Health sector and community response to child maltreatment in Sweden and in a European context

GABRIEL OTTERMAN
Abstract

Background Child maltreatment is a public health problem of global magnitude. This thesis examined different aspects of the multi-sector response to child maltreatment in Sweden and in Europe.

Aims To explore how child physical abuse (CPA) is disclosed and how adolescents perceive adult support when they report physical abuse. To examine how police-reported cases of suspected CPA were associated with criminal investigation procedures and prosecutions. To assess how physicians who care for maltreated children across Europe are organised to recognise and respond to child abuse and neglect. To investigate time trends in rates of childhood deaths in Sweden recorded as due to external, ill-defined and unknown causes, from 2000 to 2014.

Methods We analysed data from a school-based national survey of adolescents, police records of reported suspected CPA in a metropolitan area, a purposeful survey of European child abuse physicians and individual-level data from the Swedish cause of death register. We used quantitative methods to calculate prevalence, descriptive statistics, odds ratios, logistic regression and trends in mortality rates. Qualitative methods included content analysis and narrative synthesis.

Results Only a minority of reported CPA was brought to the attention of professionals and the most prominent barrier to disclosure was lack of trust in adults or authorities. The police-reported cases of suspected CPA were characterised by high severity, but only a small proportion of the 158 alleged child victims were physically examined and only half were forensically interviewed. All 88 responding physicians in 22 European countries described multidisciplinary involvement in the management of suspected child maltreatment, but wide variations in the organisational approaches were revealed. A sustained decline in childhood deaths from external causes during a 15-year period was observed. A sizeable number of infant deaths were recorded each year as ill-defined or with incomplete documentation from clinicians.

Conclusions The results presented in this thesis suggest that the multi-sector response in Sweden and in Europe is insufficiently organised, with no clear mandate for the health sector to robustly combat child maltreatment, and that this may undermine the ability of society to adequately protect children.

Keywords: Child physical abuse, Cause of death, Child death review, Disclosure, Police report, Child mortality, Register data, Multidisciplinary team

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“Children are not the people of tomorrow, but are people of today. They have a right to be taken seriously, and to be treated with tenderness and respect.”

Janusz Korczak (1878-1942)
List of Papers

This dissertation is based on four studies which are referred to in the body of the text by their Roman numerals. Each of the studies has led to a peer-reviewed publication, which are appended to the print version of the thesis.


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<tr>
<td>AAP</td>
<td>American Academy of Pediatrics</td>
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<td>ACEs</td>
<td>Adverse Childhood Experiences</td>
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<td>CDC</td>
<td>US Centers for Disease Control and Prevention</td>
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<td>CDR</td>
<td>Child death review</td>
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<td>COD</td>
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<td>CPA</td>
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<td>Child protective services</td>
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<td>IPV</td>
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<td>MDT</td>
<td>Multidisciplinary team</td>
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<td>NBHW</td>
<td>National Board of Health and Welfare (Socialstyrelsen)</td>
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<td>NGO</td>
<td>Non-governmental organisation</td>
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<td>SIDS</td>
<td>Sudden infant death syndrome</td>
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<td>SUID</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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Preface

As part of my postgraduate fellowship training in child abuse medicine at Boston Children’s Hospital in the mid 1990s, I joined the multidisciplinary child protection team. Working with a diverse group of professionals, whose expertise included social work, paediatrics, paediatric nursing, child psychology and psychiatry, domestic violence and legal aspects, became a source of life-long professional inspiration. I knew that there was only one way to address the complex issues involved in the early detection, intervention and prevention of child maltreatment and that was for engaged professionals from a range of disciplines to work together to provide a systematic, coordinated and concerted approach. Furthermore, I felt that the health sector, and paediatricians in particular, was a natural choice to lead the coordination of cross-agency collaboration on child protection.

As sub-specialist consultants working in a clinical setting, my colleagues and I were often involved in cases later in the process, when there were already substantial concerns among frontline clinicians that a child had been abused or neglected. When we reviewed the child’s medical history, we often saw that the child had presented earlier to healthcare professionals with signs and injuries that, in retrospect, should have raised concerns about abuse or neglect. However, the system failed to pick up those children and the outcomes for the child were sometimes devastating. It became clear that paediatricians and other frontline clinicians often experienced difficulties when it came to recognising child abuse, primarily because they lacked adequate training in this area and they were worried about the social and legal consequences of an abuse diagnosis.

Healthcare professionals experienced a rapid and growing awareness of the issues of child maltreatment in the 1990s. The foundation for this was seminal work that had been carried out three decades earlier by Dr C Henry Kempe, who first highlighted child abuse as a public health problem with a 1962 paper on battered children (1). Dr Kempe and his colleagues had developed the model for the multi-disciplinary child protection team at the University of Colorado in the late 1950s and they travelled throughout the US and Europe to increase awareness of the problem of child abuse, by speaking to paediatricians, other healthcare professionals, policy makers and the public. Thousands of child protection teams now exist worldwide, modelled on that first Colorado-based team.
Current challenges

Child maltreatment is now an essential part of the medical care that we provide as paediatricians and, like all other areas of medicine, our response has been shaped by a wide range of factors. There have been concurrent developments in healthcare that have indelibly shaped how we practice medicine. The understanding and awareness of how frequently medical errors occur in the health system was first highlighted in the 1990s. This aspect of healthcare assumed a new sense of urgency, led by clinician-researchers such as paediatrician Donald Berwick, who looked at how industry refined quality improvement systems for inspiration on how to analyse and address systemic failures in medicine (2). The total quality improvement movement emphasised the importance of developing standards of care, providing clear delineation of team roles and the value of decision-making being entrusted to those with the best information, who were usually those on the front line. During the 1990s, clinicians increasingly recognised that steps needed to be taken to counteract the sometimes inefficient and irrational variations that occurred in clinical decision-making. This led to the development of the principles of evidence-based medicine (EBM), defined by Dr David Sackett and his colleagues in 1996 as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients" (3).

The combination of these healthcare developments was the driving force behind my training in paediatrics and public health and my career in clinical paediatrics, which has focused on the care of vulnerable children. These concepts continued to influence my career following a move to Sweden a decade later, where the country had already established a decades-long tradition of social paediatrics. In 2009, the Swedish Paediatric Society called for a working group to be established on child maltreatment and it went on to become a statutory section of the Society in 2014. Since 2011, five academic children’s hospitals in Sweden have established multi-disciplinary child protection teams, largely as a result of the advocacy and support shown by the increasing national network of paediatricians who have demonstrated an interest in tackling child maltreatment.

In the first decade of the Millennium, Sweden built upon its strong record of developing innovative approaches to better address the problems of child sexual and physical abuse faced by society. Inspired by the experience of the US Children’s Advocacy Center movement, the Nordic model, called Barnahus or children’s houses, gained broad political acceptance (4). Dedicated pilot Barnahus were established in six communities as a result of partnerships with law enforcement agencies, prosecutorial and municipal child protection authorities, paediatrics and child and adolescent psychiatry and forensic medicine. The model aimed to streamline the services that were provided to children who were suspected victims of sexual or physical abuse, by collaborating...
across agencies and co-locating their investigations in child friendly environments.

It was against this background of longstanding clinical experience, enriched through encounters with hundreds of vulnerable children from diverse cultures and in a variety of multi-disciplinary settings, that the idea of this thesis came about. In 2011, I joined a research group led by paediatrician Dr Staffan Janson, then at Karlstad University, and currently a guest professor at Uppsala University. Dr Janson has pioneered studies on the prevalence of corporal punishment and maltreatment of children, which have continued on a national basis since the introduction of the so-called anti-corporal punishment Act into Sweden’s Parental Code in 1979.

The magnitude, risks, and consequences of child maltreatment as a public health problem, and the evidence base for preventive action and policy options, were articulated in the 2013 European report on preventing child maltreatment, which was published by the World Health Organization (WHO) European Regional Office for Europe (5). All 53 Member States of the WHO Regional Committee for Europe gave their unanimous support to a resolution on investing in children: the European child maltreatment prevention action plan 2015–2020 (6, 7). This resolution called for the health sector to take the lead in coordinating an inter-sectoral prevention response that focuses on improving surveillance, developing a comprehensive national action plan for prevention and implementing prevention programmes.

Although much of the work for the current thesis was initiated before the publication of the WHO report, action plan and subsequent adopted resolution, the policy efforts that have been communicated at the trans-national level provide an important context in which to view the four sub-studies of this thesis. Given the paucity of research on child abuse and neglect epidemiology, and the overall lack of recognition and clinical research into this issue across Europe, the WHO’s vision and its call for health sector leadership might pose some immediate practical challenges.

Potential insights

The Nordic region countries, particularly Sweden, have robust social welfare systems and are widely regarded as benchmark performers and innovators in preventing child maltreatment. This thesis comes from the perspective of a paediatrician-researcher working in a benchmark country with experience of collaborative, frontline clinical and forensic work with vulnerable children and adolescents. The four sub-studies may provide some bearing on the state of the health sector in Sweden and in the European context at the time of the investigations. I very much hope that this will provide some insight for policy makers as well as clinical practitioners, by identifying organisational gaps
within the health sector that may diminish the capacity of inter-agency systems to respond to child maltreatment as a public health problem.

In this dissertation, I attempt to bring together four distinct sub-studies that each led to a separate peer-reviewed publication. The common thread that ties all of these together is that each investigation examined facets of the multi-sector, cross-agency community organisation and response to child maltreatment. The combination of these component studies identifies gaps in the health sector and community responses that may undermine society’s ability to protect children. The overall findings of this thesis confirm key deficiencies, where targeted systems or organisational approaches and future research streams could potentially lead to data-driven improvements in preventing child maltreatment.

Uppsala, April 2018

Gabriel Otterman
Introduction

Child maltreatment as a global public health problem

Throughout history, and across cultures, children have been subjected to harsh cruelty, infanticide, religious servitude, extensive corporal punishment, physical abuse, sexual exploitation, psychological abuse and all forms of neglect (8, 9). However, during most of the long and dark history of childhood, child maltreatment was condoned, and in many cases, it was even encouraged. It is only in the last two centuries that there have been moves to increase the value of children’s lives, as individuals who have human value of their own. In recent decades, legislation and organisations have been established against the background of modern welfare states that promote equality, to combat child abuse and neglect and advocate for children's rights.

There is no doubt that the arc of global history in recent decades has shifted towards a dramatic reduction in tolerance of violence against children. This can be attributed to concurrent societal shifts toward enlightened ideas, increased prosperity and changing norms (8). However, the maltreatment of children is increasingly recognised as a public health problem. This is because it remains common, it involves major consequences for the child, their family and society, it is more prevalent in certain sections of society and it can be prevented. Child abuse results in death and serious injury and abuse has been shown to have adverse physical, developmental, psychological, social and economic consequences for survivors for the rest of their lives (10).

Estimating the prevalence of child maltreatment in modern times poses methodologic challenges for researchers, partly because scholarly research and clinical experience has shown that it is a problem of hidden violence. Population-based studies across countries consistently report large gaps between rates of maltreatment substantiated by child protection authorities and rates retrospectively reported by survivors or parents, which are at least ten times greater (11). Much of the knowledge about the global prevalence of child maltreatment stems from a substantial body of research conducted in dozens of countries using self-report surveys among adult survivors of child maltreatment (12).

Despite the methodological challenges, the emerging body of global prevalence studies point to an on-going public health problem of great magnitude. In a systematic review of population-based country surveys of violence against children that was published in 2016, researchers estimated that across
the world more than half of all children aged 2 to 17 years – over one billion children – had been exposed to such violence in the last year (13). A series of prevalence studies by Stoltenborgh et al, who used meta-analyses, provided global estimates that 18% of all girls and 8% of all boys had been exposed to sexual victimization (14), 16% of children had been subjected to physical neglect, 18% to emotional neglect (15) and 23% to physical abuse (16).

In a review on trends in child maltreatment in six developed countries, Gilbert et al (17) focused on the incidence in younger populations and found that consistent evidence was emerging for a decrease in severe physical abuse. However, when it came to child maltreatment, their results indicated relative stability or increases in child maltreatment indicators over time, with little evidence of a decline (17). Using data sources from child protection authorities that covered a broader age band in the US, other researchers found a 53% drop in substantiated cases of sexual abuse and a 45% reduction in physical abuse over a similar period, namely 1992–2006 (18).

There have been fewer population-based studies of neglect than on abuse, even though child neglect is by far the most common form of abuse recorded by child welfare agency data (12). Researchers suggest that child protection workers may view neglect less seriously, partly because it is insidious and occurs over time, without the immediate, recognisable impact that other forms of abuse have (19). That is why neglect receives the least attention from clinicians, policymakers and researchers and there has been no observed trend that points to a decrease in its prevalence (17, 18).

European perspective

Child maltreatment was identified as a leading cause of health inequality and social injustice in the 2013 WHO European report on preventing child maltreatment (5), which was accompanied by an action plan and resolution adopted by the WHO Regional Committee for Europe in 2014 (6, 7). Poorer and disadvantaged populations across Europe are at greater risk and the incidence of maltreatment in childhood is greater in those areas with lower incomes, higher levels of inequality and fewer resources to provide safeguards for children at risk. The incidence of child abuse is lowest in those countries that have pursued intensive campaigns against the corporal punishment of children (20).

Much of the early focus by child protection teams has been on detecting and investigating abuse, dealing with offenders and supporting victims. However, the WHO asserted that if society is to demonstrate a real commitment to protecting children from abuse and neglect, prevention must be a high priority. Citing the enormous successes of public health interventions in other areas, the WHO report states that much of the maltreatment that occurs in childhood
Prevention programmes that are supported by evidence of their effectiveness include early interventions for families at risk, home visits by nurses and providing parental support, especially when children are young.

According to the WHO report, child abuse and neglect by parents or other caregivers remains a serious and prevalent burden in high-income countries (11). The prevalence in the European Region is estimated to range from almost 10% for sexual abuse - 6% of boys and 13% of girls - to 23% for physical abuse and 29% for mental or emotional abuse (6). However, the WHO report states that few countries regularly collect reliable information on the prevalence of child maltreatment and other adverse childhood experiences (ACEs).

The WHO wants to see stronger European health systems that provide training and ensure that healthcare professionals have the skills they need to recognise child abuse and neglect (5).

A Swedish perspective

Historically, children in Sweden were exposed to maltreatment at school and at home when they occupied a position at the bottom of the social and family hierarchy (21). It was only in the 20th century when the problem of child maltreatment started to receive significant attention. In 1900, the Swedish feminist educator Ellen Key published a landmark book called *The Century of the Child* (22) in which she criticised the use of corporal punishment against children. This sparked a public debate on child rearing practices and 1902 saw the first child welfare laws that gave the state the right to take children into custody if they were subjected to severe abuse and neglect. In 1942, the statutes to protect children were expanded so that child welfare services could also intervene in cases of psychological abuse. It was during this period, when the welfare society was being developed in Sweden, that several social reforms were carried out and statutes and policies that favoured families with children were enacted (23).

Child physical abuse first came to the attention of Swedish medical practitioners in the 1950s. At that time, infants who presented with cutaneous injuries, subdural haematomas and fractures of the long bones were thought to suffer from an as yet undiagnosed syndrome. Paediatrician Per Selander astutely observed children presenting with these injuries and concluded that this constellation of findings was the result of physical abuse (24). Selander, who was head of the Flensburg Children's Hospital in Malmö, reported two cases of child abuse to the local child welfare office, where he was met with disbelief. He subsequently published details of these cases in the *Swedish Medical Journal* in 1957 (25).
In 1964 a vigorous public debate was sparked by the publication of an article in the Swedish Medical Journal in which Gothenburg-based paediatrician Anders Frisk (26) described a number of cases of young children who had been abused. He attributed the increase in the number of registered child abuse cases to the fact that physicians had begun to recognise that injuries that were previously considered to be of an unspecified unknown cause, were in fact the result of violence perpetrated by caregivers. The publication of Frisk’s article prompted deliberations in the Swedish Parliament, the Riksdag, about parents' rights to discipline their children and examined the child's legal rights balanced against the rights of their parents (21). In 1966, the Riksdag directed the National Board of Health and Welfare to determine the incidence of hospitalised child abuse cases and propose possible preventive measures. A number of smaller, but not entirely nationally representative studies on the prevalence of corporal punishment, were conducted in the 1950s and 1960s.

Concurrently, a number of national legislative milestones that aimed to protect children were achieved in Sweden. In 1958, legislation was brought in that prohibited corporal punishment in all schools and in 1966 corporal punishment by parents was abolished by the Swedish Parental Act (27). In 1979, Sweden became the first country to enact legislation banning all forms of child corporal punishment. Since the enactment of the so-called anti-corporal punishment law into the Parental Code in 1979, the prevalence of corporal punishment and other forms of child maltreatment have been periodically studied at a nationwide population-based level (28).

The earlier national surveys highlighted the parents’ use of, and attitude towards, various forms of punishment (1980, 2000, 2006 and 2011) and school students’ experiences of violence and maltreatment (1995, 2000, 2006 and 2011). By periodically carrying out surveys that used the same methodology, Sweden has developed a unique knowledge base with regard to child-rearing, abuse and the maltreatment of children (28).

Dr Carolina Jernbro in collaboration with Dr Staffan Janson have been responsible for the most recent reports from serial, population-based surveys on the prevalence of child maltreatment. In 2017 they included a review of the state of Swedish epidemiologic research on child maltreatment in their published report (29). The studies included in the review showed that, over a period of 40 to 50 years, Swedish parents have radically changed their child-rearing methods. They have progressed from an environment where corporal punishment was considered to be a natural part of child-rearing to a society in which 95% of all young parents believe that all forms of violence against children are abhorrent. These deep attitudinal and behavioural changes have attracted attention and admiration from many parts of the world (11, 17) and they are one of the main reasons why Sweden is seen as a benchmark nation when it comes to advancing the rights of the child.

Following a sharp decline in the use of corporal punishment between 1980 and 2000, violence against children within the family has stabilised at what is,
by international standards, a very low level. At the time of the national survey in 2011, only about 3% of parents reported they had hit their child at any point during the past year and none of the parents stated that they had done so 10 times or more (30). The studies also found that Swedish parents reported that they had largely refrained from shaking small children, particularly infants (29).

There has been remarkable stability in the responses to national surveys since the year 2000 when it comes to the attitudes of children and young people to violence and their experiences of violence. About 17% of children since that date report that they have experienced corporal punishment in the home at some point in their lives and just over 5% have experienced more severe and, or, repeated abuse. The 2000 survey reported, for the first time, that almost one in 10 Swedish children had witnessed intimate partner violence, which had caused them very serious stress (31). The studies exploring children's and young people's experiences of violence and maltreatment have been carried out through school surveys implemented in collaboration with the Swedish school system. As a result, participation has been very high and the results are therefore deemed by the researchers to be reliable (29).

In-depth analyses of previous school surveys have shown that children with chronic illnesses or disabilities, especially children with neuropsychiatric disabilities, are particularly vulnerable to violence (23, 32) and that young people who were victims of physical child abuse more often had physical symptoms (33) and a poorer quality of life (34) than their peers. They were also exposed to more bullying at school (35).

A number of other studies on the prevalence of child abuse, sexual abuse and other forms of maltreatment have been carried out in Sweden. About 15% of the young people surveyed for The Lives and Health of Sörmland’s Youth reported that they had been subjected to physical violence in the home at some point in their lives, a prevalence that corresponded well with the national studies from 2006 and 2011 (28, 36). Just over 6% had been subjected to physical violence more than once. Girls reported more physical violence by adults in the family than boys and older children, namely 9th graders and high school students aged 15 to 18, reported violence at a significantly higher rate than 7th grade children aged 13 (36).

A 2007 Swedish study of nearly 6,000 second-year high school students found that the majority of young people, 83% of boys and 85% of girls, indicated that they had been victims of some form of violence (37). It also reported that 8% of boys and 13% of girls could be characterised as being subjected to poly-victimisation. Young people who were living with both biological parents were less vulnerable (37). Exposure to several different types of abuse, and to repeated abuse, was associated with poorer health, especially in girls (38).

In the so-called Resumé Study, conducted in 2011, 2,500 young adults aged 20-24 who were born between 1987 and 1991 were interviewed about their
exposure to violence in the course of their lifetimes, their current state of mental health and their behaviour (39). The young adults were more likely to have been subjected to violence in adolescence than in the early years of their childhood and that recurring incidents were more common than isolated incidents among both boys and girls. All forms of violence primarily took place outside the home and were mostly perpetrated by other children and young people. In general, females reported more abuse by adults in the family, while males reported more exposure to abuse outside the family. The investigators found that the overlap of different types of abuse was common and 28% of females and 30% of males had been subjected to three or more types. Much of the violence against males (18%) and much of the sexual abuse against girls (24%) was perpetrated by people unknown to the victims. An equal proportion of sexual violence against the females, about a quarter, had been committed by peers. Anxiety, post-traumatic stress symptoms, self-harm and criminality were more commonly reported by those who had been victims of violence than among respondents who were not victimised in childhood (39).

In 2012, a population-based survey was conducted by researchers at the National Centre for Knowledge on Men's Violence against Women in Sweden and this included 10,000 men and 10,000 women aged 18-74 years. Just over 15% of women reported having been physically abused by their fathers during their childhood and 12% reported that their mothers had committed such abuse (40). The figures for men were 19% by their fathers and 8% by their mothers. In addition, 2% of women and 0.5% of men reported that they had been subjected to some form of sexual abuse by their father, stepfather or mother's partner or boyfriend during their childhood. A total of 15% of women and 13% of men reported having experienced or witnessed intimate partner violence during their childhood (40).

The 2016 national survey by Jernbro et al (29) drew responses from 4,741 9th grade students and high school sophomore students and 24% reported at least one episode of child physical abuse, either as an isolated incident or on multiple occasions. Nearly 11% of the respondents reported that they had been subjected to severe forms of physical child abuse and 5% had been subjected to repeated physical child abuse, with 14% identifying a caregiver as the perpetrator.

Of those who reported frequent abuse, 80% had also been exposed to more severe forms of physical abuse. When they examined trends across the series of studies, the researchers observed a decline in reported physical violence inflicted by a parent during the period 1995-2016. The greatest fall, from 35% to 17%, occurred between 1995 and 2006. The authors urged caution in interpreting the declines that were noted in the 2011-2016 interval, from 14% to 12%, as the survey items were not always identical to earlier studies.

Paradoxically, the number of cases of suspected child physical abuse (CPA) reported to the police in Sweden has risen steadily since the 1980s and the trend remains robust (41). However, there is no scientific evidence for a
parallel increase in the incidence of CPA. On the contrary, published reports of hospital-discharge data show that rates of physical injury due to abuse decreased during the same period (41). It is possible that the increased reporting rates were a result of changing attitudes to the importance of identifying physical abuse. The downward trend probably reflects the changing attitudes of parents and these have reduced use of physical punishment. Swedish preschools have been responsible for an associated increase in mandatory reports about possible neglect to the CPS (42).

Conceptual definitions of child maltreatment

The WHO definition of child maltreatment encompasses abuse and neglect of children under 18 years of age (43, 44). It includes all types of physical and, or, emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation. These are defined as child maltreatment if they result in actual or potential harm to the child’s health, survival, development or dignity (6). The US Centers for Disease Control and Prevention (CDC) (45) added childhood exposure to intimate partner violence to the definitions for public health surveillance of child maltreatment. This means that five types of abuse are generally recognised: physical abuse; sexual abuse; psychological or emotional abuse and exposure to intimate-partner violence (Figure I).

The legal prohibition of corporal punishment that was enshrined in the Swedish Parental Act of 1979 also banned humiliating behaviour towards a child as it defined it a form of maltreatment (28). In 2001, the Swedish Committee on child abuse and related issues advanced a conceptual definition of child maltreatment that included the notion of humiliation in its characterisation of child maltreatment (46) (Figure 2). This definition was based on the child's point of view and it did not distinguish between intentional and unintentional acts or active and passive neglect. The definition did not take cultural differences into account. This Committee included all corporal punishment in the definition of physical violence and being exposed to violence between adults in the family was deemed to be a form of psychological or emotionally violent behaviour (29).

Epidemiological research has indicated that the different forms of abuse often co-occurred in the same households and that poly-victimisation was common. However, it should also be pointed out that there are conceptual overlaps in maltreatment definitions. Aspects of emotional abuse are present in virtually all cases of physical and sexual abuse and neglect overlaps with abuse, at least with regard to the failure to protect a child from harm (47).
Child maltreatment conceptual definitions (WHO, CDC)

Child maltreatment is defined as: all forms of physical and, or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power.

The first World report on violence and health (2002) and the 1999 WHO Consultation on Child Abuse Prevention and the US CDC 2008 definitions for child maltreatment surveillance distinguish five types of child maltreatment:

- physical abuse;
- sexual abuse;
- emotional and psychological abuse;
- neglect;
- exposure to intimate partner violence.

Physical abuse
Physical abuse of a child is defined as the intentional use of physical force against a child that results in, or has a high likelihood of resulting in, harm for the child’s health, survival, development or dignity. This includes hitting, beating, kicking, shaking, biting, strangling, scalding, burning, poisoning and suffocating. Much of the physical violence inflicted against children in the home is carried out with the object of punishing the child.

Sexual abuse
Sexual abuse is defined as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, is not developmentally prepared for or that violates the laws or social taboos of society. Children can be sexually abused by both adults and other children, who are, by virtue of their age or stage of development, in a position of responsibility, trust or power over the victim.

Emotional and psychological abuse
Emotional and psychological abuse involves both isolated incidents, as well as a pattern of failure over time on the part of a parent or caregiver to provide a developmentally appropriate and supportive environment. Acts in this category may have a high probability of damaging the child’s physical or mental health or its physical, mental, spiritual, moral or social development. Abuse of this type includes: restriction movement; patterns of belittling, blaming, threatening, frightening, discriminating against or ridiculing and other non-physical forms of rejection or hostile treatment.
**Neglect**

Neglect includes both isolated incidents, as well as a pattern of failure over time on the part of a parent or other family member, to provide for the development and well-being of the child, where the parent is in a position to do so, in one or more of the following areas:

- health;
- education;
- emotional development;
- nutrition;
- shelter and safe living conditions.

The parents of neglected children are not necessarily poor. They may equally be financially well-off.

**Exposure to intimate partner violence**

Any incident of threatening behaviour, violence, or abuse (psychological, physical, sexual, financial or emotional) between adults who are, or have been, intimate partners or family members, irrespective of sex or sexuality.

*Figure 1. Adapted from: Krug 2002, and Leeb 2008*
**Definition of child abuse (Swedish Committee on child abuse and related issues)**

We propose the following definition: Child abuse is when an adult subjects a child to physical or psychological violence, sexual assault, humiliating treatment, or fails to meet the child’s basic needs. A ‘child’ being defined as every human being under the age of 18 years. We propose a comprehensive definition of the term ‘child abuse’ and believe that this kind of definition enables public agencies, organisations and others to give a practical, specific form to what the definition means in their own activities.

Defining child abuse as assault, as defined in the Penal Code, does not afford an accurate notion of what causes children’s distress, what treatment they must not be subjected to or what measures must be taken in order to prevent a child from being maltreated or at risk. Our definition is thus broader than the definition of assault in criminal law contained in Chapter 3, Section 5 of the Penal Code.

**Physical abuse** may entail the adult striking the child with or without an instrument, pinching, kicking, shoving, throwing, shaking, scratching or biting the child, pulling the child’s hair, trampling or stamping on the child, or forcing objects into the child’s mouth. Poisoning, burning, scalding, scratching and trying to drown or suffocate the child are also forms of physical abuse.

**Mental or psychological abuse** includes, for example, unduly severe punishment, ridicule, criticism, scorn, disparagement, rejection, ostracism, unreasonable demands or constant refusal to listen to the child’s views. Mental abuse can also be forcing the child to witness (see or hear) violence in his or her immediate surroundings, or to live in an environment in which violence or the threat of violence is a recurrent feature. Humiliating treatment may, for example, entail making disparaging comments on the child’s appearance, speech or intelligence, saying that the child is not good enough or that siblings are much more attractive and more successful, hitting or insulting the child in front of his or her friends or adults, reading the child’s diary and so forth.

**Physical neglect** applies to all aspects of the child’s physical health and development, i.e. hygiene, diet and care, clothing appropriate for the season, scope for rest and sleep, shelter and accommodation, supervision, preventive healthcare, medical and dental care, and protection against accidents.

**Mental neglect** may, for example, be inaccessibility and indifference to the child (verging on mental abuse), failing to give the child experience, and omitting to teach the child what is right and wrong.

*Figure 2.* Adapted from: Committee on child abuse and related issues, 2001
Consequences of child maltreatment

Our understanding of the relationship between exposure to child maltreatment and poor health outcomes across an individual’s life has increased in the past two decades, with the publication of a series of reports from the Adverse Childhood Experiences Study (ACES). When Felitti et al (48) looked at the relationship between seven categories of adverse experiences in childhood - including forms of child maltreatment - in a cohort of over 13,000 adults, they found a dose-response relationship between the number of adversities experienced in childhood and a variety of adult mental and physical health problems. The traumatic experiences retrospectively reported by respondents in these studies were much more common than expected. Only a third of the respondents reported no adverse childhood experiences. Of the two-thirds who reported at least one adverse experience, the vast majority said they had experienced two or more other types of adversity (48). Recognising the importance of exposure to abuse at a very early age has also helped to increase our knowledge. The adult health outcomes shown to be associated with childhood ACEs included suicide attempts, alcoholism, intravenous drug use, promiscuity, prescriptions for antidepressants and physical health problems, such as coronary artery disease (48). In addition, a subsequent growing body of research has concluded that there are long-term negative consequences for a wide range of social problems (48).

Child abuse may result in death and serious injury and abuse has been shown to have adverse physical, developmental, psychological, social and economic consequences for survivors for the rest of their lives. Adversity from maltreatment in childhood, mediated by toxic stress, may affect brain development and result in cognitive impairment and behavioural changes (49). This, in turn, can cause physiologic disruptions that result in higher levels of stress-related chronic diseases and lead to individual adopting behaviours that pose a risk to health and lead to widening health disparities.

Socioeconomic costs of child maltreatment

The costs of child maltreatment to individuals, families and to society in general are as great as the costs of other high-profile public health problems (50). Research has shown that child abuse increases the risk of long-term health consequences, such as mental health problems, drug and alcohol abuse, risky sexual behaviour, obesity and criminal behaviour (51). Abused children, regardless of the type of maltreatment, face an increased risk of depression during adolescence and adulthood. Between 25-30% of the victims of child abuse meet the criteria for depression before the age of 30 years, according to the Diagnostic and Statistical Manual of Mental Disorders (11). Maltreatment in childhood also places a heavy burden on health and criminal justice systems,
social and welfare services and exacts a substantial economic toll on communities.

Researchers at the US Centers for Disease Control and Prevention (CDC) conducted an incidence-based analysis of the economic burden of non-fatal child maltreatment (52). These estimates included costs related to childhood and adult healthcare, child welfare, productivity losses, the criminal justice system and special education. The overall costs have been reported to be comparable with the total lifetime costs per individual of other important high-profile public health problems, such as stroke and type 2 diabetes. The lifetime cost of non-fatal child maltreatment totalled approximately $124 billion, which equated to about 1% of the US gross domestic product. Economic estimates of consequences of child maltreatment confirm the importance of prioritizing it as a key global health concern (52-54). They also underscore the need to steer resources towards prevention and to strengthen the knowledge base on the scale and consequences of child maltreatment at a global level.

The situation in Europe appears to be similar to the one observed in the US. The European Commission estimated that the average annual economic and social costs of child maltreatment in Europe were approximately 4% of the European countries’ gross domestic product (5, 55). This figure included child health care, social welfare, criminal justice and loss of productivity costs. The WHO European Report on Preventing Child Maltreatment, which was published in 2013, estimated that the total prevalence of sexual, physical and mental abuse affected 117 million children under 18 years of age (5). Furthermore, the report suggested that maltreatment caused about 850 deaths per year in children under the age of 15. The economic assessments were deemed by the WHO to be a conservative estimate and represented an underestimate of the scope of the problem.

Development of ecological models

Child maltreatment was originally attributed to problems in the family or to poor parenting, with psychiatric factors playing a decisive role (1). As our understanding of the dynamics of child abuse and neglect have evolved, we have developed an increased appreciation of the complexities involved. The role of abandonment, abuse and deprivation were initially ignored in favour of an emphasis on pathology, with a misguided medical model that concentrated on theories about certain types of people (56). A number of ecological models have been proposed that build on research in recent decades and provide broader and multifaceted perspectives that look beyond the immediate family. First described by Bronfenbrenner in 1977, the ecological systems theory stresses the importance of studying a child in the context of multiple interacting environments (57). Ecological models were subsequently developed that aimed to provide specific frameworks to guide empirical research into

From these perspectives, child maltreatment was seen as a social-psychological phenomenon that was simultaneously determined by multiple forces at work in the individual, the family, the community and the culture and that these determinants were nested with one another. The influences of political, economic and demographic factors on the quality of life for children and families were considered (43, 59, 60). Four levels of analysis were recognised that considered the complex interplay between individual, relationship, community, and societal factors. This broad public health perspective described a range of health determinants, from downstream, proximate factors to more upstream, distal ones (61, 62). It allowed us to understand – in the context of child maltreatment - the range of factors that put children at risk of abuse or protect them from experiencing maltreatment. The nested rings in these ecological models illustrated how factors at one level influenced factors at another level. When it was placed within a developmental context, ecological models also showed how violence may be caused by different factors at different stages of a child’s life (59, 63). Drawing on the principles described in the bi-ecological models of development, Sidebotham et al proposed a novel frame-
work that could specifically explore the interaction between the different factors that contribute to child mortality (64). This framework built upon previous versions of ecological models that informed the development of the multidisciplinary child death review system used in England, to identify factors that could be modified and used to inform efforts to prevent future deaths (65).

As well as helping to illuminate these factors, the multi-layered models also suggested that, in order to prevent abuse, it was necessary to act across multiple levels of the model simultaneously. The complexity of addressing child maltreatment as a public health problem would also require multidisciplinary teams (MDTs) to be established, with shared and articulated values and thorough training, in order to tackle the problem at multiple levels in a concerted fashion (66). In a United Nations Children’s Fund (UNICEF) report on child protection systems published in 2010 (67), the authors recognised the nested structure of systems, in that children are embedded in families or kin and they live in communities that exist within a wider societal system. The UNICEF report stated that in order to ensure an effective societal response to prevent child maltreatment, a systematic approach that was characterised by accountability needed to be established. Adopting a systematic approach to child protection implied that the health sector would need to collaborate across a wide range of disciplines and fields in order to successfully improve public health outcomes (68).

**Figure 4.** Source: Shonkoff et al. 2012 ©AAP Reprinted with permission.

**Development of an eco-bio-developmental framework**

Recent decades have also seen a growing body of research that has begun to clarify the pathophysiological pathways that provide potential causal links between abusive experiences in childhood and a broad range of negative health
consequences during an individual’s life. Converging lines of inquiry from a diverse range of disciplines, which have been reported in clinical and epidemiological studies, have demonstrated associations between childhood maltreatment and genetic, neuroendocrine, immunological and structural neurobiological changes. For instance, neuroscience research has suggested that many structural and functional brain abnormalities that were previously thought to characterize various psychiatric diagnoses may, in fact, be the direct consequence of childhood maltreatment (69). Exposure to various forms of childhood maltreatment, such as parental verbal abuse, witnessing domestic violence and sexual abuse, have been explored in non-clinical samples at different sensitive exposure periods. These were shown to be associated with demonstrable morphological alterations, such as reduced corpus callosum volume in children and adults who experienced maltreatment and decreased prefrontal cortex volumes among adults with childhood histories of maltreatment (70). A large number of neuroendocrine studies have revealed an association between early adversity and atypical alteration of the hypothalamic-pituitary-adrenal axis stress response, which may predispose sufferers to psychiatric vulnerability in adulthood (71). Other research streams from the field of epigenetics have shown evidence that there are reliably demonstrable differences in disease-related biological perturbations in the presence or absence of exposure to maltreatment in childhood (71, 72).

Developmental paediatrician Jack Shonkoff advanced an eco-bio-developmental framework that drew on the confluence of emerging research from diverse disciplines that provided more granular mapping of pathways from childhood exposures to adult disease (49) (Figure 4). His model illustrates how early exposure to toxic stress and environmental influences can leave a lasting mark on the genetic predispositions that affect emerging brain architecture and long-term health. Shonkoff et al also examined the extensive evidence of the disruptive impacts of toxic stress and explored potential causal links between early adversity to subsequent impairments in learning, behaviour and both physical and mental well-being (73). The eco-bio-developmental framework represents a paradigm shift in our understanding of health and disease across an individual’s lifespan. The American Academy of Pediatrics (AAP) endorsed this framework and called upon paediatricians to join the effort to combat health disparities associated with poverty or maltreatment by alleviating toxic stress in childhood (74).

Applying an ecological approach allowed us to focus the research in this thesis on the multiple levels of the models and recognise that the factors that influence child health in the nested levels interact and sometimes this happens in a complex way. For example, the data extracted from open-text responses in a survey of young people or from police records in cases of suspected child physical abuse retained the narrative of events that occurred downstream or proximal to the child. More distal or upstream levels of the model examined the community contexts in which the social relationships resided, such as
within the health, child protection and criminal justice sectors. We sought to examine how these sectors had adapted to the increased knowledge on interpersonal violence in Sweden and, more broadly, in the European context.

The rights of the child

The Convention on the Rights of the Child (CRC), adopted by the United Nations General Assembly in 1989 (75), provides the legislative framework for promoting and ensuring the rights of all children. The articles of the CRC can be grouped into three broad domains of rights: protection, provision and participation (76) (Table 1). The principles related to these three domains can be applied by Member States at all levels of child health practice and decision-making within the health sector.

While many of the CRC articles relate to child health, the topics addressed in this thesis focus on the domain on the rights of protection. In particular, Article 19 of the CRC explains the concept of child protection and underscores the importance of preventing violence and the maltreatment of children (77). The overarching function of Article 19 enshrines the child’s right to be protected from violence and abuse. It states that “State Parties shall take all appropriate legislative, administrative, social and educational measures to protect the child from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse, while in the care of parent(s), legal guardian(s) or any other person who has the care of the child.” Building on the architecture enshrined in Article 19 in 2011, the Committee on the Rights of the Child, an international body whose mandate is to monitor Member States’ compliance with the CRC, approved General Comment 13, which is entitled The right of the child to freedom from all forms of violence.
Table 1. Articles of the UN Convention on the Rights of the Child related to health. Adapted from: Waterston 2006 (76).

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<thead>
<tr>
<th>Articles on the rights of protection</th>
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<tbody>
<tr>
<td>Article 6</td>
<td>Right to life</td>
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<tr>
<td>Article 9</td>
<td>Right not to be separated from parents (unless this harms the child)</td>
</tr>
<tr>
<td>Article 19</td>
<td>Right to be protected from all forms of abuse</td>
</tr>
<tr>
<td>Article 20</td>
<td>Right to special attention (e.g., adoption and fostering if deprived of family)</td>
</tr>
<tr>
<td>Article 32</td>
<td>Right to be protected from economic exploitation</td>
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<td>Article 33</td>
<td>Right to be protected from illicit drugs</td>
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<td>Article 34</td>
<td>Right to be protected from all forms of sexual exploitation</td>
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<th>Articles on the rights of provision</th>
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<tr>
<td>Article 24</td>
<td>Right to the highest standard of healthcare</td>
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<tr>
<td>Article 27</td>
<td>Right to a standard of living adequate for the child’s physical, mental, spiritual, moral and social development</td>
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<th>Articles on the rights of participation</th>
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<tr>
<td>Articles 7, 8</td>
<td>Right to an identity (name, family, nationality)</td>
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<tr>
<td>Articles 12, 13</td>
<td>Right to express views freely and to be listened to</td>
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<tr>
<td>Article 17</td>
<td>Right to access to information</td>
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<tr>
<td>Article 23</td>
<td>Right for disabled children to enjoy life and participate actively in society</td>
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A full decade before the adoption of the CRC, Sweden became the first country to bring in national legislation to ban the corporal punishment of children. In 1979, Chapter 6, Section 1 of the Swedish Parental Code, the so-called anti-corporal punishment Act, expanded this legal obligation even further. It stated children should not be exposed to humiliating treatment, in addition to abuse (78). In 1990, Sweden was one of the first Member States to ratify the CRC and in 2011 it agreed to the optional General Comment 13.

In accordance with its mandate, the Committee on the Rights of the Child reviews the periodic reports that Member States are required to submit and provides guidance and authoritative interpretations of the provisions enshrined in the CRC (77). In 2015, the Committee published its conclusion of the Swedish report of the same year, which related to the national activities that had been undertaken to fulfil its obligations to the CRC from 2007 to 2012. The critique issued by the Committee included a number of recommendations (79):

- To create a coherent and coordinated child protection system and to further strengthen awareness-raising and education programmes, including campaigns, with the involvement of children, in order to encourage the reporting of cases of child abuse and violence against
children, and to formulate a comprehensive strategy for preventing and combating child abuse and neglect;

- To allocate adequate human, technical and financial resources for the implementation of long-term programmes to address the root causes of violence;
- To provide staff in schools and institutions with regular, ongoing training on how to detect and recognise signs of maltreatment of children;
- To encourage community-based programmes aimed at preventing and responding to domestic violence, child abuse and neglect, including by involving former victims, volunteers and community members, and providing training and support to them;
- To establish a national database of all incidents of domestic violence against children, and undertake a comprehensive assessment of the extent, causes and nature of such violence;
- To ensure that children who have suffered violence and abuse have sufficient access to adequate physical and psychological care.

The Swedish Government commissioned an Inquiry and experts were given the task of surveying how the application of Swedish laws and regulations complied with the rights of the child as laid down by the CRC (80). The report was submitted to the Government in 2016, which subsequently published a report that contained legislative proposals to incorporate the CRC into Swedish law (80). The Inquiry based its analysis on the UN Committee on the Rights of the Child’s interpretations expressed in the Committee’s general comments.

Health sector response

Medical knowledge about child abuse and neglect is relatively new. A century before American physicians stated that child maltreatment was a paediatric and public health problem, the French forensic physician Ambroise Tardieu (1818-1879) examined and described most forms of child abuse and neglect (81). His contribution was notable, because he was one of the first physicians to recognise the prevalence of child abuse at the hands of their caregivers. Tardieu published medical treatises in which he described the cardinal features of almost all forms of child maltreatment, including infanticide and child sexual abuse (81).

In 1946, the US radiologist John Caffey published his observations of long bone fractures in six infants with chronic subdural haematomas and no history of trauma (82). This article is often regarded as when the widespread medical awareness of child abuse began (83, 84). However, Caffey fell short of explicitly stating that the injuries he had identified in the infants were due to abuse.
It wasn’t until 1962 when the medical consequences of child maltreatment were elucidated in a seminal article, *The Battered Child Syndrome* by the US paediatrician Dr C Henry Kempe and his colleagues that the connection between certain injuries documented in young children and their potentially traumatic causes became more accepted (1). Dr Kempe also developed the concept of multidisciplinary hospital-based child protection teams and established one of the world’s first teams at the University Hospital in Denver, Colorado (85). His vision led to laws that required mandatory reporting of suspected physical child abuse by professionals in the US and decades of local, national and international child advocacy.

It is widely acknowledged that there is an urgent need for training of professionals to recognise and respond to child maltreatment as clinicians who have ongoing contact with families fail to make referrals to child-protection services (86). Many of today’s practising paediatricians, including those in leadership positions, may have limited exposure and training in child abuse and neglect (87). This, in turn, may have led to inadequate paediatric graduate medical training in the field of child maltreatment (88, 89).

Although healthcare professionals contribute only a small proportion of reports to child protection agencies, they are most likely to be responsible for reporting the minority of children who have been severely physically abused (90). Reports from physicians to child protection agencies also have a higher rate of substantiation (91). This is because physicians have the opportunity to document the observable effects of maltreatment, such as bruising, or the lack of appropriate medical care, because they attend to children and families during both routine medical visits and in emergency departments.

Paediatricians, in particular, can play an important role in the prevention, early detection and reporting of child abuse (92). Studies have shown that paediatricians with special training in child maltreatment are more comfortable with, and better at, detecting cases of child maltreatment than those without special training (93). In the US, child abuse paediatrics has been a paediatric subspecialty since 2006 (94) and becoming a certified child abuse paediatrician requires three years of post-residency fellowship in an accredited programme.

There is currently a paucity of published data regarding the state of the development of clinical practice, professional education and the level of expertise among paediatricians and other health professionals across various countries in Europe. Child abuse paediatrics is not recognised as a subspecialty in any European country, but there are some developments in the European Region that are worth noting.
Health sector strategies developed in some European countries

Since the late 1990s, the Nordic countries have implemented models of inter-agency collaboration for investigating suspected child physical or child sexual abuse and these have gained widespread support in this region (4, 95). Barnahus, or Children’s houses, have attempted to meet the needs of child victims by co-locating multiple services in child-friendly premises (Figure 5). The model, which drew on experiences from Children’s Advocacy Centers in the USA, was first adapted for use in the Nordic welfare state context in Iceland in the late 1990s. Prosecutorial and law enforcement, municipal child protective services, paediatrics, child mental health and forensic medicine have been included in the Swedish model. Pilot Barnahus were first established in six urban communities in 2005 and the model has expanded to over 30 centres that, between them, provide services to the large majority of Sweden’s communities (96).

The Barnahus model

The Nordic Barnahus, or children’s house, model embraces a multidisciplinary and interagency approach, which ensures collaboration between judicial, social and medical agencies. These are brought together at one child-friendly location, so that they can offer comprehensive services for the child and family under one roof. The core of the Barnahus model is the assumption that the child’s disclosure is key to both identifying and investigating child abuse for criminal and protective and therapeutic purposes.

Figure 5. Adapted from: The Council of the Baltic Sea States 2017

In 2012, the UK’s General Medical Council issued guidance on the responsibilities of all doctors to protect children and young people (97). This guidance states that all doctors working with children and young people must have the knowledge and skills to recognise signs and symptoms of abuse and neglect and to take appropriate and prompt action if necessary. Guidance published in 2014 by another UK body, the Royal College of Paediatrics and Child Health, stipulated the knowledge, skills and methods that various healthcare staff require to practise child protection competently. The framework, known as the Intercollegiate Document (97), identified five different tiered competency levels that cover healthcare professionals who come into contact with children and their families. The levels begin with the basic competencies required by healthcare staff, even those who work primarily with adults. At the highest tiers, the guidance stipulates the roles and responsibilities and level of competence required by named and designated professionals with specified duties in

34
each geographical region. The designated doctor, who is usually a paediatrician with experience in child protection, is expected to play a broad role in quality assurance and local policy development and requires advanced leadership and management skills.

In 1999, The Austrian Federal Ministry for the Environment, Youth and Family published a recommendation to establish hospital-based multidisciplinary child protection teams in all paediatric departments (98). A set of guidelines help the teams, which involve the departments of paediatrics and paediatric surgery, in carrying out their work in children's hospitals. The hospital-based teams include paediatricians, paediatric surgeons, child and adolescent psychiatrists, psychologists, psychotherapists, nurses, social workers and administrative staff. The teams were principally established as a tool to provide support to healthcare staff on the individual inpatient wards of the departments involved in the diagnosis and evaluation of suspected child maltreatment.

In the Netherlands, research has focused on building the evidence base for methods to improve the early detection of child abuse in emergency departments. Studies found that detection rates were lower in the country than in the UK, Italy and the US (99). The Health Care Inspectorate in the Netherlands responded by making systematic screening for child maltreatment and regular training of staff compulsory in emergency departments in early 2009 (99). Studies conducted in England, Northern Ireland (100) and the Netherlands (101) have also revealed that wide variations exist in the implementation of screening for child abuse in emergency departments and that empiric evidence is lacking to support any particular screening method.

Various countries across Europe have introduced strategies and policies that govern the multi-sector response to child maltreatment. This occurred in the UK following publication of the 2003 report by Lord Laming (102) into the murder of an eight-year-old Ivorian girl called Victoria Climbié in 2000 after extensive abuse. The UK Government brought in enhanced legislation, the Children Act 2004 (103), which aimed to guarantee the protection of children of all ages. The Act places a duty on all agencies to make arrangements to safeguard and promote the welfare of children. The idea behind the legislation is to promote co-ordination across sectors and official entities at all levels, to improve the safeguarding of children. In addition, the Act charges all professionals who work with children, including within schools, health, social welfare, law enforcement and justice, with a responsibility to keep them safe. To help achieve these goals, multi-agency Local Safeguarding Children Boards, consisting of representatives from local partner agencies, were established to co-ordinate the functions of all partner agencies in relation to safeguarding children. These Safeguarding Boards are responsible for commissioning independent Serious Case Reviews (104) and training staff working in the various involved agencies in best practice for safeguarding children.
Systematic, multidisciplinary review of child deaths

Following the introduction of the Children Act 2004, the UK government released Working Together to Safeguard Children (105), which provides guidance on how organisations and individual professionals should work together to safeguard and promote the wellbeing of children. In accordance with this statutory guidance, every child death in England must be reviewed by a local multidisciplinary Child Death Overview Panel. The role of the local panels is to improve knowledge about why child deaths happen and implement interventions to reduce future deaths (106).

In other high-income countries, such as the US and New Zealand, specialised multidisciplinary review teams have been established to investigate child deaths (107-109). The teams draw on the data and resources of law enforcement, prosecution authorities, paediatricians and other health professionals, child protective services and coroners or forensic medical examiners. There is evidence that such teams are more likely to detect signs of child abuse and neglect than investigators without relevant training in the field.

Preliminary data in Sweden suggest that there are a large number of child fatality cases with indeterminate causes that are not included in the very limited multidisciplinary review process required by the current national legislation (110). In accordance with legislation in effect since 2008, The National Board of Health and Welfare in Sweden has investigated child deaths, but these were limited to deaths involving crimes that have resulted in court proceedings and in which all opportunities for legal appeals have been exhausted. In practice, only 31 deaths were reviewed during the eight-year period from 2006 to 2013. The data we published following a pilot study in 2013 (110), indicated that the number of unexplained deaths and deaths from external causes during the same time period far exceeded the number that were investigated. We estimated that as many as 150 child deaths a year were recorded in the Swedish cause of death register due to an external, ill-defined or unknown cause. Thus, this preliminary data suggested that there were a large number of child fatality cases with indeterminate causes that were not included in the restricted multidisciplinary review process under contemporary national legislation (110). A systematic and detailed study of unexpected or unexplained deaths among children and adolescents had not been conducted in Sweden.
The Introduction to this thesis provided a brief overview of child maltreatment, which underlined the fact that it is a large-scale public health problem that has serious health and socioeconomic consequences for families, communities and individuals throughout their life. In 2014 the WHO Regional Office for Europe *Action plan to prevent child maltreatment 2015-2020* called for a concerted inter-sectoral approach in which health systems play a coordinating role (6).

Sweden is arguably a leader among nations, with its longstanding and determined commitment to securing child rights and child health. Yet we have to ask what is known about the current capacity of the health sector in Sweden to respond to, and provide leadership, in national prevention efforts and in a European context? Are there any indicators of how effective the inter-sectoral work that has been undertaken to address child maltreatment from a public health perspective has been? Are health professionals who treat children across Europe adequately trained, organised and provided a clear mandate to play a leadership role? If not, then what are the challenges and hurdles to achieving the admirable goals set out by the WHO?

This thesis starts with the knowledge that child maltreatment is a hidden problem and only a minority of physical abuse cases come to the attention of providers who have a mandate to intervene. Although a larger body of published research has examined the dynamics of disclosure of child sexual abuse, there is still a paucity of data on the dynamics of disclosure of child physical abuse. We set out to explore these questions in light of the increasing understanding that poly-victimisation is common in childhood and that children who are subjected to one type of abuse are at risk for multiple types of maltreatment.

The 2009 Swedish crime statistics suggested that the number of cases of child physical abuse reported to the police had exhibited a sustained increase since the late 1980s (42). Little was known about how the criminal justice system dealt with the increasing number of cases referred to them for investigation or how the emerging multidisciplinary systems that were being developed would assure effective high-quality and child-centred practices.

While Europe is often regarded as a single area, child protection policies and paediatric health services have not developed uniformly (5, 111). There is very little research on how the health sector is equipped and organised to care
for vulnerable children. There are consequently good reasons to identify clinicians across a large part of Europe who are dealing with suspected child maltreatment cases in primary and secondary paediatric and adolescent medicine.

Sweden remains a benchmark performer among European countries, in terms of overall child mortality, with the lowest rates of excess or avoidable deaths, as well as low rates of deaths from injuries (112, 113). In countries, such as the US and England, where systematic, inter-agency child death reviews are conducted, data have been used to inform initiatives to prevent future deaths. In 2013, the WHO reported that at least 850 children under 15 died each year from child abuse in Europe. Few European countries conduct thorough inter-agency investigative approaches, resulting in misclassification of maltreatment-related deaths (5). Systematic and detailed studies of deaths in childhood from external, ill-defined and unknown causes had not yet been conducted in Sweden.
Aim of thesis

The overarching aim of this research was to examine aspects of the multi-sector response, and in particular the health sector response, to child maltreatment in Sweden and in a European context.

Specific aims

Study I:
To explore the dynamics of disclosure of child abuse and perceived adult support among adolescents recruited from the general population with self-reported experiences of child physical abuse.

Study II:
To examine how characteristics of police-reported child physical abuse cases – including the severity of the alleged violence as documented in police records – were associated with criminal investigation procedures and prosecution outcomes.

Study III:
To assess how physicians across a large part of Europe are organised to recognise and respond to child abuse and neglect and to gain an overall picture of child protection procedures, reporting laws, professional education, referral practices, medical practice and the range of professionals involved.

Study IV:
To investigate time trends of childhood death rates in Sweden, recorded as due to external, ill-defined and unknown causes, by age group during the 15-year period from 2000 to 2014. These causes of deaths were reported to be associated with data that can inform effective prevention through systematic, inter-agency child death reviews.
Ethical considerations

The methods and data sources used in the four sub-studies in this thesis were distinct and so were the ethical aspects we explored.

Studying child maltreatment, especially with child informants, may pose complex ethical dilemmas. It is vital that society understands the root causes, processes and consequences of child maltreatment, in order to devise supportive interventions and prevention methods, but this aim must be balanced with the sensitive and potentially distressing nature of the subject and the risk of harm for the survivors (114, 115). Approaches must protect the privacy of individual research participants and guarantee confidentiality. However, when surveys don’t include children for practical, resource or logistical reasons, and do not consider them social actors in their own right, this may reduce their rights to participate, as enshrined in the CRC (76). Despite, increased political interest in children’s right to participate and their exposure to violence, relatively little research has been conducted to explore the experiences of child informants (116, 117). To our knowledge, no population-based studies of adolescents that examined CPA disclosure beyond reporting disclosure rates and to whom they were reported had been published when we carried out Study I.

Several precautions were taken when Study I was carried out to address these ethical concerns. Before they participated, the students were told about the aim of the study, its voluntary and anonymous nature and their right to discontinue participation or refrain from answering certain questions. Parents and guardians were informed by letter about the nature of the survey, and were given the opportunity to opt out if their child was younger than 15 years. Teaching staff were not in the classrooms when the students completed the questionnaires, but experienced research assistants were. Written information in the questionnaire told participants where they could get counselling, if needed, and school health staff were also on hand to provide support. None of the students refused to take part or stated that their parents did not consent. The study was approved by the Stockholm regional research ethical review board (Dnr 2010/1512-31/5).

Data on child maltreatment may be gathered from various sources, including medical, child protection and law enforcement records. This may seem to contravene the Declaration of Helsinki, which states human subjects can only be included in medical research if they have consented (118). Sourcing data from existing records precludes active participation and extra care must be taken to avoid misusing personally identifiable data. Study II used data that
was extracted from police files and subsequent court decisions and was anonymised so that it just identified the police district.

According to the Declaration of Helsinki, human subjects should only take part in medical research if they give their consent, but child maltreatment studies often gather data from sources such as medical or child protection records rather than involving subjects. As long as this data is used anonymously it does not compromise individual privacy. However, some research requires personally identifiable data, which could be misused. The data for Study II was previously collected by Professors Christian Diesen and Frank Lindblad for a larger multi-disciplinary study by the Department of Law at Stockholm University (119, 120). Their aim was to examine the nature and quality of criminal justice procedures related to investigating child sexual and physical abuse in Sweden and Europe. They hypothesized that close multi-disciplinary collaboration between law enforcement, social workers, psychologists, paediatricians, child psychiatrists and prosecutors, such as in the US and Iceland, would lead to improved investigative outcomes. They compared this with what had been demonstrated in Sweden. The data acquired from police records for Study II related to cases that had been resolved and the legal records were in the public domain. The study was approved by the Stockholm regional research ethical review board (Dnr 2005/526-31/5).

Study III focused on European physicians who cared for children with suspected child maltreatment, who were recruited using purposeful sampling, professional organisations and the Internet. We used an online questionnaire and the web link was emailed to physicians together with a covering letter that explained the purpose of the study and an offer to provide further clarification. The responses to the online questionnaire were categorised by country and anonymised for the narrative synthesis of the responses. As the study was restricted to professional and organisational data, ethics approval was not required.

Study IV used data from the cause of death register at the National Board of Health and Welfare and it was anonymised by the Board so that individuals could not be identified. In addition, aggregated vital statistics data were obtained from online Statistics Sweden databases that were in the public domain. Swedish law states that studies that exclusively involve data on deceased individuals are exempt from ethical approval and the Uppsala ethical review board agreed this for our pilot study published in 2013 (110). Although we considered that child deaths needed sensitive handling when publishing the results, we also felt that the risk that surviving relatives would suffer distress or discomfort was small as the cases were anonymised. The WHO has encouraged detailed research on child mortality as it has noted that few European countries investigate child deaths with sufficient rigour by using linked inter-agency linked data (5). For example, the WHO maintains that deaths related to child maltreatment may be misclassified as accidental or of undetermined intent in the absence of better information (121). The aim of Study IV was to
provide data that could be used to improve work to prevent childhood injuries and deaths. We met the requirements of international scientific peer-reviewed journals, by getting approval from the Uppsala regional research ethical review board (Dnr 2016/329).
Summary Study I

Introduction

There is a broad consensus among clinicians, professionals and researchers that only a minority of abused children come to the attention of professional systems, such as child protective authorities or law enforcement, and that this gap is due to children’s reluctance to disclose the abuse (90, 122). A better understanding of the factors that influence why children choose to disclose or not disclose maltreatment is needed to address the vast problem of underreporting.

A small number of studies have focused on self-disclosure of child sexual abuse (CSA) by adolescents recruited from the general population (123-126). These studies consistently showed that children were most likely to disclosed CSA to peers of their own age in informal settings. Fewer cases were disclosed to parents or other adults and only a small minority were reported to child protective and investigative authorities with a mandate to take action. Previous research on adolescent survivors of CSA indicates that the main reason they did not tell their parents were lack of trust and a reluctance to burden them (127, 128).

Very little research on the prevalence of disclosure has focused on child physical abuse (CPA). There are, to our knowledge, no previous population-based studies of adolescents that have examined the characteristics of disclosure of CPA beyond reporting disclosure rates and who the abuse was disclosed to.

This study examined CPA disclosure and perceived adult support among adolescents and addressed four questions:
(I) Was there any association between any kind of self-reported child maltreatment and lack of an adult confidant?
(II) What were the disclosure rates among adolescents who had been exposed to severe CPA?
(III) Who did the children and adolescents tell about their abuse?
(IV) How did adolescents who experienced CPA and other forms of child maltreatment perceive adult and professional support?

We hypothesise that a positive association would exists between adolescents’ self-reports of any child maltreatment and a reported lack of an adult confidant. In addition, we hypothesised that physically abused children would be most likely to reveal their abuse to a peer, in line with several published
reports characterising CSA disclosure, and with the few studies on other forms of violence (36, 129).

Methods
The study was based on a Swedish national survey on child maltreatment that was carried out among ninth graders, aged 14-15 years, in September 2011. In total, 3,202 school children, (51% girls), independently and anonymously completed the questionnaire. The respondents represented 84% in the participating schools.

We determined the rates of disclosure among severely physically abused children and who they revealed their abuse to using quantitative analysis. In order to better characterise the adolescents’ experiences of adult support, we carried out content analysis of the responses to open-ended questions in the survey (130).

Measures
Questions about physical and emotional abuse were based on the Conflict Tactics Scales (CTS) (131), as used in previous consecutive Swedish school-based surveys (132).

Quantitative analysis
We performed Pearson chi-square and multivariate logistic regression analyses, adjusted for family finances, chronic condition/disability and any foreign-born status of respondent.

Qualitative analysis
The questionnaires included free-text responses to two open-ended questions. We received 65 free-text responses, varying in detail and length, concerning the subject. We employed qualitative content analysis, as described by Graneheim and Lundman (130), to analyse the free-text data.

Main results
Of the total sample, 650 children (20.3%) reported at least one type of maltreatment and CPA was the most frequently reported type (17.7%). A third of those who had been physically abused had experienced severe CPA. Girls were more likely than boys to report severe CPA, emotional abuse, having witnessed intimate partner violence and more than one type of maltreatment. Foreign-born respondents were more likely to report all types of maltreatment.
than adolescents born in Sweden. Having separated parents, a chronic condition or disability and worries about family finances were also associated with all types of maltreatment.

**Lack of adult confidant**

More than three-quarters of the respondents (78%) said there was an adult they could confide in and 15% said they did not have an adult confidant. Child maltreatment, worries about family finances, foreign-born status and having a disability or chronic condition were all significantly associated with lack of adult confidants. Both crude and adjusted analyses of the association between child maltreatment and the lack of an adult confidant are presented in Table X. Of the adolescents who reported any maltreatment in childhood, 30% could not identify an adult confidant compared to 11.9% of those who were not maltreated, with an adjusted odd ratio of 2.87. The odds ratios were greater with increasing severity of abuse, as well as with several types of maltreatment (Table 2).

Table 2. *The association between maltreatment types/severity and lack of an adult confidant*

<table>
<thead>
<tr>
<th>Type of maltreatment/abuse (%)</th>
<th>Lack of adult confidant %</th>
<th>OR (95% CI)</th>
<th>adjOR† (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any child maltreatment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (65.4%, n=2092)</td>
<td>11.9 (235)</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Yes (20.3%, n=650)</td>
<td>30.0 (187)</td>
<td>3.17***</td>
<td>2.87***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.55-3.95)</td>
<td>(2.25-3.66)</td>
</tr>
<tr>
<td><strong>CPA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (80.8%, n=2584)</td>
<td>13.2 (319)</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Yes (17.7%, n=565)</td>
<td>31.0 (165)</td>
<td>2.95***</td>
<td>2.62***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.37-3.67)</td>
<td>(2.06-3.35)</td>
</tr>
<tr>
<td><strong>Severe CPA</strong> (repeated and/or harsh)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (no or mild abuse) (88.0%, n=2814)</td>
<td>14.2 (375)</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Yes (5.5%, n=176)</td>
<td>41.1 (69)</td>
<td>4.20***</td>
<td>3.82***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.03-5.82)</td>
<td>(2.66-5.50)</td>
</tr>
<tr>
<td><strong>Multi-type child maltreatment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not maltreated (65.4%, n=2092)</td>
<td>11.9 (235)</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>1 type (12.4%, n=395)</td>
<td>23.0 (87)</td>
<td>2.22***</td>
<td>2.03***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.68-2.92)</td>
<td>(1.49-2.76)</td>
</tr>
<tr>
<td>2 types (4.9%, n=157)</td>
<td>35.8 (54)</td>
<td>4.12***</td>
<td>3.77***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.88-5.91)</td>
<td>(2.56-5.54)</td>
</tr>
<tr>
<td>3-4 types (3.1%, n=98)</td>
<td>48.4 (46)</td>
<td>6.96***</td>
<td>6.34***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.55-10.64)</td>
<td>(3.91-10.29)</td>
</tr>
</tbody>
</table>

† Multivariate logistic regression adjusted for perceived family finances, foreign-born status, and chronic condition/disability; adjOR = adjusted odds ratio.

*** P-value <0.001
Disclosure rates among severely physically abused and disclosure preferences

Just over half (52%) of the adolescents who said they had experienced severe CPA had told someone about the abuse. Girls had disclosed abuse more than boys, but the difference was not significant. Respondents were more likely to have disclosed the abuse if their parents were separated. Table 3 shows who respondents’ chose to disclose their abuse to peers, such as siblings, friends, boyfriends or girlfriends, were the most frequent choice (37%), followed by a parent or close adult relative (18%). A further 11% had disclosed abuse to professionals at their school, Child Protective Services (CPS) or law enforcement agencies. All of those who chose this route had been exposed to two or more types of maltreatment. Some respondents confided in more than one person or organisation.

Table 3. Recipients of disclosure among severely physically abused (n=176)

<table>
<thead>
<tr>
<th>Recipients of disclosure</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer (sibling/friend/boyfriend/girlfriend)</td>
<td>37.5 (66)</td>
</tr>
<tr>
<td>Non-professional adult (parent/close adult relative)</td>
<td>18.2 (32)</td>
</tr>
<tr>
<td>Professional (within school, CPS or law enforcement)</td>
<td>11.4 (20)</td>
</tr>
<tr>
<td>Children’s Rights in Society (NGO helpline for children)</td>
<td>9.7 (17)</td>
</tr>
</tbody>
</table>

Experiences of disclosure and adult support – qualitative results

Of the 65 adolescents who responded to the free-text questions, 50 were girls. The results from the qualitative analysis of the free-text data are presented in Table 4. Three main categories emerged from the 13 sub-categories and these were barriers to disclosure, inadequate adult responses and supportive interventions.
Table 4. Results from the qualitative analysis. Presentation of main categories and sub categories

<table>
<thead>
<tr>
<th>Barriers to disclosure</th>
<th>Inadequate adult response</th>
<th>Supportive interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loyalty towards parents</td>
<td>Lack of child perspective</td>
<td>Support from school social worker or child mental health services</td>
</tr>
<tr>
<td>Lack of trust in adults or authorities</td>
<td>Insufficient evidence</td>
<td>Support initiated by CPS</td>
</tr>
<tr>
<td>Fear of being disbelieved</td>
<td>Inaccessible CPS and law enforcement</td>
<td>Criminal conviction of perpetrator</td>
</tr>
<tr>
<td>Hopelessness</td>
<td>Reluctance to act</td>
<td></td>
</tr>
<tr>
<td>Self-blame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normalisation of maltreating behaviour</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Barriers to disclosure
The adolescents described several barriers to disclosing the abuse they had experienced and the most prominent was lack of trust in adults or authorities (Table 4). Some respondents were fearful of being disbelieved, stating that it was useless to tell anyone because ‘no one takes you seriously’. Others said that they did not have enough evidence to prove the maltreatment. Others felt hopelessness and said that ‘nothing helps’, which also appeared to be a barrier to disclosure.

Inadequate adult response
Several adolescents who were physically abused during childhood shared their experiences of contact with social welfare authorities. Some said that they lacked a child perspective, particularly CPS social workers, and some said that the police or CPS did not take any action because of lack of evidence. They also felt professionals were reluctant to take any action.

Supportive interventions
Some adolescents who had been in contact with authorities and professionals said that they received assistance and support and that they were most likely to receive positive support from school social workers.
Summary Study II

Introduction
Healthcare workers in Sweden are legally required to report suspected child maltreatment to CPS, who then decide whether the case should be reported to the police. It had become increasingly common in Sweden for the CPS to perform this role (42, 133). It is, therefore, important for researchers to evaluate how the criminal justice system has adapted to these changing demands. Previous reports (42, 133) have shown a low rate of adjudication of criminal investigations cases where the alleged victim is a child. This study aimed to examine how child physical abuse case characteristics, including the severity of the alleged violence as documented in police records, influenced the criminal investigation process at four key decision points: the forensic interview of the suspect, the forensic interview of the alleged victim, the forensic medical evaluation and prosecution.

Methods
We included all non-fatal suspected CPA cases involving a child under the age of 15 (n=158) and allegedly caused by a household member, which were reported to the police in two suburban police districts in Stockholm County during 2006.

We abstracted the case characteristics of alleged CPAs that proceeded to adjudication in the criminal court from police and court records:

- **Age** (0<3, 3<6, 6<9, 9<12, 12<15, 15<18 years of age at the time of the criminal investigation) and **sex of the child**
- **Relationship of the suspect to the child**
- **Confession/denial of the suspect**
- Household conflicts (documented co-occurrence of intimate partner violence and/or custody disputes)
- **Severity of alleged violence** as documented in the police files using the Conflict Tactics Scales (CTS) scoring, as validated by Janson (32, 33) in Sweden on a scale of 1 to 8.
- **Origin of the police report** (household member, police called to the scene, CPS or other).
The following items were applied as key decision points of the criminal investigation process and as dependent variables:

- Forensic interview with the suspect
- Forensic interview with the child (children younger than three years of age were not included).
- Medical evaluation (clinical examination of victim, forensic affidavit after clinical exam and examination/affidavit by forensic physician)
- Adjudication (prosecution; criminal conviction or order of summary punishment).

The statistical association between the categorical predictor variables and the dependent variables was analysed by using the chi-square test, which was complemented with a column proportional test when more than two categories were involved. We also tested the association between the dependent variables forensic interview (suspect) and forensic interview (child) by using the chi-square test. A binary logistic regression analysis was calculated with prosecution as a dependent variable and any forensic interview (suspect), forensic interview (child) and forensic medical evaluation as covariates.

Main results

Details on the child, suspect, type of violence and the origin of the police report are presented in Table 5. The median age group at the time of the police report was 9-11 years (range three months to 18 years) and the majority (56%) were boys. The suspected perpetrator was a father/stepfather in 64% of cases and a mother/stepmother in 30%. The severity of the violence was categorised as moderate (51%) or high (41%) in most cases, according to the CTS scores. In 31% of the cases there was either a full or a partial confession (Table 5).

The main sources of the police report were: CPS (33%), a family member (23%) and police called to the scene (41%). None of the police reports originated from healthcare providers. Other intimate partner violence in the family was reported in 30% of cases and custody disputes in 17%.

In Table 6, we present data concerning the key decision points during the criminal investigation. The following text summarises the significant statistical findings and also points out some of the descriptive results that may be of value when interpreting the quality of the legal procedures.
Table 5. Child, suspect, and violence (Conflict Tactics Scale, CTS) characteristics; origin of police report.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age of child, years</strong></td>
<td></td>
</tr>
<tr>
<td>(n=154)</td>
<td></td>
</tr>
<tr>
<td>0 &lt; 3</td>
<td>15 (9.7)</td>
</tr>
<tr>
<td>3 &lt; 6</td>
<td>26 (16.9)</td>
</tr>
<tr>
<td>6 &lt; 9</td>
<td>31 (20.1)</td>
</tr>
<tr>
<td>9 &lt; 12</td>
<td>30 (19.5)</td>
</tr>
<tr>
<td>12 &lt; 15</td>
<td>43 (27.9)</td>
</tr>
<tr>
<td>15 &lt; 18</td>
<td>7 (4.5)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>4</td>
</tr>
<tr>
<td><strong>Gender of child</strong></td>
<td></td>
</tr>
<tr>
<td>(n=158)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>88 (55.7)</td>
</tr>
<tr>
<td>Female</td>
<td>70 (44.3)</td>
</tr>
<tr>
<td><strong>Relation suspect-child</strong></td>
<td></td>
</tr>
<tr>
<td>(n=156)</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>84 (53.8)</td>
</tr>
<tr>
<td>Mother</td>
<td>46 (29.5)</td>
</tr>
<tr>
<td>Stepfather</td>
<td>16 (10.3)</td>
</tr>
<tr>
<td>Stepmother</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>2</td>
</tr>
<tr>
<td><strong>Confession/denial</strong></td>
<td></td>
</tr>
<tr>
<td>(n=75)</td>
<td></td>
</tr>
<tr>
<td>Full confession</td>
<td>3 (4.0)</td>
</tr>
<tr>
<td>Partial confession</td>
<td>20 (26.7)</td>
</tr>
<tr>
<td>Denial</td>
<td>52 (69.3)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>83</td>
</tr>
<tr>
<td><strong>Severity of alleged violence</strong></td>
<td></td>
</tr>
<tr>
<td>(n=151)</td>
<td></td>
</tr>
<tr>
<td>Low (CTS 1–4)</td>
<td>12 (7.9)</td>
</tr>
<tr>
<td>Moderate (CTS 5–6)</td>
<td>77 (51.0)</td>
</tr>
<tr>
<td>High (CTS 7–8)</td>
<td>62 (41.0)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>7</td>
</tr>
<tr>
<td><strong>Origin of police report</strong></td>
<td></td>
</tr>
<tr>
<td>(n=157)</td>
<td></td>
</tr>
<tr>
<td>Child Protection Services</td>
<td>51 (32.5)</td>
</tr>
<tr>
<td>Household member</td>
<td>36 (22.9)</td>
</tr>
<tr>
<td>Police called to scene</td>
<td>65 (41.4)</td>
</tr>
<tr>
<td>Health providers</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (3.2)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>1</td>
</tr>
</tbody>
</table>

**Suspect interviews**

Police investigators interviewed the suspect in 82/155 (53%) cases. They were more likely to conduct an interview when the father was suspected (53/82) and less often when the mother was suspected (18/46). Police were also more likely to interview suspects when they were called to the scene (41/64), compared to other origins of the police report. There was no association between the severity of the alleged violence, based on the CTS, and whether or not the suspect was interviewed.

**Forensic interview with the child**

A forensic interview with the child was more likely to take place when police were called to the scene (40/65), compared to when the police report originated elsewhere. In 59/81 (73%) of cases the child described at least one assault during childhood by the suspected perpetrator. There was no association
between the severity of the alleged violence, based on the CTS, and whether or not the child victim was interviewed. There was a strong association between the forensic interview of the suspect and the forensic interview of the child.

**Clinical and forensic medical evaluations**

Clinicians conducted a physical examination of the child victim, without a subsequent forensic evaluation, in 7/158 cases. Criminal investigators requested forensic medical affidavits documenting the clinical exam in 11/158 cases. Criminal investigators requested a forensic evaluation in 6/16 cases in which two caregivers were suspected, compared to 5/133 when there was a single suspect. Criminal investigators tended to order a medical evaluation more often when the alleged victim was under three years old than when the child was older. There was no association between the severity of the alleged violence, according to the CTS, and whether or not criminal investigators requested a forensic medical evaluation.

We used a binary logistic regression analysis with prosecution as a dependent variable and any forensic interview (suspect), forensic interview (child) and forensic medical evaluation as covariates. The only significant predictor was the fact that a forensic medical evaluation was conducted, with an odds ratio of 1.9 and 95% confidence interval of 1.2 - 3.3.

**Adjudication**

Eleven of the 155 (7%) criminal investigations proceeded to prosecution, and, of those, 9/155 (6%) resulted in a criminal conviction. In 2/155 (1.3%) cases, the investigation resulted in an order of summary punishment. Cases in which two caregivers were suspected were more likely to lead to prosecution than cases with a single suspect. There was no association between the severity of the alleged violence, according to the CTS score, and adjudication.
Table 6. Numbers (%) of forensic interviews (suspect, child), medical evaluation, adjudication.

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic interview of suspect (n=155)</td>
<td>82 (52.9)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>3</td>
</tr>
<tr>
<td>Forensic interview of child (n=155)</td>
<td>81 (51.3)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>3</td>
</tr>
<tr>
<td>Medical Evaluation (n=158)</td>
<td></td>
</tr>
<tr>
<td>Clinical examination of child - no forensic evaluation</td>
<td>7 (4.4)</td>
</tr>
<tr>
<td>Forensic evaluation after clinical exam/ Exam by forensic physician</td>
<td>7 (4.4)/4(2.5)</td>
</tr>
<tr>
<td>No exam conducted</td>
<td>140 (88.6)</td>
</tr>
<tr>
<td>Adjudication (n=155)</td>
<td></td>
</tr>
<tr>
<td>Prosecution/Criminal conviction</td>
<td>11 (7.1)/9(5.8)</td>
</tr>
<tr>
<td>Order of summary punishment</td>
<td>2 (1.3)</td>
</tr>
<tr>
<td>Missing data/No info</td>
<td>3</td>
</tr>
</tbody>
</table>
Summary Study III

Introduction

In its 2014 *Child maltreatment prevention action* plan, the WHO Regional European Committee (6) called for member states to strengthen health systems, including training healthcare staff in the early detection and appropriate responses to maltreatment to protect children from further harm. Understanding how physicians are trained, and have developed procedures to meet the challenges of child maltreatment, may inform how health systems across Europe may have the capability to achieve the WHO *action plan*.

Children subjected to maltreatment present to a broad range of physicians across primary and secondary paediatric and adolescent care and all physicians play an important role in the early detection, accurate diagnosis and provision of immediate and long-term treatment of children who are victimised. Surveys of clinicians working in the field of child maltreatment note the perceived importance of specialised postgraduate training, while practitioners frequently perceive this education as being insufficient (89, 134, 135).

While Europe is often referred to as a single area, child protection policies and practices have not evolved uniformly (5). There is a lack of published research on how paediatricians and other physicians in Europe are equipped and organised to practice in this area.

The varying ways in which clinicians manage cases of suspected child maltreatment may impact on both the service and the research originating from that country. This study examined how physicians across a large part of Europe were organised to recognise and respond to child maltreatment. Our aim was to gain an overall picture of child protection procedures, reporting laws, professional education, referral practices, medical practice and the range of professionals involved.

Methods

As this type of investigation had not previously been undertaken, we created an online consensus group, which wrote and finalised a semi-structured questionnaire in English. This contained 23 items aimed at physicians engaged in the clinical care of maltreated children across Europe. The focus was on 28 member states of the European Union, including Croatia, which became a
member state during the study period. In addition, three members of the European Free Trade Association, Iceland, Norway and Switzerland, were included on the basis of their geographical and political position within Europe.

The 23 questions were divided into nine closed and 14 open questions addressing: mandatory reporting for physicians, postgraduate training in child protection, the organisation of medical and forensic care, including multidisciplinary settings, the medical management of suspected maltreatment, child death reviews and demographic features.

Purposeful sampling was used to recruit eligible respondents, who were physicians with expertise and a clinical interest in child maltreatment and actively engaged in the field. Physicians eligible for the study were identified through personal contacts, professional societies, web-based recruiting and snowball sampling. Respondents were also asked to identify other eligible respondents within their networks.

The initial recruitment of paediatricians took place between July and October 2012. This was supplemented between August and December 2013 with web-based recruiting via the Cardiff University Child Protection Systematic Reviews CORE-Info website (136).

The questionnaire was managed through a web-based tool and distributed electronically as a web link, which also contained a covering letter explaining the purpose of the study. Respondents were only identifiable while they sought any clarification on the questionnaire. The data was categorised by country and subsequently anonymised for the narrative synthesis of responses. Simple descriptive enumerations and tabulations were used for the summaries. The majority of the questions were answered by all respondents, but the denominators of the results vary due to the number of responses to individual questions.

Responses from clinicians regarding the statutes governing mandatory reporting by health professionals of suspected child maltreatment in their country were compared with two published sources: The European Agency for Fundamental Rights compilation on mandatory reporting for professionals (137) and the state member replies to the Council on Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse (138).

Main results

Respondents
The initial survey was completed by 45 physicians in 2012 and another 43 physicians responded prior to the survey closing in December 2013. This meant we had responses from 88 clinicians unevenly distributed in 22 countries (Figure 6). The majority of the respondents were paediatricians.
In addition to variation between the countries, there were considerable variations within the 15 countries where responses were received from more than one physician. However, all of the 88 physicians who responded described a defined system with multidisciplinary involvement for the clinical and forensic management of suspected child maltreatment.

**Mandatory reporting for physicians**

Respondents in 16/22 (73%) countries replied that national mandatory reporting statutes applied to physicians who suspected child maltreatment (Figure 7), although the focus of the statutes governing reporting differed between countries. In Scandinavian countries, reporting was directed to municipal child protective services (CPS). In Finland, cases of child physical abuse were reported to CPS and cases of suspected child sexual abuse to law enforcement. In Croatia, France, Italy and Switzerland, physicians were required to report cases to law enforcement, prosecutorial and judicial authorities.
In Belgium, Germany, Malta, the Netherlands, Ireland and the UK, physicians did not have a national mandate to report cases of suspected child maltreatment. In some of these countries, such as Germany, there were some federal states that mandated reporting by physicians. In Switzerland, there were no national statutes governing professional reporting and mandated reporting legislation varied in each of the 26 member states or cantons. In the Netherlands, physicians were required to discuss the case with the ‘confidential reporter,’ following which decisions were made regarding detailed reporting. In some countries without national mandatory reporting legislation, such as the UK, physicians were still required to report cases based on the professional ‘duty of care’ defined by their national accrediting body.

Training requirements for paediatricians and other physicians
Requirements for postgraduate education on child protection for paediatricians and other specialists varied between, as well as within, countries. In the UK, child protection training was an integral part of The Royal College of Paediatrics and Child Health (RCPCH) paediatric core and specialty training.
As with other subspecialties, a tiered level system of competencies was required for physicians who care for children. However, the RCPCH did not recognise child abuse as a specialty and respondents referred to its website for details (139).

Some countries that did not offer require physicians to receive training on child maltreatment offered education on a voluntary or regional basis. In Sweden, a nationally-financed, week-long course on child maltreatment was offered, but not required for paediatric residents and other specialists in training.

**Hospital-based multi-disciplinary child protection teams (MDTs)**

There were hospital-based MDTs in 16/22 (73%) countries. The professions represented varied between countries, and between jurisdictions within countries. Their role in most settings was to conduct or support medical investigations of cases, for diagnosis and treatment. The paediatricians in the teams provided advisory services to other physicians, and in some settings, had responsibilities for teaching others how to handle child maltreatment. Some also carried out research into this area.

Some countries without hospital-based teams had multi-agency teams based in the community. For example, in Belgium multi-agency teams worked at confidential centres for child abuse and neglect that were staffed by specialist physicians. The centres worked on a voluntary basis with social care authorities to look at cases that were not referred to the criminal justice system. In Estonia, multi-agency teams were located and managed within community-based non-governmental organisations in urban centres.

In the UK, safeguarding multi-agency teams were located in community child health units and staffed by community paediatricians who specialised in assessing child maltreatment. These teams played the same role as some hospital-based MDTs in other countries, coordinating with social services and community agencies in identifying children at risk. There was a two-step process, strategy meetings, and a full case conference if concerns were confirmed. The final decision was taken by an independent chair from social services and not physicians.

In Sweden and some other Scandinavian countries, including Norway, Iceland and Finland, multi-agency teams were based at children's advocacy centres in the community, which were called children’s houses, or Barnahus (Figure 5). Barnahus teams included prosecutors, law enforcement, health professionals and CPS and they exclusively addressed cases in which there was suspected physical or sexual abuse of a minor, often with a focus on the criminal investigation.

**Other physicians involved**

Forensic physicians were engaged in the physical examination of living children with suspected child physical or sexual abuse in 15/21 (71%) countries.
There was no response from one country. In 13 of these 15 countries, respondents indicated that the availability of forensic specialists was limited.

**Child death review (CDR)**

Of the 21 countries that responded, 12 (57%) conducted national CDRs and the criteria for these differed between, and in some instances, within, countries. England and Wales appeared to be the only countries in our sample that had legislation for a nationally coordinated system of local multi-agency review of all deaths from birth to 18 years. In addition, local overview boards convened rapid response investigations that included local case discussions for all unexpected deaths. More in-depth serious case reviews were conducted in England, Scotland and Wales for any death in which maltreatment was known or suspected to be a factor. This could also be applied to children who suffered serious harm because of maltreatment.

In Norway and Sweden, the focus of CDRs was deaths from maltreatment or homicide. An initiative in Norway mandated that all child deaths be investigated by a board staffed by law enforcement and forensic physicians. In Estonia, a CDR team analysed child deaths due to external causes using International Classification of Disease codes. The team was based in the capital city, Tallinn, and limited its scope to the city and surrounding region.

In the Netherlands, multi-agency teams conducted a national consensus review for deaths of newborn infants. There was a monthly CDR meeting covering all other children who died of expected natural causes. However, capturing cases using this methodology appeared to be limited and lack of funding was described as a threat to this programme. In France, physicians were obliged to report all child deaths to national death registers. The French Institute for Public Health Surveillance was responsible for analysing national mortality data. Child deaths under six years of age were reported to the maternal and child protection units, often at health centres managed by the county council. Unexpected or undetermined fatalities were reported to judicial authorities. In Switzerland, the Swiss Society of Paediatrics collected details of child maltreatment deaths and each of the country’s member states, or cantons, had its own data collection system for child deaths.
Summary Study IV

Introduction

Childhood deaths from assault, neglect, accidents and suicide are events that can potentially be prevented. Systematic interagency reviews of all child fatalities, which originated in the USA (140), can increase our understanding of the contributing and modifiable factors, including how and why children die, and provide a framework for the detailed investigation of unexpected deaths.

Since 2008, The National Board of Health and Welfare (NBHW) in Sweden has investigated child deaths, in accordance with the legislation. These are limited to deaths involving crimes that have resulted in court proceedings and in which all opportunities for legal appeals have been exhausted. In practice, only 31 deaths were reviewed during the eight-year period from 2006 to 2013 (141).

In a Swedish study of cases of sudden infant death syndrome (SIDS) and sudden unexpected death in infancy (SUDI) (142), researchers reported that a death scene investigation was very seldom carried out unless a crime was suspected, despite the longstanding consensus among researchers that a death scene investigation was a defining prerequisite for a SIDS diagnosis (143). A systematic and detailed study of unexpected or unexplained deaths among children and adolescents has not been conducted in Sweden. Fraser et al asserted that detailed individual interagency reviews could contribute to better consistency in coding COD and help to increase precision in the classification of specific situations in which diagnostic drift was reported to be a particular issue, for example SIDS (108).

In this descriptive cross-sectional study, we aimed to investigate time trends of childhood death rates recorded as due to external, ill-defined and unknown causes by age group during a 15-year period, from 2000 to 2014. We hypothesised that we would observe a sustained substantial decline in childhood deaths related to transport and other external causes. We also aimed to characterise the frequency and rates of deaths that were recorded as assaults, suicides and events of undetermined intent, as well as trends in childhood death rates in which the cause was ill-defined, including SIDS, or in which a COD was unknown or undocumented.
Methods

Data sources
The Swedish NBHW provided individual-level data concerning the study population that was extracted from the cause of death register, which includes information of all deaths in Sweden since 1961(144). Data on diagnoses, congenital anomalies and causes of death were documented according to the International Classification of Diseases - Tenth Revision (ICD-10) codes from 1997 onwards. The NBHW anonymised individual-level data, using unique codes, prior to the data being provided to the research team. The total number and ages of children under 18 alive and living in Sweden at the end of each study year were obtained from national census data published online by Statistics Sweden.

Study population
The study population was defined as the deaths of all children and adolescents under the age of 18 recorded in the Swedish cause of death register during the calendar years of 2000-2014. The underlying causes of these deaths were classified into two main categories. The first category was external causes of death, which covered unintentional injury deaths and intentional deaths across the span of ICD-10 codes V01-Y98. The second category, with ICD-10 codes R95-R99, comprised of individuals with ill-defined, unknown and incomplete documentation underlying their COD.

Table 7. Categories of deaths from external and ill-defined causes

<table>
<thead>
<tr>
<th>External causes of death (ICD-10 V01-Y98)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Transport-related</td>
<td>V01-V99 + Y850</td>
</tr>
<tr>
<td>Suicide</td>
<td>X60-X84</td>
</tr>
<tr>
<td>Assault Materials</td>
<td>X85-Y09 + Y369</td>
</tr>
<tr>
<td>Event of undetermined intent</td>
<td>Y10-Y34</td>
</tr>
<tr>
<td>Other external</td>
<td>W00-X38, X40-X59, Y83.6-Y84.8, and Y86.0-Y86.9</td>
</tr>
</tbody>
</table>

| Ill-defined causes of death (ICD-10 R95-R99.0)    |               |
|Ill-defined or unknown (including SIDS)           | R95-R99.0      |
|Incompletely documented or undocumented           | R99.1; R99.8; R99.9|

External causes of death
We classified individuals with an underlying external COD (ICD-10 V01-Y98) into five subgroups. All of the individuals categorised into the subgroups below had an injury described in ICD-10’s chapter XIX, namely: injury, poisoning and certain other consequences of external causes (S and T codes).
These included transport-related deaths, suicide, assaults, events of undetermined intent and other external CODs (Table 7).

Ill-defined causes
We also recorded ill-defined, or unknown, CODs (R95-R99.0) and incompletely documented and undocumented unascertained cases (R99.1; R99.8; R99.9). Using a set of extensions to the R99 code, the Swedish NBHW recorded death certificates in which an underlying COD was not ascertained by the registering physician as R99.1 or other incompletely defined COD (145). Cases in which the COD certificate was missing, and the death primarily occurred abroad, were coded by the NBHW as R99.8 for COD not defined (144). The NBHW recorded cases as R99.9 when no death certificate was received and the Swedish Tax Authority notified the NBHW of the death.

Variables
We grouped total absolute counts of deaths from external, ill-defined and unknown COD into six age categories as recorded at the time of death: newborn infants (0-27 days), post-neonatal infants (28 days to 11 months), children (1-4 years), children (5-9 years), children (10-14) years and older children (15-17 years).

In addition, due to the low absolute counts across some age bands, and in order to allow the calculation of mortality rates and time-trends, we collapsed the six age categories above and conducted the analysis in three broader age groups: infants under one, children aged 1-14 and older children aged 15-17 years.

Statistical analysis
Mortality rates in the study population, expressed as deaths per 100,000 population, were calculated from the absolute counts in the COD register of child deaths for each corresponding age group. We investigated the change in the mortality rates over time by using a linear regression, in which the dependent variable was the natural logarithm of the mortality rate and the independent variable was the year of death, using a 5% significance level.

Main results

Total child mortality
We identified 7,914 child deaths from all causes from 2000-2014. A sizeable number of infant deaths (8.0%) were registered without a death certificate during the study period.
Total childhood mortality rates for all causes in individuals under 18 years of age in Sweden exhibited a mean of 27 per 100,000 and fell substantially from 31 to 23 per 100,000, which represented an overall 26% decline during the study period. Mortality rates by age band exhibited a bimodal distribution, with levels that were far higher in infancy than any other age (Figure 9). They fell to a very low level among toddlers and in middle childhood and increased to intermediate levels in older children aged 15-17 years. Death rates from all causes fell across all three of the broad age groups studied. The mean infant mortality rate from all causes was 275 per 100,000 and fell from 335 to 217 per 100,000, an overall drop of 35% during 2000-2014. In children 1-14 years, the mean mortality rate from all causes was 11 per 100,000. Death rates in this age band declined during the study period from 12 to 9, an overall decrease of 26%. Death rates in older children aged 15-17 years from all causes had a mean of 21 per 100,000 and exhibited the steepest decline of the three age groups, from 27 to 15 per 100,000, representing a reduction of 44%.

![Figure 8. Total counts of childhood deaths in children under 18 years by year of death 2000-2014. External, ill-defined and unknown causes (red) and non-external causes (grey).](image)

The total absolute count of deaths from all causes among children under 18 years was 7,914: the total annual count was 562 in 2000 and fell to 439 in 2014. Each year there were an average of 134 children under 18 years (range 99-156) who died with an underlying COD recorded as external, ill-defined or unknown (Figure 8). The total over the 15-year study period was 2,006 and deaths from external and unknown causes comprised 25% of deaths from all causes.
The absolute death counts were split into six COD categories (Figure 10). Of the 2,006 external deaths, 478 (24%) were recorded as transport related, 341 (17%) as other external COD, 323 (16%) as suicide, 97 (5%) as assaults, 65 (3%) as events of undetermined intent, 381 (19%) as ill-defined, including SIDS, and 321 (16%) as incompletely documented and undocumented COD.

Total mortality rates from external, ill-defined and unknown COD in children under 18 years exhibited a mean of 6.85 per 100,000 and fell from 7.4 to 6.0 per 100,000 during the study period, which represented an overall drop of 19%.

Total mortality rates from external, ill-defined and unknown COD in children under 18 years exhibited a mean of 6.85 per 100,000 and fell from 7.4 to 6.0 per 100,000 during the study period, which represented an overall drop of 19%.
**Infants**

Annual rates of ill-defined infant deaths, including SIDS, exhibited a mean of 21.5 per 100,000 and fell 41% from 27 to 16 per 100,000. Rates of infant deaths with incompletely documented and undocumented underlying COD did not change significantly, averaging 13.5 per 100,000. The total death rates for infants due to an external COD was stable at 3.4 per 100,000 during this period.

**Children aged 1-14 years**

The mortality rate of transport-related deaths had a mean of 0.87 per 100,000 and declined 67% from 1.3 to 0.43 per 100,000 during 2000-2014. Death rates from other external causes exhibited a mean of 1.0 per 100,000, with a falling trend from 1.3 to 0.72 per 100,000. Suicides in children under 15 years remained statistically unchanged at 0.35 per 100,000 during the study period. There were few annual deaths recorded as assaults in this age band. Rates of deaths from assault remained fairly even at 0.22 per 100,000 in children aged
1-14 years during 2000-2014. Deaths from events of undetermined intent remained stable at 0.11 per 100,000. There were few children in this age group whose deaths were recorded as ill-defined.

**Children aged 15-17 years**

The mortality rates from transport-related deaths in older children, aged 15-17 years, displayed a mean of 4.7 and declined 74% from 7.8 to 2.0 per 100,000 during 2000-2014. Death rates from other external causes exhibited a statistically stable trend, with a mean of 1.65 per 100,000.

Mortality rates from suicide-related COD exhibited a statistically unchanged trend at 4.3 per 100,000 during this time period. Mortality rates from assaults in this age group remained statistically unchanged at 0.59 per 100,000. Rates of death from events of undetermined intent remained even during the study period at 0.54 per 100,000.
General discussion

Each of the four component investigations in this thesis examined aspects of the multi-sector, cross-agency community organisation and response to child maltreatment in Sweden and Europe.

Study I was based on the responses of 3,198 high-school students to a 2011 survey and 650 (20.3%) reported at least one type of maltreatment: CPA was the most frequent type of abuse (17.7%), followed by emotional abuse (10.9%). A third of the respondents who suffered CPA said that it was severe and girls reported this more frequently than boys. Girls were also more likely to report emotional abuse, multi-type maltreatment and witnessing interpersonal violence. The level of CPA disclosure to professionals who had a mandate to report it was low. Other studies have shown higher CPA disclosure rates (122, 146, 147), but they measured retrospective disclosure by young adults. Research on CSA disclosure tells us that most people do not disclose this abuse until adulthood (148) and CPA disclosure may follow this pattern.

In Study I, more than half of those who reported severe CPA had told someone about the abuse and, in agreement with the larger body of literature covering different types of abuse including CSA, this was most likely to be to a peer or sibling (36, 124, 126, 148, 149), rather than a parent or close adult relative. Only a minority of those who were severely abused disclosed their abuse to their school, CPS or law enforcement. The low rates of disclosure to professionals that we observed were consistent with previous Swedish national surveys conducted by Janson et al (41), which indicated that these rates had been stable for over a decade.

The fact that mistreated adolescents in Study I were less likely to be able to identify an adult confidant, compared to their non-abused peers, could have indicated that they lacked trust in adults. Severe types of CPA and multiple maltreatment predicted this lack of trust and there appeared to be a dose-response association with the number of types of maltreatment reported and the lack of an adult confidant.

The free-text responses revealed important findings with regard to barriers to disclosure and lack of trust in adults was a primary factor. These findings were consistent with adolescents who experienced CSA, who often doubted whether they could trust or rely upon their parents (124). One reason adolescents did not disclose abuse was because they were worried that they would not be believed, which has been well described in CSA research. Authors have reported that parents often blamed their children and reacted angrily to CSA
disclosures, particularly when the perpetrator was a family member (127). Our study also found that children didn’t tell their parents about CPA, as they were worried about upsetting them, and this has also been reported with regard to CSA (150).

Several children who had disclosed abuse to professionals felt there was a subsequent lack of effective action, primarily because the professionals did not see if from the child’s perspective and did not take their views and experiences into account. Some respondents described a general reluctance by professionals to act, sometimes due to insufficient evidence to substantiate the abuse, and others said that professional systems were unavailable to them, which inhibited their ability to disclose the abuse. Our findings may reflect the fact that many adolescents who experienced abuse lacked faith in the ability of professionals to intervene effectively, a concern that has previously been described by studies covering CSA disclosure (151, 152).

It is important to note that some adolescents reported effective professional interventions and adult support, specifically from school social workers. A key finding of Study I was that only a minority of CPA cases were brought to the attention of school staff and professionals who had a mandate to act and could intervene.

The Study I findings suggest that the dynamics of whether CPA was disclosed was broadly similar to CSA research. Our data supported the previous suggestion that being reluctant to disclose CSA may be similar to reporting other forms of childhood abuse (151). Prevention strategies should provide a comprehensive and holistic approach that facilitates disclosure of any form of maltreatment, given our increasing understanding of poly-victimisation and the knowledge that the signs and symptoms of maltreatment in childhood are often not specific to any one form of abuse. McElvaney (148) and Ungar et al (151) have both proposed multi-dimensional prevention strategies that help support formal and informal caregivers, so that they are more able to detect possible CSA cases. Our study suggests that these could be effectively expanded to include disclosure of CPA and other forms of maltreatment. Our results also support the need for programmes that raise awareness and target adolescents in general and support peers who can encourage their abused friend to approach an adult who can help them. Professionals need to address adolescents’ apparent lack of faith in the ability of professional systems to effectively intervene in the aftermath of such disclosures.

As discussed in the Introduction, the 2015 critique published by the United Nations’ Committee on the Rights of the Child called upon Sweden to “create a coherent and coordinated child protection system and to further strengthen awareness-raising and education programmes, including campaigns, with the involvement of children, in order to encourage the reporting of cases of child abuse and violence against children” (79). In addition, the Committee recommended that Sweden “provide staff in schools and institutions with regular,
ongoing training on how to detect and recognise signs of maltreatment of children” (79). The urgency of putting these recommendations into action is confirmed by the experiences of the adolescents who reported CPA in Study 1.

In Study II, we presented data on 158 cases of suspected CPA, based on characteristics that were abstracted from police records and compared them with key decisions made during the criminal investigation, namely the forensic interviews of the suspect and child, the forensic medical examination and any prosecution. The severity of the alleged abuse did not predict any of these decisions. Only around 11% of the children underwent a physical examination, half of the suspects and the children were interviewed by the police and 7% of cases were prosecuted. A forensic medical evaluation was predictive of prosecution.

We found that 41% of cases were categorised as a high level of severity and 51% as a moderate level, using a well-established international instrument (131). The results in Study II seemed to differ from the findings of Annerbäck et al (153), who examined CPA cases reported to the Swedish police and found that 12% were severe. However, comparisons with this study are difficult, because those authors defined abuse as the presence of demonstrable bodily injuries or serious threats, which restricted this category to those who had been physically examined. In contrast, our results referred to allegations of abuse and described two distinct aspects of CPA. We were surprised that the severity of the suspected abuse was not related to whether the alleged victim was physically examined, as from a health and child protection perspective this seems irrational. However, more detailed information about certain factors, such as the time from the alleged abuse to the police report, may have modified this conclusion.

The number of physical examinations carried out was low, at slightly above 10%, and the number of forensic evaluations, including written affidavits after clinical examinations and examinations conducted by a forensic physician, were even lower at less than 7%. This was concerning, especially as we found that the forensic medical evaluation was the only significant predictor for the case proceeding to prosecution. The potential value of medical findings in the criminal investigation process was highlighted in 2010 by Kaldal et al (133), who found, like our study, that forensic medical evaluations were associated with prosecutions of CPA in the Swedish Barnahus setting. Our sample did not provide any clues about why the number of medical evaluations were so low and we can only speculate about this. One possible explanation may have been limited access to expert clinicians or forensic physicians when the alleged abuse was reported. It was noteworthy in our study that forensic medical examinations were more likely to be conducted in cases where two adult caregivers were suspected, possibly because both parents were simultaneously held in police custody as suspects. However, such cases were not prosecuted any more frequently than other cases.
In 2006, when Study II was carried out, the Swedish supervisory health authorities had not published any national guidance on the clinical examination of cases of suspected CPA and that is still the case. Such guidelines would provide a cornerstone for quality improvements in Scandinavian healthcare, with regard to child abuse, and their presence would provide a common quality indicator in health systems research (154). In contrast, international guidance does exist and stresses the importance of a timely and accurate paediatric forensic evaluation (155, 156). UK guidance on the criminal investigation of CPA (155) recommended a forensic examination in most cases of alleged child abuse and these policies recognised that even a late examination can contribute important clinical and forensic information and provide the opportunity to start the therapeutic process for the child. Our findings may suggest a lack of understanding, or capacity, within the Swedish criminal justice system about the medical components of a child abuse investigation. In addition, criminal and family laws at the time of our study meant that the investigative prosecutor could not order a medical examination without the consent of a caregiver or compelling circumstances.

Our finding that none of the police reports came from healthcare providers was consistent with previously published reports on CPA (42, 157). It was also consistent with laws that limited mandated reporting by healthcare workers to CPS, whereas direct reporting to law enforcement was voluntary and the indications for such reporting were specified by the law. We found that a large proportion (41%) of the police reports originated from law enforcement being called to the scene of domestic violence and that fewer cases than we had expected (33%) were reported to the police by CPS. This suggests that future research should focus on what stops law enforcement officers who attend an incident from ensuring that children receive a prompt medical evaluation and forensic interview. It also indicated the need for training programmes for law enforcement and child protection staff, to increase their awareness and ability to develop appropriate responses to children’s experiences of early life adversity and toxic stress, as is being broadly implemented in Scotland (158).

Study II predated the establishment of the first hospital-based multidisciplinary CPTs in Sweden, in 2011 and these may facilitate the timely reporting of suspected child abuse to CPS and law enforcement. In fact, one US study (159) showed that CPTs reduced unnecessary reports through accurate and timely medical evaluations. Healthcare-based CPTs could also co-ordinate care for children who have been physical abused and could potentially provide qualified specialists to conduct timely medical evaluations and offer diagnostic and supportive services (160, 161).

Study II also preceded the widespread implementation of the Swedish Barnahus model, which aimed to co-ordinate the work of agencies mandated to investigate suspected CPA, partly by bringing together different services in child-friendly environments (4, 95). The results reported in Study II, and the
methods used to examine the key decision points during criminal investigations, may be seen as a starting point for identifying measurable quality indicators of inter-agency work, in order to combat and ultimately to prevent child maltreatment. Study II could readily be repeated in follow-up to indicate whether the organisational and programme changes implemented in the intervening period have improved the detection and intervention of suspected cases of CPA. Such research could provide important empirical data, which are currently lacking, on the effectiveness of the Barnahus model and the impact of multi-agency collaboration on child outcomes (162).

The combined results of Studies I and II suggest that – at least during the time the research was undertaken – significant barriers existed with regard to the early detection and reporting of alleged child abuse and the provision of child-friendly criminal investigations. From a children’s rights perspective, this represents a failure of systems to address child maltreatment as a public health problem. As stated in the Introduction to this thesis, in 2015 the United Nations Committee on Child Rights called on Sweden to provide a coherent and coordinated child protection system that encouraged child abuse and violence against children to be reported (79). The Committee also recommended that Sweden should provide staff in schools and institutions with regular, ongoing training on how to detect and recognise signs of child maltreatment. Sweden was also directed to ensure that children who had suffered violence and abuse had sufficient access to adequate physical and psychological care. The findings from Studies I and II may provide some guidance on which community indicators and inter-agency responses to child maltreatment should be measured and tracked, in order to underpin quality improvements that aim to fulfil the principles set out by the CRC. This may be especially timely, as the Swedish government has recommended that the CRC is incorporated into Swedish law (80).

Study III aimed to collect data, for the first time, on the context in which physicians assessed suspected child maltreatment across a large part of Europe. While all respondents to our online survey described defined multidisciplinary systems for the clinical and forensic evaluation of suspected child maltreatment, it was also evident that wide legal variations existed across, and sometimes within, countries.

Child maltreatment medicine may be distinct from other areas of clinical medicine, as it is, by its nature, embedded in the social, legal and health systems of the communities in which it is practised. This raises concerns that variations in clinical management will be greater in assessments related to concerns of abuse than in other areas of medical practice, something that has already been noted by US paediatricians in the evaluation of children for suspected abuse (163).

It is reasonable to assume that these legislative distinctions, and varying thresholds for referral to investigative and child protection agencies, result in divergent populations of children and families referred by physicians to child
protection agencies across Europe. The differences in laws that mandate reporting by professionals also pose complexities in interpreting epidemiologic studies across countries. A 2016 Australian study that examined the impact of mandatory reporting for CSA (164) found that legislation was associated with a substantial and sustained increase in identifying such abuse. Support for the introduction of legislation for mandatory reporting has increased in some countries. In 2015, England and Wales introduced legislation relating to mandatory reporting of female genital mutilation to the police by health care workers, social workers and teachers (165). Further consultation has taken place in the UK as a whole (166) with regard to mandatory reporting for other forms of abuse. In 2015, a bill was proposed by the Irish Parliament with regard to mandatory reporting by professionals of suspected child maltreatment, but this has not yet been fully put into practice (167).

The results reported in Study II reassuringly revealed that 16/22 European countries had hospital-based multi-disciplinary teams, as these have been deemed to be an effective way of ensuring timely and accurate communication between health professionals and CPS and may assist CPS in identifying cases where protection interventions are indicated (168, 169).

There has been longstanding support for the need for clinicians who care for children and their families to receive professional training in the early identification and assessment of child maltreatment (89, 170). Unfortunately, the results of Study III suggest that only a small minority of the European countries included had established systematic requirements for educating physicians about child maltreatment. Even fewer countries ensured that clinicians, other than paediatricians, received graduate medical training and continuing medical education on this area. The WHO has specifically called for European health systems to be strengthened by providing training and ensuring that clinicians possess the skills to recognise maltreatment (6).

Study III identified wide variations in the organisation and range of medical professionals involved in evaluating child maltreatment in Europe and this is worrying from the perspective of vulnerable children. Variations in legislation covering mandatory reporting presents challenges in the interpretation of transnational epidemiologic research across Europe and potentially provides a barrier to identifying effective prevention strategies that may be broadly implemented. The similarities in child protection and health and welfare legislation that exists across Scandinavian countries provide opportunities to initiate transnational collaboration. While European countries have similar social healthcare models, often with strong social support for families, it is clear that implementing procedures for managing child maltreatment cases are extremely variable. The results in Study III support the need for a more streamlined approach to identifying abuse and training physicians involved in assessing child maltreatment, with clear reporting requirements when mandatory reporting is not in place.
While European countries have similar social healthcare models, often with strong social support for families, it is clear that there are considerably variations in how they implement procedures, such as those that address child maltreatment. The European epidemiology on child abuse and neglect (Euro-CAN) initiative was launched in 2015 (171) to compare how European countries handle child maltreatment. This multidisciplinary network of scholars aims to achieve collaboration between European countries conducting research into child maltreatment, initially with representation from the UK, Ireland, Sweden and the Netherlands.

The first scientific study conducted in 2016 through Euro-CAN, of which I was a co-author (172), aimed to assess whether significant differences or similarities existed in child protection medical assessments for physical abuse between European countries and to examine the use of guidelines and clinical standards for assessing suspected maltreatment. We used a comparative vignette methodology (173, 174) to survey a cross-section of medical professionals engaged in child protection in the four countries between April and July 2016 (172). Three clinical vignettes were used to describe cases with different probabilities of physical abuse and data from 236 physicians were analysed: 113 from the UK, 49 from the Netherlands, 39 from Sweden and 35 from Ireland.

Among our key findings reported by Naughton and colleagues, was an overall lack of uniformity in the clinical management of physical abuse between the four European countries (172). National and local clinical guidelines were revealed to be important tools with regard to promoting best practice and reducing variations across, and within, countries. The findings of the vignette study appeared to confirm the Study III findings that few countries across Europe, including Sweden, provided specific and regular training to help physicians clinically manage suspected child maltreatment.

One Swedish study that used comparative vignettes to explore the attitudes of physicians and medical students to reporting possible child maltreatment revealed that respondents who were disinclined to report lacked confidence in CPS (175). Another Swedish survey of general physicians reported low levels of compliance with mandatory reporting laws and this was attributed to a lack of published guidelines and available expertise to support frontline clinicians (176). The lack of national Swedish guidelines on managing suspected child maltreatment is evident when compared to quality of care standards in other areas of healthcare practice, where national guidelines are considered to be a cornerstone of national quality improvement and patient safety initiatives (154). Programmes that have provided clinicians with training and specialisation in other clinical areas have been reported to have a positive impact on clinical decision-making and subsequent management (177, 178).

The survey of European physicians in Study III also covered how national child death reviews were organised and implemented and this revealed a lack of uniformity across Europe. Few countries had systematic procedures with
clearly stated goals that stipulated which professionals should be involved in multidisciplinary reviews. The impact that the absence of comprehensive and systematic child death reviews in Sweden has had on child mortality trends and missed opportunities for learning was the main focus of Study IV.

The National Board of Health and Welfare (NBHW) in Sweden can only legally conduct multidisciplinary child death reviews if a child’s death results in a criminal conviction and all avenues for a judicial appeal have been exhausted. The NBHW reported that fewer than five cases per year were reviewed (141). In our pilot study (110), we compared this rate with approximately 150 annual child deaths that were documented in the cause of death registry as being due to external or incompletely defined causes, but were not subject to multidisciplinary review under contemporary legislation.

Using nationwide, individual-level data from the child death register and aggregated vital statistics, we identified absolute counts and examined time trends in child mortality due to external, ill-defined and undocumented causes from 2000-2014. Our findings confirmed our hypothesis of a sustained decline in death rates due to external causes across the three age groups we analysed. The steepest drop in mortality rates (44%), occurred among 15-17 year olds and were driven by a 74% drop in transport-related mortality. While child mortality from all causes exhibited an overall robust decline, our data revealed that, on average, one in four childhood deaths were recorded using the combined categories of external, ill-defined and unknown causes. The combined overall death rates in these three categories also exhibited a significant decline during the study period.

The overall decline in death rates from external causes were due to the precipitous and sustained declines in transport-related deaths and other accidental childhood mortality. These trends have been observed by other investigators in Sweden, other Nordic countries (113, 179, 180) and other European countries (181-183). Our results indicate that Sweden remained a benchmark performer, as noted in a 2011 European study (112), with substantial declines in overall deaths from external causes. These enduring declines have been attributed to concerted efforts to reduce traffic injuries in Sweden since the 1950s, by implementing policies and legislation to increase the use of child safety restraints, develop safer road designs and improve vehicle safety (184, 185). Efforts to reduce childhood drowning accidents and improve water safety have also yielded marked declines in drowning deaths (186, 187).

Bäckström et al (180) also reported marked declines in traffic-related deaths from 1999-2012, a time period that overlapped with our current study. They noted that the mortality patterns of injured children were dominated by unintentional injuries during the early study period before moving to an equal distribution between unintentional and intentional injuries. In the Netherlands, the country with the second lowest injury-related child mortality rate (183), Gijzen et al reported an increase in suicides from 1969-2011 accompanied by steady rates of assault and abuse-related mortality during the
same period. We observed a statistically unchanged trend in child suicides during our study period, but our analysis was restricted to children under 18 years and Gijzen also included those aged 18 and 19. If we had covered a broader age and time range our results might have been different.

We observed a 41% reduction in infant mortality due to unexpected deaths, including sudden infant death syndrome (SIDS), during the study period. This decline, which has been observed in Sweden since the beginning of the 1990s, has been attributed by SIDS researchers to the introduction of recommendations that infants should sleep in a supine position (142). However, Study IV data also revealed an unexpected number of annual deaths in which death certificates were not received by the NBHW. These were recorded as ill-defined and unspecified COD, using the ICD-10 code of R99.9 (144, 145), a sub-category and extension of the code that appears to be exclusively used by the Swedish COD register (144, 145). This code was primarily recorded for neonates and infants. The apparent rise in R99.9 coded deaths was not statistically significant. As this COD was used for administrative purposes, it should be regarded as reflecting trends in coding physicians’ compliance with regulations regarding death certificate procedures and not in relation to specific causes of mortality.

Möllborg et al examined 261 sudden unexpected deaths in infancy, 135 were attributed to SIDS and 125 to sudden infant death in infancy (SUDI) in Sweden from 2005-2011 (142). They investigated the environmental circumstances associated with SIDS, using data extracted from forensic autopsies and medical records, and found that bed sharing and prone sleeping were more common in SIDS than explained SUDI. They also noted there was sparse data in the medical records and death scene investigations were not routinely conducted in these cases. Our Study IV (unpublished) data revealed that during the same time period, 2005-2011, 128 infant deaths were categorised as ICD-10 codes R99.9, in which a death certificate was not received by the NBHW. These infants would not have been referred to forensic authorities for post-mortem investigations and consequently, their deaths would not have been captured by Möllborg’s analysis. The large proportion of incompletely documented infant deaths suggests that the reported mortality rates for SIDS and SUDI in Sweden should be interpreted in light of our findings. Experience from England has demonstrated that nationally mandated interagency procedures, which were introduced to provide more effective responses to unexpected infant deaths, could be successfully implemented in a large geographical region (188). It is reasonable to assume that holding CDRs in Sweden could provide a framework for improving compliance with national recommendations on death scene investigations and thereby enhance the ability to identify cases of unexpected infant deaths in which an unsafe sleep environment may have played a role. The study by Möllborg et al suggested that a framework for improving the quality of medical records was also needed (142).
Child homicide in Sweden was examined by the authors of a 2007 study (189), who used COD register data on deaths following recorded assaults in children aged 0-14 years from 1979-2003. The investigators observed a steady decrease in the absolute numbers, which made Sweden one of the countries with the lowest incidence of child homicides. However, these researchers noted the known limitations of vital statistics in categorising intentional and non-intentional child deaths and recommended systematic interagency investigations to minimise the under-ascertainment of child abuse fatalities (189). Our data demonstrated that the number of annually recorded assault-related deaths remained low across the three broad age groups in our study and no significant trends were observed during the study period.

CDRs have been broadly implemented in the USA, England, Australia and New Zealand. There are still very few publications that precisely reveal how collected CDR data was systematically used to prevent future deaths, but some reports may suggest an effect. An Internet-based national system of reporting in the USA has now been expanded to cover over 40 states and more than 95% of all childhood deaths (108). Some US states now produce comprehensive CDR annual reports that make specific recommendations on public health directly to local communities to help them to understand, respond to and prevent child maltreatment deaths (190). In 2010, the American Academy of Pediatrics published a policy statement on child fatality reviews that defined the paediatrician’s role in collaborating on improving local death certification processes and taking part in a national reporting system (191).

It is unsatisfactory that the child death reviews conducted by the Swedish NBHW under the legislation introduced in 2008 did not include more cases (192). As early as 2001, the Swedish Committee on child abuse and related issues proposed a systematic and prospective death investigations of all violent deaths in childhood (46). The Committee, which had been commissioned by the national government to develop strategies to prevent child maltreatment, also recommended bringing in national legislation that would include investigating cases of serious injuries to children and adolescents. In October 2017, the Swedish Ministry of Health and Social Welfare published a proposal to introduce legislation that would expand the presently limited interagency investigation of certain childhood deaths (193). The proposal restricted reviews to deaths and injuries that were associated with a suspected or adjudicated crime against a child or to situations in which a child was deemed to need social protection. However, the cases to be reviewed under the proposed legislation would not include a substantial number of annual cases that were revealed in our data to be from external, ill-defined or unknown COD.
Methodological considerations

The methodological approaches used in the four studies that comprise this thesis employed a range of research strategies and designs that have a distinct set of strengths and limitations. All four studies were cross-sectional observations. None of the statistical analyses were particularly advanced and the methodologies can be described as straightforward. As each of the studies focused on an under addressed area of research, the contributions made by the data presented in this thesis may be attributed to the exploratory nature of the research.

Study I was, to our knowledge, the only investigation that had characterised the disclosure of CPA in a large, nationally representative sample of adolescents. The content analysis of the open-ended items in our survey instrument provided more detailed knowledge of the adolescents’ own experiences of the responses from adults and professionals following disclosure, as well as the factors that influenced non-disclosure.

Study I had a number of limitations that need to be considered. Even though the response rate from adolescents in the classroom (84%) may be considered high, the school participation rate (41%) was relatively low, which may have introduced selection bias. However, public schools in Sweden include students from across the spectrum of socio-economic backgrounds. We compared the study population with the national demographics of Swedish 15-year-olds in 2011, according to Statistics Sweden. This showed that background factors, such as foreign-born status, living together with both parents and the employment rates of parents aged 35-54 years, was representative of the wider population. Another potential limitation of the study design was that we did not capture data from the most vulnerable groups of children, such as those that were institutionalised, severely disabled or had long-term exclusions due to behavioural problems. It is reasonable to assume that the reported rates of maltreatment would have been somewhat higher if we had included these high-risk groups.

The complete spectrum of child maltreatment was not investigated in Study I, as CSA was not included and severe emotional neglect was only covered in the survey. When we measured the disclosure rates, and who the victims chose to confide in, we only focused on severe CPA, namely repeated and, or, harsh forms of abuse, as disclosure may not have been relevant for adolescents who had experienced mild corporal punishment once or twice during their lifetime. We also know from our earlier studies that children who report severe CPA are much more likely to be exposed to other forms of maltreatment. Consequently, selecting this rather small group limited the analyses due to weaker statistical power.
The response alternatives to the question on disclosure were limited, specifically with regard to disclosing the abuse to professionals, as it did not distinguish between the various professions, such as school staff, CPS or law enforcement, and health professionals were not included.

Study I relied on retrospective self-reports from adolescents as this carried the risk for recall bias, including underreporting of events when they were very young. However, investigators have suggested that when it comes to disclosure, adolescents who are recruited from the general population tend to be more accurate than adults who provide retrospective reports (124). Recall bias is reduced as the period since the abuse is shorter and surveying children and young people may therefore be seen as a strength of this study.

One of the main findings of Study I was the association between reporting severe CPA and lack of trust in adults. The survey item asked if the respondent could identify an adult they could confide in and we interpreted the lack of an adult confidant as a proxy for lack of trust, even though we could not be certain that this was the reason. However, the content analysis of the open-text items, which used manifest content to limit over interpretation, did provide some reassurance that this was a reasonable assumption, as the main barrier to disclosure was indeed reported to be lack of trust. In some instances, using mixed methods enabled us to better triangulate the constructs and suggested satisfactory construct validity.

Even though the free-text responses helped us to understand why some maltreated adolescents did not disclose their abuse, and the support that those who did actually received, using a questionnaire was a somewhat limited way to collect qualitative data, as there was no opportunity to interact with the participants. Other qualitative methodologies, such as in-depth interviews or focus groups with maltreated children, could have provided a deeper understanding of the phenomena.

Study II relied on data that were retrospectively collected from police records, which varied in quality and completeness. This study was also subject to the general limitations that are inherent with the use of retrospective case review methodology.

However, one of the strengths of this method was the fact that the preliminary criminal investigations were led by prosecutors from the same national prosecutorial authority if there was a suspicion that a child under 15 had been abused. All formal forensic investigations with children are conducted by employees of the national police authority which trains its child forensic interviewers to use the same interview method (194).

The two police districts that provided case data for Study II may not have been representative of criminal investigations in Sweden and this could limit the generalizability of the results. We examined official statistics and noted that these two police districts covered 29% of Stockholm County’s total population and each district had the same proportion of children as Sweden as a whole. The socio-economic indicators of the smaller district were quite similar.
to Stockholm County in general, with higher income and a lower number of welfare recipients than in the general Swedish population. The second district was heterogeneous: just over half of the area was similar to the first district, but it also included two areas with specific characteristics. A quarter of the district was characterized by low incomes and a high number of welfare recipients and non-European immigrants, while a fifth of the district had the opposite characteristics.

Our study found that low numbers of children were referred for medical or forensic medical evaluation, but there was no information on how much time had elapsed between the last alleged assault and when the case was reported to the police. These time parameters may have provided information on whether carrying out a timely physical examination or forensic interview would have provided compelling medical or forensic indications.

The concept of the severity of the abuse was not used uniformly across Study I and Study II, although they were both conceptually based on the Conflict Tactics Scales (CTS), which have been widely validated in Swedish populations (41, 131). Study I defined severe CPA as repeated physical abuse and, or, severe forms of abuse, such as being hit hard with a fist or object, kicked, burned or scalded with hot liquids or grabbed by the throat. This conceptualization showed stability in the serial surveys of Swedish adolescents by two research groups, suggesting an acceptable level of validity. For the purposes of Study II, we used an eight-item CTS ordinal scale and applied the scoring to the narrative reports from the preliminary police investigations. In order to mitigate the known pitfalls of inter-rater reliability commonly associated with the analysis of case records (195), we initially tested the CTS categorisation on a randomly-selected subset of cases and only proceeded with coding when we had a satisfactory intra-class correlation calculation. However, the fact that this categorisation had not previously been applied to police records suggests that our results should be interpreted with due caution.

Finally, since Study II was conducted with police files from 2006 and was cross-sectional in nature, the shifting dynamics of cases that are reported to the police should be taken into account. For example, in 2014 the Swedish National Board of Health and Welfare introduced regulations that compelled child protection authorities to launch immediate investigations of any suspected cases of child physical abuse (196). This regulatory environment may have had an impact on the mix of cases referred to criminal investigation authorities. Nonetheless, as our investigation was the result of a collaboration between authors with paediatric, legal and child psychiatry expertise, it is reasonable to assume that the face validity of the methodology employed would have been enhanced and may be usefully replicated.

Study III used purposeful sampling to identify eligible informants, namely physicians with expertise and a clinical interest in child maltreatment and actively engaged in the field. Eligible physicians were identified through personal contacts and professional societies, web-based recruitment and snowball
sampling. Purposeful sampling is a technique that is widely used in qualitative research to identify and select information-rich cases for the most effective use of limited resources (197). The strategy to identify and select individuals with particular knowledge and experience in child abuse medicine was undertaken as a result of our a priori determination based on our familiarity in the field. We felt that a survey based exclusively on professional organisations, such as paediatric societies, would not yield sufficient representation across European countries. A probabilistic or random sampling of paediatricians and frontline clinicians could have been another potential strategy that would have minimised the potential for selection bias, ensured generalisability of the survey and enhanced control for the potential influence of known and unknown confounders. However, such surveys are costly and we reasoned that sampling was justified, given the paucity of knowledge about the paediatric approaches to child maltreatment. European surveys on models of paediatric care, and those using a much larger number of potential respondents, have relied on the strategic use of key informants (198, 199).

A response rate could not be determined as the request was sent to specified individuals and for wider distribution via professional organisations. In addition, the denominator of physicians engaged in child maltreatment was undefined, as countries and professional organisations do not hold registers of physicians practising in the child maltreatment field. While we are aware that low response rates to physician surveys frequently hamper the generalisability of results (200), research has demonstrated that, as a group, they are more homogeneous with regard to knowledge, training, attitudes and behaviour than the general population (201). It has, therefore, been argued that any variations that do exist among physicians may not be as associated with the same willingness to respond or survey content as in the general population. We were unable to reach respondents in all the targeted countries with this survey and the number of responders was unevenly distributed in the represented countries. As a result, the findings should be regarded as a snapshot from the 2012-2013 study period and the results should be interpreted with due caution.

The Study III questionnaire was exclusively available in English, which may have been a barrier for some eligible recipients. In addition, we have no way of assessing whether or not the respondents were fully representative of their countries. Sometimes the responses from individuals within the same country varied or contradicted each other and this was most likely to reflect local variations in practice and the lack of national policies guiding practice in this area. Variations in paediatric training and approaches to primary care across, and within, European countries have been observed in much broader areas of practice (199). The data collected from physicians involved in assessing suspected child maltreatment across a large part of Europe was still novel and represented a strength of Study III, despite the simple, descriptive and the cross-sectional method employed,
The main strength of Study IV was that we analysed individual-level data from a high-quality national population-based cause of death (COD) register (144) that covered a relatively long period of 15 years. The cross-sectional, retrospective nature of the study, and the lack of linkage to other registers, limited the analysis to a descriptive nature. However, the study design was arguably sufficient to test our hypothesis, given that the overall aim of this study was to characterise trends and incidences of childhood death rates in which modifiable factors may be elicited through interagency reviews. Due to the low incidence rates in the narrow sub-categories, we chose to restrict the analysis to three broad age bands, but not sex, as the absolute counts were insufficient to meaningfully calculate these trends. Therefore, our simplified analysis may have masked underlying trends by not analysing, for example, neonatal and post-neonatal infant deaths, patterns among preschool and school age children and sex differences in mortality. In some COD categories, such as assault-related deaths, the small number of annually recorded deaths across the ages may appear as large year-to-year rate variations. The aggregated data that were publicly available online from Statistics Sweden showed slight discrepancies in absolute counts of cases from the individual-level data provided by the COD register. This may have been because the COD register was updated retroactively, as occasionally new documentation was received by the National Board of Health and Welfare. Our results, especially the data regarding rare categories of deaths, should therefore be interpreted with caution.

The need for a broad legislative framework

A broad legislative agenda is required if Sweden is to comply with the recommendations put forward by the UN Committee on the Rights of the Child in 2015 and respond to the challenge set out by the WHO European child maltreatment prevention action plan of 2015-2020 (7, 79). The findings of the four sub-studies that comprise this thesis support the need for a framework that breaks down barriers so that children can disclose maltreatment and receive supportive services and receive high-quality and timely medical evaluations for suspected CPA. This framework would also need to ensure that health professionals who care for children receive training programmes, updated evidence-based guidelines and support from specialists to enable them to provide care for maltreated children. Finally, the framework should broaden the scope of systematic, inter-agency death reviews to include all childhood deaths from external, unknown and ill-defined causes.

The Every Child Matters legislative framework established in the UK under the Children Act 2004 (103) is of particular interest because of the comprehensive nature of its broad statutory mandate for integrating multi-sectoral services for children. This legislation was introduced in 2004, following an Inquiry into the tragic death of Victoria Climbié (102). The UK Government
subsequently released *Working Together to Safeguard Children*, which provides regularly updated policies and guidance for inter-agency working to protect and promote the welfare of children. Local inter-agency panels have reviewed every child death in England since 2008, in accordance with the Safeguarding guidance, which specifies the various roles of collaborating agencies (202). In addition, England has a national mandate for multi-agency, prospective rapid-response investigations of all unexpected deaths in children (108). Under the umbrella of this legislation and guidance, the UK Royal College of Paediatrics and Child Health published an intercollegiate document that stipulated the multi-level roles and competences that all doctors who see children in their practice must achieve (97, 203). The College also introduced good practice recommendations on paediatric peer reviews in safeguarding (204), as well as updated practice guidelines to support child protection processes across the whole range of medical and social interactions (205). These achievements in the UK should at least prompt policy makers in Sweden to examine the model set out by the *Children Act 2004* as a set of best practice processes, as some of these could be implemented nationally.
Conclusions

The results of the four component sub-studies of this thesis suggest that the Swedish health sector is insufficiently organised, with no clear mandate to robustly combat child maltreatment, and that this may undermine the ability of society to adequately protect children. The wide organisational variations that we observed in paediatric approaches to child maltreatment across Europe may indicate that the health sector has not sufficiently adapted to be able to respond to the call by WHO for health systems to coordinate inter-sectoral efforts to address child maltreatment as a public health problem.

- Only a minority of reported CPA was brought to the attention of professionals, and the most prominent barrier to disclosure reported by adolescents with experience of maltreatment was lack of trust in adults or authorities.
- Our study of suspected child abuse cases reported to the police, where the suspect was a household member, revealed that few children underwent medical evaluations and that there were also low rates of forensic interviews of suspects and alleged child victims and prosecutions.
- Wide variations exist in Europe with regard to the organisation and range of professionals involved in medically evaluating suspected child maltreatment. Variations in mandatory reporting legislation presents challenges in interpreting transnational epidemiologic research from European countries and this is a potential barrier to identifying effective prevention strategies that can be broadly implemented.
- We reported a sustained decline in childhood deaths suggesting that Sweden has retained its position as a benchmark performer in Europe. A considerable number of child deaths occurred each year where systematic, interagency child death reviews would probably have identified modifiable factors to inform prevention initiatives as well as address potential inaccuracies to improve death certification processes.
There is an urgent need for a concerted systems approach to child maltreatment as a public health problem which harnesses knowledge across disciplines and sectors using common metrics and works toward shared child outcomes. Benchmarking measures should be developed and applied to interagency procedures related to child abuse investigations, such as are conducted by multidisciplinary teams at Barnahus. These should build on the principles of continuous quality improvement used by health systems. Common improvement strategies should be identified across collaborating agencies, marked by accountability in all partner organisations in order to achieve these collective standards.

Lawmakers and regulatory bodies should address the ongoing need for hands-on, community-based prevention programmes that develop strategies to address the underreporting of child maltreatment, by engaging peers, parents and other adults, as well as professionals who work with children.

Supervisory national health authorities should ensure that evidence-based guidance is available to support the medical evaluation and management of cases of suspected CPA. Furthermore, our results suggest a need for policies that support timely, high-quality and child-centred medical examinations and supportive interventions offered in cases of alleged CPA.

Supervisory authorities across national, regional and local government should ensure that professionals in schools, healthcare, CPS and law enforcement are aware that maltreated adolescents feel they do not see the young person’s perspective when they handle cases of mistreatment.

Our data supports the need for Sweden to bring in national legislation that broadens the scope of systematic, interagency child death review processes to better understand how children die, and to effectively promote data-driven prevention strategies.

A comprehensive and standardised European child death review process would enhance international collaboration on child mortality prevention and child health, and would ensure that inter-country comparisons can be reliably conducted. As a benchmark child mortality performer, Sweden has the responsibility to provide detailed scholarly analysis of the rich data collected on its citizens, in partnership with researchers in other countries, so that other countries can understand its achievements in reducing child deaths.
Future research

- Additional research is needed to discover whether important social background risk factors for child mortality remain in a social welfare country like Sweden. An approach that uses case-control methodology and that analyses socioeconomic variables obtained from nationwide registers should be undertaken to further identify and define modifiable factors.

- A follow-up study of police-reported cases of suspected CPA should be conducted to indicate whether the organisational and programme changes implemented in the intervening period since Study II was conducted have improved with regard to quality measures such as the proportion of alleged victims who are medically examined and forensically interviewed.

- The WHO wants to see stronger European health systems that provide training and ensure that healthcare professionals possess the skills to recognise child maltreatment. Moreover, the WHO child maltreatment prevention action plan states that few countries regularly collect reliable information on the prevalence of child maltreatment and other adverse childhood experiences.
  - In agreement with the WHO recommendations, there is an urgent need to develop and implement robust standardised data collection tools with minimum datasets to manage suspected child maltreatment cases in healthcare settings. The European epidemiology on child abuse and neglect (Euro-CAN) initiative was established in 2015, with the aim of achieving multidisciplinary collaboration between European countries conducting research into child maltreatment.
  - Establishing internationally agreed upon, validated and standardised indicators of quality of care for child protection is an urgent requirement.
  - There is an ongoing need to expand our understanding of how child abuse medicine is practised in European countries, including whether specific and regular training, which is guided by professional development plans, is systematically incorporated into physician appraisals.
• We also need to develop an evidence base for the effectiveness of European multi-disciplinary models of inter-agency collaboration on child maltreatment, such as the Nordic Barnahus model and healthcare-based multidisciplinary teams.
Summary in Swedish

Sammanfattning på svenska

Bakgrund
Misshandel och omsorgsvikt av barn är ett betydande globalt folkhälsoproblem. Den föreliggande avhandlingen behandlar olika aspekter av multiprofessionellt omhändertagande av barnmisshandel i Sverige och i Europa.

Målsättningarna har varit:
Att undersöka hur fysisk misshandel av barn avslöjas och hur ungdomar uppfattar vuxenstöd när de har berättat om sin utsatthet.

Att undersöka hur polisrapporterade fall av misstänkt barnmisshandel var relaterade till straffrättsliga förfaranden såsom läkarundersökningar, begärda rättsintyg och åtalsfrekvens.

Att bedöma hur barnläkare som möter misshandlade barn i Europa är organiserade vad gäller vård och utredning av fall där barn misstänkts vara utsatta för misshandel övergrepp eller försummelse.

Att undersöka tidstrender för antalet oklara dödsfall i Sverige, vilkas dödsorsak registrerats som externa, odefinierade och okända i perioden 2000 till 2014.

Metoder
Vi analyserade data från en skolbaserad nationell undersökning av ungdomar, polisregister över rapporterad misstänkt barnmisshandel i ett storstadsområde, en riktad undersökning till europeiska barnläkare samt analyser på individnivå från det svenska dödsorsaksregistret. Vi använde kvantitativa metoder för att beräkna förekomst med beskrivande statistik, odds ratio, logistisk regression samt tidstrender för mortalitet. Kvalitativa metoder bestod av innehållsanalys och narrativ syntes.
Resultat

Endast en minoritet av fallen där ungdomar har varit utsatta för misshandel hade kommit till de professionellas kännedom och det mest framträdande hindret för avslöjande var ungdomarnas bristande förtroende för vuxna och för myndigheter.

De polisanmälda fallen av misstänkt barnmisshandel präglades av hög allvarlighetsgrad, men endast 11% av de 158 påstådda barnoffren genomgick läkar- eller rättsmedicinsk undersökning och endast hälften av målsägandena var hörda av polisen.

Samtliga 88 svarande barnläkarna i sammanlagt 22 europeiska länder beskrev tvärvetenskapligt engagemang i det medicinska omhändertagandet av miss- tänkt barnmisshandel, men stora variationer i de organisatoriska tillvägagångssätten avslöjades.

En fortsatt minskning av dödsfall hos barn till följd av yttre orsaker under en 15-årsperiod observerades. Ett stort antal dödsfall bland spådbarn registrerades varje år som oklara eller med ofullständig dokumentation eller med uteblivet dödsorsaksintyg.

Slutsatser

Resultaten som presenteras i denna avhandling tyder på att det multiprofessionella omhändertagandet av barnmisshandel i Sverige och Europa är otillräckligt organiserat, med avsaknad av tydliga mandat för hälso- och sjukvården för att effektivt bekämpa barnmisshandel och omsorgssvikt. Detta kan försvåra samhällets förmåga att på ett adekvat sätt skydda utsatta barn.
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