A Zero-vision for Children’s Tobacco Smoke Exposure
Tobacco prevention in Child Health Care

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To all Children but especially to Felicia and Isabelle

So in everything, do to others what you would have them do to you.

Matthew 7:12
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ABSTRACT

Adverse health effects in children caused by environmental tobacco smoke (ETS) are well known. Children are primarily exposed by their parents’ smoking in their homes. A comprehensive evidence base shows that parental smoking during pregnancy and ETS exposure in early childhood are associated with an increased risk for a range of adverse health problems. Child Health Care nurses, who meet nearly all families in Sweden with children aged 0-6 years, have thus an important role in tobacco preventive work in order to support parents in their ambitions to protect their children from ETS exposure.

The overall aim of this thesis was to develop, test and evaluate a new model for tobacco preventive work in Child Health Care (CHC) with special focus on areas with a high prevalence of parental smoking. In a first step CHC nurses’ and parents’ views on tobacco preventive work were analysed in two studies based on questionnaires.

The intervention was performed during the second step, based on the results from nurses’ and parents’ experience of the tobacco preventive work in CHC, and with methods from Quality Improvement. An “intervention bundle” was developed which included evidence based methods for prevention of ETS exposure, and four learning sessions for the nurses. The instrument “Smoking in Children’s Environment Test” (SiCET) included in the bundle was evaluated with focus group interviews with the CHC nurses who participated in the intervention. Two urine samples were analysed to measure cotinine levels in children which provide an estimate for ETS exposure. Parents’ answers from the SiCET questionnaire, measurements of cotinine, and data from the nurses’ log-books were used in the evaluation of the effects of the intervention. In areas with a high prevalence of parental smoking 22 nurses recruited 86 families of whom 72 took part for the entire one-year period of the intervention.

The results showed that parents wanted to have information on the harmful effects tobacco smoke have on their children and how they can protect their children from ETS exposure. The nurses saw tobacco preventive work as important but they experienced difficulties to reach certain groups such as...
fathers, foreign-born parents, and those who are socio-economically disadvantaged. The SiCET instrument provided a basis for dialogue with parents. The main results from the intervention showed that ten parents (11%) quit smoking, thirty-two families (44%) decreased their cigarette consumption in the home, and fewer children were exposed to tobacco smoke. Consequently, more children showed levels of urinary cotinine less than 6 ng/ml (base-line n=43, follow up n=54; p=0.05). The total number of outdoor smokers did not change. Seven of the nurses (30%) had successful results in their areas with a decrease of smokers in families with a child of 8 months, from 20% in 2009 to 12% in 2011. The corresponding figures for the whole county as well as the country did not decrease during the same period.

The sustainability of the intervention has to be followed and thus measures should be followed prospectively over time. The SiCET instrument was found useful and might be applicable in other arenas where children’s ETS exposure is discussed. The development of an instant cotinine test using dipsticks would make it possible to give parents immediate feedback on the effectiveness of taken protective actions. This could work as a pedagogic resource in the dialogue with parents.

Key words: Children, environmental tobacco smoke, child health care, intervention, Quality Improvement, SiCET.
LIST OF PAPERS

This thesis is based on the following papers, which are referred to in the text by Roman numerals:


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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CHC</td>
<td>Child Health Care</td>
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<tr>
<td>CQI</td>
<td>Continuous Quality Improvement</td>
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<td>ETS</td>
<td>Environmental Tobacco Smoke</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<td>FG</td>
<td>Focus Group</td>
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<td>GNP</td>
<td>Gross National Product</td>
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<td>LLOQ</td>
<td>Lower Limit of Quantification</td>
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<td>LS</td>
<td>Learning sessions</td>
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<tr>
<td>MI</td>
<td>Motivational Interviewing</td>
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<td>NBHW</td>
<td>National Board of Health and Welfare</td>
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<td>OR</td>
<td>Odds Ratio</td>
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<td>PDSA</td>
<td>Plan-Do-Study-Act cycle</td>
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<tr>
<td>QI</td>
<td>Quality Improvement</td>
</tr>
<tr>
<td>SiCET</td>
<td>Smoking in Children’s Environment Test</td>
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<tr>
<td>SIDS</td>
<td>Sudden Infant Death Syndrome</td>
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<tr>
<td>SoC</td>
<td>Stages of Change</td>
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<tr>
<td>VAS</td>
<td>Visual Analogue Scale</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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# DEFINITIONS

<table>
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<th>Term</th>
<th>Definition</th>
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<tr>
<td>Cotinine</td>
<td>Nicotine’s major metabolite. Because cotinine has a significantly longer half-time than nicotine, cotinine measurement can be used to estimate tobacco exposure levels. Commonly measured in blood, serum, urine, saliva, and hair.</td>
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<tr>
<td>Chi&lt;sup&gt;2&lt;/sup&gt;</td>
<td>A statistical test for analysing association between categorical variables.</td>
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<tr>
<td>Focus group</td>
<td>A method to collect qualitative data through group discussions. The group interaction is used to explore ideas, attitudes, and norms in relation to different phenomenon.</td>
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<tr>
<td>Learning sessions</td>
<td>Collaborative meetings between professionals in which they learn about ideas for better practice and improvement methods they implement between the sessions in their clinical work.</td>
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<td>Motivational Interviewing (MI)</td>
<td>A counselling approach for behavioural modification that builds on patients’ empowerment perspective by supporting self-esteem and self-efficacy.</td>
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<td>Nicotine</td>
<td>An addictive, poisonous alkaloid chemical found in tobacco. It increases heart rate and oxygen use by cardiac muscle.</td>
</tr>
<tr>
<td>Odds Ratio</td>
<td>Provide an estimate (with confidence interval) for the relationship between two binary (“yes or no”) variables.</td>
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<tr>
<td>Plan-Do-Study-Act cycle</td>
<td>A method used in Quality Improvement to turn ideas into action and connect action to learning. Answer the</td>
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question “How will we know that a change is an improvement?”
INTRODUCTION

Passive smoking (second-hand smoke) or exposure to environmental tobacco smoke (ETS) occurs when a person who does not smoke is exposed to smoke caused by other people. Attention was first drawn to the dangerous effects of passive smoking on health in 1928 \(^{129}\), but it was not until the 1970s that serious research into the risks involved was conducted \(^{95}\). Many countries in the Western world have illegalised smoking in public places such as restaurants and workplaces in order to reduce exposure \(^{163}\). Despite this, many people are still being exposed to passive smoking, for example in private homes and cars.

It is estimated that forty percent of all children in the world aged between 0 and 14 years are exposed to ETS. Corresponding figures for adult non-smokers are 35% of women and 33% of men \(^{105}\). Despite Sweden having a low prevalence of smokers in its population, 13% in 2010 \(^{142}\), Swedish children were still being exposed to ETS. The National Environmental Health Report of 2005 reported that five percent of all children aged between 0 and 12 years were exposed to ETS. Nine percent of all children aged four years regularly spend time in environments contaminated by tobacco smoke. There is a disparity in the distribution of children affected; children of parents with a low level of education are more often exposed than children of parents with university-level education \(^{98}\). Other socio-economical determinants are low income, single parenthood, and fathers born outside Sweden \(^{153}\).
Children who are exposed to tobacco smoke are at increased risk of experiencing poor health. For example, there is an increased risk for respiratory infections and ear infections, as well as for recurrent wheezing, and prolonging obstructive disorders. One in twenty cases of children’s asthma in Sweden could be caused by passive smoking according to WHO’s calculations. The risk of Sudden Infant Death Syndrome (SIDS) is higher among children born to women exposed to tobacco smoke during pregnancy, and among children who are exposed after birth.

All children have the right to grow up in a healthy environment according to the UN’s Convention on the Rights of the Child. A healthy environment includes a tobacco-free environment. As socio-economic differences have been shown to be important for children’s ETS exposure, preventive efforts directed to risk groups are required. Health care law in Sweden says that everyone has the right to good health on equal terms. Equality has however not been reached as statistics show that children in some environments are exposed to higher risks than others. Swedish Child Health Care (CHC) professionals meet the vast majority of parents to children aged between 0 and 6 years and therefore, have a unique opportunity to influence parents’ attitudes and behaviour regarding smoking and children’s ETS exposure.

The Swedish National Institute of Public Health highlights risk groups in relation to equity in health and has therefore prioritised the support of the development of new models to reach families with different backgrounds and circumstances in a more successful manner. This thesis is one attempt of
reaching this objective and focuses on tobacco preventive work in Child Health Care areas with a high prevalence of smokers in families.
BACKGROUND

Smoking and Environmental Tobacco Smoke

The health risks associated with smoking have been well-known for many years. In 1950, the first article was published on the subject. It showed an association between smoking and lung cancer \(^{36,83}\). The association between smoking and coronary disease was identified by the British epidemiologist Richard Doll and his colleagues during the same period \(^{37}\). A large prospective study of smoking doctors was carried out over a 50 year period, where reduced mortality was shown to be linked with smoking cessation \(^{39}\). A large number of studies over the years have shown further associations between smoking and various negative effects on health and mortality. According to WHO, smoking is the greatest preventable risk factor associated with premature death in the world \(^{162}\).

Today, smoking is identified as a social problem \(^{61,64}\). It has developed from being a concern for the individual smoker to becoming a problem for non-smokers who are subjected to ETS, who therefore become passive smokers with increased risk of health problems \(^{124}\).

Passive smoking is primarily an indoor problem \(^{105}\). For this reason, many countries have illegalised smoking in public spaces, a recommendation made by WHO \(^{162}\). In Sweden, smoking is forbidden in public areas such as
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restaurants and bars, all official spaces, within the entire health sector and on public transport 136.

Contents of Environmental Tobacco Smoke

Environmental Tobacco Smoke consists in part of mainstream smoke, which has been inhaled by the smoker and later exhaled, and in part of sidestream smoke which is caused by the burning of the tobacco at the tip of the cigarette, cigar or pipe. Side-stream smoke contains the same dangerous substances as the mainstream smoke, but at higher concentrations due to the lower burning temperature between intakes. The smoke which is emitted into a room when someone smokes contains a combination of more than 4000 different substances which are poisonous, carcinogenic, affect genetic makeup and are irritating for the eyes and respiratory system 18. The mainstream smoke which the smoker inhales contains nicotine in particle form which consists of tar, water and nicotine-like alkaloids. In sidestream smoke, the nicotine leaves the particle phase and becomes a part of the gaseous or vapour phase. Seventy-five percent or more of the nicotine in a cigarette is emitted into the surrounding air as sidestream smoke. The nicotine in ETS, which is found in both dangerous gaseous/vapour form and particle form, is breathed in through the nose and mouth and inhaled into the lungs of non-smokers 18.

Waterpipes emit large amounts of smoke and high levels of carcinogens and poisonous substances into the air 33. However one study which compared the particle content of smoke from waterpipes with that from cigarettes found that both kinds of smoking caused extremely high levels of particles in the surrounding air 89.
Tobacco use and socio-economic factors

Tobacco use has decreased since the beginning of the 1980s, particularly in higher income groups and among men in countries with a high GNP. Smoking tobacco has therefore become a pronounced social marker. The frequency of tobacco smoking in Sweden has also declined for several decades, yet there are still over one million adult Swedes who smoke. Thirteen percent of Swedish women and twelve percent of Swedish men are daily smokers. There are socio-economic factors at play; 20% of women with a low level of education smoke daily, compared with 9% of women with a high level of education. The same pattern can be seen among men where 17% of men with a low level of education smoke daily compared with 5% of men with a high level of education. Daily smokers are more common among those born outside Sweden and among economically disadvantaged groups. Nineteen percent of people with a low income smoke daily compared with eight percent of people with a high income. The same socio-economic patterns can be identified internationally in smoking populations.

Waterpipes have been used to smoke tobacco in Asian and African cultures for hundreds of years. Since the 1990s, this phenomenon has spread to the Western world, including Sweden in recent years. This method of smoking emits large amounts of smoke and causes high levels of dangerous particles in the air. People exposed to this kind of passive smoking are at high risk of suffering from diverse health effects.

The number of people who use snuff, however, has not changed significantly in recent years. In Sweden daily snuff users are more common among the male
population (20%) than the female population (4%). The use of snuff does not affect the surrounding environment as smoking does.\textsuperscript{138}

### ETS effects on health in children

#### Antenatal and postnatal exposure

Pregnant, non-smoking women can be exposed to ETS due to other people smoking in homes or other places where they spend time, and thus the unborn child is also exposed. Several studies have found that children born to non-smoking women who have been exposed to ETS have a lower birth weight than those born to non-smoking women who have not been exposed to ETS.\textsuperscript{35, 56, 57} Higher frequencies of stillbirth and preterm delivery have also been found.\textsuperscript{56, 73}

The most hazardous exposure for children is that of maternal smoking during pregnancy. This increases the risk of fetal growth restriction, preterm birth, fetal or infant death and congenital malformations.\textsuperscript{9, 29} Maternal smoking during pregnancy also increases the risk of recurrent wheezing during the child’s first years of life.\textsuperscript{80}

In a meta-analysis, DiFranza and Lew found that the risk of SIDS (Sudden Infant Death Syndrom) is tripled if the mother smoked during pregnancy.\textsuperscript{36} According to Mitchell, 2006, this increased risk of SIDS is difficult to determine epidemiologically when the mother smokes both during pregnancy and after the birth of the child and the child is then exposed to ETS. There are, however, clear associations between the exposure of children to ETS and SIDS where the
father is a smoker and the mother is a non-smoker. Exposure of the unborn child to tobacco smoke also increases the risk of behavioural problems, cognitive development delay, and reading and writing difficulties. Other studies have shown associations with long-term effects such as cardiovascular disease, cancer, asthma in teenage girls, and asthma in adult life.

Children whose mothers smoke during pregnancy and their early childhood have an increased risk of suffering from middle ear disease, asthma, wheezing, irreversibly decreased lung function, and colic. A Swedish study of three-year-olds found that children exposed to environmental tobacco smoke had significantly higher rates of wheezing and rhinitis, used more cough-mixture and bronchodilating drugs, and suffered more from excessive crying and irritability than children born to non-smoking parents.

According to Sanner and Dybing, passive smokers are exposed to substantially higher levels of carcinogens than active smokers. An American study shows that the highest levels of carcinogens associated with lung cancer are found in children in homes where no restrictions are placed on smoking. No level of ETS exposure has been determined as safe so therefore all non-smokers who are exposed are considered to have increased risk of health problems.

**Measuring exposure – using “the gold standard”**

An objective method used for measuring exposure to environmental tobacco smoke is cotinine analysis. Cotinine is a metabolite of nicotine which can be detected in urine, plasma, saliva and hair and has a high specificity and
Background

sensitivity. Researchers consider it to be the best biomarker to determine exposure to environmental tobacco smoke. By measuring cotinine concentration levels in urine, saliva and serum, active smokers can be distinguished from non-smokers and passive smokers with a high degree of accuracy.

When exposed to the same levels of ETS, it has been found that children show higher cotinine concentration levels in their urine than adults. This indicates that children are more susceptible to ETS exposure than adults. One explanation for this could be that children have higher basal ventilation. If exposure occurs daily, it is assumed that a steady state for cotinine levels is reasonable to expect. Elimination half-time in children is not different from that in adults, which is 18-20 hours.

Measuring cotinine concentration in urine is preferable to serum as samples are easily collected and there is no pain associated with the procedure. For these reasons, the use of urine samples is preferred for children and is seen as “the gold standard” by researchers. Children who are breastfed by smoking mothers have higher levels of cotinine concentration in all body fluids than breastfed children whose mothers do not smoke. The shorter the time period between the mother’s smoking and the child’s breast feeding, the greater the risk for high levels of nicotine in the breast-milk which then in turn gives a high cotinine concentration in the child’s urine. This must be taken into consideration when analysing samples taken from breast-fed children of smoking mothers.
Tobacco preventive work

International perspectives

Tobacco smoking is the Western world’s single biggest preventable health care problem and is described by WHO as a global epidemic which kills 5.4 million people annually. WHO promotes six different policies which affect tobacco use and protect non-smokers from tobacco smoke exposure; 1) monitor tobacco use and prevention policies, 2) protect people from tobacco smoke, 3) offer help to quit tobacco use, 4) warn about the dangers of tobacco, 5) enforce bans on tobacco advertising, promotion and sponsorship, and 6) raise taxes on tobacco. WHO claims that with these measures the epidemic can be stopped and millions of tobacco-related deaths can be prevented. In order to reduce tobacco use and therefore increase the protection of people from tobacco smoke, measures at national, regional and local levels need to be taken.

The Framework Convention on Tobacco Control is a legally binding agreement which has been signed by 171 countries and was adopted by WHO in 2003. The convention contains methods and strategies which have been scientifically shown to both reduce the demand for and availability of tobacco. Sweden signed the convention in 2005 which means that Swedish laws and regulations have had to be adapted to its demands. The illegalisation of smoking in restaurants and bars, introduced in 2005, was one such measure. Other measures taken include increasing tax levies on tobacco, the development of smoking cessation support programmes, and smoke-free and tobacco-free work time in municipalities and county councils.
Swedish tobacco legislation is also influenced by the directives and recommendations of the EU, whose recommendations for smoke-free environments were adopted in 2009. These encourage member countries to introduce a smoke-free policy for all environments, warning labels on tobacco product packaging and to make tobacco cessation programmes adaptable for different groups and available to everyone.\(^4^4\)

One area which should be a smoke-free environment but which cannot be legally made smoke-free today in Sweden is the private home. It is the individual smoker who chooses where and how smoking takes place in the private home. According to WHO, everyone has the right to information on the damaging effects smoking and passive smoking have on health.\(^1^6^2\) Adults subjected to environmental tobacco smoke can then, based on their knowledge of passive smoking, choose whether or not they remain in the area and be exposed. Children, however, are completely dependent on how their parents expose them to risk environments and how these environments are managed. Therefore, it is especially important that children’s exposure in private homes and the homes of relatives and friends is influenced.

**National perspectives**

Public Health Work in Sweden is based upon the eleven objective domains for public health which were adopted by the Swedish Parliament in 2003. Many areas of society affect and influence public health and therefore common objectives as guidance are important in public health work. One of the seven objective domains concerns reducing the use of tobacco in society.\(^1^4^0\) There are four tobacco preventative sub-objectives stated for the year 2014: 1) No new-
born child shall be exposed to tobacco, 2) the number of children and young people who start to smoke or use snuff shall be halved, 3) the number of smokers in the groups where smoking is most common today, including labourers, people with a low educational level, socially and economically disadvantaged people, and also certain groups with immigrant backgrounds shall be halved, 4) no one shall be involuntarily exposed to passive smoking. Socio-economic factors are associated with smoking patterns and are shown in many studies \(^61, 64, 108, 153\). In this study, focus has been on children, plus those parental groups where smoking is most common.

**The role of antenatal care and child health care**

Antenatal and child healthcare are important actors in public health work concerning tobacco prevention. Preventive work in antenatal care has the goal of identifying complications early which may risk the health of the mother and the unborn child. Providing pregnant women with health-related information and asking them about tobacco, alcohol and drug use are part of standard work, since the use of these substances can affect pregnancy and the unborn child detrimentally \(^31\). Approximately half of all women who smoke three months before a pregnancy stop when they plan pregnancy or are given a positive pregnancy test. The task of antenatal care professionals is to work towards increasing the number of women who stop smoking during pregnancy \(^117\).

The proportion of pregnant women who smoke when registered in antenatal care has decreased from over 31% in 1983 to approximately 7% in 2009. Smoking had decreased in all age groups and today it is most prevalent
amongst the youngest pregnant women. During dialogue with pregnant women, midwives ask if they smoke or are exposed to ETS. If the woman smokes, she is then offered support with smoking cessation if she wants to stop, and is informed of the risks involved in being exposed to ETS during pregnancy. This method of working has shown positive results.

Child health care (CHC) has a long history in Sweden and reaches the whole population of parents with its universal program. CHC which reaches all groups within society is the basis of work towards gaining health equity. Traditionally, nurses at CHC centres have an important role in health promotion and prevention with a family physician and sometimes a paediatrician as backup. CHC nurses are specialised and have special education in the care of children and in public health. Nearly 99% of all children comply with the national healthcare programme as families have a great deal of confidence in this organisation. CHC professionals have continuous contact with families until the child is six years of age. This gives them a unique opportunity to conduct dialogues with parents and offer support regarding protecting the child from ETS exposure.

Home visits is one of the methods used in child health care and should be offered to all families with new-born children in order to establish contact and introduce the child health service programme. As home visits are offered to all families the perception is that it is a natural part of child health care. It provides opportunities to identify children at risk as well as families in need of extended support. Home visits can also be used as an intervention method based on the family’s needs. In Sweden there has been a declining trend in
home visits among families with new-borns, even if CHC nurses believe it increases the quality of contact with the family 5.

The most common preventive method in CHC is when a CHC nurse has a dialogue with parents and provides advice 78. In tobacco preventive work, all parents are asked about smoking in the home and their answers are recorded in the child’s health record. Documentation should be performed when children are aged 0-4 weeks, 8 months, 18 months and 4 years. Answers from when the child is aged 0-4 weeks and 8 months have been reported to the National Board of Health and Welfare since 1996. The two latter ages of the children were added to the documentation in year 2000 but are not reported nationally. In the period 1999 - 2009, the number of families with a smoker when the child is aged 0-4 weeks decreased from 18% to 13.2%, mothers from 9% to 5.3% and fathers from 13.8% to 11.1%. During the same period, when the child was 8 months of age, the number of families with a smoker dropped from 19.2% to 13.6%, mothers from 11.1% to 6.5% and fathers from 13.8% to 10.8% respectively 97. These results indicate that tobacco prevention work might be one effective way, of reducing the number of families with a smoker, despite the fact that there are more mothers who smoke when the child is 8 months of age than when the child was new-born. Thus CHC has the potential to improve the support offered to these mothers.

Parents who smoke during pregnancy need support even after the child is born and therefore cooperation between midwives and CHC nurses is important in order to meet the parents’ needs effectively. Regardless of how antenatal care and child health care are organised, there should be some kind
of cooperation between the two so that any contact built up with a family is not lost in cases where extra support is needed 19. A “Family Centre” is a concept in Sweden where services which come in contact with families cooperate and offer joint service 21. Thus families within specified geographic areas can be offered integrated support from antenatal care, child health care, social services and open pre-schools. Ideally, all the services are co-located but they can also operate according to a family centred work model 78.

The Child Health Care work in Sweden is built on the UN’s Convention on the Rights of the Child which supports preventive health work. The convention was adopted over 20 years ago and nations which ratify this convention are bound to it by international law. It has been ratified by the majority of countries in the world, including Sweden. The Convention on the Rights of the Child recognises the human rights of children, who are defined as persons up to the age of 18. The basic principles of the convention include that all children have equal rights and equal value (article 2), that states should always act in the best interest of the child (article 3), that every child has the right to life and development (article 6) and that every child should be given the possibility to express his/her opinion in matters which concern them (article 12) 150. Every country shall, on the basis of the convention, do its best to support the child in its right to a healthy environment in which to grow up. According to Swedish strategy, parents should be informed on the rights of children and be offered support in their parenting. From a perspective of children’s rights, antenatal care and child health care have distinct responsibilities 145 to relay knowledge of the needs and development of the child in relation to the rights the child has. According to article 24 150, health care shall decrease the number of SIDS
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cases and revoke traditional customs which are detrimental to health, which means that health care shall do everything possible to see that children are provided with a healthy environment.

Interventions to reduce child ETS exposure

The exposure of children to tobacco smoke is determined primarily by three factors: 1) if the child’s parents or guardians are smokers, 2) if the child’s home is smoke-free and 3) the socio-economic status of the household in which the child lives. Preventive work focuses primarily on the prevention of smoking among parents or guardians and secondly, for children who live with smokers, on trying to make the home and other private places where the child spends time smoke free

Legislation concerning smoke-free environments which have been introduced in many countries has contributed to a reduction in children’s exposure to tobacco smoke. Parents who are continuously reminded to go out and smoke to protect others from ETS exposure have possibly adopted the same strategies at home to protect their children.

There is a debate about the possibility of legislation being made for smoke-free home environments. Whatever the outcome of this debate, health care professionals are an important source of knowledge and information via dialogue with parents on how to protect children of all ages from ETS exposure. The optimal result is that the parents stop smoking as it has been found that it is not possible to isolate smoking in the home to the extent that the child is totally protected. However, in families where parents continue to
smoke, smoking consistently outdoors gives good protection to the child. This, however, demands a strict smoke-free policy in the home.

A number of intervention studies including health promotion and mass-media campaigns, individual or household-focused social-behavioural therapy, and educational and clinical programmes have aimed to encourage parents to make their homes smoke-free. A systematic overview of 36 interventions from various countries has shown that there is insufficient evidence to be able to recommend any particular approach, although intensive counselling interventions with carers did show some consistent positive effects. This has also been found in an earlier systematic overview of 18 interventions by the same author. Two studies which showed significant effects after six months involved motivational interviewing in the parent/guardian’s home carried out by qualified health workers combined with four follow-up telephone conversations. A Chinese study where advisory interviews offered information based on the individual’s needs plus complementary nicotine replacement was shown to have a positive effect on parent's willingness to stop smoking.

In Sweden, interventions such as “Smoke-free Pregnancy” and “Smoke-free Children” were carried out during the 1990s within antenatal care and child health care with a focus on protecting children from ETS exposure. The intervention was based on Strecher and Greenberg’s theories with a client-centred approach and the concept of self-efficacy. A study of the advisory method which was introduced by the CHC showed positive effects
with lower levels of cotinine found in children’s saliva in the intervention group than in the control group 47.

The parent-based dialogue method “Smoke-free Children” consisted of four steps: The parents were asked what they knew about how smoking affected their children. The health care worker suggested that the parents noted how much tobacco smoke was in the child’s close environment. A discussion then took place based on the parent’s observations and if the parents had any suggestions for changes. The health care professional then supported the parents’ attempts to change smoking habits and discussed problems which arose 48. However, one study which focused on the parents’ experiences of tobacco preventive work in CHC showed that parents were not satisfied with the way this was carried out 67.
Richard Grol, among others, advocates a more systematic use of theories in the planning and evaluation of quality-improvement interventions in clinical practice. The implementation of interventions based on theories makes evaluation easier and increases the potential for drawing conclusions as to why certain effects are seen or not seen. This section presents two different theories which can be seen as tools for organising knowledge and, if possible, for understanding underlying mechanisms in the intervention at hand. Motivational Interviewing (MI) reflects the general approach of the profession towards parents within this study.

**Stages of Change Theory and Motivational Interviewing**

Prochaska and DiClemente’s Stages of Change Theory is a trans-theoretical model which describes the stages in behavioural change. The model identifies five stages of change. During the first stage, one is unaware that there is a need for change (pre-contemplation). In the second stage, one starts to contemplate a change in behaviour due to the realisation that the present behaviour does not only have advantages but also disadvantages (contemplation). The third stage is where one makes a decision to make a change (preparation). The fourth stage is where the desired change is made (action). The fifth and final stage involves continuing with the new behaviour (maintenance). The majority of people suffer from one or more relapses back to old behaviour patterns. The stages are seen as a cycle. Before a new
behaviour stabilises, one passes through the cycle several times. In research, this theory has been used to explain the variation found in the levels of preparedness or willingness to start the use of new working methods among health care professionals.

Motivational Interviewing (MI) is a change-oriented, client-centred, semi-directive interviewing method which is used primarily in the area of lifestyle. MI has been criticised for the lack of a coherent theoretical framework but there are many theoretical influences which contribute to the development of MI. Carl Roger’s client-centred therapy is influenced in MI with its empathic counselling style and principles of reflective listening. The principle of supporting clients’ self-efficacy draws on Bandura’s Social Learning Theory and is the belief that one is capable of performing in a certain manner to attain certain goals. High self-efficacy is an important predictor of behaviour change. Self-efficacy predicts that behaviour is changed when a person perceives control over the outcome with few external barriers, and feels confidence in one’s own ability. In order to support self-efficacy the MI counsellor can help the clients believe in themselves and become confident that they can carry out the changes they have chosen. The concept is a part of Bandura’s Social Cognitive Theory.

Stages of Change is also an underlying principle in MI which focuses on both the change process and the different motivational stages an individual goes through in order to reach behavioural change. According to Arkowits and Miller MI is primarily concerned with the early stages of change, by resolving ambivalence for enhanced motivation in the direction of action.
Theoretical underpinnings to Continuous Quality Improvement

Continuous Quality Improvement (CQI) in health care emphasizes the continuous improvement of processes in health care in order to better meet customer needs. Changes can only be made by altering the system, as non-satisfactory performance is not only seen as a problem at individual level but rather as a system issue. Individual co-workers and teams are seen as a resource that can provide ideas and knowledge on how working methods can be changed. One model for improvement often applied in practical improvement work is the improvement collaborative. The model originally emanates from the Institute for Healthcare Improvement and is often referred to as the "Break Through Series." Beside the QI principles, it builds on Kolb’s experiential learning theory where experience interwoven with theoretical knowledge form the basis for the continuous learning process. One tool used in QI is the Plan-Do-Study-Act (PDSA) cycles which involves planning, testing, analysing and acting on change concepts i.e. it constitutes a form of continuous learning in improvement work.
AIMS

Overall aim

The overall aim was to develop, test and evaluate a new model for tobacco preventive work in Child Health Care with special reference to risk environments.

Specific objectives of the studies

To explore and describe the experiences of current tobacco preventive work in Child Health Care from nurses’ and parents’ perspectives (I, II).

To explore and describe Child Health Care nurses’ experiences from using the instrument “Smoking in Children’s Environment Test” in their tobacco preventive work (III).

To evaluate if an intervention based on a “bundle” of evidence-based actions, results in changed actions among CHC nurses and subsequently to behaviour changes among parents in relation to children’s ETS exposure (III, IV).
STUDY POPULATIONS AND METHODS

This thesis is built on four studies outlined in Figure 1. In order to get a baseline for the development of the intervention the views of CHC nurses and parents of tobacco preventive work within CHC were studied. Two separate questionnaire-based studies were conducted (Study I, II). Based on the results of these studies and a compilation of evidence-based methods for prevention of ETS exposure, a CHC “intervention bundle” was developed. The CHC nurses were the primary target for the intervention and the parents the receiving participants. The intervention included the use of methods from QI (Study IV) as support for the CHC nurses’ change in working habits. The instrument SiCET, which was one component in the bundle, provided a basis for the dialogue with parents and was evaluated in study III. An overview of the four studies is presented in Table 1.
Figure 1. Outline of the thesis

Table 1. Overview of the studies included in the present thesis.

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**Settings and study population**

In order to gain a comprehensive picture of tobacco preventive work in CHC two county councils in south eastern Sweden were selected for study I and II. In study III and IV only CHC nurses and parents from one of the counties participated (Figure 1).

A postal questionnaire was sent to all 196 nurses who worked in Jönköping and Östergötland counties at the time the study was carried out. The CHC facilities in the two counties comprised 92 CHC centres. These CHC centres served a population of 3681 and 4341 newborns, respectively, in 2004. A personal letter to nurses with information about the study and confirmation of confidentiality was sent together with the questionnaire. The response gave 112 answers after the first send-out and 50 more responses were received after one reminder. Of these, two dropped out and the total number of responses was 160 (82%).

The target group for the second study consisted of parents with 1 or 3 year old children in Jönköping and Östergötland counties. Using the Swedish Population Register (SPAR), 3000 parents of one or three year old children born in 2001 and 2003 in the studied counties were randomly selected. In cases where families had children of both ages, the selection process prioritised the younger child born in 2003.

The questionnaire was sent together with an information letter on the study to, where possible, the child’s mother or female guardian. A total of 1620 children were selected from Östergötland county (54%) and 1380 from Jönköpings
county (46%). The response rate was 47 percent after the first send-out and 62 percent after one reminder (n=1870). A number of questionnaires were returned unanswered with an explanation as to why. Reasons given included that the parents spoke another language and did not understand Swedish, that they had recently moved from another county or that they could not answer the questions as they could not remember the details from their visits to CHC centres.

**Areas and nurses in the intervention**

The inclusion criterion for CHC centres in Jönköping county was a high prevalence of smokers (>10 %) in families of 8 month old children, according to data from CHC’s annual statistics. CHC nurses (n=65) in these areas were sent an e-mail with information about the aim of the study and an invitation to take part in the study. Personal visits were made to the nurses’ CHC centres by one of the authors (NC) who provided additional information about the study and answered any questions the nurses had. A total of 24 nurses decided to participate in the study. Two of these changed jobs after a month and therefore left the study. Twenty-two nurses took part in the entire intervention and represented 15 different CHC centres. The reasons given for not participating in the study included taking part in other projects, being about to retire, or a shortage of time during the period when the intervention was to be performed.

The 22 nurses, in Jönköping county, who took part in intervention study IV were invited by e-mail to evaluate the instrument SiCET which they had experience of from using it with parents in their tobacco preventive work
during the intervention. A total of 18 CHC nurses, who then had at least six months of experience of working with the SiCET, took part in five different focus group interviews (Study III). The focus group interviews were conducted at five different CHC centres in the studied county. All the CHC nurses were trained in the use of Motivational Interviewing (MI) and had been working in CHC for between 1 and 35 years (md=9 years).

### Recruitment of families

The 22 nurses who agreed to participate in the intervention recruited smoking parents at their respective CHC centres over a period of eight months during the intervention. In total, 124 families were invited to participate and 86 accepted, of whom 72 took part for the entire one-year period of the intervention. The number of families recruited within the different areas varied from 0 to 9 per nurse.

Sociodemographic data showed that 60% (n=52) of the parents were educated at secondary school level, 41% (n=35) were born in a country other than Sweden, 9% (n=8) were studying and 25% (n=21) were unemployed or on temporary disability leave.

### The Intervention

According to results from study I and II the dialogue between parents and nurses needed to be improved to meet parent’s with different backgrounds. The strategy for the intended improvement was to combine different evidence
based methods for tobacco preventive work in an “intervention bundle”. The SiCET questionnaire was intended to be answered by the parents and then be used to base dialogue on between nurses and parents in combination with the nurses’ skills in Motivational Interviewing (MI). Parents who spoke a language other than Swedish had the right to an interpreter during the interview. Referencing to websites such as “quit-smoking line”, information brochures, “Tobacco-free Children”, and other written information to support parents in their decision to modify behaviour was used. Cooperation with antenatal care and social welfare services, home visits and referrals to tobacco cessation experts were also recommended. Written information was translated into the nine languages represented in the study population.

The method for implementation and learning was the QI approach “collaborative learning” which builds on group meetings with a common goal of spreading and testing good ideas and knowledge in clinical work. Nurses took part in four seminars over a period of six months and did local improvement work in their own CHC between learning sessions. One year after start a follow-up meeting was held.

During the seminars, nurses were informed of the health risks associated with ETS exposure. They were also updated in the use of MI and interpreters in dialogues with parents. Instructions on how referrals to smoking cessation experts should be written and other issues concerning smoking were discussed. In addition, ways in which Plan-Do-Study-Act (PDSA) cycles could
be used to test different methods to reach the goals set in the work were introduced.

Nurses developed a check list to help with the implementation of the study and this was a support for work carried out at CHC centres. The checklist was a result of the interactive approach between researchers and nurses in the design of the study 42.

Sources of information

Questionnaires

A questionnaire on tobacco preventive work within CHC was developed and answered by CHC nurses (Study I). A number of questions used by the National Board of Health and Welfare in their national evaluation 1998:6 “Tobaksförebyggande arbete på BVC” (Tobacco prevention in CHC) were used with permission 102. These questions were used with the intention to make a comparison between the two studies from 1998 and 2004. Individual interviews were conducted with six paediatric nurses to assure the content in the questionnaire. The recorded interviews were transcribed and the analysis was made with a phenomenographic inspired approach 86. A phenomenographic-inspired approach was chosen in order to generate different content-related categories of what is experienced by the participants themselves. With a phenomenografic-inspired approach a person’s un-reflected perception of a phenomenon is sought after 87. No new aspects on clinical work emerged from the results. The questionnaire was divided into the following sections; education and training, collaboration, smoking
cessation, the role of CHC, follow-up, and background factors. The questionnaire was examined and tested by public health planners in the county with special experience of smoking cessation programmes. The questionnaire was then revised according to their advice. The final version of the questionnaire consisted of 11 multiple choice and four open-ended questions. Four questions about attitudes were answered with a 10 centimetre Visual Analogue Scale (VAS), which provided scores from 0-10 (from “not important” to “very important”). There was also the possibility to give written comments on the questions on attitudes (Appendix A).

Data collection via questionnaires in study I was carried out in November 2004. A personal letter was sent together with the questionnaires via mail to all nurses (n=196) within CHC in Jönköping and Östergötland counties.

A questionnaire for parents was designed (Study II), based on the results of two focus group interviews with five and six parents in each group. One of the focus groups interviews was carried out at a Family Centre and the other with a group of parents who were socioeconomically disadvantaged and social services were responsible for the group activity. The interviews were tape-recorded and transcribed. For the analysis of the interviews a phenomenografic-inspired approach was chosen.

The questionnaire for parents was designed as a question matrix where parents were asked to judge to what extent they agreed or disagreed with 23 statements. The five alternatives were; strongly agree, agree, undecided, disagree, and strongly disagree. The statements concerned the tobacco
preventive work at both antenatal care (four statements) and CHC. Ten of the statements were used in an earlier study and included in the questionnaire. In addition, there were questions concerning the tobacco use of the parents, where in the house it was permitted to smoke, education level of the parents and who answered the questions. Parents were asked to give their views on tobacco preventive work in CHC in an open ended question. (Appendix B).

Before the analysis, answers to the statements were organised as follows: “Strongly agree” and “agree” made up one group and “disagree” and “strongly disagree” made up the second group. The middle category, “undecided” was not used in the analysis. If a statement was written in reverse form, it was recoded to fit in the analysis.

Data collection with the questionnaire for parents in study II was carried out during the period from November 2004 to January 2005.

Focus Groups

In study III, data was collected from focus group interviews in September 2010, after nurses had gained at least six months of experience of using the SiCET instrument in the intervention (Study IV). Focus group interviews involve a number of people with common experiences who discuss a specific issue with the aim of better understanding people’s perceptions, attitudes, thoughts, and beliefs on that issue. The discussion is led by a moderator and based on a predetermined set of questions. The advantage of focus group interviews is that the researcher has access to the interaction between group members which leads to creativity and takes the discussion forward.
The questions presented to the group were developed by the research team. They were then discussed with other researchers experienced in the method. Minor revisions were made. The questions focused on the nurses’ experiences of using the SiCET instrument in their work with parents included in the study. Nurses were also given the opportunity to say if they wanted to make changes to the instrument and if they could consider using the instrument in their continuing tobacco preventive work. The discussion was led by a moderator, and an assistant made notes during the interviews. At the end of each interview, participants took part in summarising the discussion and had the chance to add anything they considered missing from the discussion or anything extra they wanted to add.

The five focus groups consisted of between two and six participants and interviews were carried out at a CHC centre which was easily accessible for the nurses. The interviews were between 32 and 45 minutes in duration and conducted by the same moderator. All interviews were recorded and transcribed.

**Sources of information from the intervention**

The intervention took place between February 2010 and October 2011. In the intervention, nurses were recommended to use a “bundle” of activities in their tobacco preventive work with the parents. In the evaluation of the effects of the improvement project, three different data sets were used; 1) data from the SiCET questionnaires, 2) measurement of cotinine in urine in the children and 3) data from the nurses’ log-books.
Smoking in Children’s Environment Test

The questionnaire “Smoking in Children’s Environment Test” (SiCET) is a validated instrument for families that was developed and tested to measure children’s ETS exposure. The instrument comprises questions about the number of smokers in the household, cigarette consumption in the home on weekdays and weekends and which ETS protection strategies are used as well as their frequency of use. How important it is considered to smoke in different places in the home is also included, as well as how frequently the child is exposed to smoke outdoors and how stable the smoking habits are in the home. The instrument was named SiCET and modified for this study. Two new questions were added to the instrument regarding if the child’s grandparents smoke and if there is anything the parents would like to change in order to protect their child from ETS exposure. The alternative “waterpipe” was added to the question concerning smoking tobacco other than in cigarette form. The alternative “in the car” was added to the question where parents were asked to specify where smoking is carried out. Parents also had the possibility to write their own alternatives and comments (Appendix C). To facilitate the use of the instrument in meetings with foreign-born families, the instrument was translated into 9 languages; English, Spanish, Albanian, Bosnian, Serbian, Vietnamese, Cantonese, Somali and Arabic. These languages were identified as the languages spoken in the CHC districts included in the study.

The SiCET questionnaire which was filled in by the parents during a meeting with the nurse was also used in the evaluation. The questionnaire was answered for the first time when the parents were included in the study and
the second time after one year when the study ended. A small number of parents also answered the questionnaire when their child was eight months old but this data was not used in the evaluation.

**Urine samples**

Urine samples were analysed to measure cotinine concentration levels in children. The first test was taken at inclusion in the study and a follow-up test was taken twelve months later. Urine samples were taken during the family’s visit to the CHC centre. It was recommended that a sanitary napkin was placed in an inside-out diaper on the child to collect urine for urine samples. This method is generally accepted and used in other studies where cotinine concentration levels in urine are analysed. In many cases, however, the nurse collected urine in a plastic cup from the child when he/she spontaneously urinated while on the examination table.

The urine samples were then coded, chilled, and transported to the bio bank for freezing. The coded samples were then transported in frozen form to the laboratory where analysis was carried out and results were sent to the research team. CHC nurses were given the results after which they informed parents if the cotinine concentration level found in their child’s urine was below or above the measureable limit.

**Logbooks**

Nurses kept separate logbooks for each family with notes on all meetings with parents. The following activities were included:
• Collaboration with antenatal care, social welfare services and other services
• Contact mother/father at meeting
• If and when the SiCET questionnaire had been used
• If Motivational Interviewing (MI) was used in the dialogue
• Level of willingness to change smoking behaviour in the mother/father
• Any referral to a certified tobacco treatment specialist
• Recommendations for “quit smoking” support sites or other websites.
• If interpreters were used, and if so, how
• Urine sample 1 and 2
• Documentation in the child’s health record
• Other relevant information

All measures carried out and other information of value, such as when the results of the urine samples were given to the parents, was noted in the logbooks.

Analysis

Statistical analysis

To analyse data in study I, MINITAB version 14, Statistical Software for Windows (Minitab 2006) was used, in study II SPSS version 14.0 (the Statistical Package for the Social Sciences, Inc. Chicago IL, USA), and in study IV SPSS version 20 and SAS 9.2 were used.
Descriptive statistics were used to describe samples and groups. Open-ended questions in questionnaires and documentation in logbooks were analysed by content and categorized. Chi\(^2\) tests were used for ordered categorical data to analyse differences between groups. Fisher’s exacta test was used when the assumptions for Chi\(^2\) tests were inappropriate. Student’s t-test was used to compare differences in continuous variables between groups where the variables had a symmetric distribution. Wilcoxon Signed Ranks Test was used in study IV to determine differences between the first and second urine test as cotinine/urine had a skewed distribution. Logistic regressions were performed in order to clarify the association between variables. Dependent variables were dichotomized. The strength of the associations was expressed by odds ratio (OR) with 95% confidence intervals (CI). To analyse the concordance between the parents’ and the nurses’ experience of tobacco preventive work in the corresponding districts in study II Spearman’s rank correlation was used. A p-value of <0.05 was considered as statistically significant.

Content analysis

The moderator (NC) transcribed the interviews immediately after the focus group interviews and this started the analysis process.\(^{77}\) The interviews were analysed independently by two persons who read the text several times to get a comprehensive picture of the content in the text. All opinions connected to the nurses’ experiences of using the SiCET were marked and memos were written in the margin. Words and similar meanings were brought together in
subcategories and comparisons of them and the whole text were made during the whole analysis. The content of the interviews were sorted into preliminary categories which were thoroughly examined and discussed. A third person read the texts independently and identified categories and subcategories separately and the results were discussed by all three persons together. The names of the categories and subcategories were decided and kept as close to the content of the original text as possible when no new interpretations were found. The involvement of a third author strengthened the dependability of the analysis process.

**Laboratory analysis**

The analysis of urinary cotinine was carried out by McNeil, in Helsingborg, Sweden. The urine samples were transported in frozen form to the laboratory.

Cotinine was extracted from the urine sample in a single step liquid-liquid extraction with Toluene/N-Butyl alcohol. Samples were injected to an Agilent 7890 Gas Chromatograph equipped with Agilent 5975 Mass Spectrometer and GC-PAL System Auto Sampler.

Chromatography data were captured and evaluated by MSD ChemStation and further managed by datasystem MSD ChemStation – Data Analysis and OpenLAB ECM.

To quantify cotinine, the chromatographic system was calibrated at six points, using linear regression analysis and inverse of concentration, with N-ethyl-Norcotinine as internal standard.
Results with a concentration lower than the target value for LLOQ (Lower Limit of Quantification), 6.0 ng/ml for cotinine, were reported as <LLOQ. The level 6ng/ml was therefore the lower limit for confirming that children had been exposed to ETS.

**Trustworthiness**

**Quantitative data**

Validity shows to which degree an instrument measures what it is designed to measure. The internal validity is the degree an observation is correct for the specific group of people who are studied and can be compromised by systematic errors. The external validity concerns generalisation and to what degree results from the study can be applied to people who are not participating in the study.

The questionnaires in study I and II were designed on the basis of interviews with CHC nurses (Study I) and parents (Study II) in focus groups. These interviews were conducted with the aim to gain an understanding of the phenomena which was to be studied and could, on the basis of the results, give complementary information or confirmation that the questions or statements examined the actual phenomena. This in combination with both questionnaires included questions which had been used in earlier studies strengthened the internal validity of the studies. Questions identical to those used in the National Board of Health and Welfare's evaluation of CHC tobacco preventive work were used in study I. The questionnaire was also scrutinised by nurses who worked with tobacco issues which strengthened the
face validity. A revision was made by the author (NC) with regard to the questions about the role of CHC nurses in tobacco preventive work. Questions were answered on a VAS scale and could be supplemented with comments from the nurses.

In study II the questionnaire was based on the results from focus group interviews with parents and statements used in an earlier study 67. In order to confirm internal validity the instrument was pre-tested by a sample of parents not included in the study. No changes were needed after the pre-test.

The SiCET instrument was developed and validated primarily for research purposes 65. It was used to analyse the effectiveness and importance of the protective measurements of smoking parents for children’s ETS exposure. It was also intended to be used in consulting situations in clinical settings and as such it has been tested in this intervention (Study III, IV). The questionnaire was complemented by a number of questions described in the method section of this thesis. In order to strengthen the reliability and thereby avoid misunderstandings from parents with languages other than Swedish, the questionnaire was translated by authorised translators to the languages which were used by participants in the intervention. The SiCET was used on all parents who took part in the intervention and was evaluated (Study III).

External validity, or generalizability, concerns to what extent the results can be applicable to other samples and settings. The results in study I and II were strengthened, as earlier studies have shown results in the same direction 67, 102.
To assure the SiCET’s applicability in other settings and circumstances it needs further testing in different context by health care professionals.

**Qualitative data**

There are four concepts of trustworthiness in qualitative research; credibility, transferability, dependability and confirmability. Trustworthiness concerns being able to describe the research process including the study design, selection process of participants, data collection and analysis work in a systematic and truthful manner.

The trustworthiness of Study III has been increased by choosing a suitable data collection method for the study and by the description of this method in detail. Trustworthiness is further increased by the two researchers first individually analysed the data and draw conclusions. When a third researcher analysed the data together with the two researchers and discussed the results and final analysis, trustworthiness was again strengthened.

Whether the results can be transferred to a context other than the one where they were found is up to the reader to decide and this is dependent on that the researcher has described accurately both the participants and the context in which the study was carried out.

Confirmability concerns the researchers’ neutrality and their ability to avoid that their previous knowledge taints results of the phenomena being researched. Due to agreement between the categories identified in the
analyses of the three researchers, the results were less likely to be tainted by any of the researcher’s previous knowledge.

The moderator in the focus groups interviews, study III, was well orientated in the study and could help to deepen the discussion by relevant questions. To be deeply knowledgeable of the phenomena studied it may enhance the data harvest in focus groups interviews. According to Coghlan and Casey, nurse-action researchers’ pre-understanding and knowledge of clinical work can contribute to processes of learning and change throughout the research project 30.

**Ethical considerations**

The studies have considered the fundamental ethical principles of autonomy, beneficence, non-maleficence and justice, according to Beauchamps and Childress 15. The principles are perceived as universal and timeless in any human culture 144. No local Research Ethics Committee has received study I-III for assessment because this is not necessary under Swedish law and regulations when patients are not involved or affected. The studies were designed and implemented according to the common principles in human research 164. The principles of autonomy were considered when participants were informed about the aim and implementation of the study in writing (Study I, II) and that their participation would be treated confidentially. In study III the participants were informed orally and in writing that their participation was voluntary, that they could discontinue participation at any time without giving any reason and that all data collected would be treated confidentially.
Study IV was approved by the Research Ethics Committee in Linköping, Sweden, with application registration number: Dnr M114-07\textsuperscript{130}. The primary task of ethics review committees is to protect research subjects. The autonomy in study IV was considered with written informed consent given by all participating parents. The autonomy of minors is completely absent as they cannot make free choices and are dependent on their parents’ choices\textsuperscript{144}. The principles of beneficence (doing good) and non-maleficence (avoiding evil/harm) are best considered together and translate into the obligation to maximize benefit while minimizing harm\textsuperscript{144}. The risks for the families participating in study IV were considered to be very low. No child or parent could be recognized in the log books or other documentations from the intervention. The children’s urine samples were collected with a method avoiding discomfort and harm to the child.

In order to abide by ethical principles concerning the urine samples, the results from the samples were given to the nurses who stated if the cotinine levels found in the coded samples were below or above the measurable limit. Exact results were not given to protect parents from experiencing feelings of guilt if high values were reported.

To preserve the confidentiality of participants’ data, all questionnaires, urine samples, audio-tapes and transcripts were coded by a number. Analysis and presentation of data was conducted in a way that concealed participant identity.
Justice was demonstrated in that all participants were given the same opportunity to take part in the studies. The outcomes will potentially generate practical beneficence for CHC nurses in their tobacco preventive work.
RESULTS

The main result is that one third of the participating nurses succeeded in their new tobacco preventive work. Nearly three quarters of the families made behaviour changes which resulted in that some of the children were less exposed to ETS. The results are presented with reference to the CHC nurses’ activities in the intervention and parents’ behaviour changes in order to decrease children’s ETS exposure. The starting point is CHC nurses’ and parent’s experiences of the tobacco preventive work which formed the basis and the drive of the intervention.

The experiences of the tobacco preventive work

CHC nurses’ experiences

Nurses from 88 (96%) of the 92 CHC areas in both counties at the time of the study responded to the questionnaire in study I. Attitudes towards tobacco preventive work among CHC nurses were very positive and nurses considered to ask parents about their smoking habits to be of great importance (VAS md 9.5, range 5.1 – 10). In the free text some nurses commented that their incentive for inquiring about parents’ smoking habits was that it was for the good of the child. The task of motivating parents to quit smoking was also ranked highly (VAS md 9.3; range 4-10). The risk of parents not being offered smoking cessation help was doubled if the nurse they met had not received
Results

tobacco prevention training (OR 2.11; CI 1.03-4.32). Fifty-three percent (n=51 of 96) of the nurses who had been trained in tobacco preventive work stated that they tried to conduct a dialogue with parents based on their acquired knowledge and skills. Eleven percent (n=11 of 96) offered smoking cessation help of which half worked actively with the smoking cessation process with the parents.

Motivating parents to protect their children from passive smoking whether the parent were smokers or not was also seen as important (md 9.5 and md 9.3 respectively, on a 10 centimetre VAS scale). Several nurses commented that not all parents know how they can protect their children from ETS exposure if they are smokers themselves. Some commented that non-smoking parents are often negative towards tobacco smoke and saw the risk of their child being exposed to ETS as small. One difficulty which was mentioned was how to protect children when their grandparents were smokers.

CHC nurses pointed out that there are complexities and problems with tobacco preventive work. In comparison to the National Board of Health and Welfare’s evaluation of 1998, several issues were perceived as more difficult. For example in the present study, 20 \% more nurses expressed shortage of time (p=<0.001), 25 \% poor response from parents (p=<0.001), 11 \% absence of training and competence (p=0.005), and 7 \% the absence of the possibility to use professional tobacco cessation help for those parents who wanted to quit smoking (p=0.044).
Results

In addition collaboration with antenatal care personnel was also found to have decreased when compared with the National Board of Health and Welfare’s evaluation of 1998 from 26% to 17 % (p=0.003). CHC nurses were expected to register the smoking status of families when the child was 0-4 weeks, 8 months, 18 months and 4 years of age. The nurses who had been trained in tobacco preventive work registered the parents' smoking habits in the child’s health record more often than nurses without such training (p=0.028). The older the child, the lower the frequency of registration of this information became.

No special strategies were used to reach “difficult” groups, which from the nurses’ perspective included fathers, foreign-born parents, and socially disadvantaged families. Information in different languages and interpreters were sometimes used, but not systematically, with non-Swedish speaking parents. Fathers were encouraged by the nurses to accompany the mother and child on visits to CHC centres. The nurses emphasized the importance of both parents participation in the upbringing of the child.

The parents’ experiences

Parents who participated in the study represented 91 of the 92 (99%) CHC centres from the two included counties (Figure 2). Twenty-three percent of the parents were smokers. They were divided into groups according to how often they smoked; daily, weekly, or more seldom. Eight percent of the mothers and eight percent of the fathers were daily smokers.
Figure 2. Participants and drop-outs in the two studied counties (Study II).

Most of the questionnaires were answered by the mothers alone. The distribution of smoking and non-smoking parents who answered the questionnaire is shown in Table 2.

Table 2. Distribution of smoking and non-smoking parents answering the questionnaire in study II.

<table>
<thead>
<tr>
<th></th>
<th>Mothers</th>
<th>Fathers</th>
<th>Mother &amp; Father</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Smokers</td>
<td>338</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Non-smokers</td>
<td>1104</td>
<td>77</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>1442</td>
<td>39</td>
<td>306</td>
</tr>
</tbody>
</table>
The majority of parents, (93%) (n=1588) considered it important that the CHC nurse knew if they were smokers or not. The statement “Our smoking is of no concern to the nurse at the CHC centre” was most strongly related to smoking parents (OR 3.07; 95% CI 1.40 – 6.74) and to mothers with a low level of education (OR 5.48; 95% CI 2.48-12.09).

Fifty-six per cent (n=802) stated that the CHC nurse did ask if they were smokers and registered their answer in the child’s health record, but did not enter into any discussion on the matter with the parents. A quarter of parents stated that the CHC nurse talked about smoking and how to protect the child generally from ETS exposure, while 86 % (n=1591) stated that they had not been asked about relatives and friends’ smoking habits.

A comparison between the first and second study showed that areas where nurses experienced a poor response from parents tended to have a high number of smokers and foreign-born parents. The opposite tended to be the case in areas with a low number of smokers and few foreign-born parents.

In summary, the results from the studies of the nurses’ and the parents’ experiences of tobacco preventive work indicate that methods and enforcement of the work carried out needs to be updated and continuously developed in CHC in order for nurses to be able to meet the needs of different groups of parents. Those children at greatest risk of ETS exposure are those with parents that nurses experienced as hard to reach in their tobacco preventive work. This provides incentives for the development of new methods and interventions.
The implementation of the intervention

Collaborative learning

Nurses (n=22) participated in four collaborative “learning sessions” (LS) which started in February 2010. An evaluation of each session was made according to the nurses’ experience of content, usefulness of the LS in their tobacco preventive work, the given presentations, and overall impression of the sessions. The results were predominantly positive and are shown in Figure 3.

Fulfilled expectations

At the first LS nurses were asked about their expectations of the intervention and at the follow-up meeting one year later the evaluation showed that many of their expectations had been fulfilled. On a scale 0 to 10 (0= not good, 10= very good) the values given were between 8 and 9, with a mean value of 8.8
for the statement “Have increased knowledge about tobacco prevention” and 8.5 for “Have received instruments which can be used in tobacco preventive work”. Further data are presented in Figure 4.

Figure 4. Nurses’ experience of fulfilled expectations of the intervention.

<table>
<thead>
<tr>
<th>Experience of fulfilled expectations</th>
<th>Value 1-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialogues with parents are better</td>
<td>8,1</td>
</tr>
<tr>
<td>Have instruments which can be used in tobacco preventive work</td>
<td>8,5</td>
</tr>
<tr>
<td>Have been inspired and motivated</td>
<td>8,4</td>
</tr>
<tr>
<td>Have been able to motivate parents</td>
<td>7,9</td>
</tr>
<tr>
<td>Have increased knowledge about tobacco prevention</td>
<td>8,8</td>
</tr>
</tbody>
</table>

Recruitment of parents

The QI-tool, Plan-Do-Study-Act (PDSA) cycle was introduced but was only used once by all the nurses. Most nurses planned using the PDSA cycle to recruit at least 5 families to the intervention. The number of families they recruited varied from 0 to 9 parents. Most of the families were recruited close to the learning sessions, see Figure 5.
Use of the “bundle” of actions

The nurses’ use of the “bundle” of actions in their work with the families was documented in their log-books. Some of them were very detailed in their documentation with descriptions of the discussions between the parents and nurses, and others were less detailed. All nurses who recruited parents used the SiCET to establish the child’s ETS exposure and as a base for dialogue with the parents.

The nurses’ use of the “bundle” of actions varied (Table 3). The use of MI was only reported in 46 (64%) of the families and use of interpreters in 6 of the 35 foreign-born families (17%). The nurses used MI and handed out written
information on smoking more often to Swedish born parents than to foreign-born parents (p=0.001).

Table 3. CHC nurses use of the”bundle” actions among parents.

<table>
<thead>
<tr>
<th>Activity</th>
<th>%</th>
<th>(n=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration with antenatal care</td>
<td>81</td>
<td>(58)</td>
</tr>
<tr>
<td>Home visits</td>
<td>22</td>
<td>(16)</td>
</tr>
<tr>
<td>Motivational Interviewing</td>
<td>64</td>
<td>(46)</td>
</tr>
<tr>
<td>Referral to a tobacco treatment specialist</td>
<td>26</td>
<td>(19)</td>
</tr>
<tr>
<td>Refer to websites</td>
<td>51</td>
<td>(37)</td>
</tr>
<tr>
<td>Use of booklets</td>
<td>49</td>
<td>(35)</td>
</tr>
</tbody>
</table>

Results regarding parents’ change in behaviour and children’s ETS exposure

The results were based on the intervention carried out in Jönköping county. In order to test the pilot intervention in an area where success rates in ETS protection for children before had been low, the criterion for inclusion of CHC areas was that the area had >10 % of families with smokers when children were 8 months of age (children born 2007). These areas were also shown to have an overrepresentation of families which were potentially “difficult to reach” according to the nurses in study I. The results of the intervention should thus be interpreted in the light of being performed in areas with low rates of success before.
Main results

The main result in the study of the intervention was that some children had less ETS exposure in the families from high risk areas who participated in the improvement project. The total number of families who completed the intervention and answered two SiCETs was 72, and 73 families contributed with two urine samples. Sixty-nine percent succeeded in their ambitions to increase the protection of their child/children from ETS exposure in different ways while they were supported by the CHC nurses.

- Ten parents (11%) quit smoking (of 95 smoking parents)
- Thirty-two families (44 %) decreased their cigarette consumption in the home
- Fewer children were exposed to tobacco smoke and showed levels of cotinine in urine <6 ng/ml (base-line n=43, follow up n=54; p=0.05).
- The total number of outdoor-only smokers was unchanged (base-line 60 %, n=43, follow up 63 %, n=45). Nine families (13 %) changed from indoor to outdoor smoking and seven families (10 %) changed from outdoor to indoor smoking. The outdoor to indoor group varied their behavior and were also smoking outdoors with the door closed (n=6).

Results from nurses

Seven of the nurses (30 %) who took part in the intervention had successful results in their area. Three nurses had unchanged results and twelve nurses had worse results. The combined results from the successful areas showed a decrease of smokers in families when the child was 8 months of age, from 20 % in 2009 to 12 % in 2011. This can also be compared to the county as a whole
where a decrease was found during the same period (15.5 % in 2009 to 14.6 % in 2011). No decrease was found in the country as a whole (Table 4). The latter results were based on the CHC’s annual data from NBHW’s report in 2012. Nurses reported in the log-books that many of the families who participated in the intervention were socioeconomically disadvantaged.

Table 4. Seven nurses (30 %) participating in the intervention showed improved results in their area. Comparisons of smokers in the family when child is 8 months of age at base-line in 2009 and follow-up in 2011.

<table>
<thead>
<tr>
<th>CHC area</th>
<th>CHCs annual statistics in 2009</th>
<th>CHCs annual statistics in 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Children 8 months</td>
<td>Smokers %</td>
</tr>
<tr>
<td>A</td>
<td>28</td>
<td>21,4</td>
</tr>
<tr>
<td>B</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>C</td>
<td>37</td>
<td>16,2</td>
</tr>
<tr>
<td>D</td>
<td>66</td>
<td>19,6</td>
</tr>
<tr>
<td>E</td>
<td>44</td>
<td>25</td>
</tr>
<tr>
<td>F</td>
<td>53</td>
<td>17</td>
</tr>
<tr>
<td>G</td>
<td>47</td>
<td>22,7</td>
</tr>
<tr>
<td>Areas total</td>
<td>303</td>
<td>20</td>
</tr>
<tr>
<td>County total</td>
<td>15,5</td>
<td>14,6</td>
</tr>
<tr>
<td>National total</td>
<td>13,7</td>
<td>13,6</td>
</tr>
</tbody>
</table>

**Parents who quit smoking**

During the intervention period ten parents (11 %) quit smoking, six fathers and four mothers. Two of the parents lived together and thus represented one family. Nineteen parents were referred to a tobacco treatment specialist support but only two of these, both Swedish-born mothers, quit smoking during the intervention period. An additional eight parents quit smoking by themselves with support only from the nurses, of whom six were Swedish-born (two mothers and four fathers) and two were foreign-born (both fathers).
Smoking fathers and their participation at visits to CHC

- Of the “indoor smokers” twelve fathers and ten mothers who represented 20 families were smokers. Ten of these families were Swedish born. Of 73 CHC visits, fathers participated in 49 (67%).
- In the group which changed from “outdoor to indoor smoking”, six fathers and one mother representing seven families were smokers. All the families were foreign born. Of 38 CHC visits the fathers participated in 22 (58%).
- In the group which changed from “indoor to outdoor smoking”, six fathers and six mothers representing nine families were smokers. Five families were Swedish born and four were foreign-born. Of 52 CHC visits fathers participated in 16 (31%).

Reduced cigarette consumption

Thirty-two families (44%) reported reduced cigarette consumption. The majority of these families (n=27) were motivated to change their smoking behaviour according to the SiCET at base-line. Nurses used MI with all the families who succeeded. One third of these families were foreign-born. Nineteen families were outdoor smokers and 13 were indoor smokers.

Cotinine in urine

The comparison of cotinine concentration levels in children from base-line to follow up showed a decreased proportion of children with high
Results

concentrations. The proportion of children with cotinine values <6 ng/ml, showed a tendency to increase by 25 % (p=0.054) and the proportion with values >6 ng/ml decreased by 36 % from base-line to follow up. In some cases where parents quit smoking or changed from indoor to outdoor smoking, the children still had cotinine levels >6 ng/ml. These children had grandparents who were smokers whom they often met.

Experiences of nurses’ use of the SiCET instrument

The experiences of nurses regarding the use of the SiCET instrument in dialogue with parents were predominantly positive. The SiCET could be used as a support in dialogues both with smoking and non-smoking parents. Nurses were positive towards using the instrument in their continued tobacco preventive work in CHC even after the study was completed.

Facilitating the dialogue

“The most important aspect (of using the SiCET) is that it helps initiate the dialogue I think…it’s not just like…how is it, does anybody smoke in the home…and then you don’t know what to say… it really assists in having an open discussion.” (Nurse)

According to the nurses the SiCET facilitated dialogue with parents. In direct dialogue, face to face, parents were free to talk about what they had written in the questionnaire. The nurses could ask further supplementary questions which led to more in-depth dialogues as several perspectives were
highlighted. The parents’ responses to the different questions formed the basis in the dialogue.

In families where a smoking father did not come to the CHC centre, mothers said that they had later taken up the subject of ETS in the home with him. The nurses were dissatisfied with this indirect dialogue i.e. not being able to speak face to face with the smoker in the family. In some cases the nurses offered a telephone call to the father but they were met with excuses and these conversations never materialized. If the grandparents were smokers the nurse was able to provide support to the parents to help them in their ambition to create a smoke-free environment outside the child’s home even if it was a delicate issue to deal with.

The nurses’ use of interpreters in the dialogue when they used the SiCET, also varied since it was the parents who decided if an interpreter was necessary when they visited the CHC centre. Some nurses used physically present interpreters, while others used telephone interpreters.

**The SiCET instrument**

“It is not me who is curious; it is the paper I am holding.” (Nurse)

The SiCET had both strengths and limitations but the strengths were more prominent than the limitations. One strength of the SiCET was that the parents could respond relatively quickly to the questionnaire. Nurses felt confident as it was a validated instrument and they felt it was legitimate to use it.
The detailed questions helped the nurses to broaden the concept of environment and the dialogues with parents became more open and were perceived as more honest than in former unstructured dialogues. The SiCET was translated into different languages to make it easier for foreign-born parents to answer it.

Nurses had to explain some questions which parents were unsure about, for example if an environment outside the home, included both indoor and outdoor environments.

**SiCET and its outcomes**

“I think the question asking if they want to make changes to protect their child is the most important or the most interesting for me, actually. If they answer “absolutely” then I have a starting point and if they answer “no” then I know where they stand …this is the question I look at before I start discussing the other questions.” (Nurse)

By using the SiCET, nurses could provide support for both smoking parents and non-smoking parents in discussions on how to create a tobacco-free environment for the child. Nurses experienced that discussions concerning tobacco with parents were more satisfactory when using the SiCET as it made in-depth conversations about smoking in the child’s environment more obtainable. The smoking status and smoking frequency of the parents could be discussed in an easier manner.

The nurses described the use of the SiCET as a process in different phases in which they could support the parents in their change process. When the
parents realised the significance of their child’s ETS exposure it led to reflection and thoughts about how to make changes to protect the child.

Some of the nurses used the method Motivational Interviewing (MI) to make progress with parents and support them in smoking cessation or making changes in their smoking behaviour. If parents were motivated to quit smoking nurses had an option to write a referral to a certified tobacco treatment specialist. If not, nurses themselves could support them in reducing the number of cigarettes smoked or in changing smoking behaviour in the home. Even if the parents did not quit smoking, they were proud of the changes they made, according to the nurses.
GENERAL DISCUSSION

The main purpose of this thesis was to develop, test and evaluate a new model for tobacco preventive work in CHC which aims to reach all smoking families in order to protect children from ETS exposure. This is considered important as earlier interventions in CHC in Sweden did not show expected sustainability and parents were not satisfied in the way preventive work was carried out. The first study in this thesis showed that CHC nurses had very positive attitudes towards tobacco preventive work in CHC. Despite this the development of their actions and methods in this area has not been as comprehensive as could have been expected. The lack of follow-up measures of tobacco preventive work in CHC at both national and regional level can also be a reason for this. At the same time, we know that smoking is the single biggest preventable risk factor for health where the benefits are seen in both the smoker who quits smoking and children who are no longer exposed to ETS.

When studies are performed in “real settings” the initial plans often have to be adapted in relation to unpredicted events. Thus, in this study the number of nurses who participated in the intervention was lower than anticipated owing to different events in their organisations. The number of families recruited increased directly after learning sessions which shows that it would have been better if the intervention had been carried out from August to May to avoid the period in June and July when participating nurses were on holiday. Even if the statistical power was limited in the study owing to low numbers the small
study population made it feasible to try and adapt the new work model in an interactive way with nurses and families.

**Initial situation**

Our results showed that nurses had received insufficient specialised training and methodology competence in tobacco preventive work. They also experienced that they got a limited response from some groups of parents. This is in concordance with the national evaluation of 1998 \(^{102}\). Internationally it has also been shown that parents want to be asked about their smoking \(^{94}\) but health care professionals are lack of training and expertise required to be able to give parents the support they need to make behaviour changes \(^{148}\). Parents who participated in study II wanted the opportunity to discuss passive smoking and ways to protect their children from ETS exposure with CHC nurses which has also been shown earlier \(^{67}\). If health care professionals are trained in how ETS exposure affects the child’s health it will make them more willing to discuss this with the families \(^{85}\). The two initial studies (I and II) in this thesis, which showed that tobacco preventive work needed to be further developed within CHC, provided the basis for the intervention. One of the principles in continuous quality improvement is to test a change in a small scale before any attempts are made in broader settings. The intervention, which has been developed, tested, and evaluated in a small-scale in this study can be helpful, if positive results are demonstrated, before further spread is initiated \(^{79}\).
The intervention and results

There are indications showing that after the intervention fewer children were exposed to ETS, some parents had changed their smoking behaviour, and a group of ten parents had quit smoking. Causal effects of the intervention need to be interpreted with caution since there is no control group, but the temporal connection between the intervention and the changes suggests a link. The lack of change in smoking behaviour among parents in surrounding areas strengthen the link. In addition the evaluation of the learning sessions showed that the CHC nurses increased their knowledge within the area, which they considered useful in their tobacco preventive work in CHC. They had also been given new inspiration and a useful instrument which facilitated dialogue with parents regarding tobacco preventive work.

Annual statistics from CHC showed that a third of the nurses who participated in the study reported a reduction in the overall number of smokers in families in their areas when the children were 8 months of age. Their activities in the intervention have most likely affected these results in the form of a spill-over effect that affected all smoking parents in their area including parents who were not participants in the study. Nurses with successful results should be followed over time to see if they continue to report good results. If so, it could inspire their colleagues to use methods introduced by the intervention in their work. By following data locally over time, a system for feed-back loops for continuous improvement and learning could be created.
One interesting factor was the number of parents who quit smoking without any support from a certified tobacco treatment specialist. This could be due to the CHC nurses’ ability to support the parents’ self-efficacy by helping them believe in themselves and become confident enough to carry out the change they had chosen. However, Swedish health care professionals have to offer smoking breastfeeding mothers, smoking parents and other smoking guardians qualified counselling in order to help them quit smoking. CHC nurses are supposed to have this dialogue with parents but they also have the possibility of referring them to a certified tobacco treatment specialist and this should be seen as a facilitator in their tobacco preventive work.

The nurses were rather successful in reaching fathers as a relatively high rate of fathers participating was shown when families visited CHC. However they failed to influence foreign-born fathers to change their smoking behaviour in a positive direction. Most changes were made by Swedish-born parents. One explanation could be that the nurses used MI and issued written information to a larger extent with Swedish-born parents than foreign-born. Swedish studies have shown that nurses experience difficulties in their contact with foreign-born parents and lack support in this task. However, despite that the learning sessions covered methods of how to handle parents from different cultures and written information was translated, nurses did not seem to be able to reach these parents successfully.

In a follow-up study (not included in this thesis) eleven parents who represented the families who participated in the intervention, claimed that the SiCET and cotinine analysis test affected their smoking and smoking
behaviour. This study therefore supports ambitions to use the SiCET in tobacco preventive work in CHC to a greater extent. If we in the future could have the possibility to measure cotinine in urine with a dipstick it might be helpful as feedback to parents who try to change their smoking behaviour. It would be a strength as we know that parents accept cotinine measurement.

Facilitators in the tobacco preventive work

Smoking in Children’s Environmental Test

The validated questionnaire SiCET was shown to be a facilitating instrument in dialogue with parents (Study III). The SiCET serves as a screening instrument for smoking environments including not only the child’s home but also other important ETS sources such as grandparents, which is in line with a study by Chen et al. The SiCET allowed parents to discuss how they answered the questions and this helped to lead the dialogue forward between the nurse and parents. Nurses claimed that when they used the SiCET the dialogue went into more details concerning the child’s risk environments for tobacco smoke. An example could be where the child still had measurable levels of urinary cotinine despite the fact that the parents had quit smoking, and through using the SiCET it was discovered that the grandparents smoked. Nurses could then support the parents in their efforts to protect their children from ETS exposure when they spent time with grandparents.

Children and grandchildren are important considerations in the development and modification of smoke restrictions in the home. Robinson et al. have shown that the needs of parents to protect their children from ETS exposure
also has an effect on smoking grandparents and friends as they voluntarily avoid smoking in the vicinity of the children and follow the parents’ smoking policy in the home. In a number of cases, a request to friends and family has been enough to see that the smoking policy in the home is followed. 122.

Smoking parents have themselves given suggestions on how to create smoke-free homes. Three of the interventions included information about health risks to children, advice from health professionals and access to smoking cessation clinics which are in concordance with our intervention. 6 In a review of interventions intended to reduce smoking, increase physical activity and/or healthy eating it can be seen that providing information, facilitating goal setting and prompting barrier identification can be helpful for low-income groups. 91. This has some parallels with our intervention in that it provides information about the benefits of changing behaviour which may increase parents’ motivation to change, help to form realistic goals, and identify barriers which may help them to translate motivation for change into action.

**“Tobacco-free Children” brochure**

The brochure “Tobacco-free Children”, which was translated into several different languages, became a facilitating factor for parents in situations where grandparents and friends did not follow the smoking policy. In such cases, parents could give them the brochure and refer to the dialogue they had had with CHC in the hope that a change in behaviour would occur. However, despite that material was translated into nine different languages, it was not used with parents with languages other than Swedish to the same extent as Swedish-speaking parents. This is in accordance with other studies which
show that adherence to intervention activities seldom reach 100 % among health care personnel \(^{32, 41, 46, 120}\). If the reason for this finding in this thesis is due to lack of documentation in the logbooks has not been studied.

**Motivational Interviewing in the dialogue**

A facilitating factor for nurses is MI in dialogue with parents. The four key MI techniques; to listen actively, ask permission to provide information, summarize parent’s opinions, and pay attention to clients’ change talk has been considered very simple or quite simple to apply in CHC nursing practice. CHC nurses have also considered MI to be better than traditional advice-giving practice \(^{143}\). The motivational factor is important, and studies show that motivated women make efforts to limit second-hand smoke exposure at home for their own and their child’s benefit \(^{25}\), and also in order to minimize the chance that their child might initiate smoking at an early age \(^{104}\). Home smoking bans contribute towards a reduced risk of children to initiate smoking even when parents smoke according to a Finnish study \(^{119}\).

According to the nurses, one specific question in the SiCET (Question 9) gave a natural opportunity to start with MI techniques. The question asked if the parents wanted to change anything concerning their smoking on the basis of how they described it in the questionnaire. However, we don’t know to what extent the nurses used MI, even if all the nurses previously were trained in MI techniques and a repetition class was held during one of the learning sessions. One obstacle observed in other studies is insufficient time to use MI because learning and adopting new skills tends to be time-consuming in practice \(^{26, 128, 154}\). Perceived organizational support for the use of MI to a large extent seems
to be a facilitator in CHC. All nurses who participated in the study had been trained in MI and were supposed to use it in their tobacco preventive work. However, it was shown that they used MI more frequently with Swedish-born families than with foreign-born families. Language problems could be one reason for not using MI with foreign-born families but the nurses only noted in the log books if they had used it or not. MI is a method which demands a lot of time to learn how to use it in practice, and thus it is of great value that nurses are supported by their superiors to develop these skills. At the same time nurses themselves must take the initiative to use it in their daily work with parents.

**Home visits**

Fifty-five percent of children in the study were aged 0-4 weeks when their families were recruited for the study. This is the age period when home visits are recommended in the universal program in CHC. The results showed that home visits were carried out in only 22% of participating families (Study IV). In some cases, a home visit may have taken place before recruitment. The low frequency could also be a reflection of the trend seen in Sweden which shows that the frequency of home visits is decreasing and not all children are reached. Another Swedish study showed that home visits were not used consciously and systematically as a strategy to reach groups such as immigrants, economically-disadvantaged families and single mothers where today it is recognised that smoking parents are common. The parents’ views of home visits are shown in an Australian study where associations were found between the parents’ level of education, language and smoking status in the home and whether the suggestion of a home visit was accepted or not.
visits were less frequently welcome in smoking families than in smoke-free families. As home visits are considered to be a good method of making contact with the parents and can give good information on the child’s home environment concerning smoking, it is important from the perspective of the rights of the child that they are conducted in a more systematic manner by the nurses.

Referral to a certified tobacco treatment specialist

Providing evidence-based treatment for tobacco-dependent parents or patients is a challenge for busy health care professionals and therefore it was a facilitator for the CHC nurses to have the possibility to write referrals to a specialist in tobacco treatment. Nine-teen referrals were written during the intervention period and two of the referred parents quit smoking with this help. The specialist has knowledge of how to tailor treatment in an effective way to meet the needs of individuals. Busy CHC nurses could then instead support the parents by offering encouragement when they met at the CHC centre. Another possibility for the nurses was to inform motivated parents about the “quit-smoking-line” and parents could then contact a tobacco treatment specialist by themselves. Pro-active telephone counselling was not used in this intervention but has been shown to be an effective aid to promote smoking cessation among parents of young children and is a welcome option for busy and/or single parents who find it difficult to travel to a clinic to get help. Winickoff et al. experienced that offering smoking parents tobacco treatment services during the immediate postpartum hospital stay seemed to stimulate quit attempts. The system used by CHC centres in Sweden would therefore be able to handle this situation well in collaboration with antenatal care.
Adherence to the intervention

Data used in the analysis of the intervention was collected from the SiCET questionnaire answered by parents, the nurses’ notes made in logbooks and the analysis of cotinine concentration in children’s urine samples.

SiCET

The CHC nurses used the SiCET instrument with all participating families at base line and again with those families who were still included in the study after twelve months. The SiCET was generally completely answered by the parents and it is likely that they had the opportunity to ask nurses for help if anything was unclear in the questionnaire. According to nurses, parents with languages other than Swedish could choose themselves if they used the Swedish or a translated version. Nurses could read the answers in, for example, the Arabic questionnaire as when they together discussed the questionnaire with the parents, they then filled in the Swedish version. This was done as the Arabic questionnaire was filled in the opposite way from the Swedish questionnaire. This helped the dialogue between nurses and parents at follow-up visits to the CHC centre, when nurses sometimes needed to refer back to the SiCET to see what had been earlier said.

Logbooks

The log books were filled in to varying degrees by the participating nurses. Some nurses had written in detail what was discussed in dialogues with parents, while others only wrote brief notes on the activities which had been carried out. These results showed that nurses had not discussed smoking with
parents at all visits to the CHC centre. The reason for this was that, for example, the family’s social situation dominated the discussion and smoking was therefore not brought up. Many families were in psycho-socially difficult situations which are recognised from other studies \(^{23, 121, 153}\). This may be one explanation as to why smoking was not always discussed at each family’s visit to the CHC centre.

**Motivational Interviewing and written information**

The nurses did not use MI techniques or give written information to foreign-born families to the same extent as to Swedish-born families. During the learning sessions, a lot of time was spent on measures designed for families with non-Swedish cultural backgrounds so that nurses would be better prepared to work with this group. Jirwe (2008, page 38) summarize studies about Swedish nurses’ cultural competence and concluded that “transcultural nursing and cultural competence is about nurses being able to take the patient’s cultural background, beliefs, values and traditions into consideration in nursing care. Cultural competence should not only be employed when caring for immigrants or ethnic minority groups, but also in encounters with all patients.”\(^{63}\). Further research is needed to be able to identify obstacles and problems with working with this group. One method could be to record visits using a video camera and compare interaction between various parents and nurses during visits to the CHC centre \(^{51}\).
Methodological considerations

Questionnaires

The questionnaire to the parents (Study II) was addressed to the mother of the child in the family and this might explain why most questionnaires (81%) were answered by mothers. However, the answers were interpreted as representing both the parents’ views on tobacco preventive work and parents were divided into smokers or non-smokers. The representation of smokers among the responders was 23% according to the study’s definition of smokers (daily, weekly or occasional smokers). This ought to have given a good picture of parents’ view of the tobacco preventive work. A limitation in the questionnaire was the absence of socio-economic background variables giving information about parents’ country of birth and marital status.

Drop outs

The drop-out rate of study II was 38% (n=1130) where the majority (n=1105) simply did not return the questionnaire. However, a small number returned the questionnaire unanswered but with an explanation for this. Some parents had recently moved to the area and had no experience of their local CHC centre while others lived abroad, according to information given by relatives. Despite the fact that the questionnaire stated that non-smoking parents were also welcome to answer, some declined, most likely because they did not think that the questionnaire concerned them. Twenty-five questionnaires were answered incorrectly, for example where parents had answered only some of the questions or had not answered a page of the three-page questionnaire. These were removed from the study and were not included in the analysis.
Collaborative learning

The methodology collaborative learning, developed in quality improvement was used to implement and test the intervention bundle since it has been shown to be effective in other interventions. It is the combination of collaborative learning and actions in the work situation which can lead to sustainable improvements. The use of the PDSA tool in an effective way demands, according to Langley, discipline and effort. The cycle can be used to turn ideas into actions, test changes and implement change into practice. But not all improvements demand PDSA cycles. Nurses in this study conducted one cycle with the goal of recruiting five families each. The result varied between 0-9 families for the 22 nurses, despite that all of them had the ambition to reach the goal. Two nurses managed to recruit nine families each. The extent to which MI was used in the recruitment of families was not revealed in the notes made in log books.

The role of the individuals

People are seen as active recipients of innovations in their work and in varying degrees search for new methods, adapt and try to improve them, often in dialogue with others and preferably with individuals with similar backgrounds. One prerequisite for a newly introduced method to succeed is that those who use it in practice must have sufficient knowledge of the method in question and that they understand how the new method can affect their own working situation. Through the collaborative learning used in combination with clinical practice, we realised that we had created conditions in which the intervention could succeed. During the entire intervention
period the nurses had access to continuous information, training, and support in their daily work, in part with help from the leaders of the learning sessions and also from their colleagues who took part in the intervention and who formed a natural network. These conditions were regarded as very important and nurses used them to varying degrees during the intervention period. Once the nurses began to recruit families they were fully occupied with the continuous follow-up and support of them during the year-long intervention and did not use the provided QI tools such as the PDSA cycle.

That the number of families recruited by the 22 nurses ranged from zero to nine can be interpreted with the help of Prochaska and DiClementes Stages of Change Model which describes the stages in behaviour change. The results for the two nurses who managed to recruit nine families each were able to see that their work with the families (action) gave positive results and resulted in more families being recruited (maintenance). These nurses also saw the value of working with the SiCET and responses that parents gave in dialogues as well as their changed behaviour. Nurses expressed a desire to continue to use this new method in their tobacco preventive work even after the conclusion of the study.

The role of the organization

“Learning organisations”, are characterized by their ability to adopt new methods, and to identify, interpret and link new knowledge to existing knowledge systematically. Such organisations are positive to change in general, have clear visions, strong leadership, visionary personnel, and a working climate which stimulates change. During the recruitment process of
nurses to the intervention, there was a generally positive attitude from managers indicating that they supported participation. Further input from managers did not occur and this can be explained by organisational changes where new managers took over after the start of the intervention. One of the reasons why two nurses discontinued their participation in the study was that they were given other job positions.

An organisation’s willingness to change can also be decided on the basis of the Stages of Change Model 116 where, as with individuals, it is decided where in the change cycle the organisation is. Implementing a new method in an organisation is only meaningful once it is experienced that there is a problem. 55. In the selected CHC areas, it was clear that the prevalence of smoking families was high and that efforts should be made to improve the conditions in which children grow up 96. National comparisons of transparent data based on annual statistics from CHC can also constitute a motivational factor for development work 55. In order for this to work, the managers of CHC centres for each region should give clear guidelines for the documentation and follow up smoking prevalence in medical records.

Provision of instant feed-back of data on the local level may create incentives and motivation for change. The transparent feed-back data would also serve as an important tool on the continuous improvement efforts.
CONCLUSIONS

The results of this thesis show that

- Some parents want information on the harmful effects tobacco smoke have on their children’s health and how they can protect their children from ETS exposure.

- The majority of the participating nurses believe that tobacco preventive work is important but that it is difficult to reach certain groups such as fathers, foreign-born parents, and those who are socioeconomically disadvantaged.

- The combination of collaborative learning sessions with a “bundle” of evidence-based actions and clinical work has given nurses the experience of being able to lead an improved dialogue with parents and thereby better motivate them to make behaviour changes related to smoking.

- Nurses working in high risk areas have been shown to be able to get positive results with fewer smokers in the families.

- With support from CHC nurses, motivated families are able to succeed in their ambitions to make behaviour changes in order to protect their children from ETS exposure.
IMPLICATIONS

The vision that no child should be exposed to ETS is a goal to constantly strive for. We can never give up on this area of public health work. The general perspective towards children in society is reflected in legislation and social norms. Swedish tobacco legislation regarding smoke-free restaurants and bars, smoke-free zones in all public locations where children can be present, including schools, reflects the knowledge which exists today concerning the negative health effects of passive smoking, particularly for children.

Clinical implications and continued research

All children have, according to the UN Convention on the Rights of the Child, the right to grow up in a healthy environment. Older children can themselves say if they do not want to be exposed to ETS but younger children need protection. Therefore, professionals within health care have the task of discussing in dialogue with parents about factors which can affect children’s health in a detrimental manner. Professionals shall support parents in their ambitions to give their children as good an environment as possible in which to grow up. Nurses within CHC should have the competence needed to provide this support in an effective way.

CHC professionals meet almost all parents in Sweden (99%) which includes the groups which have a high prevalence of smokers today, where many families are socioeconomically disadvantaged. To a large extent, CHC nurses
are in the position to support parents with the aim of reaching the goal that all children shall grow up in a smoke-free environment.

However, in order to accomplish this CHC nurses need continuous training and guidance in order to reach high quality and sustainability in their tobacco preventive work. Resources should be concentrated on families who are socioeconomically disadvantaged as well as foreign-born families where smoking is most common, in order to reach the goal of all children’s home environments being smoke-free.
SVENSK SAMMANFATTNING

Den passiva rökningens negativa hälsoeffekter är väl kända. Barn exponeras främst av sina föräldrar i sina hem. Det finns omfattande forskning som visar att föräldrars rökning under graviditet och barns exponering för tobaksrök i tidig barndom har samband med en ökad risk för många hälsovårdshandlings hos barn. Barnhälsovårdens sjuksköterskor som möter nästan alla familjer i Sverige med barn i åldern 0-6 år har således en viktig roll i det tobaksförebyggande arbetet för att stödja föräldrar i deras ambitioner att skydda sina barn från tobaksrök.

Det övergripande syftet med denna avhandling var att utveckla, testa och utvärdera en ny modell för barnhälsovårdens tobaksförebyggande arbete med särskilt fokus på områden med hög förekomst av rökande föräldrar. I ett första steg ville vi få fram sjuksköterskornas och föräldrarnas synpunkter på och erfarenheter av tobaksprevention inom barnhälsovården. Detta gjordes med hjälp av två kvantitativa enkätstudier.

I ett andra steg utfördes interventionen baserad på resultaten från sjuksköterskornas och föräldrarnas erfarenhet av det tobaksförebyggande arbetet inom barnhälsovården och med metoder från ”Quality Improvement”. Ett antal tobaksförebyggande interventionsaktiviteter utvecklades i en så kallad ”bundle” och fyra lärandeseminarier hölls för de deltagande sjuksköterskorna. ”Smoking in Children’s Environment Test (SiCET), en enkät där föräldrarna svarade på frågor om i vilka miljöer barnet riskerar att utsättas för passiv rökning ingick bland aktiviteterna. SiCET utvärderades med hjälp av fokus gruppsintervjuer där deltagande sjuksköterskor ingick. Två urinprov analyserades för att mäta kotinin i urin hos barnen. Föräldrarnas svar från SiCET enkäten, mätningarna av kotinin i urin och data från sjuksköterskornas loggböcker användes vid utvärderingen av effekterna av förbättringsarbetsutvecklingen.

Resultaten visade att föräldrarna ville ha information om de skadliga effekterna tobaksröken har på deras barn och hur de kan skydda sina barn från tobaksrök. Sjuksköterskorna såg det tobaksförebyggande arbetet som viktigt, men de upplevde svårigheter att nå vissa grupper som pappor, utrikesfödda föräldrar och socioekonomiskt utsatta grupper. SiCET instrumentet utgjorde en bra grund för dialogen med föräldrarna. Resultaten
från interventionen visade att tio föräldrar (11 %) slutat röka, trettiotvå familjer (44 %) hade minskat sin cigarettkonsumtion i hemmet och färre barn utsattes för tobaksrök, vilket visade sig i ett större antal barn med kotinin i urin <6 ng/ml (baslinjemätning n=43, uppföljningen n=54, p=0.05). Det totala antalet utomhusrökare ändrades inte. Sju av sjuksköterskorna (30 %) hade framgångsrika resultat i sina respektive områden med en minskning av rökare i familjer med barn i åldern 8-månader, från 20 % år 2009 till 12 % år 2011. Motsvarande siffror för hela länet och hela riket minskade inte under samma period.

Interventionen behöver följas upp för att se om de positiva resultaten består och nya mätningar kommer sannolikt att bli nödvändiga. SiCET instrumentet bedömdes som användbart och kan användas inom andra områden där barns exponering för passiv rökning diskuteras. Utveckling av ett snabbtest med mätsticka för kotinin skulle göra det möjligt att ge föräldrarna omedelbara svar om effektiviteten av genomförda skyddsåtgärder. Detta skulle kunna fungera som en pedagogisk resurs i dialogen med föräldrarna.
ACKNOWLEDGEMENTS

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Jönköping,
June, 2012

Noomi Carlsson
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ENKÄT OM TOBAKSFÖREBYGGANDE ARBETE PÅ BVC

Jag är □ Kvinna □ Man

Jag har specialistutbildning till

□ Distriktssköterska □ Barnsjuksköterska □ Annat □ Ingen

Hur länge har Du arbetat som BVC-sjuksköterska? ____________________________

Hur många BVC-sjuksköterskor arbetar på Din BVC? ____________________________

UTBILDNING

1. Har Du deltagit i utbildning i tobaksförebyggande arbete?
   □ Ja
   □ Nej → Fortsätt till fråga 4

2. Vilken typ av utbildning har Du gått?
   □ ”Rökfria barn”
   □ Motiverande samtal
   □ Rökavvänjning
   □ Hälsovården enligt Habomodellen
   □ Annat ________________________________

3. Hur använder Du Dig av den kunskap du fått?

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

105
4. Utbildningsbehov

| Du som tidigare fått utbildning i tobakspreventivt arbete, har Du behov av ytterligare utbildning? | Du som ej gått utbildning i tobakspreventivt arbete, har Du behov av utbildning?
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Ja □ Nej</td>
<td>□ Ja □ Nej</td>
</tr>
</tbody>
</table>

Du som svarat ja, på frågan; vilken utbildning har Du behov av?

- □ Tobakens skadeverkningar
- □ Rökavvänjningsmetodik
- □ Motiverande samtal
- □ Annat - Vad? ____________________________

5. Samarbetar Din BVC med andra yrkesgrupper eller organisationer i det tobaksförebyggande arbetet?

| Ja | Nej → Hoppa över nästa fråga |


- □ Landstingets centrala folkhälsoavdelning/motsvarande
- □ Hälsoplanerare eller motsvarande
- □ Mödravårdscentralerna
- □ Övrig primärvård – Vem? ____________________________
- □ Tandhälsovården
- □ Miljö- och hälsoskyddskontor/motsvarande
- □ Barnomsorgen

Fler alternativ på nästa sida.
Fortsättning fråga 6.

☐ Tobaksavvänjare
☐ Annan ________________________________________________

Samarbetet består av följande:

☐ Information och upplysning
☐ Utbildning
☐ Samarbete vad gäller rökavvänjning
☐ Annat ________________________________________________

---

**Tobaksavvänjning**

7. Erbjuds föräldrar som röker någon form av rökavvänjning?

☐ Ja
☐ Nej → Fortsätt till fråga 10

8. Vilka metoder erbjuds vid rökavvänjning?

☐ Rökslutargrupper
☐ Individuella rökslutarsamtal
☐ Nikotinersättningsmedel
☐ Annat medel för rökavvänjning ex. Zyban
☐ Annat ________________________________________________

9. Erbjuds någon av dessa i BVC:s regi?

☐ Ja – Vilken? ________________________________________________
☐ Nej

<table>
<thead>
<tr>
<th>Inte alls</th>
<th>Absolut</th>
</tr>
</thead>
</table>

Kommentar:_______________________________________________________________________

11. Hur viktigt är det att motivera föräldrar att sluta röka?  
Markera med ett kryss på linjen.

<table>
<thead>
<tr>
<th>Ej viktigt</th>
<th>Mycket viktigt</th>
</tr>
</thead>
</table>

Kommentar:_________________________________________________________________


<table>
<thead>
<tr>
<th>Ej viktigt</th>
<th>Mycket viktigt</th>
</tr>
</thead>
</table>

Kommentar: _______________________________________________


<table>
<thead>
<tr>
<th>Ej viktigt</th>
<th>Mycket viktigt</th>
</tr>
</thead>
</table>

Kommentar: ________________________________________________________________

<table>
<thead>
<tr>
<th>Typ av hinder/problem</th>
<th>Stort hinder/problem</th>
<th>Visst hinder/problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Ekonomiska resurser saknas</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Tidsbrist</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Känsligt ta upp ämnet</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Svårt att få respons från föräldrarna</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Utbildning och metodkompetens saknas</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Prioriteras ej av ledningen</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Saknar möjlighet att hänvisa till rökavvänjare</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Eget tobaksbruk</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Annat ________________________________</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

15. Tidigare studier visar att vissa grupper är svårare att nå med det tobaksförebyggande arbetet.

<table>
<thead>
<tr>
<th>I vilken grad instämmer Du när det gäller:</th>
<th>Instämmer Helt</th>
<th>Delvis</th>
<th>Inte alls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familjer med utländskt ursprung på grund av ex. språk, kultur</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Socialt utsatta familjer ex. ensamma mammor, tonåriga föräldrar</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pappor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Annan grupp ________________________________</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
16. Vilka strategier använder Du för att nå dessa grupper?
Familjer med utländskt ursprung:
___________________________________________________________________________
___________________________________________________________________________
Socialt utsatta familjer:
___________________________________________________________________________
___________________________________________________________________________
Pappor:
___________________________________________________________________________
___________________________________________________________________________
Annan grupp:
___________________________________________________________________________
___________________________________________________________________________

**UPPFÖLJNING**

17 a) I vilken utsträckning använder Du dokumentationen av föräldrarnas ev. rökning i BVC-journalen?

<table>
<thead>
<tr>
<th></th>
<th>Alltid</th>
<th>Oftast</th>
<th>Ibland</th>
<th>Sällan</th>
<th>Aldrig</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4 veckor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 månader</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 månader</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 år</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17 b) Tycker Du det är känsligt att ställa frågan?

☐ Ja ☐ Nej
18. Det finns vissa "risktillfällen", ex. direkt efter barnets födelse och efter amningsslut, då föräldrar som slutat röka under graviditeten börjar röka igen. Vilka åtgärder vidtar Du för att förhindra detta när det gäller:
Mamman?
___________________________________________________________________________
___________________________________________________________________________
Pappan?
___________________________________________________________________________
___________________________________________________________________________

19. Finns det några andra synpunkter Du vill framföra beträffande det tobaksförebyggande arbetet på Din BVC så skriv ned dessa!
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

Tack för hjälpen!

<table>
<thead>
<tr>
<th>Föräldrars uppfattning om barnhälsovårdens tobaksförebyggande arbete.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stämmer Precis</td>
</tr>
<tr>
<td>1) På mödravården togs frågan upp om risken med att vara utsatt för andras tobaksrök som gravid mamma.</td>
</tr>
<tr>
<td>2) På mödravården togs frågan upp om riskerna med att snusa under graviditet.</td>
</tr>
<tr>
<td>3) Det var mer samtal om rökning på mödravården under graviditeten än på BVC efter barnets födelse.</td>
</tr>
<tr>
<td>4) På mödravården fick jag bra stöd och hjälp med min rökning. (Besvaras av Dig som var rökare då)</td>
</tr>
<tr>
<td>5) Informationen om rökning är överdriven för att skrämmas</td>
</tr>
<tr>
<td>6) Jag skäms för att tala om att någon av oss föräldrar röker.</td>
</tr>
<tr>
<td>7) Jag saknar information om hur nikotinersättningsmedel ex. plåster, tuggummi kan påverka barnet under graviditeten</td>
</tr>
<tr>
<td>8) På BVC fyller dom bara i journalen om vi röker sen pratas det inte mer om det.</td>
</tr>
<tr>
<td>9) På BVC har man inte med att göra om vi röker.</td>
</tr>
<tr>
<td>10) Informationsbroschyrer om passiv rökning är skrämselpropaganda.</td>
</tr>
<tr>
<td>11) Informationsbroschyrer som rör barn läser jag alltid.</td>
</tr>
<tr>
<td>12) Om jag ska sluta röka vill jag veta alla positiva fördelar med det istället för alla negativa konsekvenser det får om jag inte slutar.</td>
</tr>
<tr>
<td>13)</td>
</tr>
<tr>
<td>-----</td>
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<td>22)</td>
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<td>23)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Dagligen</th>
<th>Varje vecka</th>
<th>Mera sällan</th>
<th>Aldrig</th>
</tr>
</thead>
<tbody>
<tr>
<td>24) Mamma röker:</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>25) Mamma snusar:</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>26) Pappa röker:</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>27) Pappa snusar:</td>
<td>☐</td>
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<td>☐</td>
</tr>
</tbody>
</table>
28) I vårt hem är det tillåtet att röka (flera alternativ kan ges)

☐ ute med stängd dörr och byta kläder efter
☐ ute med stängd dörr
☐ vid en öppen dörr/fönster
☐ vid fläkten
☐ vid matbordet
☐ vid TV
☐ var som helst

29) Mammas och pappas utbildning. Ange den högsta helt genomförda utbildningen.

<table>
<thead>
<tr>
<th></th>
<th>Mamma</th>
<th>Pappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grundskola eller liknande</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Gymnasium 3 år eller eftergymnasial utbildning mindre än 3 år</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Högskole- eller universitetsutbildning 3 år eller längre</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

30) Har du några övriga synpunkter på BVC:s förebyggande arbete när det gäller tobak?

__________________________________________________________________________________________
__________________________________________________________________________________________
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__________________________________________________________________________________________


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<table>
<thead>
<tr>
<th></th>
<th>Mamma</th>
<th>Pappa</th>
<th>Mamma och pappa tillsammans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

32) Frågorna är besvarade av: ☐ ☐ ☐

TACK FÖR DIN/ER MEDVERKAN!
Frågor om rökning i hemmiljön den senaste månaden
(SiCET, Smoking in Children’s Environment Test)

Vår avsikt med dessa frågor är att få en så noggrann beskrivning som möjligt av hur mycket tobaksrök som kan ha funnits i hemmiljön/hemmet den senaste månaden. Försök att ange så noga som möjligt hur många cigaretter som röktts vanliga vardagar och på helgdagar. Försök sedan ange hur ofta någon rökt i de situationer som vi givit exempel på. Ange också hur viktigt det är för den som röker att göra på beskrivet sätt.

1. Hur många personer har rökt i hemmiljön den senaste månaden?
   (Med hemmiljö menar vi både inomhus och ute på balkong, altan, uteplats eller liknande)

2. Ungefär hur många cigaretter har sammanlagt röchts av alla rökare per dag i er hemmiljö under den senaste månaden?
   (Räkna med alla som bor i hushållet och även släktingar, vänner och andra besökare)

   På vardagar          På helgdagar
   0  □   0  □
   1-5 □   1-5 □
   6-10 □   6-10 □
   11-15 □  11-15 □
   16-20 □  16-20 □
   21-40 □  21-40 □
   41-60 □  41-60 □
   Mer än 60 □                    Mer än 60 □

3. Har någon rökt pipa, vattenpipa, cigarr eller cigariller i hemmet?
   Nej  □   Ja  □

   Ungefär hur mycket per dag? ____________________

4. Ungefär hur ofta brukar någon (även besökare) röka på följande ställen i hemmet eller i bilen? (Svara med ett kryss i lämplig ruta på varje rad, tack!)

   Var som helst inomhus                        □
   Vid matbordet                                □
   Vid TVn                                      □
   Vid öppen balkong/ytterdörr eller öppet fönster □
   Vid köksfläktan                              □
   Ute med stängd dörr                           □
   Ute med stängd dörr och klädbyte efteråt     □
   I bilen                                      □
   Andra ställen i hemmet, nämligen:            □

   Flera gånger per dag               En gång per dag      Minst en gång i veckan      Minst en gång i månaden       Aldrig eller mer sällan än en gång i månaden

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5. Är det viktigt för någon rökare i hemmet att kunna röka på följande ställen?  
(Svara med kryss i lämplig ruta på varje rad, tack!)

<table>
<thead>
<tr>
<th>Var som helst inomhus</th>
<th>Ja, absolut</th>
<th>Ja, kanske</th>
<th>Nej</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vid matbordet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vid TVn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vid öppen balkong/ ytterdörr eller öppet fönster</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Vid köksfläkten</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ute med stängd dörr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ute med stängd dörr och klädbyte efteråt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I bilen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andra ställen i hemmet, nämligen:</td>
<td></td>
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</table>

6. Hur länge har rökvanorna i hemmet sett ut som de gör nu?  
(dvs att det är lika många som har rökt hela tiden, att de har rökt lika mycket som nu och på samma ställen i hemmiljön som nu).

<table>
<thead>
<tr>
<th>6 mån</th>
<th>12 mån</th>
<th>Mer än 12 mån</th>
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7. Röker barnets mor- eller farföräldrar?

<table>
<thead>
<tr>
<th>Mormor</th>
<th>Morfar</th>
<th>Farmor</th>
<th>Farfar</th>
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</table>

8. Hur ofta är ditt barn i miljöer (utanför hemmet) där det förekommer tobaksrök?

<table>
<thead>
<tr>
<th>Aldrig</th>
<th>Sällan</th>
<th>Varje vecka</th>
<th>Varje dag</th>
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Om det förekommer, var i så fall?  
(Fler svar kan anges)

9. Finns det något du vill förändra i den situation du beskrivit för att kunna skydda ditt barn mot passiv rökning?

<table>
<thead>
<tr>
<th>Ja, absolut</th>
<th>Ja, kanske</th>
<th>Nej</th>
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10. Egna kommentarer

__________________________

Barnets namn: ________________________________

Personnummer: ________________________________

Dagens datum: ________________________________