facilities offer a programme tailored specifically to girls.

Profiles of the types of facility and treatment frameworks

1. For all forms of initiatives, namely outpatient, inpatient and combined outpatient-inpatient interventions, large spreads of quality differences can be

found. Although differences regarding certain important external characteristics of provision can be determined, considerable overlaps are apparent between the various types of facilities. The transitions between better and inadequate initiatives are smooth, without clear stages, and there is marked heterogeneity even within the identified types. This is the case with both the overall quality and individual quality aspects and characteristics.

2. Inpatient and combined outpatient-inpatient initiatives are superior to outpatient initiatives with regard to many quality criteria. Inpatient and combined measures more frequently offer multi-modal combined approaches with all the treatment elements based on the guidelines, interdisciplinary teams including all the relevant professional groups such as doctors, specialists in nutrition and physical exercise, and a more comprehensive diagnostic investigation and determination of the motivation for change at the start of treatment. On the other hand, outpatient initiatives are more likely to involve the parents in treatment and are significantly less expensive.
3. The comparison between hospitals, nutritional advisory centres and other advisory centres demonstrates clear differences across all quality aspects. Hospitals attain an average level of overall quality. They are more likely to make use of a multi-modal approach, to work in a complete interdisciplinary team and to conduct a diagnostic investigation of mental disorders and motivation for change as well as medical interventions. However, the hospitals do not meet all of the central quality criteria (on average less than two thirds of the criteria). The degree of variation between the types of facility is high, meaning that the differences only result in small effect sizes statistically.
4. A multivariate cluster analysis shows types of initiatives with comparatively homogeneous profiles of strengths and weaknesses. Types with a high proportion of combined outpatient and inpatient initiatives and purely inpatient initiatives attained the best quality profiles, along with those offered by hospitals. However, several types with average and moderate quality were found which also included significant proportions of inpatient facilities and hospitals. High-quality initiatives also exist in the outpatient sector, where the high-quality nutritional advisory centres and the high-quality hospitals, in particular, appear together. This also confirms the finding of large spreads of quality within the types of facility and treatment frameworks.
5. The costs of the various initiatives vary widely (between approx. 90 euros per measure for the type of provision consisting of short, inadequate advisory sessions, 700–900 euros in good outpatient and inpatient initiatives to several thousand euros in some hospitals). On average, measures funded by

the health insurance funds cost 800 euros, those funded by pension funds cost 2300 euros, whilst those funded by participants' contributions cost 300 euros. There is a moderate statistical correlation between the costs and the quality of provision (number of criteria satisfied). A higher level of funding does not necessarily mean that more quality criteria are met, whilst a lower level of funding does not necessarily signify inadequate quality.

6. The findings regarding target groups constituting the focus of provision and the considerable quality deficits confirm the picture of significant flaws in provision that has been yielded by other surveys.

An in-depth quality assessment using the information system supported by experts (QIP) confirms all the aforementioned findings as far as development of the state of provision is concerned.

5.2 Initial indications from the observational study

As already mentioned, the BZgA commissioned an observational study to evaluate the effects of outpatient and inpatient treatment of obesity among children and young people in the Federal Republic of Germany. Due to the heterogeneous background to provision and the fact that only certain treatment initiatives have been set down in handbooks and/or evaluated, as found in the study of provision, there are scarcely any indications or findings regarding the effects of treatment. The aim of the multi-centric observational study that has now been commissioned is to build up a picture of the current status of obesity treatment in Germany in standard care. To achieve this, all institutions from which data was collected as part of the study of provision were asked to inform the researchers of whether they were prepared to participate in this study. However, as more measures fulfilled the prerequisites for the study than had been expected, the participants had to be selected by lot. This meant that 50 outpatient and inpatient providers of measures for obese children and young people took part. The principal issues addressed in the observational study included:

- Which patients are accepted onto programmes for the treatment of obesity? Here the composition of those treated on programmes with regard to socio-demographic, psychosocial and hospital aspects is of particular interest.
- What comorbidity exists at the start of treatment?

- What effects (medical and psychological) can be seen one year after the end of treatment (reduction in BMI-SDS, change in behaviour, reduction in comorbidity)?
- On what factors does the outcome of treatment depend?
- Are there differences between treatment concepts?

The study commenced with a one-year recruitment phase in July 2005; the first survey (T 0) takes place prior to the start of treatment, the second (T 1) at the end of treatment and the follow-up survey one year later. This means that the complete findings can be expected from late 2008 onwards.

At the start of treatment, the ages of participants ranged between 8 and 16 years. The patients accepted into the survey had to meet the criteria obesity = BMI > 97 percentile for age and sex. Overweight children and young people were accepted if the necessary documentation was guaranteed. During the survey, questionnaires in Turkish were also used, expressly in order to include those from immigrant backgrounds. The types of provision determined in the cluster analysis were taken into account in the study, in line with the contribution they make to provision as a whole.

5.3 Recommendations for optimisation

Approaches for developing current provision

Only a small number of initiatives satisfy all the quality criteria that are supported by the guidelines. On average, 51% of the quality criteria in question are met – meaning that, on average, the initiatives fail to meet almost half of the quality criteria. Looking at the data, no one type of facility and no one framework of provision (inpatient, outpatient and combined inpatient and outpatient) can be deemed to be clearly superior with regard to the various aspects constituting quality of provision. However, the inpatient/day care initiatives achieve a considerably better score overall.

Despite the gaps in quality displayed by many outpatient providers, these providers have the advantage of consistently involving the parents in treatment and of being close to everyday life, which better permits the patients to integrate what they have learnt during treatment into their lives.

By means of systematic cooperation with other professional groups and facilities, as well as by drawing up basic criteria for concept quality (exclusion criteria, manual, broad target group, etc.) and process design (more extensive diagnostic analysis, multi-modal approach), it is likely that many outpatient initiatives could meet central quality criteria as a result of their own work, enabling them to reach the levels of quality found among combined inpatient and outpatient initiatives and among inpatient initiatives.

Added to this are considerations of health economics. The high-quality inpatient initiatives reveal major differences in costs (costing the sponsor between around 840 euros and around 2400 euros per measure). The best are by no means the most expensive, yet the majority of participants are treated as part of the most expensive initiatives.

When developing the framework conditions in this sector, it would therefore be necessary to ensure that the study outcomes offer the sponsors the opportunity to conduct price negotiations with the aim of reducing costs whilst maintaining a high level of quality.

This study is based on the most comprehensive information currently available. However, it aims to create an overall survey (screening). In order to permit precise fine control of the design of strategy and frameworks in the area of provision, it would therefore be desirable to have improved data on this basis in future, covering the following central points:

- The development of the field should be examined using updated data that build on the more precise sample definitions now available and thereby enable more accurate error estimates for the individual branches of provision.
- The relationship within health economics between quality of provision and costs for sponsors and participants should be examined, as should the funding resources and cost profiles allotted to the various types of facility, including their distribution to infrastructure and personnel costs and costs related to the measures, and their calculation. In the event that the sponsors do not have more detailed data, these could be determined on the basis of selected (representative) facilities.
- The opportunities with regard to provision, financial opportunities and limits of collaboration between outpatient providers with networks for diagnosis and intervention, combined outpatient and inpatient and inpatient partner facilities should be investigated. Consideration must be given to the interests of these stakeholders and the funding models for this kind of integrated provision.

Based on these preliminary considerations, the following section explains the specific possibilities for optimisation of the initiatives for provision of overweight and obese children and young people.

Recommendations

The recommendations derived from the study of provision are based on discussions between the BZgA and members of the research group which implemented this study. It is now necessary to continue this discussion with experts from various specialisms and with disseminators of information working in the field, and to carry out a detailed investigation establishing which measures should be implemented in order to improve current provision.

In the section below, the following recommendations are put forward and evaluated:

1. Reinforce prevention on the social level
2. Reinforce the focus on quality criteria among providers
3. Documentation, transparency and determination of quality
4. Programmes aimed at specific target groups and settings
5. Optimise existing initiative structures
6. Streamlined coordination and networking
7. Low-profile initiatives, qualification, campaigns
8. Differentiated provision and successive standards
9. Provide help with implementation
10. Expand research into provision.

Recommendation 1: Reinforce prevention on the social level

The effects of the shifts in living conditions and lifestyles cannot be absorbed merely with treatment targeted at individuals or risk groups, which lags behind the increase in obesity (Hill *et al.* 2003). In addition, comprehensive treatment of all children and young people affected would be very expensive – on average, the measures cost around 1050 euros for each participant (of which 935 euros is met by the sponsor). The density of provision available to date reaches approximately 44% of those affected. The findings of the present study show that increasing this provision to reach 100% of those affected would require approximately 56,000 additional treatment places per year; on the basis of the current average expenditure, this would require 56 million euros each year, although the efficacy of many initiatives is questionable, due to the quality flaws analysed here.

For reasons of efficacy and cost, parallel changes in living conditions are therefore important. In the field of addiction prevention, for example, such structural measures and preventive measures on the social level have made a vital contribution to reducing international tobacco consumption and can display much greater impact than many interventions seeking to implement prevention by changing individuals' behaviour (Bornhäuser *et al.* 2002). Internationally, a number of possible preventative measures on the social level are being discussed, tested or are already supported by evidence (Liebermeister 2005; Müller *et al.* 2006).

The list below gives some examples of important areas for action:

- Food law and fiscal law (for example tax increases, obligations to label foods, special tax on fast food, ban on high-calorie foods at child-height or next to checkouts)
- Restrictions on advertising (for example ban in certain areas, later start of television adverts or ban on food adverts during children's programmes)
- Reorganisation of schools (for example removal of vending machines containing sugary drinks, health education, more appealing sports provision, reorganisation of the playground, opening-up the sports halls, healthy and good-value food, drinking fountains, exercise during breaks)
- Restrictions on use of cars, measures to make it easier to get around by bicycle or on foot (construction of pedestrian precincts, freeing up whole streets for cyclists only at weekends, traffic calming measures in residential areas, more public sports facilities such as areas for football or skate parks).

Recommendation 2: Reinforce the focus on quality criteria among providers

The compilation and publication of quality criteria on which experts could agree was an important step forward in quality assurance for the provision of overweight and obese children and young people. A significant proportion of outpatient providers, as well as providers offering combined outpatient and inpatient initiatives can, in principle, achieve similarly high quality standards, as are predominant among many inpatient initiatives (this became clear through application of the quality criteria).

However, this initially relates to basic features of concept quality, which the providers can achieve without significant additional outlay. This includes, for example, providers setting out their own approach in a handbook. In order to

simplify implementation and to qualify smaller providers, exemplary, easily transferrable, solutions (best practices) with technical assistance could be made available

Recommendation 3: Documentation, transparency and determination of quality

The research carried out in the various sectors of provision show that, within the Federal Republic of Germany, no sources of data are available that show the available initiatives in a comprehensive, reliable and clear manner. The existing directories reveal great variations in usefulness; many facilities represent themselves as providers but do not actually offer any relevant initiatives. To those seeking help, the opportunities to obtain help and the contact points must appear even less clear than they do to researchers. Consequently, there is a need for easily accessible, quality-based aids to orientation when selecting and evaluating suitable initiatives.

The publication of quality criteria based on guidelines will not be sufficient, as they are primarily aimed at specialists. After all, considerable specialist knowledge and knowledge of the field (regarding diagnostics before and after treatment, multimodal treatment modules, concept quality, etc.) is required to understand and implement important criteria. The complex checklists maintained could lead to confusion among lay persons, with the risk groups of socially disadvantaged people or participants of immigrant origin being particularly likely to have difficulties in evaluating and using the extremely specialist information. As a result, it is necessary to prepare the specialist information so that it can be easily understood and used by those affected and/or by their relations. The BZgA brochure *"Übergewicht bei Kindern und Jugendlichen. So finden Sie ein gutes Programm. Ein Leitfaden für Eltern und Erziehende"* [Overweight in children and young people. How to find a good programme. A guide for parents and guardians] has adapted the information in this way. These handouts must be supplemented and updated on an ongoing basis when new research findings make this necessary. Given these preconditions, one important approach would be the central documentation and review of initiatives, looking at qualitative minimum criteria, strengths and weaknesses.

An international example of the function and organisation of this type of clearing and administration centre offering high-quality specialist information in the form of a website can be found in Canada, with the National Eating

Disorder Information Centre (NEDIC 2006), developed with the participation of Health Canada. NEDIC works as a non-profit organisation commissioned by the Mental Health Programmes and Services Division of the Ministry of Health and Long-Term Care, Ontario. In addition to developing and disseminating information on health, the centre's tasks include publicising initiatives for prevention, health promotion and treatment, as well as advising those seeking help.

In order to set up this type of reference centre, solutions to several organisational tasks must be found:

- Determination of a sponsor for central documentation and quality assurance: what is required is a facility with ongoing opportunities to undertake the documentation and public administration of the outcomes. These criteria are primarily met by institutions governed by public law, as their ongoing funding is guaranteed; when taking on this task, voluntary specialist consortiums must undertake to ensure the continuity of their work.
- Sponsor's expertise, neutrality and focus on public welfare: these conditions constitute the foundation for participation of all relevant providers, professional associations and specialist players. Cooperation interests may then exist with various organisations. As some professional associations have links with groups of providers or disciplines offering initiatives, it is recommended that the clearing function is organised with professional authorities. To achieve this, the database may be organised on a regional basis (for example by a permanent ÖGD [*Öffentlicher Gesundheitsdienst* – Public Health Service] working group) or centrally (for example by the BZgA).
- Acceptance criteria: the database should contain initiatives that have completed the first stage of quality assurance and can guarantee compliance with minimal criteria. The data may be collected using a detailed questionnaire that enquires as to the scientifically proven quality criteria. In order to ensure the veracity of the information given, the providers may enclose their working materials with the questionnaire (the alternative would be the notification of random visits, but this method is incommensurately cost-intensive for the purpose).
- Raw data: the dataset containing the addresses obtained for the survey detailed here can serve as the basis for the documentation, with the possibility of expansion. However, the list of projects covered should be open so as not to exclude any group of providers, who could then bring a legal claim on the basis of competitive disadvantages.
- The list of initiatives covered must be updated on an ongoing basis. The experience of data collection gained in this survey shows that lists based on

the providers' own information quickly become outdated (annual fluctuations of approx. 20% in the initiatives available). Consequently, they become equally unattractive for those seeking help and for providers. This is also what the consulting experts at the health insurance funds have found – as a result, the health insurance funds will shortly discontinue the use of some (general) lists of providers. The providers included should therefore be requested to confirm or update their data at least once a year; using a circular e-mail makes this possible at little technical or financial expense. Naturally, this process must be fair. The selection criteria and procedure must be transparent, professionally justified and reviewed and open to all interested facilities at all times. Reporting to an advisory board made up of central scientific and organisational players would bring professional enrichment to the process.

- The acceptance and evaluation criteria for initiatives must be open to professional innovations, meaning that they must be the subject of regular revisions. These may be discussed by the advisory board.
- For transparency, the outcomes may be made available to the public on the internet, in the form of a database. In order to overcome access barriers to the internet, the database should be targeted at disseminators of information in close contact with the target groups and wide awareness of it should be ensured.

Recommendation 4: Programmes for specific target groups and settings

The survey findings highlight three weaknesses in current provision:

- More socially disadvantaged sections of the population and children from families of immigrant origin display higher rates of prevalence, with lower socio-economic status constituting a barrier both to participation and to efficacy. Persons from higher social classes therefore find it easier to make use of interventions and derive more benefit from them (Müller and Danielzik 2005). However, almost no initiatives provide measures specifically designed to target or motivate the socially disadvantaged or immigrants, or to cater to the unequal take-up rates or particular living conditions of these groups.
- The findings reveal a new area that requires action, namely gender-specific initiatives. Girls clearly benefit from some measures that have no effect on boys (Müller und Danielzik 2005; Myers *et al.* 1998). The survey presented here found that there were around twice as many girls and young women affected by overweight and obesity as there were boys and young men similarly affected. It has been proven that gender-specific self-perception

influences the extent to which people make use of the measures available and has an impact on their behavioural plasticity. Consequently, this makes specific procedures advisable (Myers *et al.* 1998).

- In addition to hereditary factors, the complex aetiology of obesity is primarily determined by lifestyle (Herpertz and Salz 2003). With children, the parents still have a greater influence on lifestyle and can therefore constitute a risk factor (Müller and Danielzik 2005). However, children's parents and social environment are rarely incorporated in the design of the initiatives in a systematic and comprehensive manner. Although most of the measures offer the opportunity of providing parents with information on at least one aspect of treatment (nutrition, physical exercise, stress reduction), meaning that at least a basic framework for work with the parents is created, more than half of initiatives do not regard parents as an important target group. However, parents are more than merely those authorised to bring up the children, with the family system instead permitting or hindering changes in consciousness, nutrition, behaviour and lifestyle. Programmes that do not involve the parents are therefore "highly likely to be ineffective" (Böhler *et al.* 2003). The parents' lifestyle also has an influence on weight status. The family system permits or hinders changes in consciousness, meaning that the parents, as those responsible, must be actively targeted, persuaded, incorporated into the programme and won over as driving forces for long-term work with their children.

To date, the initiatives – even those of higher quality – have not addressed these tasks in a methodical and targeted manner. These gaps should be reduced through the development of programmes or modules designed for specific target groups (Müller *et al.* 2006). In this respect, measures with an impact on multiple areas of life and behaviour are more effective and sustainable than isolated measures. Consequently, setting approaches in nurseries, schools or local authorities constitute an important area for future action (Moebus *et al.* 2005; Müller and Danielzik 2005, p. 115). Internationally – for example in Sweden – there have been first steps made along these lines, and good evidence of the efficacy of the setting approach has been gathered (Andersson *et al.* 2002; FHI 2005).

Recommendation 5: Optimise existing initiative structures

Although, on average, the inpatient initiatives and hospitals display better quality profiles, they cannot replace the outpatient sector for several reasons – the outpatient sector itself offers the widest range of initiatives and should also be

able to attain high quality values. In addition, the costs of outpatient initiatives are two thirds lower than those of outpatient initiatives. Consequently, an expansion of provision can be driven forward if it succeeds in raising quality within the outpatient sector, by means of targeted incentives. The findings of the survey show the following starting points for achieving this aim:

- Outpatient facilities, particularly advisory centres, should be encouraged to define exclusion criteria, record drop-out rates and to implement the diagnostic tests, based on guidelines, which can be carried out at little expense (determination of the motivation for change, measurement of BMI at the beginning and end, etc.).
- By means of networking, outpatient providers and providers working with combined outpatient and inpatient measures should generally be enabled to implement a multimodal approach and build up a multi-professional treatment team. To this end, suitable local or regional players might cooperate (for example nutritional advisory centres, doctors' and psychotherapists' practices and hospitals) and divide the responsibility for diagnoses and interventions. In order to enable this, suitable "best practice modules" must be collected and publicised through cooperation with professional associations, health insurance funds and health authorities, as well as being set up as model projects. In this way, it will be possible to continue to make use of the experience and infrastructure of the existing facilities, whilst rapidly increasing their quality to a level with a positive impact on efficacy.
- In order to improve diagnostic testing, simple diagnostic tools for behaviour in the areas of nutrition and physical exercise might be made available and publicised (structured interviews and similar). This could be a task for professional associations and sponsors' steering committees.
- One strength of outpatient initiatives is that they have easier access to the patient's social environment and parents than hospitals do. Outpatient and combined outpatient and inpatient initiatives have more flexibility in developing modules for specific settings or target groups, for example provision to reach the socially disadvantaged. They would be a good choice of partner for the development and implementation of corresponding programmes. In addition, thanks to the fact that they are close to the environment of those affected and reach a broader range of groups at risk, setting programmes are well suited to motivating groups of people who are difficult to reach (socially disadvantaged people) and encouraging them to participate, and to testing and implementing gender-specific initiatives (for boys).
- Inpatient facilities (particularly hospitals) should be encouraged to broaden their focus on target groups to include parents. This is already being done by many initiatives, as shown by the wide-spread organisation of work with

parents as part of various intervention topics (nutrition, physical exercise, etc.). The experience gained in this area could be passed on by collecting sample projects, in order to win over the parents and social environment to supporting long-term behavioural changes on as many intervention levels as possible and at a high density. Furthermore, inpatient initiatives could offer special measures for a particular clientele, such as children and young people who are difficult to treat, thereby providing a useful supplement to the outpatient initiatives.

Recommendation 6: Streamlined coordination and networking

By linking up existing offers of services, it will be easier to balance out the respective flaws of individual providers, without the need to create new facilities, initiatives or structures for provision. This idea of drawing together partial services from various types of facility, in order to combine their respective strengths, is now being discussed by important groups of experts (Müller *et al.* 2006).

In addition to the suggestions given above, consideration should be given to better interaction with further players in the field of provision – for the school environment, the public health service and cultural authorities could be interested cooperation partners, whilst local authorities could be involved in the case of nurseries. Good experiences have now been made with interventions among primary school children, using limited but appropriately designed modules seeking to prevent the problem by changing behaviour, delivered in the form of health education lessons (Burkard *et al.* 2004). There are also opportunities to expand the follow-up provision offered by self-help groups; to date, only approximately 30% of the measures recommend or put patients in contact with this type of group. If the facilities cooperated more closely with self-help groups, this could benefit all the parties concerned.

Coordination of the individual sequence of provision by (general) medical practitioners ("pilot function"), introduced as a quality criterion in the consensus paper (Böhler et al. 2004), represents a particular problem. Established practices, particularly those of general practitioners, are responsible for a very low proportion of current provision for children and young people suffering from overweight or obesity, and display the lowest density of initiatives of all branches. Consequently, they should be considered as possible disseminators of information, but do not currently appear to be ready for this type of pilot function.

Before established practices can be assigned the task of coordinating or supervising treatment (diagnosis, inspection of the report during and after treatment, contact person in the event of problems), special evidence must be provided to prove that the doctors in these practices are suitably qualified. This evidence is also necessary because doctors – like teachers – have regular contact with those affected and it is therefore important that this professional group, which has a central place with regard to provision, is able to provide expert information and effective treatment and support. Depending on the content of this qualification, other professional groups could also take on functions of coordination and qualification. The data show that many nutritional advisory centres and other advisory centres, including facilities in the outpatient sector, are already succeeding in doing this.

Recommendation 7: Low-profile initiatives, qualification, campaigns

With the provision currently available, an offer of treatment can be made to around 4% of those affected each year (equivalent to 40% of those affected in the age range over the ten years of childhood and adolescence). On the basis of the data presented here, we cannot be certain what conditions would be required for an expansion of provision to meet with real demand (for example personal participation, proximity to place of residence). To date, the measures have been restricted to motivated participants, meaning that they result in self-selection. Consequently, a focus of future provision policy for overweight and obesity could lie in building up motivation for participation in the programmes, in designing easily accessible programmes and in supporting access opportunities. To achieve this, it is useful to have a strategy incorporating different levels:

Low-profile initiatives should be expanded so as to reach people who do not use the standard high-profile initiatives because they are frightened or ashamed. For many of those affected, it is difficult to be proactive, to enter an unknown environment and talk to people who are generally of a higher social class. Low-profile initiatives should therefore not wait until people make contact with them, but should approach the target groups directly. Wherever possible, they should be held in the home environment and should be tailored to the requirements, conditions and abilities of those affected. These initiatives may link up with the existing outpatient and combined outpatient-inpatient provision and thereby act as a "feeder" to the more complex inpatient initiatives.

- The existing widely ramified forms of provision may be used in order to draw together the specialists working there as disseminators of information and to ensure that they are qualified by means of information and further training. This will improve the profile of the initiatives and access to them. In order to implement this, local or regional partnerships with school medical services and local authority youth agencies should be considered. Such partnerships would also be a preparatory step for linking up ongoing programmes and measures in order to balance out their respective deficits (for example linking nutritional and physical exercise initiatives with psychosocial measures and diagnostic testing).
- As overweight is connected to self-projections and values transmitted by society and the media, campaigns for health consciousness and health information are important to publicise possible courses of action and to support motivation to participate (MacNeill 2005). For example, such campaigns can be used, tailored to specific target groups, in combination with health promotion in schools and local sports clubs located in trouble hot-spots (Wabitsch 2004).

Recommendation 8: Differentiated provision and successive standards

A broad spectrum of different measures is likely to be best suited to the varying expectations and requirements of those affected, depending on the scale of the problem, motivation and social background. Within this broad spectrum, initiatives with particular profiles can play a useful role (for example particularly intensive, frequent or complex treatments on the one hand, or low-profile projects and those close to the patients' environment on the other hand). Under this aspect, evidence-based "sliding" (graded) criteria for individual types of facility or frameworks of provision might be discussed by groups of experts. This would enable organisations that are financially and organisationally weaker to improve their quality step by step, as well as permitting them to meet more demanding individual criteria. In this context, it is important that all facilities have sufficient time to make the transition (networking, qualification).

Recommendation 9: Provide help with implementation

Hand-outs could support the development in quality, rendering individual criteria that are difficult to meet easily accessible. This would be particularly helpful for outpatient facilities, which are widely dispersed. It could involve collections of "best practice models", scientifically-supported documents regarding the measures' focus on evidence-based concept quality, suggestions

for implementing networking and integrated provision, databases or forums for sourcing contact partners for a network. Collaboration between different professional associations is advisable, as it would permit the demand to be clarified, aid the acceptance of and help in designing the information provided.

The opportunities presented by the internet should be used for this type of help with implementation, as well as for carrying out and supplementing individual intervention stages (particularly follow-up treatment) – to date, this has only happened in a few rare cases. However, examples exist of the practicability and efficacy of this approach with regard to weight reduction programmes (McCoy et al. 2005).

Recommendation 10: Expand research into provision

In order to coordinate development in the field so as to satisfy the principal health targets, descriptions of provision are necessary, enabling the success of the quality standards introduced to be monitored and possible secondary effects to be investigated. For these descriptions – as well as for observational studies and comparative evaluations – differentiated pictures gained from random samples of the current spectrum of provision are appropriate for depicting the breadth of initiatives.

Once the complete results of the 2008 observational study are available, it will be necessary to examine which further recommendations should be added and which of those listed here should be revised, if appropriate. However, it is initially important to improve current provision for affected children and young people, step by step. The study has persuasively shown that, as far as expansion of the provision structures is concerned, "more of the same" is not sufficient – rather providers must collaborate with one another and proceed in a targeted manner. Nevertheless, targeted cooperations, for example between various local facilities, are only possible when there is agreement concerning the profiles and quality characteristics. The study has made an important contribution towards this. The BZgA's quality assurance process will now be continued, with the findings and recommendations being forwarded to those working in the field and the observational study being evaluated. On the basis of this evaluation, the quality criteria making up the quality grid and those put forward by the consensus paper will be examined once again and will be updated if necessary.

6. Literature

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7. Annex

7.1 Questionnaire for stage A of the survey

University Medical Centre Hamburg-Eppendorf

commissioned by the BZgA

Initiatives for children and young people suffering from overweight and obesity: National Survey 2004

Please ensure that this box is filled in!

Name and address of the facility/provider:

Type of facility/provider:

- ☐ Children's hospital
- ☐ Paediatric practice
- ☐ Psychotherapist's practice
- ☐ Adult education centre
- ☐ Sports club
- ☐ Health insurance fund
- ☐ Health authority
- ☐ Social-paediatric centre
- ☐ Nutritional advisory centre
- ☐ Other, please specify
- ☐ School
- ☐ Nursery
- ☐ GP's surgery
- ☐ Other advisory centre

☐ **We do not offer any measures for overweight or obese children/young people – otherwise please continue to fill out this form:**

Contact person:

Surname, first name:

Telephone No. or e-mail address:

Name of the initiative:

Framework of the initiative: ☐ **outpatient** ☐ **inpatient** ☐ **other (please specify):**

Is the initiative part of a wider programme (e.g. Moby Dick, Obeldicks, …)? ☐ yes ☐ no

If yes, which programme?

Is there a written concept or manual for your initiative? ☐ yes ☐ no

Is a medical examination carried out to exclude somatic illnesses? ☐ yes ☐ no

Is a diagnostic investigation carried out to identify any mental-health problems? ☐ yes ☐ no

Are there certain criteria that rule out participation in your programme (e.g. BMI, motivational factors, etc.)**?**

☐ no ☐ yes (please specify):

Is your initiative designed for a specific target group?

- ☐ No particular target group
- ☐ All children/young people
- ☐ Overweight young people (>90th percentile)
- ☐ Other or particular groups (e.g. socially disadvantaged persons)
- ☐ Parents of overweight children
- ☐ Obese children/young people (>97th percentile)
- ☐ Children with illnesses associated with obesity (e.g. diabetes, high blood pressure, etc.)

Is your initiative targeted at a particular age group? ☐ no ☐ yes, from to years

Participation:

How many people participate in your initiative each year?

What is the percentage of female participants? approx. %

How many measures do you carry out in a year?

What is the percentage of male participants? approx. %

Length of the initiative and frequency of contact (per person, on average):

Length of one treatment unit/day of treatment: hour/s

Number of contacts/days of treatment: contact(s)

Frequency of treatment: ☐ daily or times per week or times per month

Principle objective(s) of the initiative:

- ☐ Weight reduction
- ☐ Weight stabilisation
- ☐ Improvement of habits with regard to physical exercise
- ☐ Education as part of health education
- ☐ Improvement of eating habits
- ☐ Improvement of quality of life
- ☐ Other goals:

University Medical Centre Hamburg-Eppendorf

commissioned by the BZgA

Focuses of initiative:
What is the approximate division of time for the various treatment approaches within your measure (if appropriate per treatment or per person as an average)? Are these individual or group initiatives? Are the parents of the affected children also involved in a targeted manner?

	Individual	Group	Parents
% Medical interventions (e.g. drug treatment)			
% Sport/physical exercise initiatives	☐	☐	☐
% Nutrition physiology measures/nutritional advice	☐	☐	☐
% Health information and education	☐	☐	☐
% Personal advice/psycho-educative measures	☐	☐	☐
% Psychotherapy	☐	☐	☐
% Psychosocial measures (e.g. stress management, recurrence prophylaxis, etc.)	☐	☐	☐
% Other approaches (e.g. prevention in the social context), namely:	☐	☐	☐

Which follow-up measure/s are introduced or arranged as part of your initiatives?

☐ Information material ☐ Addresses of other facilities ☐ Follow-up care, length: weeks

☐ Self-help groups ☐ Advice sessions ☐ Other (please specify):

Which investigations are regularly carried out as part of the initiative, and at what time? (including by transferring or cooperating facilities)

	Diagnostic discussion	Standardised test procedure, namely:	At start	At end	After ….. weeks
Eating habits	☐		☐	☐	☐
Physical activity	☐		☐	☐	☐
Psychosocial stresses	☐		☐	☐	☐
Motivation for change	☐		☐	☐	☐
Somatic/laboratory diagnostics			☐	☐	☐
BMI			☐	☐	☐
Other standard quantities (e.g. fat mass), namely:			☐	☐	☐

Scope of the measurements during the course of treatment or at the end of treatment

☐ Follow-up checks are carried out for all participants ☐ Follow-up checks are only carried out for %

Professional groups within the training or treatment team

☐ Doctors ☐ Nutritional scientists ☐ Teachers
☐ Psychotherapists ☐ Exercise therapists ☐ (Social)pedagogues
☐ Nutritionists ☐ Dieticians ☐ Art therapists
☐ Others (please specify): …….....

The initiative is funded by:

What does the initiative cost the sponsor? € ☐ per measure or ☐ per hour or per year

What does the initiative cost the participant? € ☐ per measure or ☐ per hour or per year

Thank you for your cooperation!

To
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(Save questionnaire and attach the file!)

7.2 Group of experts supporting the Federal Centre for Health Education

The operation and design of the survey were discussed with the group of experts from the Federal Centre for Health Education leading the project, and the points raised by this group were taken into consideration when carrying out the study. The group of experts included:

- Professor Jürgen Bengel, University of Freiburg
- Professor Monika Bullinger, University Medical Centre Hamburg-Eppendorf
- Cornelia Goldapp, Contributor to the division "Prevention of nutrition-related diseases" at the BZgA, Cologne
- Professor Reinhard Holl, University of Ulm
- Thomas Kliche, University Medical Centre Hamburg-Eppendorf
- Reinhard Mann, Head of the division "Prevention of nutrition-related diseases, health promotion" at the BZgA, Cologne
- Professor Ulrike Ravens-Sieberer, University of Bielefeld
- Dr. T. Reinehr, Vestische Kinder- und Jugendklink [*Hospital for children and young people*], Datteln
- Dr. Rose Shaw, IFT, Munich
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7.3 The quality assurance system for evaluating preventative activities (QIP)

Quality Assurance for Prevention and Health Promotion

QIP

Quality in Prevention

Evidence-based information system
for quality management in the field of
prevention and health promotion

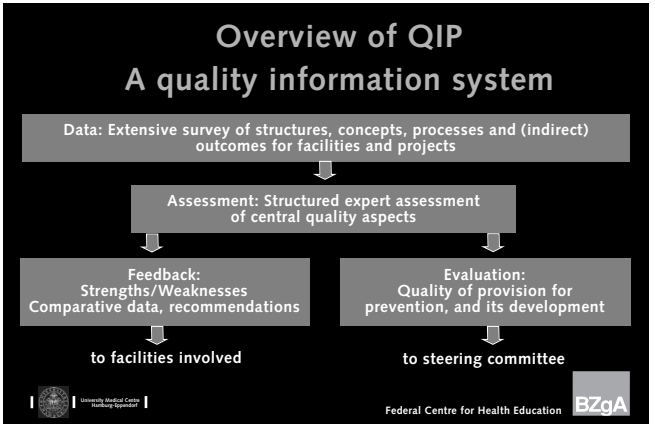
University Medical Centre
Hamburg-Eppendorf

BZgA

All children/young people

Overview

Quality in Prevention (QIP) is an information system for quality assurance in the field of prevention and health promotion. The purpose of the system is to assess the efficacy (effectiveness) and efficiency (economy) of preventative activities. When used in an appropriate manner, QIP can result in targeted improvements to the development of healthcare provision with preventative measures. This means that QIP represents a quality assurance procedure for health promotion and prevention that has a sound scientific basis, has been developed with the collaboration of practising professionals and has been tested.



Scope of use

QIP covers all types of activities and initiatives that serve to improve health by means of prevention and health promotion, and describes these using central quality criteria. QIP is suitable for all current forms of provision that are up-to-date in their field, and particularly for individual measures, programmes, campaigns and projects designed to develop organisations promoting health. QIP can also be used meaningfully for such initiatives as health courses in hospitals or adult education centres, programmes of back training exercises in companies, campaigns to prevent smoking, the introduction of healthy eating in nurseries, HIV posters in nightclubs, the introduction of health management in schools or authorities, etc.

System components

The system consists of several carefully coordinated elements. These have undergone multiple tests and satisfy scientific quality criteria and criteria of professional usefulness. Manuals set out details of how to use all the elements (instructions on data collection, handbook for assessment, handbook for training the assessors, handbook for the use of the "QIP/Report" database).

1. Data collection: In the case of facilities working in a preventative capacity (e.g. advisory centres, health authorities, schools, doctors' surgeries) all significant information for evaluating individual activities must be collected and systematically recorded. This is carried out using a precise questionnaire covering 24 pages. Targeted questions are asked regarding all the aspects and documents of significance for the assessment of quality, and the accuracy of these questions has been scientifically tested.

2. Assessment procedure: The data are presented to trained specialist assessors, who use an 18-page assessment form. This form draws together all the information about the preventative activity, in 7 main quality aspects and 21 sub-aspects, giving 28 aspects in total. Each aspect is based on several individual criteria. Current specialist knowledge shows that these aspects are of vital significance for the effectiveness and economy of preventative measures. The assessors must hold academic qualifications and have professional experience in the field of prevention and health promotion. They are trained for QS-P using a training manual and must undertake to comply with ethical guidelines.

3. Feedback: The facilities working in a preventative capacity receive feedback, with the assessment for the 2 quality aspects and all other specialist remarks and recommendations shown in a table, with extensive explanations. The table contains the average outcomes for the activity assessed, the average outcomes for all other similar activities from this field of prevention, and the outcomes of the best and worst activities in each aspect.

4. "QIP/Report" reference database: All the results of the assessment are entered into a database that has been developed and programmed specially for the QIP process. This database automatically compiles the feedback forms, yet it can also give different assessments to describe whole prevention fields, e.g. a comparison of quality development between years, between federal states or between provision fields (obesity and addiction prevention).

Services offered

Using this information system, it is possible to provide scientific and specialist services on several levels.

The most important types of services on offer are:

1. Certification of preventative activities (measures, programmes, projects)
2. Contract research (reporting on quality and provision)
3. Training for these purposes

By inspecting scientific quality criteria and setting out all the individual elements of the system in a manual, a consistently high-quality, uniform implementation of all the services provided is guaranteed. This quality and usability of the system services is subject to scientific checks and further development on an ongoing basis (incorporation of the latest research findings, improvement of measuring instruments).

The following table gives an overview of all the individual products for these types of services:

Product	Purpose	Target group	Design	Calculation
Expert report with feedback	Optimisation of planned or ongoing initiatives in the field of health provision	Facilities working in a preventative capacity (e.g. nurseries, hospitals, advisory centres, schools, etc.)	Benchmarks and suggestions for individual measures	Basic set for each activity
	Quality assurance	Sponsors (e.g. health insurance funds, local authorities, charitable organisations, regions)	Carried out annually for all initiatives within a field	
Certificate	Proof of performance for target groups or sponsors of prevention	Sponsors, facilities with preventative initiatives or during reorganisation of health promotion	Expert reports certifying high quality of provision	
	Evidence of conceivable effectiveness	The same, plus developers of interventions and programmes (e.g. practitioners, the scientific community)	Expert reports certifying a short evaluation	
Selection of high-quality initiatives	Funding decisions, award of prizes	Sponsors, ministries, foundations	League table in order of evaluation outcomes	
Overview of field	Orientation for consumers/target groups	Patients, consumers, insured parties	Report focusing on one field of provision, based on the database	On a case-by-case basis, depending on scope of scientific evaluations
Advice	Targeted development of concepts, programmes and provision for preventative measures	Sponsors, providers of prevention, educational and health sectors (authorities, companies, hospitals, etc.)	Consultation, research and reports	On a case-by-case basis, depending on task and agreed partial services
Analyses of provision	Information for optimisation/management of provision and design of framework	Managing bodies (sponsors, health policy)	Evaluations from the database, if appropriate with planning, execution and evaluation of targeted additional studies	
Certificate of further education	Qualification at the current level of prevention and health promotion and quality assurance in this field	Members of all professions working in a preventative capacity (healthcare, and educational professionals), specialists working for sponsors, psychotherapists' associations, medical associations, professional associations	One and two-day specialist training	Daily contribution for each contributor

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