



Meeqqat Inuusuttullu Pillugit Ilisimasaqarfik
Videnscenter om Børn og Unge
Documentation Centre on Children and Youth



**Children's health
in a social perspective based on
Inuuneritta – the Public Health Program**

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Preface

The Greenlandic public has seen several debates on differences in living conditions, lifestyles, poverty, etc., between the towns and the settlements. These debates concern e.g. how people living in the settlements and peripheral districts and those inhabiting bigger towns respectively have differing possibilities for access to shopping for fresh and wholesome food. Studies in Greenland have documented that social inequity between children exists, but analyses of data are scarcer in terms of health. Some data exist, however, and for this reason MIPI – Documentation Centre on Children and Youth – has launched a joint venture together with Inuuneritta - the Public Health Program with a view to zooming in on *children's health in a social perspective* seeing that this topic is insufficiently elucidated.

By way of the present report on health, MIPI – Documentation Centre on Children and Youth and Inuuneritta - the Public Health Program are hoping to secure the children and youth perspective and help highlight this important topic.

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Inuuneritta - the Public Health Program
Government of Greenland

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1. Introduction

During recent years, the awareness of children's conditions, health, and well-being has increased on several levels. As far as politics is concerned, all parties seem to agree that more money should be allocated to children and youth in order to ensure citizens of the future the optimal upbringing conditions from a societal point of view. Securing public health is an ongoing process which requires a continuous focus. *Naalakkersuisut*¹ can contribute to implementing long-term strategies with a view to increasing general public health. A good example of a long-term strategy is Greenland's first public health program 'Inuuneritta – let us obtain a good life' – Greenland Home Rule 2007) which focuses on prevention and health promotion.

An interest in children's health and general conditions has also manifested itself within health research, e.g. by way of the strategy called 'Greenland for Children – Children in Greenland,' Mulvad et al. 2003, taking children and youth as its focal point.

But despite the best intentions as well as political, academic, and strategic prioritizing, work still remains to be done before all children in Greenland are healthy and thus able to fully realize their potential. This fact has been documented in earlier reports from MIPI – Documentation Centre on Children and Youth on child poverty and its consequences (Schnohr et al. 2007, Nielsen and Wulff 2007, Wulff and Nielsen 2007) as well as in other reports on children's conditions (Kahlig and Banerjee 2007).

Today, the various efforts toward better conditions for children are not bound together by an overall strategy, and within most areas no concrete goals or criteria have been specified for the efforts. What seems to be lacking is "... a systematic, continuous, and proper registration of children's health and well-being as seen from a children's perspective and included in a social and political context" (Köhler and Jakobsson 1991).

Reports from MIPI – Documentation Centre on Children and Youth suggest that social inequality exists between children and youth in Greenland. It would be reasonable to expect a similar inequality when it comes to health. This report will endeavor to elucidate exactly that. It is interesting to investigate the connection between social inequality and health because knowledge of the influence exerted on health by external conditions is sadly absent, and because this approach may contribute new perspectives and perhaps even explanations. Most of the research published so far deals with individual diseases that are rarely viewed from a social perspective (Niclasen 2009) – nor does it include social, economic, and educational conditions all of which are significant to people's health.

¹ The Government of Greenland

The intention is to analyze the health situation based on the areas of action to which Inuuneritta - the Public Health Program devotes its focus. These areas have been singled out because they represent the current political goals within the field of public health. In the report, health is very broadly defined. The social context will be elucidated through various societal conditions that contribute to shaping general health. These 'determinants' will be explained and divided into macro, meso and micro levels depending on which level they are influencing health conditions. This approach has not previously been applied in a Greenlandic setting, but hopefully it will contribute nuances to the picture of Greenlandic children's health condition and raise awareness of the societal factors that affect the population's health potential.

1.1 Summary

The report is divided into three parts.

Part 1 consists of chapters 1 and 2. Chapter 1 provides background information on the making of the present report, and chapter 2 throws light upon the Greenlandic public health condition and its development – taking children and youth as its point of departure. This part will elaborate on why the report's focus on determinants is important and applicable.

Part 2 consists of chapters 3 and 4. A presentation of international health programs as well as the way in which the view on health has developed therein is available in chapter 3. Chapter 4 links the Greenlandic public health program Inuuneritta to the international health programs.

Part 3 consists of chapters 5, 6, and 7. This part describes the methodological considerations behind the report. Chapter 5 introduces the various indicators with which the report deals. Chapter 6 will substantiate why it is relevant to link differences in health to living conditions and the social determinants included in the present report. Moreover, there will be a short paragraph on data processing and the statistics used. The report closes with a presentation of the various analytical levels.

Part 4 consists of chapters 8, 9, and 10. Chapters 8 and 9 describe the results of the analysis, while chapter 10 contains reflections on their significance. The challenges they entail will be exemplified with 'overweight' as a case in point.

Part 5 contains recommendations based on the report results.

2. Background

2.1 Public health

This paragraph will expound in further detail what exactly is meant by the designation “public health.” Moreover, international trends across public health programs over time will be introduced with a view to placing the Greenlandic public health program Inuuneritta within a context.

The term public health most often refers to overall health on population level or of groups of individuals (Acheson 1988) as opposed to the healthcare system’s individually based approach to health and initiatives. Public health can be defined in different ways, but all the definitions share an emphasis on the significance of society and collective efforts in the improvement of the population’s general health condition.

2.2 A few words on the way public health has developed in Greenland

Within the past 50-100 years, Greenland has undergone a dramatic societal development, which has had both positive and negative consequences for public health (Bjerregaard 2004). According to Inuuneritta - the Public Health Program, the following circumstances have had the greatest impact on public health (Greenland Home Rule 2007).

- Adaptation from hunting-based economy to wage labor
- Improved housing conditions, waste collection, and food security
- Increased contact to the rest of the world
- Immigration of Europeans, population growth, and ditto concentration
- Changed diets and reduction of physical activity
- Increased access to tobacco and alcohol
- Improved access to modern healthcare
- A change in family patterns and development from three generations to two in the same household

In addition, Young and Bjerregaard have added:

- Changed political culture with increased independence and a new (often) bilingual ruling class rooted in western as well as traditional culture (Young and Bjerregaard 2008).

The rapid societal changes have also affected the disease pattern in children. On an overall level, the current disease pattern is similar to that of other western countries, and in brief Greenlandic children have become physically healthier than they used to be (Niclasen and Bjerregaard 2007a). Historically speaking, we have seen a shift in the disease pattern from critical infectious diseases, high infant mortality rates as well as a high mortality rate due to unnatural causes like e.g.

accidents toward a disease pattern featuring an increase in chronic and lifestyle diseases such as allergies, asthma, and overweight. Overweight is one of the more recent lifestyle diseases which is rapidly increasing on a global scale as well as in the entire Arctic region, also among children in Greenland (Schnohr et al. 2005b, Niclasen et al. 2007b). Overweight is related to cardiovascular diseases and diabetes later in life. Specific for Greenland is the continued prevalence of the old disease pattern while the new chronic diseases are gaining ground. The incidence of tuberculosis, sexually transmitted diseases, and hepatitis B thus remains frequent, and the child mortality rates are higher than in most western countries, partly due to a higher mortality rate among infants and toddlers and partly because of the higher frequency of suicide among pre-teens and adolescents in Greenland. The rapid societal changes have also affected the mental and social health of the individual families (Bjerregaard and Young 1998). The family is essential to children's health. Despite the lack of accurate figures, everything suggests that the risk of perpetuating negative social heritage is significant, and this is a health menace in itself. Another menace to health later in life is the negative health habits as regards e.g. dietary habits, physical activity, binge drinking, smoking and sexual health (Schnohr et al. 2005a, Currie et al. 2004, Niclasen et al. 2007a, Currie et al. 2008) – a fact also pointed out by Inuuneritta - the Public Health Program (Greenland Home Rule 2007) – and lastly, globalization has augmented the information flow and effected new consumer goods and changed habits, which also affects health and quality of life.

2.3 Factors (determinants) significant to health

Health cannot be viewed as an isolated phenomenon. On an individual level, health is constituted by a dynamic interplay between heritage, personal resources, lifestyle, network, living conditions as regards family, friends, and local community, and the global community. Figure 1 from Inuuneritta - the Public Health Program (Greenland Home Rule 2007) features the factors that influence human health. The figure also shows some of the social factors that the present report wishes to cover.

It is crucial to note that children are a specific case – and especially important – partly because of their dependency on their surroundings and partly due to their growth and developmental needs. Factors significant to children's health thus change according to the individual child's needs, age, and developmental stage.

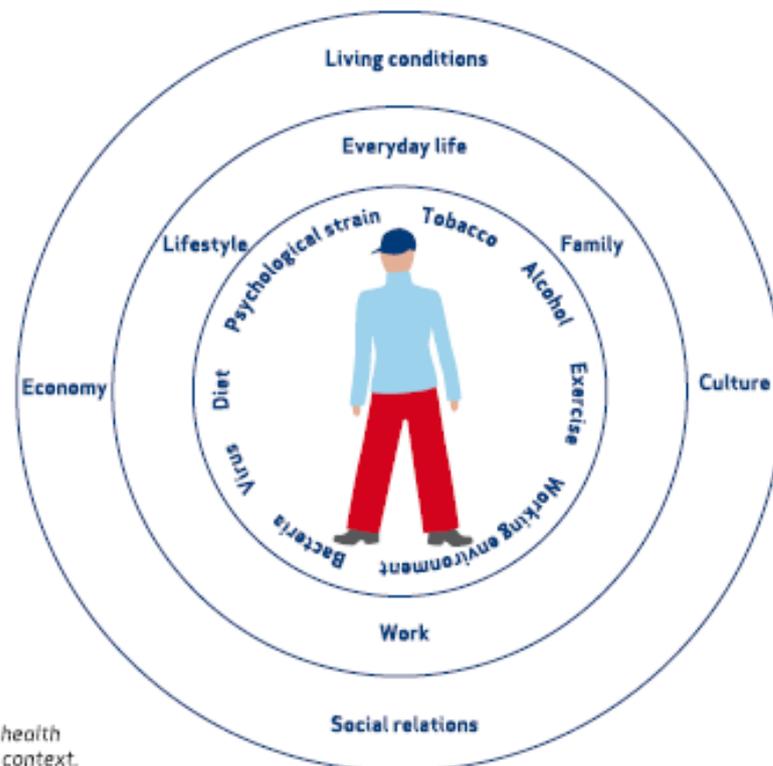


Figure 1.
Model for health
in a social context.

The health-affecting factors (the health determinants) may be divided into determinants on a macro, meso, and micro level respectively.

The macro level covers factors which are considered to carry the far greater health significance. They are regarded as “the causes of the causes” (World Health Organization 2008). These include a number of interdependent social, physical, economic, and environmental factors such as *educational, occupational, and working conditions, income, accommodation, and demographic circumstances*. Factors on a macro level may be influenced by even higher levels such as social policies and global factors.

The meso level refers to *the social, physical, work-related and environmental context in which the individual person lives* and which affects them by way of mental and social processes, health behavior or – more directly – specific risks in the local surroundings. Culture is perceived to be an influence on both macro and meso levels.

The micro level covers *individual factors significant to health* such as physiological and biological conditions (Turrell et al. 1999).

2.4 The responsibility for managing public health

The overall societal responsibility for public health rests with and is distributed between the Government of Greenland and the municipalities. The Government of Greenland is responsible for the overall guidelines concerning service and administration, most public institutions, public healthcare including actual care and home nursing functions, disabilities as well as the operation of special social and healthcare-related institutions. The municipalities are responsible for administering social benefits, operating child care centers and schools, school education, local cultural activities, and the local conditions. As of January 1, 2009, the new major municipalities² took over the full responsibility for several administrative areas, and this takeover may influence the affected children on more levels.

3. Conventions and international programs focusing on children's role therein

This chapter contains a presentation of actors within the field of healthcare. In addition, Inuuneritta (the first public health program in Greenland launched in 2007) as well as the program's fundamental ideas are introduced. Finally, this chapter will elucidate the circumstances that are prerequisites of optimal program operation.

3.1 The UN Convention on the Rights of the Child

For many years, children have been specifically considered as far as the design of national legislation is concerned, and the UN Convention on the Rights of the Child (United Nations 1989) of 1989 was ratified already at the Landsting spring congregation in 1992. The UN Convention on the Rights of the Child should form the basis of efforts pertaining to children's conditions in Greenland. That all initiatives are to be *in the best interest of the child* and focus on the child is the most fundamental principle of the UN Convention on the Rights of the Child. The intention with using the term "child" rather than "children" is to make it harder to subsume the individual child's conditions under a collective rubric. According to the convention, children are 0-17 years of age. The 54 articles of the convention describe a number of basic rights that society is obligated to guarantee all children. Health figures prominently in the UN Convention on the Rights of the Child, in which the child's right to the highest possible health standard and the best treatment and health

² Qaasuitsup Kommunia, Kommuneqarfik Sermersooq, Qeqqata Kommunia, and Kommune Kujalleq.

restoration facilities is ratified – however in consideration of the available resources in the individual countries.

3.2 International strategies

An important ally in the improvement of global public health is WHO, the World Health Organization. When the organization was launched in 1948, health was defined as “*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*” (World Health Organization 1948). This definition of health is very general and thus difficult to put to practical use. It views health as static and is more like a definition of happiness. But it remains important because it emphasizes the significance of social and mental conditions. A later definition from the WHO views health as a means that “*permits all people to live a socially and economically productive life*” (World Health Organization 1998). The latter understanding of health is more in consonance with that of Inuuneritta - the Public Health Program (Greenland Home Rule 2007).

One view on prevention – in relation to health promotion which is often included in the design of public health programs – is described in the Ottawa Charter (World Health Organization Regional Office for Europe 1986). It marks a shift from an old-fashioned preventive notion focusing on risk factors to a new focus oriented toward health and involvement. Inuuneritta - the Greenlandic Public Health Program is based on the very ideas of health promotion that are described in the Ottawa Charter and in subsequent charters.

Generally, international public health strategies after the launch of the WHO are characterized by a heightened awareness of prevention and health promotion as regards children’s health and the significance of early development for health later in life. At the same time, they are increasingly taking the rights of the child and the child’s own perspective as their point of departure. Parallel to these changes is an increased focus on measuring and charting public health by way of indicators.

4. The ideas behind Inuuneritta - the Public Health Program

In the preface to Inuuneritta - the Public Health Program it says that “... *the Home Rule Government aims to improve public health and hence ensure a higher quality of life. This cannot be achieved solely by means of treatment*” (Greenland Home Rule 2007). The program views health as a social responsibility, and this paves the way for enhanced interdisciplinary cooperation. The program objective is “... *to define the perimeters, present a number of ideas, and provide material for cooperation agreements with regard to health,*” while “... *the concrete initiatives and actions should be implemented by the people – professionals as well as average citizens – who will be responsible for the program*” (Greenland Home Rule 2007:7).

Until 2012, Inuuneritta - the Public Health Program has the following focal points: **Alcohol, violence and sexual abuse, diet, physical activity, smoking, and sexual health.**

Children and youth are a program priority. As far as children are concerned, the program builds upon previous efforts and especially on **suicide prevention, early preventive efforts for children and youth, and dental health** – specifically prevention and health promotion.

The program describes the following four strategies within the field of children and youth:

- To promote an early effort and follow-up on pregnant women and their families, new-born children, and children who are at particular risk and/or have special needs.
- To ensure an early intervention vis-à-vis young people displaying risk and addictive behavior.
- To improve the quality of life and well-being of children and young people.
- To promote the agency of children and young people toward a general healthy lifestyle.

These strategies are all very broadly defined, and Inuuneritta - the Public Health Program offers only few concrete suggestions as to how realization of the strategies might be evaluated and measured. Although Inuuneritta - the Public Health Program also focuses on prevention and health promotion, children's health, and the significance of early development for health later in life, the program in its current design primarily focuses on health as seen from an individual perspective and only to a narrow extent on the health significance of social, economic, and demographic factors.

In order to identify whether Inuuneritta - the Public Health Program affects public health as projected, ratios (indicators) to provide more concrete measuring points need to be developed, and data for these need to be gathered more systematically.

Therefore, the next chapter will deal with indicators and whether Inuuneritta - the Public Health Program may be operationalized by lining up indicators by which data may be gathered, thus enabling an evaluation of Inuuneritta's desired effect on public health within the field of children and youth.

5. Indicators' place in the health monitoring and in general about the chosen indicators

This chapter defines the concept of indicators as well as the background of the selected indicators. The purpose is to clarify how indicators may contribute as regards knowledge production and the assessment of needs, various options, and the effect of health initiatives on children.

As stated above, international public health initiatives focus more and more on measuring health and the effects of various efforts. This is often accomplished by means of indicators (key ratios). Adequate indicators are a crucial tool in e.g. the political decision-making process because indicators may contribute to an understanding of complex connections by providing a simplified rendering of reality and concretizing it.

The important part is to ensure that the selected indicators afford the best possible view of children's health pertaining to local conditions and priorities. The set of indicators must therefore be developed incrementally. The first stage consists of gathering existing knowledge concerning children's health and conditions. The second stage involves decisions on what areas are more important to measure in consideration of that knowledge and the local priorities. During the third stage, the most relevant indicators within these areas are singled out. The fourth stage is to find data sources for the indicators (Nielsen 2009).

Seeing that Inuuneritta - the Public Health Program delineates the current priorities for Greenlandic public health, these indicators will be the main focus of the present report which will also supplement them with indicators for health determinants on macro-factor level such as demographic, social, economic, and educational conditions. To the extent that this is possible, the report employs the same indicator definitions that were recently introduced in a proposal regarding children's health in Greenland (Nielsen and Köhler 2009a, Nielsen and Köhler 2009b). However, it is impossible to devise specific indicators or procure data for all the areas of action within Inuuneritta - the Public Health Program. As a result of that the sample of indicators in the present report has also been restricted by the data available.

6. Inuuneritta - the Public Health Program in a social perspective

Internationally speaking, social inequity within health is gaining more and more attention, and the effort to reduce health inequality is one of the cornerstones of the WHO public health strategies. In addition, this effort is a central component of the UN Convention on the Rights of the Child.

Regardless of the wealth of the relevant nation, the health standards – also those of children – differ between the richest and the poorest proportion of the population, and each step while ascending the social ladder most often entails improved health (Victora et al. 2003). This socially conditioned health variance can to a wide extent be ascribed to the aforesaid macro-level factors.

Inuuneritta - the Public Health Program (Greenland Home Rule 2007) acknowledges that living conditions often determine the health of each individual. As mentioned earlier, however, the program in its present state barely focuses on the large demographic, social, and economic differences in Greenland internally and their health significance. Thus it is interesting to see what a focus on social determinants may contribute vis-à-vis the Inuuneritta areas of action.

Prior to the presentation of the analysis results, the data and statistical tests will be briefly introduced below.

6.1 Data in the report

In order to examine public health via indicators for the Inuuneritta areas of action as well as various macro-level factors, a solid data material is needed. The present report includes analyses from HBSC³ as well as new data retrieved for this report specifically. Moreover, data from Statistics Greenland, the national birth registry, the Greenlandic health services, and the Chief Medical Officer have been employed. The report, then, makes use of a wide range of data sources and registries. General considerations regarding these sources are available in the report attachments.

6.2 Data processing

The passages in which a percentage is quoted refer to the percentage of children within the population or in the questionnaire-based responses for the relevant category. Statistical tests have been utilized in order to examine whether the specified differences between the groups could be coincidental or whether they are statistically significant. The tests in question are either chi tests or Kruskal-Wallis tests. The text accompanying the individual tables specifies whether a statistical difference between the groups has been found. The analyses employ different levels of significance, and ‘*’ marks a 5 percent-level, which means that the likelihood that the correlation is coincidental is less than 5 percent. Similarly, ‘**’ designates a risk of less than 1 percent that the correlation is coincidental, and ‘***’ denotes a likelihood of 0.1 percent or less. So when the report notes a difference between the surveyed groups, it means that this difference is significant. A ‘–’ in the tables denotes a non-significant correlation.

³ Health Behaviour in School-aged Children (HBSC) is a nation-wide questionnaire survey conditionally conducted among school pupils. It has been carried out every four years since 1994 – most recently in 2006.

The small number of children in the municipalities has made it impossible to analyse data in relation to gender. However, the data analyses have been conducted on data from three consecutive years when possible. Data in the individual tables are specified as an average for the municipalities within the group. The highest and the lowest values within the group (group dispersion) are shown in a parenthesis.

7. Levels of analysis

The following two paragraphs will provide the grounds for the analytical divisions and data samples for the selected indicators.

7.1 Differences in terms of municipal levels

The municipalities are responsible for many of the areas that directly influence children's conditions⁴, and each of the old municipalities (pre-2009) also made up a health district with its own hospital in the principal town. This makes analyses at a municipal level a logical choice. Differences in children's health and living conditions between the individual municipalities may for instance inspire one municipality to learn from another that is performing particularly well within a certain field. It would be of utmost interest if municipalities exist in which children's health ranks above average, even though the relevant municipality does not boast particularly feasible economic and demographic conditions – a so-called 'pattern-breaker municipality.'

The municipalities in Greenland are traditionally divided into groups according to a combination of population size in the towns and settlements, industrial structure, and distance from the capital. This division is based on the differences between various regions in Greenland as regards demographic, economic, social, and professional circumstances (macro-level factors). Contrary to the previous municipal boundaries in the northern, southern, and eastern peripheral districts, four of the new major municipalities that were established on January 1, 2009, run across the traditional division, configuring Greenland in a novel way. In some of the old municipalities, the number of children was limited. This was particularly so for the municipalities located in the peripheral districts that often had a small population. If data are analyzed for the new major municipalities, the risk arises that children's conditions in the peripheral districts are "lost" in the total numbers for the major municipalities. To counter this, the present report is divided according to the municipalities that existed until January 1, 2009.

⁴ However, their effect on the macro-level factors is limited other than for school education and accommodation.

This reflects a desire to show some of the more fundamental differences between the various types of municipalities in Greenland and hence avoid focusing on individual municipalities for fear that this might avert attention from the more fundamental aspects of the survey findings. Therefore the following municipal divisions have been employed:

Designation	Explanation
Nuup Kommunea	The capital including settlements.
Major municipalities	Municipalities on the West Coast with more than 3,000 inhabitants.
Minor municipalities	Municipalities on the West Coast with less than 3,000 inhabitants.
Peripheral municipalities	Municipalities including villages or peripheral districts in the north, south, and east.

7.2 Differences between Nuuk City, towns, and settlements

New habits, ideas, and inspiration often start in Nuuk or in the larger towns only to spread to the rest of the country. This has been the case for material goods such as access to television and cell phones as well as for health behavior such as smoking and juvenile suicide. The settlements of Northern and Eastern Greenland feature a more traditional industrial structure with a majority of fishermen and sealers, while there is smaller agriculture with sheep farming in the settlements of Southern Greenland. Children in the settlements generally lead a more traditional lifestyle. At the same time, settlement children often have other living conditions and are offered other opportunities from society than children in the towns. This is especially true with regard to macro-level factors such as access to education, employment, material goods, cultural services including sports, and the opportunity to shop for varied provisions. Bearing these differences in mind, the present report also deems it relevant to analyze data according to residence in ***Nuuk city, towns, and settlements*** rather than merely municipal groups.

When possible, the analysis thus presents results for Nuup Kommunea/major municipalities/minor municipalities/peripheral municipalities, and then for Nuuk City/towns/settlements. This will allow demographic macro factors to be consistently included in the analyses.

8. Differences in terms of social and demographic conditions

Table 8.1.1 demonstrates the vast differences between municipalities when it comes to social and demographic conditions as far as children are concerned. Both the proportion of children within the population and the proportion of the population in prospective need of financial support are smallest in Nuuk and largest in Kangaatsiaq⁵. The dispersion in the proportion of children living in settlements ranges from 1.0 percent in Ittoqqortoormiit to 64.0 percent in Upernavik. Upernavik also has the largest proportion of children whose mothers are born in Greenland, while Nuuk has the smallest. Paamiut has the largest proportion of children living with single parents, while Upernavik has the smallest. The dispersion in the proportion of children in poor households ranges from 1.0 percent in Nuuk to 19.3 percent in Ittoqqortoormiit. Generally speaking, Nuup Kommunea contains the relatively largest proportion of single parents, most children whose mothers were born outside Greenland, the lowest proportion of poor households, and the fewest children living in settlements. From then on a gradual change is noticeable, in that peripheral municipalities have the relatively smallest proportion of single parents, most children with Greenlandic mothers, most poor households, and most children living in settlements.

⁵ Defined as children younger than 18 years of age and individuals older than 62 respectively.

Table 8.1.1 Social and demographic conditions (macro-level factors) at a municipal level

	Popula- tion	Children 0-17 years (pct.)	Finan- cial support index (pct.)	Propor- tion of children living in settle- ments (pct.)	Propor- tion of children whose mother was born in Greenland (pct.)	Propor- tion of children living with a single parent (pct.)	Propor- tion of children living in a poor house- hold (pct.)	Proportion of pupils who terminated primary school prematurely (pct.)
Nuuk	15,047	26.7	0.31	2.5	86.1	20.2	1.0	19.8
Major municipalities		29.4	0.37	11.8	95.2	15.5	1.9	22.5
Sisimiut	6,140	30.4	0.37	11.5	94.4	14.8	1.4	23.1
Ilulissat	4,996	29.4	0.38	10.3	95.2	13.5	1.8	20.8
Maniitsoq	3,545	30.6	0.38	21.8	96.8	13.8	3.0	17.0
Qaqortoq	3,490	28.1	0.37	8.1	93.7	17.4	1.1	24.3
Aasiaat	3,189	27.5	0.37	6.9	96.4	20.0	2.4	27.2
Minor municipalities		30.0	0.40	20.9	97.0	15.2	2.0	17.0
Uummannaq	2,450	32.7	0.41	49.1	96.7	9.5	1.6	24.6
Narsaq	2,016	27.4	0.38	13.6	96.3	18.6	1.3	0.0
Paamiut	1,906	29.5	0.39	6.4	97.4	24.1	3.0	30.2
Qasigianniut	1,291	29.4	0.40	8.1	98.1	12.6	2.5	15.2
Qeqertarsuaq	1,055	30.5	0.41	4.5	97.3	11.6	1.8	30.0
Peripheral municipalities		36.1	0.43	45.7	98.1	8.8	8.6	18.8
Ammassalik	3,069	37.5	0.44	40.2	96.4	9.0	10.2	20.0
Upernavik	2,953	37.3	0.44	64.0	99.6	4.4	8.7	9.2
Nanortalik	2,281	31.2	0.39	37.7	98.3	14.4	4.9	24.7
Kangaatsiaq	1,463	39.0	0.46	58.1	98.6	7.2	6.3	27.3
Qaanaaq	846	35.2	0.44	25.7	99.4	10.8	9.2	10.8
Ittoqqortoormiit	529	37.6	0.41	1.0	94.7	8.7	19.3	18.6
In total	56,448	30.1	0.37	19.2	94.1	14.9	3.7	20.3
			***	***	***	***	***	-

As demonstrated by table 8.1.2, significant differences are found between Nuuk, towns, and settlements. Children make up a larger proportion of the population in the settlements (34.6 percent), while settlements contain a larger proportion of the population in prospective need of financial support (42 percent) compared to the towns and Nuuk City.

Table 8.1.2 Social and demographic conditions (macro-level factors) in Nuuk City, towns, and settlements

Social and demographic conditions	Nuuk City	Towns	Settlements	In total	
Population	14,583	32,490	9,431	56,504	
Proportion of children aged 0-17 years	26.3	30.2	34.6	30.1	***
Financial support index	0.31	0.38	0.42	0.37	***
Proportion of children born in Greenland	90.0	96.7	99.7	94.1	**

9. Differences in terms of health and risk factors

As shown above, there are vast differences as regards macro-level factors. Whether differences pertaining to health as well as other health determinants exist between types of municipalities and between Nuuk, towns, and settlements, however, will be analyzed in the present chapter. The first point of departure will be sexual health.

9.1 Sexual health

Inuuneritta - the Public Health Program (Greenland Home Rule 2007) features three strategies for sexual health:

- Every sexual act should be based on desire, mutual respect and absence of sexually transmitted disease;
- Every pregnancy should be desired;
- To promote the population's behavioral competence in connection with healthy sexual habits.

Being older by the time one has one's first sexual encounter may be positive due to concomitant knowledge and maturity. Thus, the proportion of 15-17-year-olds who have had sexual intercourse is an important parameter for sexual health. Chlamydia figures as an example because it is the most common sexually transmitted disease and most common in the ages between 15 and 19 (Embedslægeinstitutionen [Department of Medical Health Officers] 2006). Unwanted pregnancies are an issue in Greenland, and for some having an abortion may not only have immediate consequences health-wise, but also lead to abdominal infections and sterility. Even if the pregnancy is wanted, becoming a mother often entails long-term social consequences if she herself is a child still. Those consequences include an increased risk of poverty and failure to get an education (HS Analyse 2001, UNICEF 2001).

Table 9.1.1 Sexual health at a municipal level

	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
Annual proportion of 15-19-year-olds diagnosed with Chlamydia	19.7	20.2 (14.1-29.8)	17.6 (12.0-25.0)	18.3 (8.0-32.9)	19.3	*
Girls aged 15-17 who have given birth	1.5	3.7 (3.3-4.2)	3.8 (1.5-5.8)	4.4 (1.9-6.0)	3.4	*
Girls aged 15-17 who have had an abortion	8.9	10.3 (7.2-14.7)	7.8 (7.0-8.7)	8.4 (0.0-13.3)	9.3	-
Adolescents aged 15-17 who have had sexual intercourse	58.6	78.6 (50.0-100.0)	79.7 (68.2-87.9)	69.5 (63.0-100.0)	73.2	***

Table 9.1.2 Sexual health in Nuuk City, towns, and settlements

Sexual health	Nuuk City	Towns	Settlements	In total	
Girls aged 15-17 who have given birth	1.5	4.2	2.5	3.4	***
Adolescents aged 15-17 who have had sexual intercourse	58.0	77.0	75.2	73.2	***

At a municipal level, the difference between the proportions of 15-19-year-olds who are diagnosed with Chlamydia is smaller, and compared to the other municipalities, Nuup Kommunea and the major municipalities have more infected inhabitants. The proportion of 15-17-year-old girls who give birth varies a lot, and in this respect notably the peripheral municipalities pull up the average, while Nuup Kommunea has the lowest amount of girls aged 15-17 who have given birth. There are no significant differences in the amount of girls aged 15-17 who have an abortion. The amount of 15-17-year-olds who have had sexual intercourse varies a lot. Particularly the small and the major municipalities account for the young people who have had their sexual début at this age, while Nuup Kommunea and the peripheral municipalities account for the smallest amount of 15-17-year-olds who have had their sexual début.

At the level of Nuuk, towns, and settlements it is clear that the towns most often account for young girls who have become mothers at a young age. In this respect, too, Nuuk City is the town with the smallest proportion. The towns account for the largest proportion of 15-17-year-olds who have had sexual intercourse.

Thus, sexual health varies a great deal at both the municipal level and between Nuuk, town, and settlement level.

9.2 Injuries, fights, and bullying

Violence is a focal point of Inuuneritta - the Public Health Program (Greenland Home Rule 2007), but as far as children and youth are concerned, no data sources shed light on violence in general. The HBSC survey asks about violence in the form of fights and bullying among school children.

Bullying is an influential form of physical violence that may have far-reaching mental and social consequences for the affected children. Injuries and accidents are not a focal point of Inuuneritta - the Public Health Program, but they are included here because they form an important part of the “old” disease pattern.

Table 9.2.1 Violence (injuries, fights, and bullying) at a municipal level

Injuries and fights (violence)	Nuup kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
Admitted with a severe injury	3.4	3.0 (1.6-4.2)	2.1 (1.0-3.4)	2.8 (1,3-6.0)	2.9	-
Seen a doctor or nurse because of an injury twice or more	20.0	14.4 (10.5-20.8)	16.9 (14.0-17.5)	13.6 (10.3-34.8)	16.0	*
Been in a fight twice or more	17.7	12.5 (6.7-17.3)	12.3 (3.8-20.0)	12.8 (6.1-28.3)	13.7	*
Been bullied on a weekly basis or more frequently	13.1	15.7 (8.8-32.9)	14.2 (8.0-16.7)	15.2 (11.9-21.7)	14.6	-

Table 9.2.2 Violence (injuries, fights, and bullying) in Nuuk City, towns, and settlements

Injuries and fights (violence)	Nuuk City	Towns	Settlements	In total	
Seen a doctor or nurse because of an injury twice or more	20.5	14.9	14.7	16.0	**
Been in a fight twice or more	17.9	12.5	12.6	13.7	**
Been bullied on a weekly basis or more frequently	13.0	13.3	20.4	14.6	**

At a municipal level, no internal difference was found in the shares of people who are admitted due to injuries. This holds true even though death by “non-natural causes” such as accidents, violence, and suicide is known to be more frequent in the peripheral districts (Bjerregaard 2004). This is probably due to the difference in distance to the nearest hospital which is generally short for a very large proportion of the population in Nuup Kommunea, while longer in the peripheral municipalities where the proportion of children living in settlements is large. The share of people who have seen a nurse or a doctor twice or more during the past year after having been injured also varies. The share was largest in Nuup Kommunea and smallest in the peripheral municipalities. This, however, does not necessarily mean that more people in Nuuk get injured. It may again also reflect the distance to the nearest hospital, or a difference in attitude as to the circumstances under which health services are contacted. Nuup Kommunea had the highest amount of people who had been in a fight twice or more during the past year.

At the level of Nuuk, towns, and settlements it was found that more people in Nuuk had been in touch with health services and more had been in a fight, but also that more children in settlements had been subjected to bullying. Unfortunately, it is impossible to gather data on hospitalizations on the grounds of injuries for Nuuk City, towns, and settlements, so any significant demographic differences are impossible to verify.

9.3 Food and eating habits

A healthy diet and ditto eating habits during childhood promote growth, health, and intellectual development. Healthy eating habits help prevent e.g. overweight, cardiovascular diseases, anaemia, and osteopsathyrosis. Many national and local traditions are linked to eating habits, but at the moment most countries face an increasing globalization of eating habits (Hansen et al. 2008) at the same time as traditional foodstuffs are prepared in a somewhat different manner than they used to be. The foodstuffs available at the market also vary as do those that can be hunted, fished, picked, grown, or bred naturally in different parts of Greenland. Needless to say, eating habits reflect these differences. It appears that especially seal is consumed less frequently now than before (Bjerregaard and Dahl-Petersen 2008).

By way of their 10 dietary guidelines (see www.paarisa.gl), *Kalaallit Nunaanni Nerisaqarnermut Siunnersuisoqatigiit* [the Greenlandic Nutrition Council]) balances between recommending local and imported goods. The most important guideline concerns variation. The guidelines recommend increased consumption of traditional Greenlandic foodstuffs, but also imported goods such as fruit and vegetables, while candy and sodas ought to be consumed only seldom.

A survey has examined children and young people's compliance with the dietary guidelines (Niclasen and Schnohr 2009). Among other things, it was established that fruit and vegetables are consumed more infrequently than recommended, and that the proportion of the population consuming traditional Greenlandic foodstuffs on a frequent basis varies a great deal. Candy and sodas, on the other hand, were consumed a lot more frequently than recommended. Since 1994, there has been a general decline in the share of the population consuming fruit on a daily basis, while the proportion consuming candy every day has remained unaltered and high (Niclasen et al. 2009).

In 2008, PAARISA conducted an analysis on the knowledge of and opportunity to comply with the 10 dietary guidelines in different parts of Greenland. This analysis shows that a higher percentage in the settlements (19 percent) and in the smaller towns (18 percent) sometimes found it difficult to procure vegetables compared to the proportion in the larger towns (5 percent). Often quite ordinary foodstuffs such as potatoes, carrots, and cucumbers rank among the most coveted items. Only 17 percent in the settlements and 21 percent in the smaller towns compared to 32 percent in the larger towns eat vegetables every day (HS Analyse 2008).

Table 9.3.1 Food and dietary habits at a municipal level

Dietary habits	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
<i>Often or always</i> experience hunger in the home due to food shortage	13.3	17.3 (9.2-22.4)	13.6 (2.4-17.9)	22.8 (20.3-40.0)	16.7	***
Consume candy or sodas on a daily basis	37.0	47.7 (40.1-59.1)	52.9 (32.3-67.9)	50.2 (40.3-61.8)	47.2	***
Consume fruit on a daily basis	20.0	13.1 (4.2-20.0)	11.5 (6.7-15.8)	12.9 (8.8-17.8)	14.3	***
Consume seal or whale on a weekly basis or more frequently	10.7	26.3 (14.8-51.8)	27.9 (13.4-54.8)	43.9 (19.7-55.1)	28.3	***

Table 9.3.2 Food and dietary habits in Nuuk City, towns, and settlements

Dietary habits	Nuuk City	Towns	Settlements	In total	
<i>Often or daily</i> experience hunger in the home due to food shortage	13.2	15.5	22.1	16.7	***
Consume candy or sodas on a daily basis	37.1	48.0	53.8	47.2	***
Consume fruit on a daily basis	20.0	12.7	12.2	14.3	***
Consume seal or whale on a weekly basis or more frequently	15.1	35.5	38.4	28.3	***

At a municipal level, children in peripheral municipalities are most affected by food shortage in the home (22.8 percent). Nuup Kommunea has the smallest amount of children who consume candy and sodas every day and the highest amount of children who eat fruit on a daily basis (20.0 percent), while the minor municipalities have the smallest percentage. Considerably more children in the peripheral municipalities (43.9 percent) eat seal or whale on a weekly basis or more frequently compared to Nuup Kommunea.

At the level of Nuuk, towns, and settlements, more children in settlements (22.1 percent) experience food shortage in the home, but at the same time settlement children more often consume candy or sodas on a daily basis (53.8 percent) and fruit more infrequently. Considerably more children in settlements (38.4 percent) eat seal or whale on a weekly basis or more frequently compared to Nuuk City.

To sum up, significant differences were found in eating habits between the various types of municipalities and between Nuuk, towns, and settlements.

9.4 Alcohol and smoking

Even if Greenlandic adolescents still smoke a lot in comparison to those in other parts of Europe, the share of young smokers has declined after culminating in 1998. The number of daily smokers has dwindled, while the number of non-smokers and children who never tried smoking has risen (Niclasen and Schnohr 2008).

Table 9.4.1 Alcohol and smoking at a municipal level

Alcohol and smoking	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
15-year-old non-smokers	50.8	26.5 (23.6-36.4)	31.3 (23.4-46.3)	30.8 (0.0-50.0)	33.0	***
15-year-old daily smokers	20.9	47.4 (39.5-63.6)	42.6 (3.8-64.3)	34.3 (9.7-37.5)	34.3	***
15-year-olds who have never been drunk	35.2	30.0 (29.7-30.1)	34.2 (26.9-53.3)	42.7 (5.6-55.6)	35.5	*
15-year-olds who have been drunk twice or more	53.6	54.1 (50.0-58.3)	39.1 (21.6-56.5)	30.5 (12.9-66.7)	43.9	***

Table 9.4.2 Alcohol and smoking in Nuuk City, towns, and settlements

Alcohol and smoking	Nuuk City	Towns	Settlements	In total	
15-year-old non-smokers	51.3	29.8	28.3	33.0	***
15-year-old daily smokers	21.3	37.9	38.3	34.3	*
15-year-olds who have never been drunk	35.7	34.5	37.5	35.5	-
15-year-olds who have been drunk twice or more	54.7	42.8	29.4	43.9	*

At a municipal level, 50.8 percent of the 15-year-olds in Nuup Kommunea do not smoke, while this is the case for only 30.8 percent in the peripheral municipalities. Daily smoking among 15-year-olds is most frequent in the major municipalities and most infrequent in Nuup Kommunea. There is no difference in the proportion of adolescents who have never experienced being drunk if one takes their residence as point of departure. However, there is a major difference in the share of 15-year-olds who have been drunk more than twice, in that 15-year-olds in peripheral municipalities are least likely to have been drunk more than twice.

At the level of Nuuk, towns, and settlements, Nuuk City has the highest number of non-smoking 15-year-olds, while the settlements have the lowest number (28.3 percent). Smoking on a daily basis is least common in Nuuk City (21.3 percent) and most common in the settlements where 38.3 percent are daily smokers. The share of 15-year-olds who have been drunk more than twice is smallest in the settlements and largest in Nuuk City. This correlates with statements from many young people in the settlements, namely that alcohol is harder to come by than in the towns or in Nuuk City (Niclasen and Schnohr 2008).

When looking into controlled substances at an overall level, then, the picture changes with the focus on alcohol or smoking respectively. The availability of alcohol is more immediate in Nuuk City and in the towns, whereas the share of smoking adolescents is indisputably smallest in Nuuk.

9.5 Physical activity and inactivity

An increasing body of research documents the large significance of being physically active to health and in order to avoid a wide range of lifestyle diseases such as overweight, diabetes, and

cardiovascular diseases. Children are most often physically active in the company of other children. Hence, physical activity also influences children's social lives in addition to their well-being.

Children are physically active through playing and sports at and outside of school. Children in Greenland are more physically active than children in many other European countries (Currie et al. 2004), although the recommendation of *Kalaallit Nunaanni Nerisqaqarnermut Siunnersuisoqatigiit* [the Greenlandic Nutrition Council]) that all children and adults be moderately physically active at least an hour a day is far from observed.

The table below displays the results for leisure-time exercise and sports as well as moderate activity at and outside of school. Moderate physical activity denotes activity that raises the person's pulse, but does not cause that person to be short of breath, whereas exercise or sports count as vigorous physical activities that entail shortness of breath and raise one's pulse.

Table 9.5.1 Physical activity and inactivity at a municipal level

Physical activity	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
1 hour of daily moderate physical activity	26.8	27.8 (19.7-41.7)	27.8 (20.8-42.2)	31.8 (22.8-54.8)	28.7	*
Exercise or sports 4 hours a week or more	25.5	21.8 (11.1-39.0)	20.8 (11.3-37.7)	20.1 (16.6-26.2)	21.9	-
Exercise or sports half an hour a week or less	32.9	36.1 (16.9-64.2)	41.8 (22.6-50.9)	35.7 (23.8-42.9)	36.7	**

Table 9.5.2 Physical activity and inactivity in Nuuk City, towns, and settlements

Physical activity	Nuuk City	Towns	Settlements	In total	
1 hour of daily moderate physical activity	27.0	28.7	30.0	28.7	**
Exercise or sports 4 hours a week or more	25.5	21.5	19.9	21.9	*
Exercise or sports half an hour a week or less	33.0	40.1	34.1	36.7	**

The children's physical activity level varies significantly between the different types of municipalities. Generally speaking, 28.7 percent comply with the nutrition council's recommended 1 hour of moderate activity a day. In the peripheral municipalities this goes for a bit more people. As regards the share of people who engage in exercise and sports four hours a week or more, there is no difference between the groups of municipalities. However, more children (41.8 percent) in the small municipalities are physically inactive (i.e. physically active half an hour a week or less) compared to Nuup Kommunea in which fewest people are inactive.

At the level of Nuuk, towns, and settlements, more people in the settlements are moderately active, while fewer engage in exercise or sports 4 hours a week or more. The towns, however, have the highest proportion of people who engage in only very little sports.

The distribution of moderate physical activity versus exercise and sports may be explained by the fact that the opportunities to engage in organized sports in the settlements are fewer. This, however, does not necessarily mean that children in the settlements are generally less physically active, but rather that the type and intensity of the activity differ from the pattern in e.g. Nuuk City.

9.6 Early effort

The investment in children's development early in life is an integrated component of a country's long-term social and economic strategy, and any inadequacies of this investment may undermine social development (Turrell et al. 1999). For this reason it is also part of the Inuuneritta strategy to invest in an early effort vis-à-vis children and families with special needs (Greenland Home Rule 2007). Inuuneritta runs its own project titled "Early effort" ("Tidlig indsats"). It targets pregnant families that give rise to the concern that they will have a hard time providing their child with the sufficient support and care during the early years. As of yet, the project is not nation-wide. Hence, this report has primarily focused on the early general preventive efforts offered to all pregnant families and children. The health services are an important access point to both the general and the problem-oriented early effort, seeing that they meet the pregnant family at an early stage. Thus, it is vital to know whether health services reach all pregnant families and families with young children. Surveys point to a connection between failure to have the recommended number of examinations during pregnancy and premature birth and low birth weight. If insufficient services are offered, then, this may have consequences for the child (Turrell et al. 1999, Arctic Council's Sustainable Development Working Group 2005).

Smoking is a general area of action for Inuuneritta (Greenland Home Rule 2007), and smoking during pregnancy is an especially important one. Children exposed to passive smoking during pregnancy have a lower birth weight, an increased risk of premature birth, and a higher risk of e.g. respiratory infections such as asthmatic bronchitis and otitis media during infancy and early childhood. Surveys of the Greenlandic children's cohort have shown that the birth weight of children born by mothers who smoked during pregnancy was 241 grams lower on average than that of children born by non-smoking mothers (Niclasen and Bjerregaard 2007b).

Moreover, the project was meant to find figures pertaining to the general participation in the children surveys and in the children's inoculation program. According to the Department of Medical Health Officers, MMR⁶ at the age of 15 months is the last inoculation during infancy (Embedslægeinstitutionen [Department of Medical Health Officers] 2006), and it generally has the

⁶ MMR is an inoculation against measles, mumps, and rubella.

lowest degree of coverage. Thus, it was the intention to use the MMR inoculation as an indicator of the proportion of children who are inoculated. Based on the existing data, however, it was unfortunately impossible to find usable data for the MMR inoculation for municipalities and groups of same as well as for settlements to compare to Nuuk City and the towns.

Table 9.6.1 Early effort at a municipal level

Early effort	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
Percentage of expectant mothers who had the recommended examinations at the midwife's and by nursing staff during pregnancy	87.5	91.8 (95.7-73.8)	88.6 (96.4-80.0)	69.0 (87.2-11.1)	84.4	***
Share of mothers who smoked during pregnancy	40.7	58.2 (52.8-65.7)	65.3 (50.0-82.9)	68.2 (63.2-74.3)	57.5	***
Children born with a low birth weight	6.2	4.9 (1.4-6.2)	4.8 (1.7-6.3)	6.5 (3.4-12.2)	5.5	-

Table 9.6.2 Early effort in Nuuk City, towns, and settlements

Early effort	Nuuk City	Towns	Settlements	In total	
Had the recommended examinations at the midwife's and by nursing staff during pregnancy	88.2	83.7	72.5	84.4	**

At a municipal level, the shares of expectant mothers who have the recommended examinations during pregnancy vary considerably between the individual municipalities. Fewer pregnant women in the peripheral municipalities (69.0 percent) participate in all the recommended preventive examinations at the midwife's, the nurse, or other nursing staff compared to 91.8 percent of the pregnant women in the major municipalities who have the highest participation. More children, are exposed to smoking during pregnancy in the peripheral municipalities (68.2 percent) compared to Nuup Kommunea which has the lowest share. Even so, there was no significant difference between the groups of municipalities in relation to the share with a low birth weight.

Fewer pregnant women in the settlements (72.5 percent) have the recommended number of pregnancy examinations compared to in the towns and in Nuuk City.

9.7. Dental health

Caries/dental cavities make up the most common chronic disease among children in Greenland. Despite free dental care, caries is very closely related to social conditions such as economy and education also in the Nordic countries (Haugejorden and Birkeland 2006). Caries is predominantly caused by poor dental hygiene and a large consumption of saccharine substances. The current

very intensive caries strategy only dates back to 2008, and as of yet there are no data available. The used data are adopted from a research project within the field conducted 2001-2003.

Table 9.7.1 Dental health at a municipal level

	Nuup Kommuneaa	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
Brush their teeth at least once a day	89.2	79.9 (69.1-83.3)	79.9 (72.4-93.5)	75.2 (66.7-80.6)	80.7	***
Suffer from caries when they start school	68.9-75.2	71.4-91.9	76.0-94.7	81.2-97.1	83.2-87.7	**

Table 9.7.2 Dental health in Nuuk City, towns, and settlements

	Nuuk City	Towns	Settlements	In total	
Brush their teeth at least once a day	89.3	80.1	75.2	80.7	***

Data on dental cavities specify the highest and the lowest percentage for the years 2001-2003 (Petersen 2006). The indicator only specifies whether the child was suffering from caries or not and thus does not say much about the severity of the disease. We do know, however, that quite a few children have many teeth affected by cavities and extensive carious attacks.

Despite lacking data from Ittoqqortoormiit, more children in the peripheral municipalities had cavities when they started school. The peripheral municipalities also had the smallest share of children who brushed their teeth on a daily basis.

Unfortunately, there are no data documenting the various differences between children in the settlements, towns, and in Nuuk City, but settlements boast the smallest share of children who brush their teeth every day. At the same time, it appeared that children in settlements more often consume candy or sodas on a daily basis, exposing them to a higher risk of getting dental cavities.

9.8 Resources

The previous chapters of the present report deal with problem areas. We know, however, that the vast majority of Greenlandic children are satisfied with their everyday lives. They have a high quality of life and a good relationship to their parents and friends. Most children by far state that they like going to school and that they are not bullied (Schnohr et al. 2005a, Niclasen et al. 2007a). Self-rated health both reflects physical and mental well-being, and surveys among adults have shown that a poor self-rated health correlates with mortality independent of that person's known diseases (Idler and Benyamini 1997). Therefore it is considered vital to look into the degree to which these positive aspects of life – or resources – are evenly distributed among children in

Greenland. Bilingualism is also an important resource in getting an education (HS Analyse 2001), which is why it is included here.

Table 9.8.1 Resources at a municipal level

	Nuup Kommunea	Major municipalities	Minor municipalities	Peripheral municipalities	In total	
Have <i>never</i> experienced hunger due to food shortage in the home	70.9	57.0 (38.7-67.4)	60.5 (50.2-66.0)	49.0 (30.0-61.0)	58.7	***
Have symptoms less often than weekly	58.3	59.3 (54.9-62.0)	56.1 (49.6-58.8)	53.9 (34.5-61.3)	56.8	-
Are in good self-rated health	77.1	77.1 (83.7-71.4)	77.0 (89.6-72.6)	77.5 (81.2-69.6)	77.2	-
Have a good quality of life	83.3	79.8 (86.7-76.6)	84.1 (88.3-76.3)	79.2 (85.7-72.7)	81.4	-
Have good relations to friends	87.0	82.0 (78.7-86.7)	81.1 (73.0-92.0)	82.5 (75.6-89.7)	83.0	-
Like going to school	72.3	75.7 (68.6-84.2)	77.9 (64.5-83.9)	83.1 (75.8-95.2)	77.6	***
Have never been bullied	58.8	46.1 (27.6-59.9)	49.1 (44.7-54.0)	49.7 (40.9-54.5)	50.7	*
Have a good relationship to parents	70.3	67.5 (52.9-81.8)	70.4 (56.2-78.3)	69.4 (45.0-77.1)	69.4	-
Are bilingual	69.9	63.3 (60.6-37.1)	64.4 (78.4-51.1)	57.9 (67.6-50.0)	63.7	***

Table 9.8.2 Resources in Nuuk City, towns, and settlements

	Nuuk City	Towns	Settlements	In total	
Have <i>never</i> experienced hunger due to food shortage in the home	70.8	58.5	50.4	58.7	***
Have symptoms less often than weekly	58.4	57.7	54.2	56.8	-
Are in good self-rated health	77.2	79.2	74.2	77.2	*
Have a good quality of life	83.2	82.6	78.4	81.4	*
Have good relations to friends	87.0	82.5	80.9	83.0	*
Like going to school	72.3	80.1	77.5	77.6	**
Have never been bullied	58.7	51.6	39.1	50.7	***
Have a good relationship to parents	70.2	69.2	69.0	69.4	-
Are bilingual	70.0	66.1	54.9	63.7	***

At a municipal level, more children in Nuup Kommunea specified that they never experience food shortage in the home. Most children in the peripheral municipalities (83.1 percent) like going to school, while most in Nuup Kommunea have never been bullied. Bilingualism is rarer in the peripheral municipalities.

At the level of Nuuk, towns, and settlements, no difference was found in the share of children who have a good relationship to their parents, while children in Nuuk City are the most likely (87.0 percent) to report that their relationship to their parents is good. With their 80.9 percent, children in

settlements are the least satisfied with their relationship to their parents. Bilingualism is rarer in the settlements and most frequent in Nuuk City (70.0 percent).

Nuuk City (58.7 percent) has the largest proportion of children who have never been bullied. Most children in the towns (80.1 percent) and in the peripheral municipalities (83.1 percent) like going to school. Although the share of children experiencing symptoms (headache, stomach ache, back pains, nervousness, dejection, and irritability) less often than weekly is the same, the share in good self-rated health is smallest in the settlements (74.2 percent) compared to Nuuk City. The share of children who claim to have a good quality of life is also smallest in the settlements (78.4 percent). Generally, the differences between Nuuk City, towns, and settlements are bigger than between types of municipalities resource-wise.

10. The significance of differences in terms of social, economic, and demographic conditions

Although this report has predominantly dealt with those areas that are Inuuneritta priorities, it is still capable of delineating some general facts as regards the distribution of health and sickness among children in relation to local resources.

The indicators for demographic and social conditions displayed a significant dispersion between the municipalities as well as between the types of municipalities and between Nuuk City, towns, and settlements. They also showed that the living conditions of some children may have negative consequences for their health.

Generally, an accumulation of negative social and economic conditions in the peripheral municipalities was found for the demographic and social indicators. Peripheral municipalities were found to be generally poorer, with a small population, a larger share of the population consisting of children, and a larger share in prospective need of financial support. This combination means that the municipalities with the fewest resources host the largest share of children whose health is jeopardized by factors beyond the immediate control of those children and their families.

10.1 The significance of differences in terms of health determinants and health

The disease pattern has changed as a result of the rapid social, economic, and cultural societal changes, and this process has accelerated during the last half of the twentieth century. Today we can no longer say that the regions characterized by a more traditional lifestyle host fewer people suffering from the “new” diseases and determinants such as overweight or smoking – quite the

contrary (Bjerregaard 2004). Suicide, being the most tragic and desperate exponent of the new social disease pattern, was originally most frequent in Nuuk whence it spread to the towns and on to the settlements. Now it is most common in the peripheral regions (Greenland Home Rule and PAARISA 2004). The new diseases have the strongest impact among children and young people in the settlements and in the peripheral districts which already account for the largest proportion of the old diseases such as tuberculosis, infant mortality, and death by unnatural causes, and, as a consequence, children in these regions are doubly afflicted.

The chosen indicators show that significant differences prevail within a number of prioritized areas between types of municipalities and between Nuuk City, towns, and settlements. For a number of the indicators it was found that the differences range from the most positive values in Nuuk and in the larger towns to the least positive, particularly in the peripheral municipalities and in the settlements, although for certain regions it is vice versa. The complex challenges imposed upon society by this imbalance in the disease pattern are illustrated in the next chapter, taking overweight as an example.

10.2 Overweight as an example of a complex societal challenge

A new and major challenge to public health in Greenland is overweight, and this is also the case for children (Schnohr et al. 2005b, Niclasen et al. 2007b). Also in Greenland, overweight acquired at an early age has been found to persist into adolescence for many children (Niclasen et al. 2007b). The question, then, seems to be whether the risk of becoming overweight and the potential preventive and therapeutic measures are the same everywhere?

Overweight can be ascribed primarily to the surplus energy (calories) that the body fails to burn due to a generally increased sedentary lifestyle. The consumed calories are then deposited as fat tissue (Prentice and SA 1995). The increased share of overweight citizens coincides with a wide range of other changes pertaining to sickness and living conditions, and the causal factors significant for the development of overweight are hence very complex (Summerbell et al. 2005(3)). The increased incidence of overweight in children is an almost global phenomenon that has resulted in concomitant strategies in many countries, mainly programs promoting healthier diets and increased physical activity (Summerbell et al. 2005). These strategies can also be found in the public health program Inuuneritta (Greenland Home Rule 2007).

Culturally determined differences in the perception of overweight may be an obstacle to its prevention. In contemporary western society – particularly among the more affluent groups of the population – overweight is regarded as stigmatizing, and obesity may have significant negative social consequences, also for children (Niclasen 2005). On the other hand, overweight is still considered to be a positive thing in many developing countries. In Greenland, overweight was until

recently considered to be a sign of an adept family provider and hence of a high social status (Lyngge 1981). Today Greenland seems to be somewhere in between those two patterns. However, western weight norms are rapidly gaining a foothold among children and youth. 2006 thus saw a positive connection for boys between prosperity and overweight (Currie et al. 2008), but also a larger proportion of overweight children in settlements (Schnohr et al. 2005a). At the same time, the proportion of 15-year-olds actively working toward a weight loss more than doubled between 2002 and 2006, and the shares were 25 percent of the girls and 11 percent of the boys respectively (Currie et al. 2004, Currie et al. 2008).

The practical access to a healthy diet and sports facilities in Greenland differs depending on residence. In the settlements and in the peripheral districts the supply of notably fruit and vegetables is more limited, and the opportunities to engage in organized sports are scarcer along with the number of sports facilities. The indicators also showed that children in settlements are more likely to eat candy or drink sodas on a daily basis. The access to knowledge also differs. Most people in the settlements and in the peripheral districts have no education, and some are unilingual, which means that they have access to a smaller amount of information. Economy may be significant to compliance with the dietary guidelines (National Health Committee 1998). Although it remains uncertain whether food prices are an obstacle to a healthy diet, prices are important to many consumers (HS Analyse 2008).

According to calculations made by PAARISA (Office of Health and Preventive Measures) concerning the cost of having one's nutritional needs covered by cheap and healthy food, a Nuuk-based family of four needs to spend 16 percent of their income on food alone and 36 percent if they reside in Qaanaaq. The same figure for Denmark amounts to approximately 10 percent (Helle Hansen, presented at the ICASS VI conference in September 2008 in Nuuk). However, these numbers ought to be handled with certain reservations. First, they do not take self-sufficiency and public subsidies such as child benefits, rent benefits, and the like into account. Second, the calculated rates are based on Nuuk prices, while convenience goods are more expensive in the peripheral districts.

Based on our knowledge of children's health behavior and economic and practical preventive options, it seems likely that relatively more children in the settlements and in the peripheral districts will become overweight in the future. At the same time, the inhabitants of these regions are offered the poorest opportunities as regards prevention and treatment of overweight, as physiotherapy and dietary guidance are generally only available in the larger towns. There is a potential concern, then, that initiatives combating overweight and its concomitant diseases will have a social bias and contribute to increased social health inequality. Overweight is just one example. Generally, a lack of focus on the major interior demographical, social, and economic differences will entail that the

recommendations of Inuuneritta - the Public Health Program to seize responsibility for one's own health may be perceived in part as a request to pull oneself up by one's own hair in certain parts of the population (of children).

10.3 The role of the healthcare system

The changes in the disease pattern require new approaches within prevention and health promotion. The new chronic and lifestyle diseases not only affect the individual child and family, but may become an unbearable burden to a healthcare system and a social system that are already under pressure. Within the healthcare field of responsibility it has been documented for diabetes that a large percentage of healthcare resources needs to be allocated to the treatment of this disease 10 years from now if the number of diabetes patients continues to rocket at the current pace. But the same goes for the social realm. A health visitor has described the development as threatening to about 25 percent of each class (Kahlig and Banerjee 2007). The consequences of neglect involve a poorer quality of life for the affected children and may present a financial encumbrance to society provided that social heritage is not overcome.

Knowledge, attitudes, habits and "basic" health are established at an early age. The contemporary healthcare system offers preventive measures such as pregnancy examinations, health visitors, and preventive child examinations from birth through primary school graduation. The simple philosophy behind these initiatives is the conviction that if digressions from normal development are spotted at an early stage, they will be easier to remedy and have fewer consequences for the child. The healthcare system may thus play an important part in ensuring increased health equality (World Health Organization 2008) by working toward a local distribution of resources according to the relative needs (Turrell et al. 1999) and by supporting strategies and development of policies that benefit health for all (The National Advisory Committee on Health and Disability (National Health Committee) 1998).

But data for the indicators within areas in which prevention is in fact both possible and desirable (such as caries, teenage pregnancies, exposure to smoking during pregnancy, and compliance with the recommended number of examinations during pregnancy) have shown that the healthcare system's current preventive efforts are insufficient, as children in the peripheral districts and in the settlements are not doing quite as well in these respects. At the same time, the adequate amount of resources for or prioritizing of preventive work with children seem to be lacking in certain municipalities/health districts, in that data for the mandatory child examinations (participation in 4 years of examinations as well as the school-start examination) were not attainable in any municipality or health district despite the fact that these examinations according to the current regulations must be offered to all children (Direktoratet for Sundhed [Directorate of health] 2005).

The indicators thus show that the social and demographic inequalities in children’s health and health determinants of today are only partly mitigated by health service efforts. Hence, the failure of the healthcare system to distribute its resources to exposed groups according to their needs also becomes apparent. By way of the distribution of healthcare services, then, the healthcare system thus contributes to increasing inequality when it comes to children’s health.

11. Summary of results, conclusion, and recommendations

The table below sums up analysis results.

Indicator	Differences between groups of municipalities	Differences between Nuuk City, towns, and settlements
Sexual health	Fewer inhabitants had Chlamydia in the small municipalities. More 15-17-year-old girls had children in the peripheral districts. Fewer 15-17-year-olds in Nuup Kommunea had had sexual intercourse.	More 15-17-year-old girls had children in the towns. Fewer 15-17-year-olds in Nuup Kommunea had had sexual intercourse.
Injuries, fights, and bullying	More children in Nuup Kommunea had received medical care by a doctor or a nurse due to an injury. More children in Nuup Kommunea were injured.	More children in Nuuk City had received medical care by a doctor or a nurse due to an injury. More children in Nuuk City had been involved in fights. More children in the settlements were bullied on a weekly basis or more frequently.
Food and dietary habits	More children in the peripheral municipalities had experienced food shortage in the home on a regular basis. More children in Nuup Kommunea had fruit every day. More children in the peripheral municipalities had seal or whale on a weekly basis or more frequently.	More children in the settlements had experienced food shortage in the home on a regular basis. More children in the settlements consumed candy and sodas on a daily basis. Fewer children in the settlements had fruit every day. More children in the settlements had seal or whale on a weekly basis or more frequently.
Alcohol and smoking	Fewer children in Nuup Kommunea smoked neither every day nor generally. Fewer children in the peripheral municipalities had never been drunk. Fewer children in the major municipalities had been drunk twice or more.	Children in the settlements were least likely to be non-smokers and most likely to smoke every day. Fewer children in the settlements had been drunk twice or more.
Physical activity and inactivity	Most children in the peripheral municipalities were physically active one hour each day. Most children in the small municipalities were physically active.	More children in the settlements were physically active one hour each day. Fewer children in the settlements engaged in exercise or sports 4 hours a week or more. More children in the towns were physically inactive.

Early effort	Fewer mothers in the peripheral municipalities had the recommended number of examinations during pregnancy. More mothers in the peripheral municipalities smoked during pregnancy.	Fewer mothers in the settlements had the recommended number of examinations during pregnancy.
Dental health	More children in the peripheral municipalities had had caries when they started school. Fewer children in the peripheral municipalities and settlements brushed their teeth every day.	Fewer children in the settlements brushed their teeth every day.
Resources	Most children in the peripheral municipalities had experienced food shortage in the home. More children in the peripheral municipalities liked going to school. More children in Nuup Kommunea had never been bullied. Fewer children in the peripheral municipalities were bilingual.	Most children in the settlements had experienced food shortage in the home. Fewer children in the settlements were in good self-rated health. Fewer children in the settlements had a good quality of life. More children in Nuuk City had a good relationship to their friends. Fewer children in the settlements had never been bullied. Fewer children in the settlements were bilingual.

Within these areas credibility has been established that the municipalities that are already disadvantaged financially, demographically, and socially speaking have to help a larger share of vulnerable children compared to the more affluent municipalities. This means that children who are already strained by lack of personal resources and negative health habits risk additional strain. The amalgamation of local authorities and the introduction of the four major municipalities, however, provide brand new opportunities for innovation of the work toward a coherent effort to ensure children's health everywhere in Greenland.

11.1 Conclusion and recommendations

As described in the introduction, children's living conditions and health are given a high priority in the Greenlandic society, and the high degree of willingness to analyze any problem areas should be counted as a strength. Nonetheless, what seems to be lacking is "... a systematic, continuous, and proper registration of children's health and well-being as seen from a children's perspective and included in a social and political context" (Köhler & Jakobsson 1991).

In order to evaluate whether the current public health efforts are successful, and whether they achieve the WHO goals of providing all children with the opportunity to realize their full physical and social potential, an agreement needs to be established to define and follow key indicators or ratios – such as the ones suggested in the present report – on children's health in a social perspective and based on their needs.

The report makes it clear that some children's poorer health is also rooted in factors beyond the control of the individual child or family, and that children in poorer health or who have poorer preconditions of good health are overrepresented within the peripheral districts and in the settlements. At the same time, settlements and peripheral districts have the most adverse economic and demographic conditions, and health service offers do not always reach these children to the same extent.

The strategy, then, ought to promote that healthcare system resources be increasingly distributed locally according to the relative needs of the population. The healthcare system should strengthen its focus on public health and work more result-orientedly toward "generating health" (Klazinga et al. 2001) – also by way of resource allocation.

In the future, an enhanced ability to quantify healthcare system offers and measure the quality of its services will also be important. Similarly, the healthcare system quality indicators should be gauged against a public health perspective as well as with regard to children, taking the UN Convention on the Rights of the Child as their backdrop (United Nations 1989).

This does not necessarily require more resources, but rather collaboration between the municipalities and the Government of Greenland on a consistent policy that considers the existing options to ensure the good health of all children.

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13. Attachments

13.1 Data accessibility

Unfortunately, Greenland lacks adequate statistics in many of the areas significant for children's health. Needless to say, this has influenced the selection of indicators. Indicators within such important areas as breast-feeding, mental health, suicide attempts, violence, and participation in child examinations could not be suggested. Although we wanted to use data for indicators that were evenly distributed from 0 to 17 years in terms of age, the final indicators were dominated by indicators with data for school children due the data shortage.

In accordance with the UN Convention on the Rights of the Child, all initiatives are to consider the child's best interest, be seen from the child's perspective, and focus on the child. Hence, this should also apply to data sources, but data were generally not organized in such a way that they allowed tracking of the individual child. School data were thus organized according to grades and accident data according to the diagnosis, whereas teenage pregnancies had to be found in two different registries. While data for children of poor households and children of immigrants as well as exposure to tobacco during pregnancy were available, it was not on a routine basis.

13.2 Definitions of indicators

As far as possible, internationally recognized definitions have been used both for the incoming indicators based on registry data and for the ones based on questionnaire data. Table 13.1 displays the definition of the individual indicator and from where this definition is derived, while e.g.

* or # specify the data source used. A list of these data sources succeeds the table.

Table 13.1 Definition, data sources, and years for the used indicators

	Defined by
Social and demographic conditions	
Population *	
Children 0-17 years of age *	
Financial support index **	Modified from the WHO
Share of the population consisting of children under 18 and people older than 62 years	
Living in settlements (non-urbanized) ***	Statistics Greenland,
Share of children living in settlements of less than 1,000 inhabitants (the largest	modified from the WHO

settlement in the municipality counts as a town even if it has less than 1,000 inhabitants)	
Mother born in Greenland *** Proportion of children whose mother is born in Greenland	Statistics Greenland
Living with a single parent *** Proportion of children living in a household with a single parent or primary caretaker	From (64)
Living in a poor household *** Proportion of children living in a household with an income below the national 50 percent median (modified OECD scale) in 2 out of 3 previous years	OECD
Have not completed primary school *** Proportion of pupils who do not graduate from primary school (11 th grade, 10 th grade from 2008) with written exams in math, Greenlandic, and Danish (ISCED 2) per 100 registered pupils in the 11 th (10 th) grade	Modified from UNESCO
Sexual health	
Chlamydia infection ***** Reported cases of Chlamydia in 15-19-year-old girls per 100 within the age group	Modified from the WHO
Teenage pregnancies # Proportion of 15-17-year-old girls who have been pregnant (had an abortion or given birth)	Modified from the WHO
Have had sexual intercourse ## Proportion of 15-17-year-olds who have had sexual intercourse	HBSC
Injuries and fights	
Serious injuries ### Annual incidence of admissions of children reportedly due to injury-based accidents. The discharge diagnoses stated intracranial lesions, poisoning, burns, corrosion, cold injuries, and cranial, facial, and extremity fractures (ICD 10: S02, S06, S42, S52, S62, S72, S82, S92, T20-T32, T33-T35, T36-T65)	Modified from (53)
Have seen a doctor or a nurse due to an injury ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, <u>Within the past 12 months</u> , how many times were you hurt and had to be treated by a doctor or a nurse? specify twice or more	HBSC
Been in a fight ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, <u>Within the past 12 months</u> , how many times have you been in a fight? specify twice or more	HBSC
Been bullied on a weekly basis ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, How often have you been <u>bullied in school</u> during the past couple of months? specify "approximately once a week" or "several times a week"	HBSC

Food and dietary habits	
Experienced food shortage in the home ## Proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who go to school or bed hungry “always” or “often” due to food shortage in the home	HBSC
Never experienced food shortage in the home ## Proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who “never” go to school or bed hungry due to food shortage in the home	HBSC
Candy or sodas on a daily basis ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who report that they consume candy or sodas every day	HBSC
Fruit on a daily basis ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who report that they consume fruit every day	HBSC
Seal or whale on a weekly basis or more frequently ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who report that they consume seal or whale on a weekly basis or more frequently	HBSC
Use of controlled substances	
Do not smoke ## The proportion of 15-year-olds who report that they do not smoke	HBSC
Smoking on a daily basis ## The proportion of 15-year-olds who report that they smoke every day	HBSC
Have never been drunk ## 15-year-olds who report that they have never been drunk	HBSC
Have been drunk at least twice ## The proportion of 15-year-olds who report that they have been drunk twice or more	HBSC
Physical activity and inactivity	
Daily physical activity ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who report that they have been moderately physically active for at least one hour every day during the past 7 days	HBSC
Exercise or sports 4 hours a week or more ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, <u>After school</u> , how often do you exercise or engage in sports (physical activity) to the extent that you become short of breath or start sweating? specify 4 hours or more	HBSC
Exercise or sports half an hour a week or less ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, <u>After school</u> , how often do you normally exercise or engage in sports (physical activity) to the extent that you become short of breath or start sweating? specify half an hour or less	HBSC

Early effort	
Examinations during pregnancy #### Proportion of children born after the 36 th week whose mother did not have 6 or more pregnancy examinations at the midwife's and the nursing staff	Own
Smoking during pregnancy ##### Proportion of children who were exposed to tobacco due to their mother's smoking during pregnancy	From (65)
Low birth weight #### Proportion of live-born children with a birth weight of less than 2,500 grams	WHO
Dental health	
Brush their teeth every day ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, How often do you brush your teeth? specify once or several time a day	HBSC
Caries ▫ Proportion of children with caries (measured as dmft) in baby teeth at the age of 6 (school start)	WHO
Resources	
Bilingual ## Proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who are bilingual (speak both Greenlandic and Danish "fluently" or "effortlessly")	Health profile survey 1993/4
Symptoms ## Proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who have two or more symptoms (headache, stomach ache, back pains, nervousness, dejection, and irritability) less frequently than once a week	HBSC
Self-rated health ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who rate their health to be "very good" or "good"	HBSC
Quality of life ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who rate their quality of life to be 6 or higher on Cantril's ladder	HBSC
Good relationship to parents ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, All in all, how satisfied are you with your relationship to your friends? specify "very satisfied" or "satisfied"	HBSC
Like going to school ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, How do you like school at the moment? specify "I like it very much" or "I like it a lot"	HBSC
Have never been bullied ##	HBSC

The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, How often have you <u>been bullied at school</u> during the past couple of months? specify that they have “never” been bullied	
Good relationship to parents ## The proportion of children in the 6 th to 11 th grades (6 th to 10 th grades from 2008) who to the question, All in all, how satisfied are you with your relationship to your father/mother? specify “very satisfied” or “satisfied”	HBSC

* Statistics Greenland, 2004-2006, ** Statistics Greenland, 2006, *** Statistics Greenland 2002-2004, **** Karakterdatabasen [grades database], The Ministry of Culture, Education, Research and The Church, 2002-2004, ***** Embedslægeinstitutionen i Grønland [Department of Medical Health Officers in Greenland], 2004-2006, # Embedslægeinstitutionen i Grønland [Department of Medical Health Officers in Greenland] and Det nationale diagnoseregister [the national registry of diagnoses] (Direktorat for familie og sundhed [directorate of families and health]), 2003-2005, ## HBSC Greenland 2006

Det nationale diagnoseregister [the national registry of diagnoses] (Direktorat for familie og sundhed [directorate of families and health]), 2004-2006, #### Embedslægeinstitutionen i Grønland [Department of Medical Health Officers in Greenland], 2003-2005, ##### Embedslægeinstitutionen i Grønland [Department of Medical Health Officers in Greenland], 2004-2005, ▫ Afdeling for Samfundsodontologi og Videreuddannelse [Department of social odontology and education], University of Copenhagen, 2001-2003

13.3 Data sources

As far as questionnaires containing self-rated data are concerned, the indicators build upon the Health Behaviour in School-aged Children survey in Greenland in 2006. The HBSC survey is the only national questionnaire survey among school children. It has been conducted every four years from 1994 and most recently in 2006 (Nielsen et al. 2007). In 2006, schools covering 67 percent of the pupils within the age group participated. The percentage was calculated based on the official number of pupils (Inerisaavik, [The Ministry of Culture, Education, Research and Church] 2006). In total, 2,462 pupils took part.

For the statistical data, their sources can be divided into validated/non-validated data sources or registries based either on personally identifiable or non-identifiable data.

The used *validated personally identifiable registries* were the national birth registry and the economic and demographic registries. Data have been collected from these for this report specifically and are generally considered reliable.

The national registry of diagnoses is a *non-validated personally identifiable registry* to which data are submitted directly from the individual health district. Hence, the registry has some general weaknesses such as the reliability of the typing, that data are organized according to diagnoses rather than to the individual child, and that the option to distinguish with certainty between primary admissions, transfers, re-transfers, or readmissions is missing.

The *validated personally non-identifiable registries* were data from the grades database as well as Chlamydia data. In the case of the Chlamydia data, this means that we cannot assess the number of persons who get infected – nor can the primary infections be distinguished from failing treatment – and generally, the diagnosis depends on the sensitivity and accuracy of the used test. As regards final examinations, certain municipalities turned out to have more children graduating from primary school than children within the relevant age group. An analysis showed that a varying number of children were registered as pupils in the 11th grade several years in a row. Due to the new comprehensive school, these registration problems ought to decrease after 2008.

An example of a *non-validated personally identifiable registry* is the inoculation registry. Analyses of MMR inoculation coverage at a municipal level showed that in some municipalities more than 100 percent of the child population were registered as inoculated for several consecutive years. This presumably partial double registration will disappear once data can be retrieved from the electronic medical records.

In sum, the work with indicators suggests that all future registration must be based on personally identifiable data sources, and that a more thorough analysis of the accuracy and coverage of the non-validated registries, is necessary.