

# Medical and Psychological Methods for Preventing Sexual Offences Against Children

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A Systematic Review

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Swedish Council on Health Technology Assessment

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# Medical and Psychological Methods for Preventing Sexual Offences Against Children

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## A Systematic Review

### Project Group

Pia Enebrink	Niklas Långström
Elisabeth Gustafsson (Project Assistant)	(Chair) Mikael Rahmqvist
Eva-Marie Laurén	Sophie Werkö
Jonas Lindblom (Assistant Project Director)	(Project Director)

### Adjunct Expert Adviser

R Karl Hanson

### Scientific Reviewers

Bengt-Åke Armelius    Franca Cortoni  
Elizabeth Letourneau

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# SBU's Summary and Conclusions

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# SBU's summary and conclusions

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The primary goal in treating individuals at risk of committing sexual offences against children is to prevent more children from becoming victims. Few crimes are considered to be as repugnant as sexual offences against children, and society highly values every offence that can be prevented. However, relatively little interest has been directed at research intended to identify which medical and psychological interventions that actually prevent individuals at risk and known perpetrators from committing sexual offences.

The Swedish government assigned SBU to assess the effects of methods used to treat people who have committed, or are at risk of committing, sexual offences against children. Concurrently, the Swedish National Board of Health and Welfare was assigned to survey the use of such treatments in Sweden.

This systematic literature review scrutinises the scientific evidence for preventive medical and psychological interventions directed at offenders. We identified major weaknesses in the scientific evidence, eg regarding the largest category of offenders; adult males. In the absence of findings from reliable research, a reasonable treatment and follow-up strategy might be to reduce sex crime-specific risk factors, eg sexual preoccupation, in offenders having the highest risk of recidivism.

## SBU's conclusions

- ❑ Major deficiencies were found in the evidence concerning effective medical and psychological interventions for individuals that have committed sexual offences against children. This is serious, since the purpose of this treatment is to prevent new offences. Better research is necessary – primarily controlled studies that are sufficiently large and include several countries. Such research is parti-

cularly important in light of the *Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse*.

- ❑ For adults that have committed sexual offences against children, the scientific evidence is insufficient for determining which treatments that could reduce sexual reoffending. The lack of evidence concerns both benefits and risks with pharmacotherapy and psychological treatment programmes. Sufficiently large studies of high methodological quality are essential to remedy this.
- ❑ Concerning adolescents that have committed sexual offences against children, limited scientific evidence suggests that multisystemic therapy (MST) prevents recidivism. This intervention is based on a combination of systemic family therapy, social learning theory, and social ecological theory. Possible effects of other treatment methods could not be appraised.
- ❑ As regards children with sexual behavioural problems (SBP) directed at other children, the scientific evidence is insufficient to draw conclusions about if cognitive behavioural therapy (CBT) could decrease the risk for future sexual offending. Likewise, the effects of other treatment methods could not be appraised.
- ❑ For adults and adolescents that have not committed sexual offences against children, but are at higher risk (eg individuals with sexual attraction to children), there is a lack of research on possible effects of preventive methods. Hence, it is important to develop effective interventions.

## **Background and aim**

In 2007, Sweden had 2 014 reported cases of suspected sexual coercion, attempted rape, or rape of children under 15 years of age. An additional 1 530 cases categorised as other sexual offences were reported. Swedish surveys indicate that 7 to 14% of girls and 3 to 6% of boys report forced intercourse before 18 years of age. Only about 10% of all sex crimes are

reported to the authorities, and this figure might be even lower when the victims are children.

Most child victims of sexual abuse are molested by someone close to them, often a friend or close relative. The perpetrators of sexual offences against children are usually adult or adolescent men, and many have, or have had, concurrent sexual relations with adults. Offenders' risk factor profiles, motives, and treatment needs vary. Many have grown up under adverse conditions and may exhibit sexual behaviour problems already at a young age. Most offenders do not have a criminal record, and very few have been convicted of sex crimes previously. The primary aim of this report is to assess the effects of preventive methods aimed at either identified perpetrators of sexual offences against children or at people who are at risk of committing sexual offences against children.

The Swedish Prison and Probation Service currently offers a manual-based treatment programme to prevent recidivism among sex offenders. Treatment is based on the principles of cognitive behavioural therapy (CBT) and focuses on problems in relationships and cohabitation. It aims at lowering the impact of risk factors driving sexual offences, eg by changing frequently distorted views towards sexuality and reducing sexual preoccupation and easily triggered aggressiveness. The Swedish Prison and Probation Service seldom uses testosterone-inhibiting drugs in sex offender treatment, they are more common in forensic psychiatry.

This report aims to investigate the scientific evidence addressing the following questions:

- How effective are treatment methods targeting adults and adolescents who have committed sexual offences against children in preventing sexual reoffending?
- How effective are preventive methods targeting adults and adolescents at risk of committing sexual offences against children?
- How effective are treatment methods targeting children with sexual behaviour problems (SBP) in preventing future sexual offending?

- What ethical and social aspects are associated with methods used to prevent sexual offences against children?
- Are treatment or preventive methods cost effective?

## **Methods**

This systematic literature review complies with SBU's meticulous methodology. We search several scientific literature databases for published studies relevant to the research questions. The project group then uses predetermined quality criteria to select the studies to be included in the assessment. Every study used in formulating SBU's conclusions has been appraised for quality, and specially designed tables are used to present core information.

The review includes an appraisal of the relevance and methodological quality of the studies – study design, internal validity (reasonable protection against systematic error), analysis of results, statistical power, and generalisability. SBU grades the findings on the strength of the scientific evidence (Facts 1).

## **Facts 1** Study quality and strenght of the evidence.

**Study quality** refers to the scientific quality of an individual study and its capacity to answer a specific question in a reliable way.

**Evidence grade** refers to the appraised strength of the collective body of scientific evidence and its capacity to answer a specific question in a reliable way. SBU uses an international evidence grading system called GRADE. Study design is the primary factor considered in the overall appraisal of each outcome measure. Secondary factors that can increase or decrease the strength of the evidence include: risk of bias, inconsistency, indirectness, effect size, data precision, risk of publication bias, and other aspects, eg the dose-response relationship.

Evidence grades – four levels

**Strong scientific evidence (⊕⊕⊕⊕).** Based on high or moderate quality studies with no factors that weaken the overall assessment.

**Moderately strong scientific evidence (⊕⊕⊕○).** Based on high or moderate quality studies with isolated factors that weaken the overall assessment.

**Limited scientific evidence (⊕⊕○○).** Based on high or moderate quality studies having factors that weaken the overall assessment.

**Insufficient scientific evidence (⊕○○○).** Scientific evidence is deemed insufficient when scientific findings are absent, the quality of available studies is low, or studies of similar quality present conflicting findings.

The stronger the evidence, the lower the likelihood that new research findings would affect the documented results within the foreseeable future.

### **Conclusions**

SBU's conclusions present an overall assessment of benefits, risks, and cost effectiveness.

## **Evidence-graded results**

### **Interventions for adults who have committed, or are at risk of committing, sexual offences against children**

- The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) with relapse prevention is effective at reducing sexual reoffending among adult child molesters (⊕○○○).
- No scientific evidence is available to determine if psychological interventions other than CBT or pharmacological treatment reduce sexual reoffending among adult child molesters (lack of studies).
- No scientific evidence is available to determine if either psychological or pharmacological treatment modalities can prevent sexual offending among adults who have not sexually abused a child, but are at risk of doing so (lack of studies).

### **Interventions for adolescents who have committed, or are at risk of committing, sexual offences against children**

- Limited scientific evidence suggests that multisystemic therapy (MST), a community-based programme based on systemic family theory and social learning theory, may be effective in preventing sexual reoffending among medium-risk adolescent sex offenders (⊕⊕○○).
- The scientific evidence is insufficient to determine if cognitive behavioural therapy is effective at preventing sexual reoffending among medium-risk adolescent sex offenders (⊕○○○).
- No scientific evidence is available to determine the effect of CBT on sexual reoffending among adolescent sex offenders with low or high recidivism risk (lack of studies).
- No scientific evidence is available to determine the effectiveness of other methods (psychological or pharmacological) aimed at preventing sexual reoffending in adolescent sex offenders (lack of studies).

- There is no scientific evidence to determine the effectiveness of methods aimed at preventing sexual offending in at-risk adolescents who have not sexually abused a child, but are at risk of doing so (lack of studies).

### **Interventions for children with sexual behaviour problems**

- The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) combined with parental support is more effective than standard treatment in preventing sexual offending among children with sexual behaviour problems (SBP) (⊕○○○).
- No scientific evidence is available to determine the effectiveness of other preventive interventions for children with sexual behaviour problems (lack of studies).

### **Health economics**

- The scientific evidence is insufficient to determine the cost effectiveness or socioeconomic consequences of psychological or pharmacological treatment of adult child molesters (⊕○○○).
- The evidence is insufficient regarding health economic studies on treating adolescent sex offenders or children with sexual behaviour problems (SBP). This also applies to people that have not committed, but are at risk of committing, sexual offences against children (lack of studies).

**Table 1** Summary of findings regarding offender-oriented interventions aimed at reducing sexual offending against children.

Outcome	No of participants (no of studies & study design)	Results (95% CI)	Event rate in control group	Quality of evidence
<i>Effects of cognitive behavioural therapy (CBT) with or without relapse prevention among adult sex offenders against children</i>				
Sexual reoffence (medium-risk offenders, 5 years follow-up)	484 (1 RCT)	RR 1.10 (0.78; 1.56)	20%	⊕○○○
Sexual reoffence (lower-risk offenders, 3–5 years follow-up)	362 (3 OBS)	RR 0.23 (0.03; 2.01) RR 0.09 (0.01; 0.74) RR 1.03 (0.15; 6.92)	5% 16% 5%	⊕○○○
Sexual reoffence (higher-risk offenders, 5 years follow-up)	114 (1 OBS)	RR 0.44 (0.19; 0.98)	28%	⊕○○○
<i>Effects of multisystemic therapy (MST) and cognitive behavioural therapy (CBT) in adolescents that have committed sexual offences against children</i>				
Sexual reoffence (9 years follow-up)	48 (1 RCT)	RR 0.18 (0.04; 0.73)	46%	⊕⊕○○
Sexual reoffence (16 years follow-up)	148 (1 OBS)	RR 0.41 (0.16; 1.03)	21%	⊕○○○
<i>Effects of cognitive behavioural therapy (CBT) in children with sexual behavioural problems (SBP) targeted against other children.</i>				
Sexual reoffence (10 years follow-up)	135 (1 RCT)	RR 0.16 (0.02; 1.25)	10%	⊕○○○

CI = Confidence interval; OBS = Observational study; RCT = Randomised controlled trial;  
RR = Relative risk

**Table 2** Summary of the evidence regarding offender-oriented interventions aimed at reducing sexual offending against children. The table specifies the basis for rating the evidence. A zero indicates no reason to criticise this point. A minus sign indicates that the issue was indeterminable. A minus sign and question mark indicates some deficiencies, but not great enough to lower the quality of the evidence. Minus 1 indicates deficiencies that lower the quality of the evidence. However, it was not possible to achieve an overall evidence grade above ⊕⊕⊕⊕ (strong scientific evidence), or total evidence grade below ⊕○○○ (insufficient scientific evidence).

Outcome	No of participants (no of studies)	Study type	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Effect size	Quality of evidence
<i>Effects of cognitive behavioural therapy (CBT) with or without relapse prevention among adult sex offenders against children</i>									
Sexual reoffence (medium-risk offenders, 5 years follow-up)	484 (1)	RCT ⊕⊕⊕⊕	0	–	–1	–2	0	0	⊕○○○
Sexual reoffence (lower-risk offenders, 3–5 years follow-up)	362 (3)	OBS ⊕⊕○○	–1	0	0	–1	0	0	⊕○○○
Sexual reoffence (higher-risk offenders, 5 years follow-up)	114 (1)	⊕⊕○○	–1	–	–1	–1	0	0	⊕○○○
<i>Effects of multisystemic therapy (MST) and cognitive behavioural therapy (CBT) among adolescents that have committed sexual offences against children</i>									
Sexual reoffence (9 years follow-up)	48 (1)	RCT ⊕⊕⊕⊕	0	–	–1	–1	–?	0	⊕⊕○○
Sexual reoffence (16 years follow-up)	148 (1)	OBS ⊕⊕○○	–1	–	–1	–1	0	0	⊕○○○
<i>Effects of cognitive behavioural therapy (CBT) in children with sexual behaviour problems (SBP) targeted against other children</i>									
Sexual reoffence (10 years follow-up)	135 (1)	RCT ⊕⊕⊕⊕	0	–	–1	–2	0	0	⊕○○○

OBS = Observational study; RCT = Randomised controlled trial

## **Concluding discussion**

### **Persons who have committed, or are at risk of committing, sexual offences against children**

#### **Sexual offences against children – a difficult-to-research topic**

Despite severe consequences for victims and society, we found remarkably little research of acceptable quality and methodology that addressed prevention of sexual offences against children. It is difficult to conduct research on the effects of crime prevention initiatives. The ideal study design is the randomised controlled trial (RCT), where offenders or people at higher risk of becoming offenders are randomly assigned to either a treatment group (ie the studied intervention) or a control group (eg another intervention or no treatment). The advantage of this study design is that all potential differences between the groups at the outset of the study should depend on chance alone; and if the groups are sufficiently large we can assume that they are more or less identical. Hence, we can be relatively certain that an observed difference in outcome between the two groups is due to the intervention and no pre-existing differences. This study design is seldom used in crime prevention research, mainly because of practical and ethical reasons. Instead, observational studies are conducted. In observational studies, the offenders or those at higher risk are assigned to treatment and control groups by other means than by randomisation. If the distribution is based on, eg the treatment motivation of the participants, an imbalance arises between the groups. This could contribute to an observed difference in the recidivism risk between the groups. Consequently, we cannot be certain that a difference in re-offending is a result of the treatment. Using statistical methods – assuming we have sufficiently detailed information about the offenders in the study – we can adjust for possible baseline differences between the groups. But since the differences between the groups cannot be attributed to chance, we can never be completely certain that the results are not due to some unmeasured, and perhaps unknown, risk factor that is more common in one of the groups.

## **Adults that commit sexual offences against children**

Adult men account for over 70% of all sexual abuse against children reported to the police or that leads to prosecution. Only one randomised controlled trial investigated the effects of treatment on sexual reoffending by adult perpetrators of sexual offences against children. Treatment involved psychotherapy and was based on cognitive behavioural therapy (CBT) and relapse prevention. The study could not verify any effect from treatment. This finding should not, however, be interpreted as evidence that the method is without effects. Although this study is by far the largest of those included in our review, it was too small to statistically secure any potential effect of treatment. And since the sex offenders in the study were found to be at medium risk of reoffending, we cannot rule out the possibility that the method has effects on preventing recidivism in offenders at higher risk of relapse. It is also possible that variations of CBT, other than those studied in the trial, might have preventive effects. In addition to the randomised trial, four observational studies were included in the scientific evidence on treating adult offenders. Concurrently, the effects of different variations of CBT were addressed. However, these studies had deficiencies that rule out the potential for drawing reliable conclusions about treatment effects. No studies of sufficient quality addressed other psychological or pharmacological interventions.

It is relatively uncommon for adult females to commit sexual offences against children, although it does happen. No studies addressed the effect of treatment of females who sexually offend against children.

In this field, it is seldom acknowledged that psychotherapeutic interventions, like pharmaceuticals, might have serious side effects. Under certain circumstances, in some subjects and with certain interventions, those who receive treatment might have a higher risk of sexual reoffending than those who are not treated. For instance, prolonged or intense interventions for offenders with low relapse risk or motivation, or grouping low-risk offenders with those at high risk for recidivism, could result in negative and undesirable outcomes.

## **Adolescents that commit sexual offences against children**

Adolescents commit 20 to 30% of all reported cases of sexual abuse against children. Adolescent perpetrators of sexual offences often have other problems, such as adaptation problems in school, other criminality, and substance misuse. Despite the elevated risk, sexually abusive behaviour in adolescents seldom continues into adulthood. The scientific evidence on the potential effects of treatment are somewhat better for adolescents that commit sexual offences against children than for their adult counterparts. The evidence includes a randomised controlled trial and an observational study of acceptable quality. The randomised trial investigated the effects of multisystemic therapy (MST), a community-based programme based on social learning, and social ecological theory and using systematic family therapy. The observational study used CBT and structured family therapy as its main components. Deficiencies in the observational study did not enable conclusions to be drawn. Although the randomised trial was small, it provides limited scientific evidence that MST can be used to reduce sexual reoffending among adolescents that have sexually abused children.

Although more research is necessary to identify the most effective treatment methods, it is probable that early intervention in young sex offenders contributes towards reducing the number of future victims. Nevertheless, psychological interventions carry a risk for side effects, which is especially important to consider when treating young people. For instance, some data suggest that group therapy, particularly in an institutional setting, might increase the risk of recidivism in young offenders.

## **Children with sexual behaviour problems directed at other children**

Sometimes, it can be difficult to determine exactly where to draw the line between a child's natural sexual curiosity and sexual abuse. At certain ages, transient, unassertive touching of body parts, including genitalia and breasts, and interest in sexuality and sexual play could often be perceived as normal. However, such behaviour must not harm – emotionally or physically – the children involved. Children exhibiting exaggerated, sexualised behaviour towards others should raise concern, particularly if this is combined with aggressive behaviour. In some cases, these sexual

behaviour problems continue into adolescence and adulthood, and might be expressed in sexual abuse of children or adults. Because of this, and the repudiation of children with such sexual behaviour problems (SBP) against other children, it is essential to develop effective developmentally adapted therapies for these children. Children that act out sexually might have been subjected to psychological, physical, or sexual abuse themselves, or live in socially vulnerable environments with inadequate adult support. It might be that these children have developmental disabilities or neuropsychiatric functional impairments. If so, special initiatives could be needed to investigate and address possible underlying or contributing problems.

Only one randomised controlled trial addressed the effects of treatment in children with SBP. This trial randomised the children to either cognitive behaviour therapy or group play therapy. Play therapy is an example of psychological treatments that is offered to children in Sweden. Also, both interventions were combined with parental support programmes. After treatment, the children were monitored for reported sexual offences during a 10-year period. Of the children treated with play therapy, 10% committed a sexual offence during follow-up compared to only 2% among those receiving CBT. The study was well executed, but too small, and the results not statistically significant. Hence, our findings suggest that the scientific evidence is insufficient to determine if CBT is effective in preventing future sexual offences in children with SBP.

It should be noted that a child's sexual behaviour might be misinterpreted as more threatening than it actually is. Hence, reactions from others might be exaggerated. If a child is viewed as a future sex offender, this could lead to unjustified stigmatisation that might negatively affect the child's development. Hence, this risk must be balanced against the risk for sexual abuse of others by children with SBP. If children with SBP are subjected to excessively intense or inappropriate therapy, this in itself could increase the risk for future antisocial behaviour. This is important to consider, since the long-term risk for sexually abusive behaviour in untreated children with SBP is low.

## **Persons at higher risk of committing sexual offences against children**

Part of our assignment was to assess the effects of methods aimed at individuals at higher risk of committing sexual offences against children, but who had not committed any such offence. Some people with a sexual interest in children might have sufficient protective factors that prevent them from actually committing an offence. However, certain circumstances might increase their risk of “crossing the line”. This category includes individuals who have recurrent sexual fantasies about children (eg paedophilia) or who watch child pornography. Many suffer from their situation, and they often have concurrent mental illness and an elevated risk of suicide. The difficulty in seeking help from health and social services is apparent, given fears for condemnation and stigmatisation.

In Great Britain and Germany, among other nations, telephone-based helplines have been organised. People at risk of committing sexual offences against children can call into these anonymously and receive counselling and referral to appropriate treatment services. Substantial experience with these helplines indicates that it is possible to reach people at risk and motivate them to seek preventive treatment. Anonymity can be critical in making the initial contact, and individuals may need time to build up their motivation to receive treatment. Sweden currently has no programmes aimed at reaching self-identified individuals at risk of child sexual abuse.

Unfortunately, no studies have assessed the effects of treating high-risk individuals who have not sexually offended against children. Since we cannot say which methods that successfully prevent offences against children, the question is: How can we manage help-seeking individuals at risk? More research is necessary. In the absence of specific guidelines for treating individuals at risk, the most ethically defensible position would be to assess the presence of treatable risk factors for child sexual offences including concurrent psychiatric disorder, and offer individualised treatment.

## Treatment methods

### Psychological treatment methods

Multisystemic therapy (MST), a community-based programme using systematic family therapy, and based on social learning, and social ecological theory, reduces the risk of recidivism in adolescents that have committed sexual offences against children. For adult perpetrators of sexual offences against children, we did not find sufficient scientific evidence that psychotherapeutic methods reduce the risk of recidivism. Unfortunately, treatment methods that caregivers *perceive* to be effective cannot be assessed objectively in the absence of controlled, preferably randomised, studies. Some studies even suggest that adult offenders that received psychological treatment might recidivate in sexual offending more often than those who were administered standard care. Although this information is based partly on low-quality studies, it is reason for concern and should be taken seriously. Given this background, one could ask the question of whether treatment should even be offered.

Research on sex offenders in general (ie not only those that sexually abuse children) suggests that treatment is more successful if responsivity adheres – to the risk-needs-responsivity (RNR) principles for effective offender treatment. No specific research currently affirms that these principles also apply to perpetrators of sexual offences against children. However, despite the lack of scientific consensus, it is perceived to be unethical to deny treatment – thereby reflecting a fundamental dilemma in this field. Hence, we suggest that in the absence of better research on this group of offenders, treatment should be based on the RNR principles, and the effects should be documented. According to the principles, offenders having high or moderate risk of recidivism should be prioritised for treatment and offered longer and more intensive interventions. Offenders having *low* recidivism risk should receive shorter, less-intensive interventions and should not be grouped with offenders having higher recidivism risk. Moreover, treatment should target casual risk factors driving sex crimes, adhere to the principles of social learning theory, and be adapted to the learning style of the individual.

## Pharmacotherapy

Treatment with testosterone-inhibiting drugs is often advocated to inhibit the sex drive of individuals convicted of, or at risk of committing, sexual offences. Such treatment can be delivered in tablet form, or by long-acting injection, and is occasionally referred to as chemical castration. The effects of testosterone-inhibiting drugs are temporary, cease if treatment is discontinued, and can be ended quickly and completely with administration of male sex hormone, eg with doping agents such as anabolic-androgenic steroids. No scientific evidence to date support that testosterone-inhibiting drugs play a decisive role in reducing recidivism in sexual offences against children. We are not always aware of the specific underlying motives for sexually abusive behaviour towards children. Several different driving factors may be present concurrently, and if offences stem mainly from compulsive, highly aggressive, or other non-sexual motives, then treatment might have no effect.

Clinical experience shows that many people who were treated with testosterone-inhibiting drugs for excessive sex drive experienced reduced sexual preoccupation and greater well-being. By reducing hypersexuality or sexual preoccupation, pharmacotherapy can make it easier for the treated person to participate in psychological treatment. However, the side effects of testosterone-inhibiting treatment can be serious, particularly in long-term treatment. Lowered levels of male sex hormone could lead to osteoporosis and increased risk of fracture, and also increase the risk of cardiovascular disease. Weight gain, including the risk of diabetes, enlargement of mammary glands, and liver changes are other possible side effects. Some individuals can acquire symptoms of depression. It is essential that people receiving testosterone-inhibiting treatment understand the importance of having thorough check-ups to reduce the risk of adverse effects. Given the potential risks of long-term treatment, the benefits of treatment must be weighed against infringements of personal integrity and the risk of medical complications.

In young offenders and children with SBP, testosterone-inhibiting treatment is ruled out for medical and ethical reasons. Also, there is no evidence to recommend such treatment in women for the purpose of reducing the number of sexual reoffences.

## **Ethical and social aspects**

### **Professionalism in care**

Few crimes are perceived as detestable as sexual offences against children. In Western nations, public debate often centres on how to punish the perpetrator. The primary aim in treating people who have committed, or are at risk of committing, sexual offences against children is to prevent more children from becoming victims. Hence, it is essential for society to pay greater attention to evidence-based prevention of new sexual offences against children.

Constructive attempts towards rehabilitation require a professional approach. It is important to increase awareness in social and health care services about attitudes and routines that could inhibit help-seeking behaviour and contribute to stigmatisation and isolation. For people seeking help for their fear of committing sexual offences against children, any initial condemnation and unprofessional interaction might make them hesitant to seek help from health-care or social services in the future. To achieve optimum effects from treatment, a working treatment alliance based on respect for the offender as a person between the sexual offender and the caregiver is necessary. In other words, professional caregivers must always try to distinguish between the action; unacceptable sexual abuse, and the person seeking help.

### **Equality in care**

The Swedish Prison and Probation Service offers a specialised treatment programme for convicted sex offenders. The programme is similar to international programmes for sexual offenders and based on structured and manualbased CBT, social skills training, and relapse prevention. Prerequisites for participating in this programme are that: the convicted offender must speak Swedish (occasionally English is acceptable), possess sufficient intellectual or cognitive capability, and benefit from treatment. The length of the prison sentence is also important, and offenders with short sentences could miss out on treatment if it cannot be completed prior to their release. The same applies to those who have committed less serious sexual offences and have been sentenced to probation or fines instead of incarceration – not all probation services across the country have the expertise to treat perpetrators of sexual offences against children.

Geographic distance can also create an obstacle against receiving specialised treatment. Hence, convicted sex offenders in the Swedish Prison and Probation Service might go without treatment because of logistical and practical barriers. A potential consequence of unequal access to care is that some individuals at higher risk of sexual reoffending will not receive treatment.

## **Health economic aspects**

We found only three studies that addressed the health economic aspects of treating people convicted of sexual offences against children. These studies have major deficiencies, and the findings cannot be applied in a Swedish context. No studies in health economics were of sufficient quality to address the treatment of identified perpetrators of sexual offences against children, or people at risk for this.

Other types of economic studies show, however, that society highly values every prevented sexual offence against children. Given this, and the fact that the costs of implementing treatment programmes are relatively low, it is very likely that future treatment programmes will be considered *cost-effective* if they can effectively prevent sexual offences.

## **Uncertainties and the need for research**

There is a need for well-designed and -executed studies that assess the preventive effects of treatment in adults who have committed sexual offences against children. To be able to evaluate the effects of treatment, large, multinational, randomised controlled trials must be conducted. Sweden should participate – both to develop national expertise and to factor in the circumstances specific to Sweden. Sweden is probably too small to conduct national treatment studies, within Sweden, that would have adequate statistical power.

High quality studies that assess the effect of psychological treatment for children with SBP are necessary to improve the poor evidence currently available. The same applies to adolescents that have committed sexual

offences against children, even if the information base is somewhat better for this age group.

The evidence is insufficient to describe the preventive effects of interventions in people at risk of committing sexual offences against children. Importantly, although no studies have investigated effects on outcomes, some studies suggest that these people can be reached through various types of potentially effective interventions.

In addition to using criminal recidivism as the major outcome measure, future studies should also measure changes in relevant risk factors during the course of treatment. This can enhance statistical power and shorten follow-up periods. Furthermore, it could provide information on the specific mechanisms that contribute to an observed effect.

Few health economic studies are available on this topic. Studies need to address the costs and effects of treating individuals that have committed, or are at risk of committing, sexual offences against children.

## **Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse**

The Council of Europe has adopted a convention aimed at protecting children against sexual exploitation and sexual abuse. Sweden has signed the convention and is currently investigating the question of whether we should join. If we join the convention it would mean assuming an obligation to offer *effective* treatment to perpetrators of sexual offences against children, individuals at higher risk of committing such offences, and to children with SBP. Further, the convention implies that we have to *assess the effects* of initiated programmes. The countries that join the convention, therefore, should share a common interest in developing effective methods to prevent sexual offences against children. We suggest that these countries initiate collaborative research to bridge the major knowledge gaps in this field.



# 1. Introduction

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## Background

### Scope, prevalence, and consequences of sexual offences against children

Sexual violence, particularly against children, worries and intimidates people and is considered to be a global public health threat of substantial proportions. Sexual offences against children and the offenders of such crimes stir immense anger, fear, and frustration [1,2]. See Facts 1.1 for the definition of sexual offences against children.

#### Facts 1.1 Definition of sexual offences against children.

**Sexual offences against children** are sexually motivated or orientated actions, with or without the use of force, against a minor, usually below the age of 15 to 18 years.

In Swedish legislation, Chapter 6 of the Swedish Criminal Code defines the different categories of sex-related crimes. Several of the categories are specific to sexual offences against children. These include: rape of children, sexual exploitation of children, sexual abuse of children, sexual molestation, purchase of sex acts by children, exploitation of children for sexual posing, and contact with children for sexual purposes.

Chapter 16, Section 10, of the Criminal Code addresses crimes related to child pornography.

In the context of this systematic literature review, we have chosen to use the term **sexual offences against children** to designate all sex crimes involving a child victim and, in certain cases, crimes involving child pornography. In the literature review, however, we have used the various definitions of sexual offences against children as applied by the included studies. Since the studies were conducted at different times, and in different countries, the definitions can vary across studies.

In 2007, Sweden reported 2104 cases of suspected sexual coercion, attempted rape, or rape against children. In addition, 1 530 cases of other sexual offences were reported [3]. More specifically, representative and relatively recent Swedish survey data (from 1996 to 2004) suggest abusive experiences of forced penetrative sex (intercourse) among 7 to 14% of girls and 3 to 6% of boys [4–6]. Importantly, the level of non-reporting specifically regarding sexual victimisation is high. Recent estimates suggest that only about 10% of all sexual offences are reported to the police, and this proportion is likely to be even lower when the victims are children [7].

Although we do not know if the associations are truly causal, a wide range of adverse outcomes in adolescence and adulthood have been suggested to result from childhood sexual victimization. These include physical and psychological problems, substance misuse, self-harming behaviours, antisocial behaviours, and sexual problems [8–10].

The major goal in treating people at risk of committing sexual offences against children is to prevent more children from becoming victims. This should be emphasised since the public debate about sexual offences against children is often characterised by “get-tough” attitudes geared towards increasing the punishment of known offenders – while less attention is paid to effective interventions to actually prevent new offences against children. This SBU report focuses on such interventions and reflects the strong conviction that the primary aim in evaluating interventions for individuals at risk of committing sexual abuse against children (first-time and repeat offenders alike) is to prevent more children from becoming victims of sexual abuse.

## **Who commits sexual offences against children?**

We are unaware of any single structural or personal characteristic, experience, or diagnosis necessary or sufficient to explain why some individuals carry out acts of sexual violence against a child, on a single occasion or repeatedly. However, a host of risk factors have been identified that relate to the development and recidivism of sexually abusive behaviour (Facts 1.2) [11,12]. Expressed differently, sexual offending

is seldom the direct and sole result of a psychiatric disorder, adverse upbringing, or “symptom” reflective of something else.

Contemporary researchers usually understand and describe sexual offending as a complex behaviour caused by many concurrent and interacting risk and protective factors. Further, risk factors partially differ for those who commit rape against an adult, or sexually abuse a child [11]. Adding to the complexity, the relative importance of risk factors for sexual violence is likely to vary over time and by context.

**Facts 1.2** Correlates or risk factors for sexual offending against children (after meta-analyses by Whitaker et al [11] for adults and, Seto et al [10] for adolescents).

Compared to **non-offenders**, adult child molesters more often exhibit:

- Disruptive behaviours, aggression, and substance misuse
- Depressive symptoms, poor social skills, and dysfunctional intimate relationships

Many of these correlates/risk factors are shared by non-sexual offenders and could be seen as general risk factors for criminal offending.

Compared to **non-sexual offenders**, those who sexually abuse children (adults and adolescents) more often exhibit:

- Paraphilias or sexual deviance including paedophilia (Facts 1.3)
- Attitudes supporting sex with children (only among adult offenders)
- Hypersexuality (also called “sexual addiction”)
- Childhood sexual victimization
- Poor social skills and dysfunctional intimate relationships.

Compared to **sex offenders against adults** (eg rapists), adult child molesters equally often exhibit risk factors such as those listed above, but they have lower rates of externalizing problems (including disruptive behaviours, aggression, and substance misuse).

Hence, the latter set of correlates/risk factors could be considered specific for sexual offending.

A common offender stereotype, often reiterated in fictional or media depictions, is the sole adult man hanging out where children live, play, or attend school, preying and waiting for the best opportunity to offend. In reality, although adult men are overrepresented in official sex crime statistics, systematic research based on victim reports and anonymous self-reporting of sexually abusive behaviour in representative samples of the general population suggest that child molesters vary in age, risk factor profiles, motives, and treatment needs. The offender is often a friend or close relative, and could also be a female, an adolescent, someone with a learning disability, or even a highly regarded academic person. It could be someone with a disadvantaged upbringing, substance misuse, and psychiatric ill-health; or it could be someone without psychosocial problems, but with a paedophilic sexual arousal pattern (Facts 1.3) who is otherwise well-adapted and well-integrated in society. Importantly, prevention of sexual abuse against children, including treatment for identified offenders, must take such heterogeneity into account.

### Facts 1.3 Paedophilia.

- Paedophilia and hebephilia are paraphilias, mental disorders characterized by persistent and recurrent, intense sexual fantasies, urges, or behaviours involving prepubescent children (paedophilia) or children in early puberty, usually aged 12 years or younger (hebephilia). The most commonly applied diagnostic criteria are found in the Diagnostic and Statistical Manual of Mental Disorders [13].
- Importantly, paedophilia is not diagnosed unless the person has acted on these sexual urges (eg committed a sexual offence against a child), or until these sexual urges or fantasies cause marked distress or interpersonal difficulty.
- Not all sex offenders against children fulfil diagnostic criteria for paedophilia (but might instead be sexually opportunistic).
- Some individuals with paedophilic sexual attractions in the community will probably not commit sexual offences against children (since they have few other risk factors and have protective factors that reduce the likelihood of acting out).
- Paedophilia, although being a moderately strong risk factor for sexual abuse of children, is neither necessary nor sufficient for someone to sexually abuse a child.
- Individuals aged 16 years or older, and at least 5 years older than the preferred age group, might be diagnosed with paedophilia.
- Both men and women could fulfil the diagnostic criteria for paedophilia; but as with all studied paraphilias, men are highly overrepresented.
- Little is known about the causes of paedophilia, but genetic vulnerability to sexual attraction to children, neurodevelopmental impairment, and childhood sexual victimization are possible risk factors [14].

Perpetrators of sexual offences against children are usually adult or adolescent males. The proportion of adolescents below 21 years of age involved in officially recognized sexual offences, including sexual abuse against children, usually varies between 20 and 30%. Many child

molesters grow up under adverse conditions and might exhibit conduct problems already as children. Many correlates or risk factors are shared by non-sexual offenders, whereas others are more specific to adult and adolescent child molesters (Facts 1.2) [10,11]. The developmental factor that most strongly differentiates child molesters from non-sexual offenders is a history of sexual victimization during childhood, although we do not know whether this association is causal. In addition, differences likely exist between adults and adolescents who commit sexual offences against children, including stronger peer influence and poorer knowledge of adequate sexual behaviour in the latter [15].

Female child molesters comprise less than 5% of all suspected or convicted sex offenders. Similarly, small percentages are found in both official crime statistics and in self-reported victimization studies [16,17]. Rates of non-reporting (ie the proportion of sexual offences never reported to the authorities) might be more pronounced for female than for male sex offenders against children [18]. Primarily due to prevalence issues, ie difficulties in obtaining adequately large samples from a single clinical or research setting, few studies address female sex offenders. However, female offenders differ from their male counterparts regarding psychiatric morbidity and modus operandi, and their recidivism rates are lower [16,19,20]. Since evidence-based knowledge remains limited for female sexual offenders, both in terms of risk factors and treatment effects, it is difficult to obtain comprehensive information about female child molesters and appropriate interventions. However, one should keep in mind that women can indeed offend sexually against children. Stereotypes that guide the conceptualization of the “typical” child molester could inhibit our ability to identify female offenders.

About 50% of adult sex offenders report retrospectively that their intrusive and deviant sexual interests or behaviours began during childhood or adolescence [21,22]. Although this retrospective finding does not inform about the predictive validity of sexual behaviour problems in childhood, it has been used to motivate a greater focus on childhood onset of sexual behaviour problems and children who act out sexually. Sexual play and exploration usually occur as natural aspects of child development. This is particularly the case when playful childhood sexual

behaviours are intermittent, do not inflict emotional or physical harm on others, and are regulated by corrections from parents or teachers [23,24]. However, some sexual behaviours indicate, or in themselves pose, a risk to the well-being of the child and other children. Such behaviours are referred to as sexual behaviour problems (SBP). Importantly, SBP is not a medical condition or a diagnosis, but is used to describe sexual, socially unacceptable, behaviours in pre-adolescent children. SBPs are intrusive, frequently occurring sexual behaviours beyond the child's developmental stage, usually unrelated to sexual pleasure. They are often directed at other children, and children with SBP are often non-responsive to initial corrections involving being told to stop the behaviour (Facts 1.4). Children with SBP often have other emotional or behaviour problems, eg impulsivity, other rule-breaking behaviour, and problems interacting pro-socially with friends [23,25].

The prevalence of SBPs among children in the general population is uncertain. However, while parent reports of child sexual behaviours in a normative sample of Swedish preschoolers suggest that a wide range of sexual behaviours can be found in 3- to 6-year olds. Some sexual behaviours (eg playing doctor, touching one's own genitals at home, trying to watch others dress) occur among more than 40% of the children, but only 3% of the children exhibit behaviours possibly associated with sexual problems (sexual doll play, initiating sexual games with other children, trying to touch adults' genitals) [26]. The authors suggest that when rare sexual behaviours are reported by both parents and preschool teachers, this should be addressed and further investigated [24]. Some potential risk factors associated with the development of SBP include genetic vulnerability to sexualized behaviour [25], neuropsychiatric disorders, sexual or physical trauma, watching domestic violence, explicit adult sexual activity at home, and inadequate supervision by parents [23].

Nations ratifying the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse will commit to offering treatment programmes adapted for children with SBP. Hence, in this review we have chosen to include studies that evaluate programmes targeting children with SBP.

**Facts 1.4** Children with sexual behaviour problems (SBP), according to Elkovitch et al [23].

Children with sexual behaviour problems (SBP) are younger than 13 years of age.

SBP is defined as

- A persistent behaviour pattern of intrusive sexual behaviours
- Frequently directed at other, younger children
- Beyond the developmental stage of the child
- Not socially adequate or acceptable.

SBPs

- May involve threats or physically aggressive behaviour
- Inflict emotional or physical harm on others or self
- Interfere with normative childhood interests and activities
- Are non-responsive to initial correction attempts.

For the purpose of this study, we also reviewed studies of possible interventions for individuals who had not yet committed a sexual offence against a child, but might be at risk of doing so. At-risk individuals were defined as adults or adolescents charged with child pornography offences, or self-referred individuals with paedophilia or hebephilia (Facts 1.3).

## **International judicial trends regarding sexual abuse against children**

Because of substantial societal costs and negative public health consequences of sexual offending, evidence-based support is necessary to develop crime policies or interventions that are as effective as possible in combating crime. Countries such as the United States and the United Kingdom have applied particularly strict and intervening consequences for sex offenders, even when compared to offenders of non-sexual violent crime [27]. Public, internet-based registers provide the names, pictures, and addresses of all sentenced sex offenders. In many settings, local police are obliged to inform citizens where sentenced sex offenders

reside, and offenders returning to society after their sentences are not allowed near schools or other places where children stay or visit. Many US states apply sexually violent predator (SVP) legislation. This means that certain higher risk sex offenders can be detained for prolonged periods of time, even indeterminately, after having served a specified sentence, and lessening of restrictions and release can be conditioned from a societal protection perspective.

Initiatives of this type are increasingly being suggested, even in Sweden. Obviously, the aim should be viewed as an attempt to protect the public from sexual offenders. However, empirical support for these popular criminal policy initiatives is limited since most studies suggest they have no, or potentially negative, effects [27–29].

## **Treatment programmes**

Hundreds of research reports, again primarily from the United States, Canada, and the United Kingdom, describe potentially effective intervention alternatives to prevent sexual offending. Over the decades, a variety of treatment modalities have been suggested, tested, and even evaluated, albeit seldom in a satisfactory manner. Individual and group psychoanalysis, or psychoanalytically inspired insight therapy, have been used to address early trauma, inner conflicts, or dysfunctional object representations. In contrast, behaviour therapy involving electric shocks and pharmacological antiandrogen medications have been employed to inhibit inappropriate or extensive sexual arousal. Although the development of treatments over time is not necessarily logical, more recent treatment paradigms usually try to integrate intervention techniques from various traditions. These include cognitive behavioural therapy (CBT), with or without relapse prevention focus and multisystemic therapy (MST; used for adolescents). See Facts 1.5 for treatment methods currently used in Sweden.

**Facts 1.5** Treatments currently used in Sweden to prevent recidivism among child molesters.

- Cognitive behavioural therapeutic (CBT) approaches dominate treatment for adult child molesters, at times with relapse prevention components.
- The major treatment provider in Sweden is the Swedish Prison and Probation Service, which uses a national, slightly adapted medium-risk sexual offender treatment programme imported from the Canadian Correctional Services. This programme is primarily administered in a group format, but can also be given individually. Structured interventions against substance misuse are often added for clients when needed.
- In outpatient settings, more eclectic interventions are often used. This could involve some focus on offender childhood trauma, victim empathy, or poor self-esteem. Associated psychiatric morbidity is often addressed.
- In general, androgen-lowering medications are seldom used, with the major exception being sexual offenders receiving forensic psychiatric care.
- For adolescent sexual offenders, the dominance of CBT might be slightly less pronounced.

Most of the treatment evaluations conducted to date have been of low scientific quality (see systematic reviews [30–36] including a recent meta-review [37]). In addition, most of these have addressed interventions with mixed offender groups, ie groups with varying proportions of individuals that committed rape against adults, who sexually abused children and adolescents, and who exposed themselves to others. Since the risk profiles of various sex offender subtypes differ, the effects of a particular treatment are likely to vary depending on which subgroup of perpetrators dominates the treatment population in a given study [11,12].

Hence, to improve our knowledge about what works to prevent sexual abuse of children, available research should be systematically evaluated. Better, empirically informed, prevention and intervention efforts could lead to substantial humanitarian and economic gains.

## **European Council initiative on sexual abuse against children**

*The European Council Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse*, established in October 2007 [38], states that all EU member countries shall ensure evaluation and *effective* (our italicization) treatment of persons who fear that they might commit sexual abuse against children (article 7), and ensure or promote *effective* (our italicization) intervention programmes or measures to prevent and minimise the risks of repeated child sexual abuse (article 15:1). Further, such measures shall be developed or adapted to meet the developmental needs of children who sexually offend, including those who are below the age of criminal responsibility, with the aim of addressing their sexual behavioural problems (article 16:3). Finally, each party shall, in accordance with its internal law, provide for an assessment of the effectiveness of the programmes and measures implemented (article 15:4). Should Sweden ratify the convention, this would mean a commitment to offer effective treatments to adults and children and also to evaluate the treatments offered.

## **Assignment**

In 2010, the Swedish Ministry of Health and Social Affairs commissioned the Swedish Council on Health Technology Assessment (SBU) to evaluate the methods used in treating individuals who have committed, or are at risk of committing, sexual abuse against children (S2010/886/SF).

## Research questions

1. How effective are treatment methods targeting adults and adolescents who have committed sexual offences against children in preventing sexual reoffending?
2. How effective are preventive methods targeting adults and adolescents at risk of committing sexual offences against children?
3. How effective are treatment methods targeting children with sexual behaviour problems (SBP) in preventing future sexual offending?
4. What ethical and social aspects are associated with methods used to prevent sexual offences against children?
5. Are treatment or preventive methods cost effective?

## Target groups

The report is primarily intended as a factual brief for the Swedish Ministry of Health and Social Affairs. It also targets administrators and staff in the criminal justice system, specifically the Swedish Prison and Probation Service, social services, mental health providers, and non-governmental organisations. Finally, it may provide information to victims of sexual offences against children, their families and friends, and other interested parties.

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## 2. Description of methods

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### Specific issues

The project considers five issues:

1. How effective are treatment methods targeting adults and adolescents who have committed sexual offences against children in preventing sexual reoffending?
2. How effective are preventive methods targeting adults and adolescents at risk of committing sexual offences against children?
3. How effective are treatment methods targeting children with sexual behaviour problems (SBP) in preventing future sexual offending?
4. What ethical and social aspects are associated with methods used to prevent sexual offences against children?
5. Are treatment or preventive methods cost effective?

### Inclusion criteria and limitations

The following selection criteria were used to select studies appropriate for inclusion:

### Populations

We included studies of perpetrators or potential perpetrators of child sex offences and studies of children with sexual behaviour problems (SBP). These were defined in one of the following ways:

- I. Adults who have committed sexual offences against children.
  - Individuals charged with sexual offences against children (eg rape, sexual exploitation, sexual molestation).
  - Individuals who self-report having committed sexual offences against children.
- II. Adolescents who have committed sexual offences against children or peers.
- III. Adults or adolescents at risk of committing sexual offences against children.
  - Individuals charged with child pornography offences.
  - Individuals who self-report paedophilic or hebephilic sexual preferences.
- IV. Children with sexual behaviour problems.

## **Interventions**

The project includes studies of pharmacotherapy (eg antiandrogenic drugs, selective serotonin reuptake inhibitors) and psychological and psychoeducational interventions. Also included are reports on methods that are not currently applied in Sweden, but are used internationally. However, we excluded historical treatment methods dominated by unfocused psychoanalytically inspired group psychotherapy, behavioural therapy (eg aversion therapy), and surgical castration. These forms of treatment are seldom used today, or are ethically questionable.

## **Controls**

Studies evaluating the effect of an intervention should include a group for comparison. This group would undergo standard treatment or “treatment as usual”, or for some reason not receive any active treatment. We included only studies that had a relevant comparison group. The reason why the comparison group did not receive active treatment was the factor that determined inclusion or exclusion. Individuals who refuse or discontinue treatment often differ markedly from those who accept

and complete treatment for risk factors known to be related to recidivism. Hence, differences in recidivism rates between groups might be attributable to these other characteristics rather than to any treatment effects in studies where the control group consists mainly of such individuals. Therefore, we excluded such studies. We accepted historical controls, but with more stringent requirements on comparability, especially regarding proximity in time (eg immediately prior to the outset of the study), possible changes in reporting tendency, and prevailing attitudes of society towards crime.

## Outcomes

The primary outcome measure concerns sexual offending against children, defined in one of the following ways:

- Conviction on charges of sexual offences against children, including possession of child pornography.
- Arrest by police on suspicion of sexual offences against children, including possession of child pornography.
- Breaches of conditions while serving a sentence for sexual offending.
- Self-reported sexual offences against children, including child pornography offences.

Surrogate outcome measures comprise self-reported sexual impulses including sexual offences against children and sexual offences against adults.

## Study design and follow-up period

**Study design:** Randomised controlled trials (RCTs), prospective controlled observational studies (ie cohort studies or follow-up studies), and prospective case-control studies (ie based on prospectively collected data) were included. Originally, the intent was to include earlier systematic literature reviews and meta-analyses, but it became apparent that

the inclusion criteria differed substantially from the criteria used in the present review. Hence, the present review includes only individual studies from previous systematic literature reviews or meta-analyses.

**Follow-up period:** Although a minimum follow-up period of 3 years is typically recommended in this type of research, we included studies with a follow-up period of at least 1 year in both the intervention and control groups.

## Languages

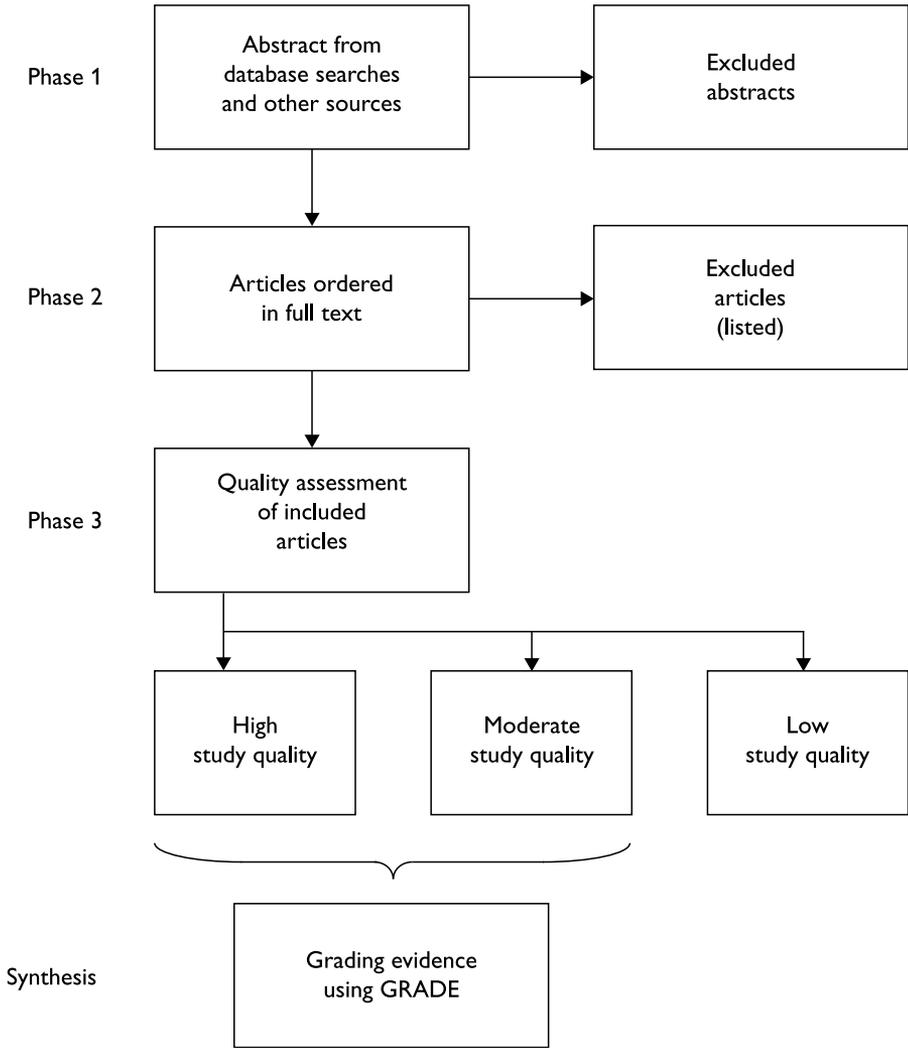
Studies written in English or the Scandinavian languages were considered.

## Literature search

Systematic searches of library databases were conducted through close co-operation between SBU specialists in information technology and experts in the project group. The following databases were searched for studies relevant to the issues addressed by the project: PubMed (NLM), PsycInfo (EBSCO), National Criminal Justice Reference Service Abstracts (EBSCO), Cochrane Library (Wiley), Campbell Library and International Bibliography of the Social Sciences (EBSCO), resulting in lists of summaries (abstracts) of identified articles. Reference lists, books, and websites were used to identify further references, which were then used to optimise the search strategies. So-called “grey literature” (literature not readily identified by conventional means) was also included, eg by scrutinising reference lists. All searches were undertaken between March and September 2010. Appendix 2 presents the search strategies in detail.

## Assessment of the literature

The assessment process included three phases, as illustrated in Figure 2.1.



**Figure 2.1** The assessment process.

## **Phase 1**

Two experts from the project group, working independently, assessed the summaries (abstracts) of articles retrieved from the databases. If either of these experts deemed an article likely to meet the predetermined inclusion criteria, the full text of the article was ordered.

## **Phase 2**

The same two experts independently scrutinised the full texts of the articles, with special reference to the inclusion criteria. If both experts deemed an article irrelevant, it was excluded. Appendix 4 presents the articles excluded at this stage.

## **Phase 3**

Articles considered by only one of the experts to meet the inclusion criteria were scrutinised independently by both experts. To determine how well these studies met the quality requirements (see below), this phase of the review process was carried out in accordance with SBU's evaluation protocols, which had been modified to meet the specific requirements of this project (Appendix 3). The quality of the respective studies was rated as high, moderate, or low. If the experts disagreed on their independent ratings, or if they were uncertain about a specific article, the article was discussed and rated by the entire project group. Members of the project group were not permitted to assess their own articles.

## **Assessment of study quality**

This report scrutinised two main types of studies: randomised controlled trials (RCTs) and prospective observational studies (cohort studies and case-control studies based on prospectively collected data). The primary advantage of randomised studies is that any differences between the treatment and the control groups at the outset are entirely coincidental. Observational studies in this field of research use a different process to allocate subjects to the active or the control groups, respectively. Consequently, there is a high risk for systematic differences between the groups, ie that the differences in outcomes observed between the groups are partly or entirely attributable to factors other than the

treatment intervention. Hence, in observational studies, it is essential to use statistical models that adjust for known confounding factors, particularly when an imbalance exists between groups at the outset. One risk in including too many, or incorrect, confounding factors in the statistical model is overadjustment, ie a true effect is masked by adjustment for strongly correlated factors. The most important confounding factors in this field of research are: age, sex, previous charges for sexual offences, previous non-contact sexual offences, previous violence towards another individual, other criminality, relationship to the victim (known, unknown), the victim's gender, stable adult relationships, and time aspects in studies using historical controls. Hence, depending on study design, the project applied different assessment criteria.

Prior to assessment, the project group formulated minimum requirements for rating study quality as high, moderate, or low. These minimum requirements served as guidelines for assessment, but shortcomings identified in individual studies could also influence the overall rating. Studies rated as having low quality were omitted from the synthesis.

## **Quality assessment of randomised controlled trials (RCTs)**

For study quality to be rated as *moderate* a study had to meet the following minimum requirements:

1. randomisation was adequately executed
2. each treatment group included at least 20 individuals
3. known confounding factors did not differ between the groups at the outset of the study, and the statistical analysis had adjusted for possible differences between the groups.

For study quality to be rated as *high*, a study had to meet the following additional requirements:

1. each treatment group included at least 50 individuals
2. treatment was subject to quality control, eg treatment sessions had been recorded on film, or closely supervised by the practitioners carrying out the treatment.

## Quality assessment of prospective observational studies

For study quality to be rated as *moderate*, prospective observational studies had to meet the following minimum requirements:

1. the content of the interventions to be compared was clearly defined
2. most of the known confounding factors had been identified at the outset of the study, and the statistical analysis had adjusted for any differences between the groups
3. the groups were recruited in a way that minimised the risk for systematic error
4. the subjects in each group had been selected and diagnosed in a similar manner.

For study quality to be rated as *high*, prospective observational studies had to meet the following additional requirements:

1. adequate statistical power, significant positive data, or power analysis
2. most of the known confounding factors had been identified at the outset of the study, and the statistical analysis had adjusted for any differences
3. treatment was quality assured.

## Quality assessment of health economic studies

The section on health economic studies describes the procedures for quality assessment of articles addressing health economics.

## Quality assessment of systematic reviews

We used AMSTAR, an international quality assessment tool, to assess the quality of systematic reviews [1].

## Data extraction

The main data were extracted and tabulated from studies rated as having at least moderate quality. The presented data include: author, year of publication, country in which the study was conducted, study type, any conflicts of interest concerning the intervention being tested, study

design, the recruitment period for study participants, study setting, follow-up interval, description of study participants, number of study subjects in the respective treatment groups and the drop-out rate, baseline data (primarily the known confounding factors), description of the interventions compared, methods used to collect the data, outcomes (refers to the measures of intervention effect formulated prior to the outset of the study), and any side effects. Also included are a summary assessment of study quality and any comments. Using the Mantel-Haenszel method, we calculated relative risk (RR) based on recidivism data from each study.

## Grading the evidence

Studies rated as having high or moderate quality form the basis for assessing the effects of the evaluated interventions. Studies of low quality are not included in grading the evidence. For every effect measure, an overall assessment of the results of the studies was carried out in accordance with GRADE, an internationally accepted system for grading evidence (Facts 2.1) [2]. For each outcome measure, ranking is based on overall assessment of study design. Thereafter, the strength of the evidence can be influenced by the presence of factors that may weaken or strengthen the power, such as risk of bias, inconsistency, indirectness, effect size, data precision, risk of publication bias, and other aspects, eg dose-response relationship.

Specifically for this project, we deducted for indirectness when only one study addressed a particular question, unless the study had a multicenter design. This was done because we could not rule out that other, context- and setting-dependent factors contributed to the result. Deductions were made for imprecision when the sample size was less than 50% of the calculated optimal information size. Deductions were also made for the risk of bias, unless at least one of the included studies was of high quality. An exception was granted if lack of power was the only reason for rating the quality of the study in question as moderate instead of high. In that case, we deducted instead for imprecision.

Optimal information size was calculated with a Web-based calculator [3] using alpha-error level of 5% and a statistical power of 80%. Entered parameters were the recidivism rate of the control group and a relative risk reduction of 20%.

Rating the quality of evidence – four levels:

**Strong scientific evidence** (⊕⊕⊕⊕). Based on high quality studies with no factors that weaken the overall assessment.

**Moderately strong scientific evidence** (⊕⊕⊕○). Based on high or moderate quality studies with isolated factors that weaken the overall assessment.

**Limited scientific evidence** (⊕⊕○○). Based on high or moderate quality studies containing factors that weaken the overall assessment.

**Insufficient scientific evidence** (⊕○○○). Scientific evidence is deemed insufficient when scientific findings are absent, the quality of available studies is low, or studies of similar quality present conflicting findings.

The stronger the evidence, the lower the likelihood that new research will affect the findings within the foreseeable future.

## Conclusions

The conclusions represent an overall judgment of benefits, risks, and cost effectiveness.

## Box 2.1 GRADE categories of the strength of the evidence.

Reduce ranking if	Increase ranking if
Risk of bias due to limitations of study quality (max -2)	Large effect size and no likely confounders (max +2)
Inconsistency between studies (max -2)	Clear dose-response relationship (max +1)
Indirectness (max -2)	“Confounders” should result in better treatment result in the control group (max +1)
Poor precision (max -1)	
Likelihood of publication bias (max -1)	
Evidence from randomised controlled trials are initially attributed high quality (⊕⊕⊕⊕), whereas evidence from observational studies are attributed low quality (⊕⊕○○).	

## Ethical and social aspects

The chapter on ethical and social aspects does not follow the format of a systematic review. A review of the literature was conducted, but selected studies were not scrutinised for study quality.

## Studies in health economics

### Inclusion criteria

Studies should cover both costs and effects, be of relevance to Swedish conditions, and include comparisons with the best alternative analysis of cost effectiveness.

## Quality assessment

The first phase of quality assessment was conducted by the project's health economist, who then consulted with another health economist in grading the quality. The quality of the underlying studies was discussed with the experts that scrutinised the clinical literature. Assessment of health economic relevance takes into account which comparative alternative has been used in the analysis, the country from which the data were collected, which study perspective was applied, and the time horizons of the study. The methodological quality of economic studies was determined by using a review protocol based on established methods for health economic evaluations [4]. Important requirements were that the article should clearly present the information used, the assumptions made, and any statistical uncertainty.

The quality of a health economic study can be ranked as high, moderate, or low, but if based on a single clinical study, it can never be given a quality ranking exceeding that of the underlying clinical study.

### **General requirements:**

The study should be relevant to the issues considered by the project. For economic assessment, the study must meet the requirements specified by the inclusion criteria.

### **High quality:**

In addition to the above general requirements, the study meets at least 80% of other criteria (see number 4 in the checklist).

### **Moderate quality:**

In addition to the general requirements above, the study meets 60% to 80% of the remaining criteria.

### **Low quality:**

In addition to the general requirements above, the study meets 40% to 60% of other criteria.

**Insufficient quality:**

In addition to general requirements, the study meets less than 40% of other criteria, or the study does not meet the general requirements, regardless of how well it meets other criteria.

## References

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2. Guyatt G, Oxman A, Vist G, Kunz R, Falck-Ytter Y, Alonso-Coello P, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ* 2008;336:924.
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4. Drummond M, Sculpher M, Torrance G, O'Brien B, Stoddart G. *Methods for the economic evaluation of health care programmes*, Oxford University Press, USA; 2005.

### 3. Systematic literature review

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#### Conclusions

- ❑ The scientific evidence is insufficient to determine if cognitive behavioural therapy is effective in reducing sexual reoffending among adult child molesters.
- ❑ No scientific evidence is available to determine if any other psychological or pharmacological intervention reduces sexual reoffending among adult child molesters (lack of studies).
- ❑ Limited scientific evidence suggests that multisystemic therapy (MST) may be effective in preventing sexual reoffending among adolescents who have committed sexual offences against children. However, evidence is insufficient or lacking to determine the efficacy of other psychological or pharmacological interventions.
- ❑ Scientific evidence is lacking to determine if any treatment modality (psychological or pharmacological) prevents sexual offending among adults and adolescents who have not committed sexual offences against children, but are at risk of doing so.
- ❑ The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) combined with parental support is more effective than standard treatment in preventing future sexual offending among children with sexual behaviour problems (SBP) intrusively directed towards others. Evidence is lacking to determine the efficacy of other interventions for children aimed at preventing future sexual offending.

## Scope of the systematic review

The systematic review of intervention studies was divided into three parts: adult (aged 19 years and older) sexual offenders against children, adolescent (aged 13–18 years) sexual offenders against children, and children with sexual behaviour problems (aged 12 years and younger). First, this was based on that adult sex offender treatment research has a longer history and has been inspired extensively from interventions developed for non sex offenders, eg perpetrators of non-sexual violence, property, and drug-related offences [1,2]. Second, developmental differences regarding cognitions, affect stability, and social functioning in children and adolescents compared to adults are likely to be reflected in different risk factor profiles and a need for tailored intervention formats.

## Interventions for adults who have committed, or are at risk of committing, sexual offences against children

### Evidence-graded results

- The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) with relapse prevention is effective in reducing sexual reoffending among adult child molesters (⊕○○○).
- No scientific evidence is available to determine if psychological interventions other than CBT or pharmacological treatment reduce sexual reoffending among adult child molesters (lack of studies).
- No scientific evidence is available to determine if either psychological or pharmacological treatment modalities can prevent sexual offending among adults who have not sexually abused a child, but are at risk of doing so (lack of studies).

## Background

About 70% to 80% of all sexual offenders against children are adult males, ie 18 years of age or older [33]. For logistic or other practical reasons, clinical and correctional practices aimed at reducing criminal recidivism have usually addressed mixed populations of sex offenders. Hence, nearly all sex offender treatment studies include three main perpetrator subgroups; *rape offenders* (usually defined as coerced or violent sexual abuse against an adult), *child molesters*, and *exhibitionists* (offenders who indecently expose their genitals to others).

We included only intervention studies of adult sex offenders that clearly defined the proportion of child molesters among treated and control individuals. Studies with an overall child molester proportion of 70% or more, or studies that analysed treatment effects separately for child molesters were considered. We chose the 70% proportion to avoid excluding the majority of studies of treatment effects that for practical reasons included at least 20% to 25% of rape offenders, and yet be able to conclude that any observed effect would primarily concern child molesters.

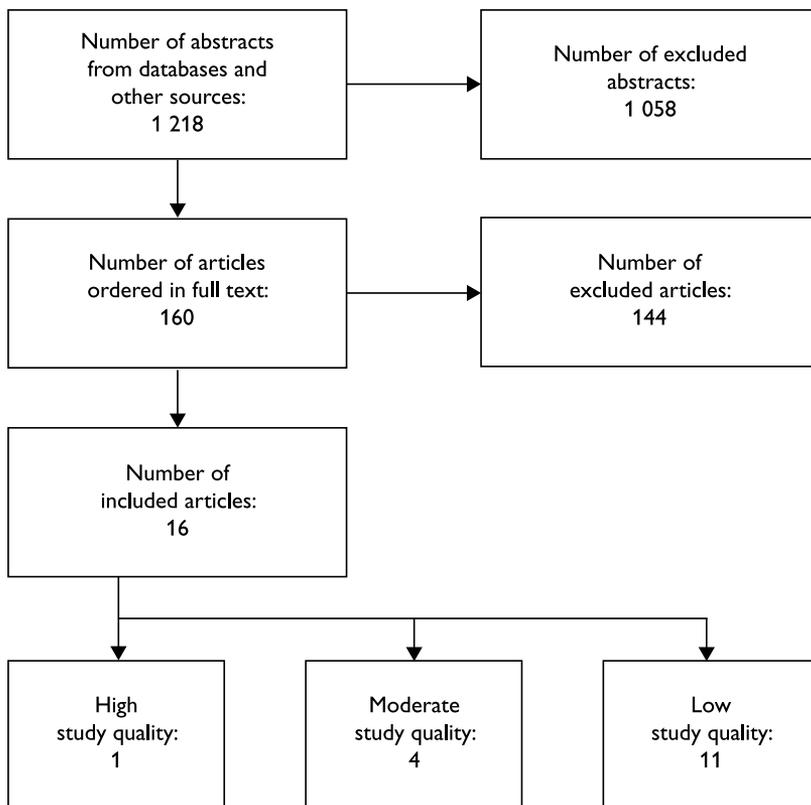
Research indicates that interventions for criminal offenders, including sex offenders, should follow the *risk-need-responsivity* (RNR) principles to be optimally effective (see Facts 3.1) [2,3]. The *risk principle* emphasises that recidivism can and should be predicted and that interventions should focus on offenders at medium and high risk of reoffending. Hence, since the risk level could moderate treatment effects, we attempted to evaluate if subjects in the included studies were at a low-medium or medium-high risk of sexual recidivism. This was based on selection factors regarding setting (probation or treatment home/prison/hospital) and reported established risk factors for relapse in sexual crime (history of sexual and general offending, gender, lower age, and victim characteristics).

## Systematic synthesis of available evidence

### Research questions

- How effective are treatment methods targeting sexual recidivism risk among adult sexual offenders against children?
- How effective are preventive methods targeting adults who have not committed, but are at risk of committing, sexual offences against children?

### Results of literature search and study selection



**Figure 3.1** Flow diagram: selection of studies on adult child molesters.

Following literature searches, any indication of treatment being addressed in a publication (from title or abstract) led to that publication being retrieved in full text for further scrutiny. One or more of the following limitations were common reasons for excluding full-text publications:

1. The study was not a treatment study, but was a narrative review of the literature, was descriptive, or addressed theoretical or treatment techniques or administrative issues.
2. The study used treatment data, but addressed risk factors for treatment drop-out or recidivism.
3. The study used treatment data, but provided no data on untreated control or comparison groups. This was also the case for pharmacological studies using within-subject comparison designs including self-reporting of deviant thoughts or risk behaviours (but not sexual offending) as outcomes.
4. The study did not include sexual (re)offending as an outcome.
5. The study did not report the overall proportion of offenders of sexual abuse against children, the proportion was below 70%, or the study did not analyse the treatment effects separately for child molesters.
6. The study mainly or completely involved outmoded interventions, eg treatment modalities currently abandoned for practical or ethical reasons. (Such modalities include surgical castration, aversive conditioning by electric shock, masturbatory satiation, and group-based psychoanalytically inspired insight psychotherapy.)

Studies with one or more of the above deficiencies were excluded in all three parts of this systematic review.

In total, 16 studies met the inclusion criteria: 1 randomised controlled trial (RCT) of high quality [4], 4 observational studies of moderate quality [5–8], and 11 observational studies of low quality [9–18].

## Description of studies and results

**Table 3.1** Summary of findings for cognitive behavioural therapy with or without relapse prevention in adult sex offenders against children.

Outcome	No. participants (no. studies & study design)	Effect (95% CI)	Control group event rate	Quality of evidence
Sexual reoffence (medium-risk offenders, 5 years)	484 (1 RCT <sup>1</sup> )	RR 1.10 (0.78; 1.56)	20%	⊕○○○
Sexual reoffence (lower-risk offen- ders, 3–5 years)	362 (3 OBS <sup>2</sup> )	RR 0.23 (0.03; 2.01) RR 0.09 (0.01; 0.74) RR 1.03 (0.15; 6.92)	5% 16% 5%	⊕○○○
Sexual reoffence (higher-risk offen- ders, 5 years)	114 (1 OBS <sup>3</sup> )	RR 0.44 (0.19, 0.98)	28%	⊕○○○

CI = Confidence interval; OBS = Observational study; RCT = Randomised controlled trial; RR = relative risk

<sup>1</sup> Marques et al 2005 [4].

<sup>2</sup> Procter 1996 [6], Marshall et al 2008 [7], McGrath et al 1998 [8].

<sup>3</sup> Davidson 1984 [5].

**Table 3.2** Summary of evidence for programmes using cognitive behavioural therapy with or without relapse prevention in people convicted of sexual offences against children. The table specifies the basis for rating the evidence. A zero indicates no reason to criticise this point. A minus sign indicates that the issue was indeterminable. Minus 1 or minus 2 indicate deficiencies that lower the quality of the evidence. However, it was not possible to achieve an overall evidence grade above ⊕⊕⊕⊕ (strong scientific evidence), or total evidence grade below ⊕○○○ (insufficient scientific evidence).

Outcome	No of participants (no of studies)	Study type	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Effect size	Quality of evidence
Sexual reoffence (medium risk offenders, 5 years)	484 (1)	RCT ⊕⊕⊕⊕	0	-	-1	-2	0	0	⊕○○○
Sexual reoffence (lower risk offenders, 3–5 years)	362 (3)	OBS ⊕⊕○○	-1	0	0	-1	0	0	⊕○○○
Sexual reoffence (higher risk offenders, 5 years)	114 (1)	OBS ⊕⊕○○	-1	-	-1	-1	0	0	⊕○○○

OBS = Observational study; RCT = Randomised controlled trial

In the United States, Marques et al [4,19] conducted the only identified RCT of treatment for adult sex offenders against children. During 1985 to 1994, the authors recruited 484 convicted sex offenders (78% were child molesters). Treatment and control individuals were matched pairwise on age, criminal history, and offender subtype and then randomly assigned to cognitive behavioural therapy (CBT) or “standard treatment”. The manualised CBT group intervention included a response-prevention model and a relapse prevention format. Weekly individual therapy sessions were also provided. The intensive 2-year treatment programme was followed by 1 year of mandatory aftercare. Research staff monitored the treatment to ascertain treatment integrity. Included individuals were followed for registered sexual reoffending for at least 5 years (5–14 years) after release from prison. Of all included individuals, 22% of those assigned to treatment (82% of which completed treatment) recidivated sexually vs 20% of controls. Similarly, no meaningful differences were found for recidivism in non-sexual violent offending. Study weaknesses were related to generalisation aspects: exclusion of inmates who offended in concert or committed intrafamilial child molestation (incest). Participants also had to admit to the sexual offence, have no more than two previous convictions for any offence, and not present severe management problems. These criteria, combined with the reoffence rates in the control group, suggest that the investigated population had a medium recidivism risk. Although underpowered, the study was judged to be of high quality.

In an unpublished conference presentation, Davidson reported on 57 imprisoned sex offenders against children in Canada that received a combination of behavioural therapy, interpersonal skills training in a group psychotherapy setting, and individual psychotherapy [5]. Treated individuals were included (1974–1982) and followed for 5 years post-release. Recidivism rates were compared to those of 57 untreated controls released during 1966 to 1974, matched on offender age and gender, and victim age, gender, and relationship to the offender. Of the treated subjects, 12% reoffended, compared to 28% of the controls. However, the significantly lower sexual recidivism rate found among treated child molesters could have been caused by baseline differences between treated and control individuals that were not assessed and unintended selection

of more recidivism-prone control subjects (since only 50% of historical controls that had complete records were possible to analyse). This study was judged to be of moderate quality.

Procter studied a 10-day probation (not imprisoned) CBT-based intervention (6 hours daily) followed by 14 supervision sessions during 6 months [6]. The study was conducted in Great Britain. Treated sex offenders were compared to pairwise-matched historical controls subjected to probation supervision during the 4 years preceding the intervention, ie 1989 to 1992. In both groups, the reoffence rate was 5%. The briefness of the intervention, small sample size, and longer time at risk for controls (81 vs 66 months on average) may have contributed to the absence of any effect (positive or negative). Given that the offenders were not incarcerated, registered baseline data and the low number of reoffences in the control group, suggest that the investigated population had a low recidivism risk. This study was judged to be of moderate quality.

Marshall et al studied 94 incarcerated Canadian sex offenders included and treated from 1997 to 2001 and followed for an average of 3 years [7]. Treated individuals received motivational interviewing and cognitive behavioural therapy in a group format (2.5 hours weekly) and were followed upon release together with 86 contemporary controls matched on age, criminal history, recidivism risk level, and victim characteristics. In the treatment group, the reoffence rate was 1% compared to 5% in the control group. The small sample size and short follow-up time might have contributed to the absence of a statistically significant effect. The reported baseline data and the low rate of reoffence in the control group suggest that the investigated population had low recidivism risk. This study was judged to be of moderate quality.

McGrath et al studied 103 admitting sex offenders on probation (not imprisoned) subjected to mandated treatment in 1988 to 1995 [8]. The study was conducted in Canada. Seventy-one individuals were treated with specialised cognitive-behavioural and relapse-prevention-based sex offender intervention and were compared with 32 controls. For logistic reasons the control group received non-specialised treatment. In the

treatment group, the sexual reoffence rate was 1%, compared to 15% in the control group. The intervention and control groups were similar regarding age, marital status, sex offence/victim characteristics, and substance misuse. Previous convictions were, however, more common among controls. This bias might have inflated the (unusually positive) effect found for active intervention treatment. The registered baseline data and the fact that the offenders were not incarcerated suggest that the investigated population had a low recidivism risk. This study was also judged to be of moderate quality.

In rating the evidence quality for treatment of adult offenders of medium risk, a deduction was made for *indirectness* from the GRADE score since the Marques et al study used a single-site design, ie it is uncertain if the results are transferable to other settings (Table 3.2). The calculated optimal population size for a study aimed at detecting a relative risk reduction of 20% with a control group event rate of 20% (as in this study) is 2 280 (and  $\alpha=.05$  and  $\beta=.20$ ) [20]. The population size of the Marques et al study ( $n=484$ ) is less than a quarter of the optimal population size. Hence, the limited sample size means that the probability of incorrectly failing to reject the null hypothesis (when true) was close to 70% (using a one-tailed test). Therefore, two deductions were also made for *imprecision*; one for the lack of statistical power and one for the lack of a statistically significant effect. Altogether, the available scientific evidence was rated as insufficient to determine if CBT with relapse prevention is effective in preventing sexual reoffence among medium-risk adult offenders.

For offenders with lower and higher risk of sexual reoffending, the available evidence originates from four observational studies of moderate quality. These studies have methodological problems suggesting possible selection biases. Therefore, in rating evidence quality, deductions were made for *risk of bias* (see Table 3.2). In addition, all four suffered from low power leading to highly uncertain effect estimates, which motivated deduction for *imprecision*. For high-risk offenders, evidence was only available from one single-site observational study of considerable age (almost 30 years), motivating a deduction also for

*indirectness*. Consequently, we found insufficient scientific evidence for any beneficial effect of cognitive behavioural therapy with or without relapse prevention also for lower and higher risk offenders. Since most of included studies did not detail the age of victims abused by those who recidivated sexually, we were unable to determine whether sexual recidivism actually referred to new sexual offences *against children*. Hence, we did not find sufficient evidence to determine the effectiveness of psychological or other interventions specifically for sexual reoffending against children.

We did not find any evidence to determine the effectiveness of other psychological interventions administered individually, or in a group, for adult child molesters (eg psychodynamic, humanistic, or systemic psychotherapy), or the efficacy of pharmacological interventions (eg testosterone-lowering treatment).

Neither did we find sufficient evidence to determine the effectiveness of selective prevention interventions that target adults who have not yet offended, but who are at risk of sexually abusing children.

Eleven additional included studies that were all rated low quality were omitted from the synthesis and not tabulated. Craissati et al [9] and Ruddijs et al [10] evaluated community-based, adult sex offender treatment programmes in the United Kingdom and the Netherlands, respectively. Based on New Zealand, Bakker et al [11] and Nathan et al [12] evaluated specialised programmes for adult sex offenders against children in prison, with a specific attempt to be culturally sensitive to Maori needs, while Lambie et al [13] studied child molester outpatients. Zgoba et al [14,15] presented separate evaluations of two cohorts of adult sex offenders in a sex-offender-specific prison programme in New Jersey, USA, whereas Scalora et al [16] studied child molesters in a US prison. In Canada, Fedoroff et al [17] conducted the only included study of antiandrogen treatment, administered as an adjunct to a group psychotherapy intervention for patients with paraphilia at a specialised sexual disorders unit. Finally, in two PhD theses, Pérez [18] and Barnes [21] evaluated treatment programmes for sexual offenders in the United States.

## Discussion

A series of systematic reviews have addressed the potential effect of psychological and pharmacological interventions to reduce criminal recidivism among identified adult sex offenders [22–28]. The overall evidence has been debated, not the least since the overall effect estimates from the systematic reviews have varied substantially (Cohen's *d*:s from .10 to .43) [29–31]. In addition, none of these systematic reviews have specifically addressed interventions for individuals who have committed, or are at risk of committing, sexual offences *against children*.

However, a recent systematic review suggested that interventions for sex offenders in general were more successful when programmes followed the risk-need-responsivity principles of effective correctional treatment (see Facts 3.1) [3]. According to the first of these principles, offenders at medium or high risk of recidivism should be prioritised and offered longer or more intense treatment. However, for adult sex offenders against children, we did not find evidence to determine the effectiveness of interventions for either lower or higher risk offenders.

Marques et al [4,19] conducted the only identified RCT of treatment for adult sex offenders against children and found no overall effect of treatment. However, intrafamilial child molesters (incest) were excluded, and included participants had to: admit to the sexual offence, have no more than two previous convictions for any offences, and not present severe management problems. This procedure likely selected for medium-risk offenders; offenders that might have benefited less from the intervention than higher risk offenders according to the risk-need-responsivity principles [2,3]. Moreover, the absence of effect may be due to insufficient statistical power. In a subanalysis, the authors showed that the treatment was indeed effective for those who met the treatment goals. However, many of those who met these goals may have been at lower risk already at baseline compared to those who did not. Hence, this should not be taken as proof of a treatment effect, but suggests the possible use of treatment response in assessing the recidivism risk among sexual offenders.

Criminal policy initiatives from politicians and policymakers in Sweden and abroad often emphasise that sexual offender treatment should apply generally to most, if not all, offenders. However, this is not supported by the systematic review by Hanson et al [3] which suggests that treatment of sex offenders normally should follow the risk-need-responsivity principles (Facts 3.1).

**Facts 3.1** The risk-need-responsivity (RNR) principles [2].

- The risk-need-responsivity (RNR) model describes three successful principles for effective work to reduce recidivism among criminal offenders.
- The more of these three principles that are followed, the better the chance of overall intervention success.
- The model, originally developed in Canada by Andrews and Bonta, has been validated by independent research.
- The *risk principle* emphasises that criminal recidivism can be predicted, that more intense and lengthier interventions should be prioritised for medium- and high-risk offenders.
- The *need principle* stresses the importance of addressing criminogenic needs in the design and delivery of treatment, ie risks/needs likely to be causally related to the development and persistence of criminal behaviour.
- The *responsivity principle* states that treatment design and provision should generally follow the principles of social learning theory and practice, eg by using cognitive behavioural therapy (CBT) and be tailored to the individual learning style of the offender (accounting for impulsivity, attention deficit, learning disability etc).

We do not know the reason why treated subjects in the RCT by Marques et al [4,19] had a slightly higher sexual recidivism rate than untreated controls (22% vs 20%). However, it is seldom acknowledged in this field that psychotherapeutic and other interventions could have iatrogenic or adverse effects. Hence, under certain circumstances, with certain subjects and interventions, those who receive treatment might recidivate more than those who do not. Prolonged or intense interventions for offenders with low risk and/or motivation, including mixing low-risk offenders with medium- and high-risk perpetrators in group treatment, might cause such unexpected results [32].

## **Interventions for adolescents who have committed, or are at risk of committing, sexual offences against children**

### **Evidence-graded results**

- Limited scientific evidence suggests that multisystemic therapy (MST), a community-based programme based on systemic family theory and social learning theory, may be effective in preventing sexual reoffending among medium-risk adolescent sex offenders (⊕⊕○○).
- The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) is effective at *preventing* sexual reoffending among medium-risk adolescent sex offenders (⊕○○○).
- No scientific evidence is available to determine the effect of CBT on sexual reoffending among adolescent sex offenders with low or high recidivism risk (lack of studies).
- No scientific evidence is available to determine the effectiveness of other methods (psychological or pharmacological) aimed at preventing sexual reoffending in adolescent sex offenders (lack of studies).
- No scientific evidence is available to determine the effectiveness of methods aimed at preventing sexual offending in at-risk adolescents

who have not sexually abused a child, but are at risk of doing so (lack of studies).

## **Background**

Interventions targeting adolescents aged 12 to 18 years who sexually abuse others are important to consider separately from interventions for younger children and adult child molesters. Recidivism risks could differ because the relative causal importance of various risk/need factors for sexual offending varies somewhat across age groups. Because of this and developmental differences regarding responsivity [33], the effectiveness of various treatment elements (ie deviant sexual arousal, family-based interventions, parent management skills) is likely to vary between adults and adolescents. Adolescents who sexually offend comprise 20% to 30% of those arrested or convicted for a sexual offence [34,35]. Accordingly, to minimise sexual violence, this is an important offender subgroup for intervention. A systematic review of some 2 400 adolescent sexual offenders across 22 studies found that sexual recidivism rates are low, with 14% new charges or convictions of sexual offences and 42% to 54% general recidivism (includes sex offences) during average follow-up periods of 0.5 to 9 years [36].

However, for higher risk individuals, longitudinal studies indicate that these behaviours are sometimes associated with much higher risks of adult sexual offending [37,38]. Effective interventions targeting adolescents who commit these offences are needed to reduce the risk of recidivism.

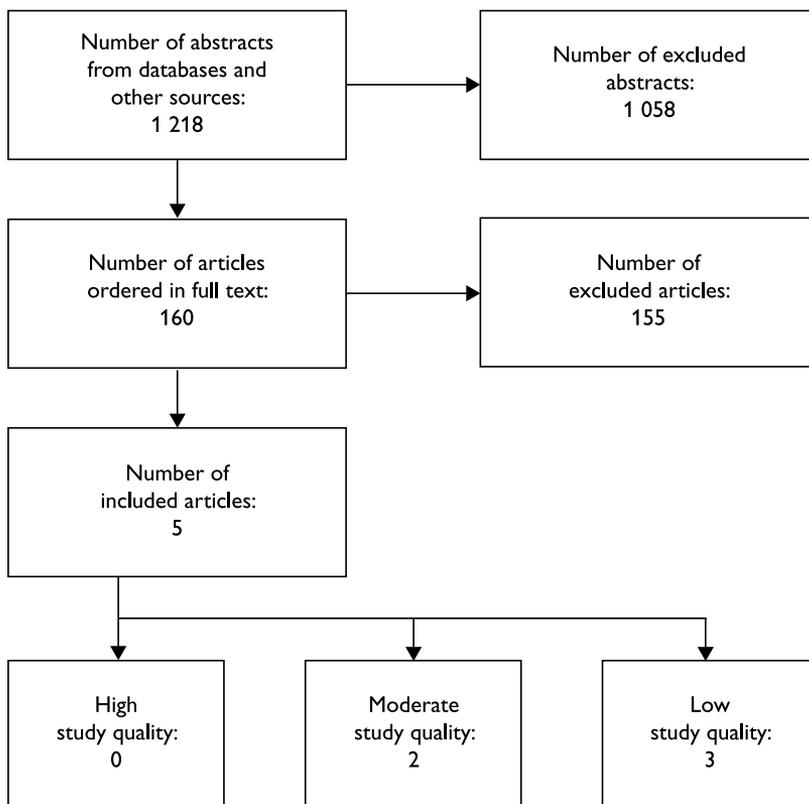
A study of all referrals of adolescent sex abusers to the social services in Sweden in year 2000, suggested that the absolute majority of victims were either younger children or peers [39]. Based on this and other data [40], we dropped the requirement for a figure describing the exact proportion of offenders against children or separate reporting of data for this group. Adolescent sex abusers were all regarded as actual or potential sex offenders against children.

## Systematic synthesis of available evidence

### Research questions

- How effective are treatment methods targeting sexual recidivism among adolescent sexual offenders against children?
- How effective are preventive methods targeting adolescents at risk of committing sexual offences against children?

### Results of literature search and study selection



**Figure 3.2** Flow diagram of the selection of studies on adolescent sexual offenders.

Five studies met the inclusion criteria, two of moderate [41,42] and three of low study quality [43–45]. The two studies of moderate quality were tabulated (Table 3.9 and Table 3.10) and used as basis for rating the quality of evidence.

## Description of studies and results

**Table 3.3** Summary of findings for multisystemic therapy or cognitive behavioural therapy among adolescent sexual offenders.

Outcome	No of participants (no of studies & study design)	Effect (95% CI)	Control group event rate	Quality of evidence
Sexual reoffence (9 years)	48 (1 RCT <sup>1</sup> )	RR 0.18 (0.04, 0.73)	46%	⊕⊕○○
Sexual reoffence (16 years)	148 (1 OBS <sup>2</sup> )	RR 0.41 (0.16, 1.03)	21%	⊕○○○

CI = Confidence interval; OBS = Observational study; RCT = Randomised controlled trial; RR = Relative risk

<sup>1</sup> Borduin et al 2009 [41].

<sup>2</sup> Worling et al 2010 [42].

**Table 3.4** Summary of evidence for multisystemic therapy and cognitive behavioural therapy for adolescent sexual offenders. The table specifies the basis for rating evidence in the report. A zero indicates no reason to criticise this point. A minus sign indicates that the issue was indeterminable. A minus sign with a question mark indicates some deficiencies, but not great enough to lower the quality of the evidence. Minus 1 indicates deficiencies that lower the quality of the evidence. However, it was not possible to achieve an overall evidence grade above ⊕⊕⊕ (strong scientific evidence), or total evidence grade below ⊕○○○ (insufficient scientific evidence).

Outcome	No of participants (no of studies)	Study type	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Effect size	Quality of evidence
Sexual reoffence (9 years)	48 (1)	RCT ⊕⊕⊕⊕	0	-	-1	-1	-?	0	⊕○○○
Sexual reoffence (16 years)	148 (1)	OBS ⊕○○○	-1	-	-1	-1	0	0	⊕○○○

OBS = Observational study; RCT = Randomised controlled trial

As part of the long-term development of multisystemic therapy (MST; see also [43,46]), Borduin et al conducted an RCT of 48 adolescent sexual offenders in a mixed rural/urban area in Minnesota, USA (mean age=14 years) [41]. Subjects were referred from a juvenile court for outpatient treatment during 1990 to 1993 and followed for criminal recidivism for an average of 8.9 years. MST is a manualised, home-based intervention with strong caregiver focus that targets each individual and his or her family's risk factors for adolescent antisocial behaviour. It aims to integrate individualised interventions (using techniques from systemic family theory, social learning theory, and socio-ecological theory) for youth and family and frequent collaboration with other important persons within a broader social framework. Interventions aim at improving parenting, including monitoring, and within-family affection and communication. Further, MST addresses school performance, social and problem solving skills for youth, and development of relapse prevention plans. Twenty-four individuals received the 30-week MST intervention (about 3 hours weekly), whereas controls received usual community treatment including non-manualised cognitive behavioural therapy in both groups (90 minutes, twice weekly) and individual (60–90 minutes, once weekly) formats. Control interventions addressed deviant cognitions, social skills training, anger management, and relapse prevention. In the MST group, 8% reoffended sexually, compared to 46% in the control group. Despite several strengths, this study has an allegiance problem; Borduin et al invented and market MST, and hence have a particular interest in positive findings regarding its effectiveness. The study was judged to be of moderate quality, the main flaw being limited statistical power.

Worling et al conducted a long-term follow-up (mean=16.2 years, range 12–20 years) of a cohort of 148 adolescent sex offenders (mean age=15.5 years), assessed in a Canadian metropolitan community-based programme during 1987 to 1995 [42]. Fifty-eight individuals received a 24-month family-focused intervention tailored to the risks and needs of each youth. The intervention aimed at improving parenting, family relationships, and communication, fostering pro-social sexual attitudes and victim empathy and the development of relapse prevention plans. This treatment is based on cognitive behavioural therapy, but may also

incorporate other theoretical models. Treated subjects were compared with 90 controls; 46 (51%) adolescent offenders who were treated elsewhere, 17 (19%) treatment refusers, and 27 (30%) treatment drop-outs. In the treatment group, 9% reoffended compared to 21% in the control group. The study was judged to be of moderate quality.

In rating the quality of evidence (Table 3.4), a deduction was made for *indirectness* regarding multisystemic therapy, mainly due to the single-site design of the study, ie generalisability of the results was uncertain [41]. A deduction was also made for *imprecision*, since the study was small. No deduction was made for risk of bias, however, even though the study did not meet criteria for high quality – the reason being that its main problem was judged to be a lack of statistical power, which had already been accounted for in the rating of imprecision. Allegiance was also a problem since at least one author has an economic interest in the method, but no deduction was made for publication bias in the total GRADE score. Hence, we found low-quality evidence that multisystemic therapy has a positive effect in preventing sexual reoffending in adolescent sex offenders, even though the uncertainty is substantial. A long-term follow-up of the Letourneau et al sample is underway and should provide further data on the effectiveness of MST [41].

For the cognitive behavioural intervention studied by Worling et al, a deduction to the GRADE score was made for *risk of bias* since the composition of the control group likely favoured the treatment group [42]. Uncertainties regarding the control intervention and transferability to other settings also motivated a deduction for *indirectness*. Finally, a deduction was made for *imprecision* due to low statistical power. Hence, we found very-low-quality evidence for the effectiveness of cognitive behavioural therapy in adolescents.

Another three studies of interventions for adolescent sexual offenders met inclusion criteria. One small RCT of MST [43] and two observational studies of different psychological interventions [44,45] were rated to be of low study quality and therefore were not used as a basis for evidence-graded results.

## Discussion

The RCT by Borduin et al provided limited quality evidence supporting the effectiveness of multisystemic therapy in preventing sexual reoffences among adolescent sexual offenders [41]. Multisystemic therapy is a family-based therapy focused on improved communication between parents and adolescents. It is based on systemic family theory and social learning theory and includes treatment components from CBT. For CBT with relapse prevention, the evidence was based on an observational study by Worling et al and was insufficient for determining the effectiveness of the intervention [42]. Both studies also reflect what is possible to provide in current clinical settings in Sweden and internationally.

A possible source of bias in Borduin et al is the allegiance problem, since at least one author has an economic interest in MST [41]. For Worling et al, the inclusion of 30% (27/90) treatment drop-outs in the comparison group likely inflated the observed positive effect of treatment, since treatment drop-outs usually have even higher recidivism rates than treatment refusers [42]. However, this bias might have been counteracted by a decrease in the observed effect for the treatment group caused by various forms of treatment elsewhere (the character of which was unknown) received by 67% of the comparison group. A previous meta-analysis by Hanson et al [26] followed up data for the 2- to 10-year follow-up of the SAFE-T study [47]. When treatment drop-outs were added back into the treatment group, the positive effect vanished. Such a reanalysis, however, was impossible to perform for the 20-year follow-up included in this report, since recidivism data were not presented separately for the control group subsamples.

As with adult sexual offenders against children, interventions for adolescent offenders could have adverse effects. Albeit contested [48], some evidence suggests that group treatment and residential (inpatient) interventions for lower risk adolescent offenders might increase recidivism [49].

# Interventions for children with sexual behaviour problems

## Evidence-graded results

- The scientific evidence is insufficient to determine if cognitive behavioural therapy (CBT) combined with parental support is more effective than standard treatment in preventing sexual offending among children with sexual behaviour problems (SBP) (⊕○○○).
- No scientific evidence is available to determine the effectiveness of other preventive interventions for children with sexual behaviour problems (lack of studies).

## Background

Childhood sexual behaviour problems (SBP) refer to a persistent behaviour pattern of intrusive sexual behaviours that is not developmentally typical [50]. SBP is not a medical or psychological diagnosis, but intends to address behaviours that are not socially acceptable, ie potentially harmful to the children themselves or others. The behaviours need not be related to sexual gratification. Children included in this group are below 13 years of age, and they usually direct behaviours at other, often younger, children. It is important to distinguish SBP from developmentally appropriate sexual behaviours during childhood. Depending on age and culture, some intermittent and non-intrusive touching of body parts, including genitals and breasts, and interests in sexuality or sexual play are considered normal during childhood [50,51]. However, the behaviours should not be emotionally or physically harmful to the involved children. Whether or not a behaviour is considered normal relates to the child's developmental stage, the frequency of and potential preoccupation with the sexual behaviour, and if the child responds to corrections of SBP [51].

Children with SBP have received increased attention over the years due to retrospectively reported continuity based on up to 50% of adult sex offenders reporting childhood or adolescent onset of these sexual interests or behaviours [52,53]. The main concern with children with SBP is the elevated risk for sexual abuse and sexual offences against other child-

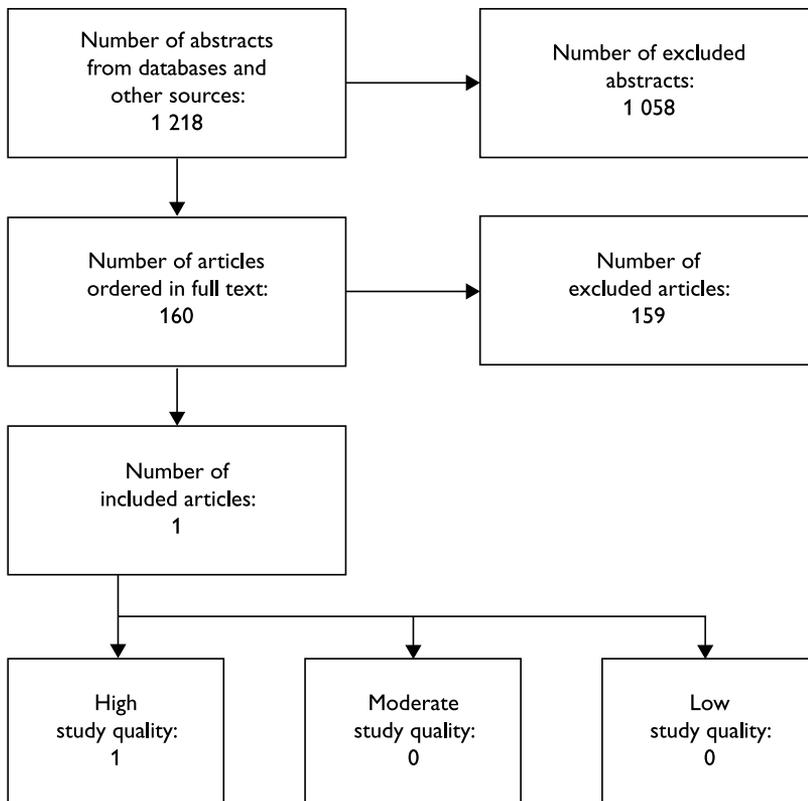
ren. Nations that ratify the *Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse* commit to offering treatment programmes adapted for children with SBP. Hence, it is necessary to develop effective, developmentally appropriate interventions for children with sexual behaviour problems.

## Systematic synthesis of available evidence

### Research question

- How effective are preventive methods targeting children with sexual behaviour problems (SBP)?

### Results of literature search and study selection



**Figure 3.3** Flow diagram of the selection of studies on children with sexual behaviour problems.

Only one study of high study quality met the inclusion criteria [54]. The study was tabulated (Table 3.11) and used as basis for rating the quality of evidence.

### Description of studies and results

**Table 3.5** Summary of findings for cognitive behavioural therapy compared to group play therapy in children with sexual behaviour problems.

Outcome	No of participants (no of studies & study design)	Effect (95% CI)	Control group event rate	Quality of evidence
Sexual offence (10 years)	135 (1 RCT <sup>1</sup> )	RR 0.16 (0.02; 1.25)	10%	⊕○○○

CI = Confidence interval; RCT = Randomised controlled trial; RR = Relative risk

<sup>1</sup> Carpentier et al 2006 [54].

**Table 3.6** Summary of evidence for cognitive behavioural therapy (CBT) compared to group play therapy in children with sexual behavioural problems (SBP). The table specifies the basis for rating the evidence. A zero indicates no reason to criticise this point. A minus sign indicates that the issue was indeterminable. Minus 1 or minus 2 indicate deficiencies that lower the quality of the evidence. However, it was not possible to achieve an overall evidence grade above ⊕⊕⊕⊕ (strong scientific evidence), or total evidence grade below ⊕○○○ (insufficient scientific evidence).

Outcome	No of participants (no of studies)	Study type	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Effect size	Quality of evidence
Sexual offence (10 years)	135 (1)	RCT ⊕⊕⊕⊕	0	-	-1	-2	0	0	⊕○○○

RCT = Randomised controlled trial

Carpentier et al conducted the only treatment study for children with sexual behaviour problems (SBP) included here; a randomised controlled trial including 135 children aged 5 to 12 years with SBP. Study quality was judged to be high [54]. The children were randomised to a 12-session cognitive behavioural therapy intervention in group or group play therapy, both combined with parental support and followed for over 10 years. A lower proportion of CBT-treated children committed future sex offences compared to play therapy controls (2% vs 10%). The difference was statistically significant according to the Wald test. However, when the data were subjected to the more conventional chi-square or Mantel-Haenszel statistical methods, the results no longer met the .05 level of statistical significance.

Play therapy is widespread in child psychotherapy, with roots in psychodynamic theory. Instead of talking directly with a child about his or her problems, play therapists initiate the child to play with different predefined objects, eg plastic toys. At times the therapist is more directive and introduces the child or group to specified activities. It is assumed that a therapeutic effect will result from the child's acting out of feelings and experiences directly or symbolically [55]. In parallel, parents may be involved in individual or group therapy addressing child-related topics and parenting. Play therapy has been used to treat both emotional and behavioural problems in childhood.

In rating the evidence according to GRADE (Table 3.6), a deduction was made for *indirectness* because of the single-site design. A deduction was also made for *imprecision*, due to poor statistical power. The optimal population size calculated for a study with the same effect size as that reported by Carpentier et al was 216 individuals [20]. Hence, the study was slightly underpowered, which might explain the lack of statistical significance. If the study were to be repeated with an identical population, study size, and outcome, the effect would reach statistical significance at the .05 level by a satisfactory margin (OR 0.15, 95% CI 0.03–0.65). In conclusion, we judged the evidence supporting CBT over play therapy to be weak.

## Discussion

Although the results were not statistically significant, the study by Carpentier et al indicated that cognitive behavioural therapy with parental support may be effective in preventing future risk of sexual offending among children with sexual behaviour problems. This finding is encouraging; primarily due to the possibility of reducing risks for potential victims and reducing societal costs, but also from the perspective of helping young individuals and their families avoid negative outcomes that would interfere substantially with normal development. However, more studies are warranted; primarily to show statistically significant effects of the treatment, but also to demonstrate that the method is applicable in other settings.

Other systematic reviews have addressed interventions for children under 12 years of age at risk for future antisocial behaviour and criminality (eg Parent–Child Interaction Therapy [58] and The Incredible Years [59]) [56,57]. These studies indicate that some family- and parent-directed interventions based on cognitive behavioural therapy may reduce risk behaviours in children with conduct behaviour problems, whereas interventions directed only at the children themselves (eg play therapy) are less effective. However, long-term follow-up studies are lacking. Additionally, a recent meta-analysis of treatments for child SBP by St. Amand et al (based on outcome measures other than future sexual offending) suggests an association between parent or caregiver involvement in therapy and improved outcome [60].

Play therapy, other non-directive therapies, and support groups based on psychodynamic theory are common in child psychiatric therapy settings in Sweden. Therapists who use variants of psychodynamic therapy often differ from play therapists in that they integrate play with verbal communication, do not use the same play materials, and may not be as strict in interpreting the child's behaviours or spoken words. Given similar theoretical backgrounds, play therapy could be considered a form of standard treatment for children in Sweden. However, there are wide variations in how treatment is provided [61].

As in adults and adolescents, excessively intense and inadequately administered or focused interventions for children with SBP might increase the risk of future antisocial behaviour. This is important, since the long-term risk for sexually violent behaviour in untreated children with SBP might be low [54].



**Table 3.7** Randomised controlled trials on adult offenders of sexual abuse against children.

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Marques et al 2005 [4]	<i>Study design</i> Stratified randomised controlled study (intention-to-treat)	<i>Population</i> Incarcerated male sexual offenders. Eligible subjects two or less convictions prior to their index offence, admitted to committing a sexual offence, had IQs above 80, and had not presented severe management problems in prison. 78% child molesters, 18.4% prior convictions for sexual crimes. 704 selected from 1 407 eligible subjects	<i>Treatment</i> SOTEP, Sex Offender Treatment and Evaluation Project. CBT-based response-prevention model, 90-min group sessions each week, response-prevention. Specialised groups on sex education, human sexuality, relaxation training, stress and anger management, and social skills. Class to prepare for post-release life in society. 2-year treatment program, 1-year aftercare program	<i>Source of recidivism data</i> FBI, California Department of Justice; and Department of Corrections  <i>Sexual reoffence</i> Treatment: 57/259 Control: 45/225 RR: 1.1 (95% CI 0.78–1.56) in favour of control*	High study quality  Inclusion criteria selected medium risk sex offenders, but excluded low and high risk offences
Marques et al 1994 [19]	<i>Inclusion years</i> 1985–1994				
Marques et al 1994 [62]	<i>Setting</i> Secure forensic treatment facility and prison				
USA  Journal article  <i>Affiliation to treatment program</i> Marques involved in setting up the treatment program, Nelson was clinical director. Other authors members of the evaluation team employed by the programme sponsor	<i>Follow-up time</i> Until 2001, all participants at risk at least 5 years (range 5–14 years)	Offenders had medium risk for reoffending*  <i>Allocation procedure</i> 484 volunteers matched on age, criminal history, type of offenders. Matched pairs randomised to treatment or volunteer control group  <i>Treatment group</i> N=259, 55 drop-outs before completing treatment  <i>Volunteer control group</i> N=225, no drop-outs	<i>Control</i> No treatment specified		

\* According to SBU's evaluation.

CBT = Cognitive behaviour therapy; CI = Confidence interval; FBI = Federal Bureau of Investigation; RR = Relative risk

**Table 3.8** Observational studies of interventions aimed at reducing recidivism risk among adult sexual offenders against children.

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Davidson 1984 [5]  Canada  Conference paper  <u>Affiliation to treatment programme</u> Not reported	<u>Study design</u> Matched cohort study  <u>Inclusion years</u> Treatment: 1974–1982 Control: 1966–1974  <u>Setting</u> Prison  <u>Follow-up time</u> 5 years	<u>Population</u> Incarcerated male sexual offenders with high risk of reoffending*  <u>Treatment group</u> All men who were treated in the sex offender treatment programme at a Canadian Penitentiary 1974–1982. N=101, of which 57 were paedophiles or hebephiles  <u>Control group</u> Consecutive admissions to penitentiary 1966–1974. Samples were drawn from 1 000 files examined in 1977 of which 250 were eligible for inclusion. N=101, of which 57 were paedophiles or hebephiles  <u>Control selection procedure</u> Controls were drawn through random sampling and matched on victim's age, gender, relationship with offender	<u>Treatment</u> Behavioural intervention. Training in interpersonal behaviours, sex education, temper control, changing physiological responses to sexual stimuli. Individual psychotherapy  <u>Length of treatment</u> 4 months in group therapy  <u>Control</u> No treatment	<u>Source of recidivism data</u> Royal Canadian Mounted Police and National Parole Board on reconvictions  Data presented separately for paedophiles and hebephiles  <u>Sexual convictions</u> Treatment: 7/57 Control: 16/57 RR: 0.44 (95% CI 0.19–0.98) in favour of treatment*	Moderate study quality

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Table 3.8 continued

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
<p>Marshall et al 2008 [7] Canada</p> <p><u>Affiliation to treatment programme</u> Authors were involved in either setting-up and delivering the programme, or in managing the unit</p>	<p><u>Study design</u> Matched cohort study</p> <p><u>Inclusion years</u> 1997–2001</p> <p><u>Setting</u> Milhaven induction centre of the Correctional Service of Canada</p> <p><u>Follow-up time</u> Until 2004, mean time at-risk: 3.06 years (range 0.27–6.82 years)</p>	<p><u>Population</u> Incarcerated adult male sexual offenders with relatively low risk of reoffending*</p> <p><u>Treatment group</u> Clients that had completed the Rockwood Preparatory Programme for Sexual Offenders. N=94, of which 73 were child molesters</p> <p><u>Control group</u> Controls were drawn from a pool of 800 contemporary sexual offenders assessed at Milhaven. N=94, of which 65 were child molesters</p> <p><u>Control selection procedure</u> Matching on offence history variables, age of offender, and scores on several tests, including Static-99 and two features of their offences, degree of sexual intrusiveness, and degree of victim injury</p>	<p><u>Treatment</u> The Rockwood Preparatory Programme for Sexual Offenders. 6–8 weeks, two 2.5 h group sessions/week, and then a full sexual offender treatment programme. Preparatory: 2.5 h per week, CBT and motivational interviewing (MI) approach, eg victim empathy exercises</p> <p><u>Control</u> No preparatory programme, but a full sexual offender treatment programme, content not specified</p>	<p><u>Source of recidivism data</u> Royal Canadian Mounted Police arrest and conviction records, and from the CSC Offender Management System</p> <p><u>Sexual convictions</u> Treatment: 1/94 Control: 4/86 RR: 0.23 (95% CI 0.03–2.01) in favour of treatment*</p>	<p>Moderate study quality</p> <p>In the presentation of the results, 8 subjects in the control group are missing</p>

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Table 3.8 continued

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
McGrath et al 1998 [8] Canada  Journal article  <u>Affiliation to treatment programme</u> Not reported	<u>Study design</u> Cohort study  <u>Inclusion years</u> 1984–1995  <u>Setting</u> Probation services  <u>Follow-up time</u> Mean follow-up time 62.9 months	<u>Population</u> Adult male sex offenders; 98.4% of all convicted sex offenders placed on community correctional supervision for >3 months between 1984 and 1995 in rural Vermont. N=122, of which 91 were child molesters. Treatment and control groups agreed to enrol in treatment  Offenders had low risk of reoffending*  <u>Treatment group</u> N=71, 1 drop-out before 3 months, 5 drop-outs after 3 months  <u>Control group</u> N=32, 1 drop-out before 3 months  Larger proportion of incest offenders in the treatment group (35%) than in control group (19%)	<u>Treatment</u> Specialised treatment: cognitive – behaviour therapy, relapse-prevention model: accepting responsibility, modifying cognitive distortions, developing victim empathy, controlling sexual arousal, improving social competence, relapse-prevention skills. Length of treatment 18–24 months  <u>Control</u> Non-specialised treatment. Diverse treatment methods. Length; a few months to >6 years	<u>Source of recidivism data</u> Criminal records in the state where participant had resided  <u>Sexual convictions</u> Treatment: 1/71 Control: 5/32 RR: 0.09 (95% CI 0.01–0.74) in favour of treatment*	Moderate study quality  The higher rate of incest offenders in the treatment group may have introduced bias in favour of the experimental intervention

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Table 3.8 continued

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Procter 1996 [6] United Kingdom  Journal article  <u>Affiliation to treatment programme</u> Not reported	<u>Study design</u> Matched cohort study  <u>Inclusion years</u> Treatment group: 1989–1992 Control group: 1986–1989  <u>Setting</u> Probation services  <u>Follow-up time</u> Treatment: 52 months Control: 58 months	<u>Population</u> Convicted adult male sex offenders with low risk for reoffending*  <u>Treatment group</u> All sex offenders who commenced treatment with the Cherwell Group between 1989 and 1992. N=54, of which 39 were child molesters. No drop-outs  Control group: Sexual offenders who began supervision by the probation service between 1986 and 1989. N=54, of which 40 were child molesters. No drop-outs  <u>Control selection procedure</u> Controls were matched to treated individuals on offender age, number of previous convictions for sexual offences, type of offence, age/gender of victim, use of force, genital to genital contact, and length of follow-up	<u>Treatment</u> CBT, 10 group sessions 6 h/day over 2 weeks, and 14 supervision sessions during 6 months. Themes covered were taking responsibility, awareness of victim perspective, challenging distorted perceptions, strategies to interrupt behaviour patterns, increase disclosure about offences, sexual behaviour, sexual fantasy  <u>Control</u> Standard probation supervision	<u>Source of recidivism data</u> Official criminal conviction data for sexual offences, Thames Valley Police  Data presented separately for child molesters  <u>Sexual convictions</u> Treatment: 2/39 Control: 2/40 RR: 1.03 (95% CI 0.15–6.92) in favour of control*	Moderate study quality

\* According to SBU's evaluation.

CBT = Cognitive behavioural therapy; CI = Confidence interval; RR = Relative risk

**Table 3.9** Randomised controlled trial of multisystemic therapy aimed at reducing recidivism risk among adolescent sexual offenders against children.

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Borduin et al 2009 [41]	<u>Study design</u> Randomised controlled trial	<u>Population</u> Included youths had been arrested for a serious sexual offence, were currently living with at least one parent figure and showed no evidence of psychosis or serious mental retardation	<u>Treatment</u> Multisystemic therapy (MST). Community and family-based, ecological model, including treatment at home. Empowering parents and adolescents; address denial about offences, safety planning, improving relations with prosocial peers	<u>Source of recidivism data</u> Police and court records in the state of Missouri	Moderate study quality
Bourdin et al 2001 [63]	<u>Inclusion years</u> 1990–1993	Of 51 eligible youths, 48 consented to participate in the study. Age 14.0±1.9 years (mean±SD). Mean number of previous sexual crimes: 1.62	<u>Length of treatment</u> 30.8±12.3 weeks (mean±SD)	<u>Sexual rearrests</u> Treatment: 2/24 Control: 11/24 RR: 0.18 (95% CI 0.04–0.73) in favour of treatment*	Although not formally communicated, the study population had medium recidivism risk*
USA Journal article <u>Affiliation to treatment programme</u> Borduin involved in developing the treatment programme [64]	<u>Setting</u> Community-based <u>Follow-up time</u> 8.9 years	Participants had medium sexual recidivism risk* <u>Allocation procedure</u> Equal numbers of families were randomised to treatment and control conditions using a random-number table <u>Treatment group</u> N=24, no drop-outs <u>Control group</u> N=24, 2 drop-outs before completion	<u>Control</u> Usual community-services complemented with CBT group treatment, 90 minutes twice weekly, individual treatment 60–90 minutes once a week <u>Length of treatment</u> 30.1±18.0 weeks (mean±SD)	<u>Number of sexual reoffences (mean±SD)</u> Treatment: 0.13±0.34 Control: 0.79±1.02 Mean difference: –0.66 (95% CI –1.09 to –0.23)*	

\* According to SBU's evaluation.

CBI = Cognitive behavioural therapy; CI = Confidence interval; SD = Standard deviation

**Table 3.10** Observational studies of psychological interventions aimed at reducing recidivism risk among adolescent sexual offenders against children.

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Worling et al 2010 [42]	<u>Study design</u> Cohort study	<u>Population</u> Adolescents convicted of or who acknowledged a sexual offence.	<u>Treatment</u> The Sexual Abuse: Family Education and Treatment (SAFE-T) Programme. Assessment and treatment. CBT intervention with family focus. Included increasing insight, developing offence-prevention plans, enhancing awareness of victim impact, and social relationships, and reducing impact of traumatic events	<u>Source of recidivism data</u> The Canadian Police Information Centre	Moderate study quality
Worling et al 2000 [47]	<u>Inclusion years</u> 1987–1995	None were below borderline intellectual functioning. Age 15.5±1.5 years (mean±SD, range 12–19 years)		Criminal charges rather than convictions were used as measure of recidivism	Although not formally communicated, the study population corresponds to medium-level risk*
Canada Journal article	<u>Setting</u> Community-based	The adolescents had medium sexual recidivism risk*			
	<u>Follow-up time</u> 16±2 years (mean±SD, range 12–20 years)	<u>Treatment group</u> Adolescents who participated in at least 10 months of specialised treatment at the SAFE-T programme. N=58 (5 females), 18 drop-outs after 12 months. Drop-outs prior to 12 months (N=27) were transferred to the control group	71% of the treatment group participated in both group and family therapy in addition to individual therapy	<u>Sexual charges</u> Treatment: 5/58 Control: 19/90 RR: 0.41 (95% CI 0.16–1.03) in favour of treatment*	The heterogeneous composition of the control group may have introduced a bias in favour of the experimental intervention
		<u>Control group</u> N=90. 46 received a SAFE-T assessment and were transferred to treatment elsewhere. 17 were treatment refusers. 27 initially belonged to the treatment group, but dropped out before 12 months of participation	<u>Length of treatment</u> 24.4±10.7 months (mean±SD)		
			<u>Control</u> Assessment, 67% received treatment elsewhere but the nature and duration of this treatment is unknown		

\* According to SBU's evaluation.

CI = Confidence interval; RR = Relative risk; SAFE-T = The Sexual Abuse Family Education and Treatment; SD = Standard deviation

**Table 3.11** Randomised controlled trial aimed at reducing risk for future sexual offending among children with sexual problem behaviour.

Author Year Reference Country Publication type Affiliation to treatment programme	Study design Inclusion years Setting Follow-up time	Population (N/drop-outs) Baseline data Groups	Interventions	Methods of data collection Effects/side effects	Study quality Comments
Carpentier et al 2006 [54] USA  Journal article  <u>Affiliation to treatment programme</u> Not reported	<u>Study design</u> Randomised controlled study (intention-to-treat)  <u>Inclusion years</u> 1992–1995  <u>Setting</u> Community-based  <u>Follow-up time</u> 11.5±1.2 years (mean±SD)	<u>Population</u> Children with clinically significant sexual problem behaviour, 5–12 years of age with normal intellectual ability. Children and their families recruited from child welfare, law enforcement, juvenile court, physicians, school personnel, mental health centres  <u>Allocation procedure</u> 178 children referred, intent-to-treat population: 135, allocated by randomisation  <u>Treatment group</u> N=64, age 8.8±2.0 years (mean±SD), 63% boys  <u>Control group</u> N=71, age 8.1±1.6 years (mean±SD), 60% boys	<u>Treatment</u> CBT. Manualised 12-session group-based therapy <u>Children groups</u> Behaviour modification, psychoeducation, identifying inappropriate sexual behaviour, learning behaviour rules, self-control, sex education <u>Parent groups</u> Information on normal/atypical childhood sexual behaviour, child management skills  <u>Control</u> Client-centred and psychodynamic group play therapy. Less structured, manualised, 12 sessions <u>Children groups</u> Drawing self-outlines, play materials, minimal direction from therapists who gave reflections and interpreted patterns of play <u>Parent groups</u> Themes similar to CBT groups, presented in a less directive manner	<u>Source of offence data</u> Juvenile justice, adult criminal justice provided information on arrests. The child welfare database was queried for maltreatment perpetration reports  <u>Sexual offence</u> Treatment: 1/64 Control: 7/71 RR: 0.16 (95% CI 0.02–1.25) in favour of treatment*	High study quality  An additional control group consisted of 156 children with disruptive behaviour, but no sexual behaviour problems, was excluded from the present analysis

\* According to SBU's evaluation.

CBT = Cognitive behaviour therapy; CI = Confidence interval; RR = Relative risk; SD = Standard deviation

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## 4. Ethical and social aspects of treating persons who have committed, or are at risk of committing, sexual offences against children

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Ethical issues about offender treatment are seldom considered in the scientific literature. Discussions tend to focus on how society in general, the legal system, authorities, and health and education systems can be affected by and react when sexual offences against children are disclosed. When the victim is a child, the community response is often even more pronounced and emotional than when the victim is an adult. Sexual offending against children is a highly emotional topic, which invariably stimulates debate about how society should react to prevent children from coming to harm. In Sweden and in many other countries, society has a responsibility to care for and protect children, including mandatory reporting to the social services by personnel seeing or working with children in health and welfare, education, and childcare sectors.

The primary aim of treating people at risk of committing sexual offences against children should always be to try to prevent more children from becoming victims. Society places a substantial value on every offence prevented. However, the public debate on sexual offences against children is too often characterized by how (harshly) the offender should be punished. Less attention is paid to the best possible efforts to actually prevent new offences against children. This chapter considers various ethical and social aspects of treating individuals that have committed, or are at risk of committing, sexual offences against children.

## Reactions of society

Few crimes arouse so much abhorrence and repudiation as sexual offences against children. Even people with a serious criminal background are often intolerant of sexual offenders [1]. Sweden and many other countries find it difficult to mix sexual offenders on remand or in prisons with, eg prisoners convicted of violent non-sexual crimes such as aggravated assault or armed robbery. Convicted sexual offenders have a significant risk of becoming victims of violence by other prisoners. Therefore, correctional services usually commission separate wards for those convicted of sexual offences. Internally, even sexual offenders as a group often rank child molesters at the bottom, lower than those convicted of sexual murder or adult sexual offences [2,3]. When a sexual offender is imprisoned with people serving sentences for other non-sexual crimes he is advised not to reveal the true reason for conviction, ie to avoid conflict and violence. The same applies after release from prison to make it easier to reintegrate into society and create a social platform with employment, reasonable living conditions, and socially acceptable leisure activities in the company of others.

Constructive rehabilitation efforts require a professional demeanour towards the individual with destructive sexual issues. Social prejudice can contribute to isolation and become an obstacle to rehabilitation and actually increase the risk of recidivism. For certain individuals, this could be an obstacle against seeking help from the health and social welfare systems for problems related to sexual deviance, eg urges, impulses, or risk behaviours that put them at risk of committing sexual abuse. When a convicted sexual offender seeks help, the reaction by medical and nursing staff can also be one of repudiation, partly because the crime arouses strong emotional reactions, but also because of inadequate knowledge among social welfare and health care personnel.

## Treatment aspects

### Psychological methods

Structured psychological treatment or psychotherapy, specifically multi-systemic therapy, has been shown to decrease the risk for future sexual offending among adolescent sexual offenders [1]. Among adult perpetrators treated with psychotherapeutic methods, we did not find similar evidence for a decrease in sexual recidivism. The results raise new questions: Should treatment efforts for adolescents be given first priority? Should early interventions be given to adults at risk of committing sexual offences against children?

Despite the large number of published scientific studies, remarkably few have included relevant comparison groups as controls. It remains uncertain which treatment methods, after a long follow-up period, are effective in reducing the risk of relapse by convicted child molesters (see Chapter 3). Methods considered by therapists to be effective cannot be evaluated with certainty unless tested under the stringent conditions of randomised controlled trials or well-conducted observational studies. This is important since some studies indicated that adult child molesters who received psychotherapy to suppress their sexual drive could run a higher risk of relapse than those who received standard treatment [4–6].

In this context, it could be questioned whether any treatment is warranted at all. Despite the lack of unambiguous scientific evidence, it may be perceived as unethical not to offer some form of treatment. This reflects a dilemma in this field of research: it has yet to be determined how treatment should be designed to optimally benefit society, presumptive victims, and the perpetrator. From an ethical stance, it is important that treatment does no harm, that the patient undergoing treatment be accorded respect, and – as far as possible – that participation is voluntary. An important challenge is to meet the offender in a neutral – but at the same time engaged and respectful – manner, despite the strongly emotive nature of sexual offences against children. Successful treatment may depend on the therapist's ability to create a working alliance with the offender and prevent relapse by focusing on individual risk factors that may be responsive to treatment. Distinguishing between the crime

and the person committing the crime, and maintaining an objective, impartial attitude is necessary but difficult as sexual offences against children arouse very strong emotions.

## **Equality of care**

Since 2003, Swedish Prison and Probation Services in Sweden have provided structured treatment to reduce the recidivism risk of sexual offenders. Similar to other (mainly Anglo-Saxon) countries, intervention programmes are based on a treatment manual. Cognitive behavioural psychotherapy, social training, and relapse prevention are used to reduce the offender's risk factors for recidivism (Facts 1.2). The treatment aims are: to reduce crime-supportive attitudes, cognitions, and sexual preoccupation; strengthen the ability to cope with anger and impulsivity; and, when needed, decrease substance misuse.

Prerequisites for acceptance into these programmes are that the convicted person has a good command of the language used, has adequate intellectual capacity, and can otherwise be presumed to benefit from treatment. Sentence duration is also a determining factor; a person serving a short prison sentence might miss out on treatment since it cannot be completed during the prison term. The same applies to people who have committed less serious sexual offences and have been sentenced to probation or fines, mainly because probation services across the country do not always have competence in this area. Geographic distance may also present an obstacle for specialized treatment of sexual offenders. Hence, corrective services systems include many people who, for various reasons, receive no treatment. These discrepancies in access to care could hinder the identification and treatment of individuals at risk of relapsing into sexual offending.

## **Anti-androgen therapy, so-called chemical castration**

Treatment with hormone-inhibiting medication in men suppresses sexual urges and can delay erection. The medication is administered in tablet form, or as a long-acting injection, and is occasionally referred to as chemical castration – a term that inaccurately implies that the

treatment causes permanent, irreversible, loss of sexual potency. The effect is temporary, but can be maintained by repeated drug administration. The effect of treatment can also be fully counteracted by administration of male sex hormones, eg by doping with anabolic androgenic steroids. No scientific evidence shows that testosterone-lowering drugs would have a significant impact in reducing the risk of recidivism among sexual offenders against children. Yet, society commonly advocates this therapy as the treatment of choice for persons who commit sexual offences.

We seldom know the motives behind sexually abusive behaviours against children. Several driving forces probably coexist in complex *causal webs*. This includes paedophilic sexual preferences for children, excitement-seeking sexual behaviour, or sexual preoccupation. However, if the offence is committed due to non-sexual compulsions, revenge, general anti-social attitudes, or other non-sexual motives, could antiandrogen therapy be ineffective or, hypothetically, even have the opposite effect from that intended?

In addition to not having evidence to support its effect on reducing sexual offending, antiandrogen treatment is associated with marked side effects and risks, especially when treatment extends over several years [2,3]. Low levels of male sex hormones can lead to osteoporosis and increased risk of fracture. This treatment can also increase the risk of cardiovascular disease. Other undesirable side effects are weight gain and risk of diabetes, breast enlargement, and liver damage. Certain individuals are at increased risk for depressive symptoms, which could require treatment with antidepressive medication, often in combination with counselling.

However, clinical observation suggests that among individuals where sexually abusive behaviour results from strong sexual urges and impulses, treatment seems to help reduce the risk of acted-out behaviour. Clinical observation also suggests that many treated individuals perceive the effects of antihormonal treatment as positive, experiencing greater wellbeing once intrusive sexual urges are suppressed. By reducing preoccupation with sexuality, pharmacological treatment could also facilitate participation in psychotherapy.

It is most important that people receiving antihormonal treatment are well-informed about the need for regular checkups to reduce the risk of serious side effects. Clinical checkups should include blood tests to determine hormone levels, salt balance, and liver function. Skeletal bone density should be measured and preventive measures taken if signs of osteoporosis are detected. In addition to minimizing the risk of side effects and monitoring hormone levels to avoid unnecessarily high doses of the drug, regular checkups disclose whether the patient is complying with the prescription.

In the context of risks associated with long-term treatment, the possible – but scientifically unproven – benefits of treatment must be weighed against its disadvantages, eg invasion of individual integrity and the potential medical complications that might develop.

In cases where co-operation between the physician and the patient is good, medication can be given for shorter periods when the risk for inappropriate or abusive sexual behaviour is considered to be elevated. Negative long-term effects can be avoided if treatment is administered for shorter periods. Compliance with treatment may be greater if the physician providing the necessary treatment information is engaged and treats the patient with respect. Clinical experience suggests that the greater the patients' sense of involvement in treatment, the longer they are likely to remain in treatment.

For adolescent offenders and children with sexual problem behaviour, antihormonal treatment is contraindicated on both medical and ethical grounds. Puberty and skeletal maturity are delayed if hormone levels are too low, which means that this treatment is acceptable only in adult men. Antiandrogen treatment in relation to sexual offending was developed for adult men, and currently there is no support for recommending antihormonal treatment in women or adolescents with the aim to reduce sexual recidivism.

One question that can arise is whether a physician, on ethical grounds, can refuse to administer hormone-inhibiting treatment, since the purpose of treatment is to suppress sexuality in the absence of any somatic

disease<sup>1</sup>. The health services likely include physicians who reject seeing persons with sexual deviancy or behaviour associated with sexual offending, arguing that their sexual deviancy or offending behaviour should not be regarded as an illness. A discussion needs to address which category of specialists should accept the responsibility for diagnostics and treatment; and on whose behalf – the patient or society represented by the correctional services. Notably, an offender within the correctional services may be offered medication, but treatment is always voluntary and can never be forced.

In the ongoing debate concerning the ethics of treating sexual offenders, perceptions vary as to what the “treatment” is intended to achieve. Does it signify punishment for a crime, or is it primarily intended to improve the wellbeing of the perpetrator? Whose interests does the care provider/therapist represent? How can we protect the human rights of the perpetrator and still maintain a balance between protecting the public interest and maintaining personal integrity? The care provider/therapist must acknowledge these divergent perspectives and must achieve a balance between the interests of the individual and society at large [4,5].

## **Adolescent sexual offenders against children**

Many adult perpetrators of sexual crimes admit that even in early puberty, they were genuinely attracted sexually to children [6]. This should not be interpreted as a strong correlation between sexual acting-out behaviour in youth and continued sexual offensive behaviour in adulthood. However, in groups of children and adolescents who already exhibit problematic sexual behaviour, one should consider possible signs indicating the development of paedophilia. Adolescents who commit sexual offences often exhibit other concurrent problems [7], eg adjustment problems at school, at home, and during leisure hours [8,9]. Anti-social traits beyond the accepted norm, criminality, and substance abuse

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<sup>1</sup> The most common use of testosterone-lowering drugs is for prostate cancer, mainly in older men. When this treatment is administered against prostate cancer it is less controversial, because the benefits of preventing spread of the cancer are considered to outweigh the effect on sexual potency.

during early years can develop into an antisocial personality disturbance in adulthood. Some adolescents may have shortcomings in their social environment combined with emotional disturbances such as social phobia, depression, and learning difficulties. Evidence-based social support measures might arrest a negative trend, with hope for more positive development.

## **Children with problematic sexual behaviour**

When children commit sexual offences against other children, it is necessary to consider a broad range of underlying reasons. The expressions “perpetrator” and “sexual offence” may be inappropriate when applied to prepubertal children who engage in sexual activity with other children. It can be difficult to determine the boundaries between natural sexual curiosity and a sexual offence. Games of “playing doctor”, in which children examine their own and other children’s bodies, are considered to be a natural part of children’s psychosexual development. More problematic can be situations in which young children exhibit exaggerated sexualised behaviour and run the risk of harming other children, particularly when this is combined with aggressive behaviour. The child’s behaviour is at risk of being misinterpreted as either harmless or more threatening than it actually is, and the latter case could trigger a disproportionately strong reaction in others.

Children who portray sexual behaviour may themselves be, or have been, exposed to psychological, physical, or sexual abuse, or may be living under vulnerable domestic conditions with inadequate adult supervision. These children may also be mentally retarded, emotionally disturbed, or have neuropsychiatric handicaps as well as social and cognitive difficulties [7]. Special measures are required to investigate and manage such underlying problems.

In summary, children and adolescents who commit sexual offences can have complex needs that have to be met within the framework of measures provided by social services, child and adolescent psychiatry, and other concerned social institutions and authorities.

## **Concomitant conditions**

Substantial associations are found between deviant sexual behaviour and psychiatric disorders [10,11], eg brain injuries, dementia, learning disabilities, autism, and psychosis [17]. Many perpetrators suffer from anxiety, depression, neuropsychiatric disorders (eg ADHD), substance misuse, or social phobia. Poor interpersonal skills in people with psychiatric disorders could, at times, lead them to seek the company of children. Different group-based care settings for the neuropsychiatrically or intellectually disabled have a distinct need for competence in managing individuals with sexually deviant behaviour, competence that is often missing today. Many of these patients have never received appropriate sex education targeted to their level of disability. In some cases, medication combined with educational counselling may be necessary to reduce the risk of sexual offences against children. In this context, local authorities and county councils should share the responsibility for raising awareness of the problem, training staff, and developing appropriate treatment methods.

Individuals with depression, obsessive-compulsive disorder and psychosis could occasionally express sexual thoughts and fantasies about children and perceive themselves as being paedophilic. This might be temporary, and recedes once the mental health has improved. If this is the case, it could be viewed as a symptom of the psychiatric disorder. Psychiatric and correctional services have a joint responsibility to detect and treat psychiatric morbidity. Importantly, some untreated mental illness including substance misuse can contribute to sexual offender recidivism risk [12].

## **Methods not used in Sweden**

### **Other prevention**

To reduce sexual offending against children it is desirable to identify, as early as possible, people at risk of committing sex crimes and reduce their likelihood of actual offending. Probably a substantial share of all individuals with a sexual interest in children have few other risk factors for sexually abusive behaviour against children and have protective

factors (Facts 1.3) that prevent them from committing sexual offences against children. However, under certain individual and social circumstances the favourable balance with few risk factors and several protective factors may be altered, resulting in a temporarily increased risk of sexual abuse. Those who perceive their sexual deviance as a problem might fulfil diagnostic criteria for paedophilia (Facts 1.3), often accompanied by a concurrent psychiatric disorder [13,14] and heightened risk of suicide [15]. Given the risk for stigmatization and poor knowledge within the health and social services, this group finds it difficult to obtain treatment. In Sweden, only limited help is available for people with sexually deviant interests such as paedophilia and sexual risk behaviour. Some specialised units are available, eg the Centre for Andrology and Sexual Medicine at the Karolinska University Hospital in Huddinge, but resources have been limited. In Sweden, people at-risk are primarily left to contact general psychiatry services regarding these issues. Firm conclusions cannot be drawn as to which interventions are successful in preventing recurrence of sexual offences against children. Hence, it is difficult to recommend appropriate treatment measures. Awaiting further research results and more evidence, the question of what might be achieved with currently available treatment options remains unresolved.

Some countries, eg England and Germany, have established telephone-based help-lines, enabling people who are sexually attracted to children to call anonymously and receive counselling, limited assessment, and referral to optimally qualified treatment venues [16–18]. For individuals with deviant sexual attractions, anonymity can be a crucial determinant for initiating contact with authorities and treatment professionals. It often takes time for people to build the necessary confidence to become motivated to seek and accept professional support and interventions. Many years of practical experience from the *Stop it Now!* and the Dunkelfeld projects suggest that thousands of individuals (often unidentified by the legal authorities) at risk of sexual offending against children can be motivated to participate in treatment. In this endeavour, the possibility to initially remain anonymous appears pivotal and could lead to long-term advantages. To date, Sweden has not established a help-line, but support for such a service has been promised [19].

## Public registration of offenders

It is often suggested that persons who have committed sexual offences against children should be publicly registered with name, photo, and address. The purpose is to prevent new sexual offences against children by deterring presumed offenders and to warn families with children living in the convicted sexual offender's neighbourhood. Making public the names of convicted child molesters could have substantial negative consequences for those targeted. Most importantly, loss of jobs, friends, and rental contracts may increase the risk of reoffending. In many countries, the authorities passively or actively inform citizens if convicted sexual offenders, including child molesters, reside in the neighbourhood [20–23]. Obviously, the purpose is to prevent non-sexual and sexual offences against children.

If the victim is a family member of the offender, then this becomes an added burden on close relatives. Harassment directed towards the offender him/herself or destruction of property at the offender's residence could further harm close relatives. There are several examples of social exclusion, with stone-throwing and other harassment directed towards the homes of families already under pressure, which have forced these families to relocate [20–23].

The USA and some other countries have years of experience with requirements to officially register sexual offenders [24]. Depending on the severity of the crime, some offenders may be registered for 10 years, whereas others are registered for life. Several controlled studies comparing registered and non-registered convicted sexual offenders (adults and adolescents) have failed to demonstrate that registration has any preventive effect [25,26]. On the contrary, registration appears to be associated with the risk of social isolation, shame, and trauma from vigilantism. Harassment against convicted and released offenders can instead increase risk of relapse into crime [27]. In Sweden, privately funded Internet sites disclose some convictions for sexual offences, including the convicted person's name, personal identification number, and residential address. Public registration could also provide a false sense of security because the focus is on offenders who have already been convicted. More than 90% of all individuals convicted of sexual offences

against a child in Sweden from 1973 to 2004 had no previous conviction for sexual offending [34]. People convicted exclusively of sexual offences have a low risk of relapse for similar offences [28,29].

## **Surgical castration and aversion therapy**

In Sweden, a drastically invasive and irreversible measure such as surgical castration (removal of testicles) of sexual offenders is considered by most people to be highly unethical. The Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) of the Council of Europe has called for an immediate stop of surgical castration of detained sexual offenders since this treatment, applied for instance in the Czech Republic, amounts to degrading treatment [30]. When the method was used more widely, mainly during the first half of the 20th century, sexual offence recidivism was reported even post-operatively [31].

The same applies to aversion therapy involving electric shock, used earlier with the aim of attenuating sexual attraction to children [32]. As late as the 1960s, neurosurgical procedures were performed on people with high-risk sexual behaviour. For obvious reasons, this method is essentially obsolete [33].

Health care professionals occasionally encounter patients so seriously distressed or impaired by their paedophilic sexual orientation that they request surgical castration. However, when people wish to undergo such a definitive operation, there is reason to suspect an underlying mental illness, eg severe depression, psychosis, or an obsessive-compulsive disorder. Hence, a comprehensive evaluation by a psychiatrist in collaboration with other qualified physicians should be mandatory. Until proved otherwise, a psychiatric disorder should be suspected when a person requests surgical castration. An appropriate ethical principle should be to refuse to approve treatment considered to do more harm than good. In certain cases, the physician can consider testosterone-inhibiting pharmacotherapy, particularly in people at increased risk of self-mutilation or suicide.

## **Compulsory treatment and treatment as a condition for release from prison**

In some jurisdictions, convicted sexual offenders could be offered earlier release from prison or forensic psychiatric care if they accept hormone-inhibiting treatment [34]. Under current Swedish law, hormone-inhibiting (anti-testosterone) treatment may not be administered without the patient's consent. The introduction of legally sanctioned compulsory measures for certain types of offences (eg child molestation), but not for others (eg aggravated assault or attempted homicide) would be problematic as regards the principle of equality before the law. Another related aspect is whether society has the right to reduce or take away a person's sexuality because the person has committed a sexual offence – particularly in light of sexual offenders' relatively low risk of relapse in their typical crime, as compared to violent non-sexual offenders [35]. Arguments are seldom heard in favour of forced treatment to reduce aggressive behaviour for persons who have committed non-sexual violent crimes.

Practitioners have considerable uncertainty about pharmacological treatment of sexual deviance. While a few providers are relatively competent in this area, knowledge in general is inadequate, even among psychiatrists and forensic psychiatrists. Pharmacotherapy of sexual deviance is rare in Sweden's correctional services [36].

## **Penile plethysmography and human rights**

In the United States and several European countries, penile plethysmography is used as a voluntary method to determine sexual deviancy and to monitor treatment outcomes in convicted sexual offenders. The method uses special equipment to measure the level of arousal when the patient is exposed to pornographic images. As far as known, the method is not used in Sweden, other than in investigating patients with erectile dysfunction. It has not been widely recommended as an investigative method for sexual offenders. Penile plethysmography can be questioned, and some have suggested that it might violate human rights. In one case, in 1999, a trial in the European Court of Human Rights addressed this subject [37]. The court decided that the method was justified and

implied that any discomfort experienced by the individual offender had to be weighed against the greater benefit to society.

## Summary

People at risk of committing sexual offences against children comprise a heterogeneous group of individuals with varying backgrounds, risks, and needs. The offender is usually a young or adult male, but may be an adult female. Child molesters with learning disorders and cognitive deficits constitute a subgroup that might have special needs, and their care has often been inappropriate.

Offenders' voluntary participation in interventions should be strongly emphasised. An important ethical principle should be that treatment is provided in consultation with the individual and with respect for the individual's integrity. The benefits of different interventions should always exceed possible harm, and interventions must carefully balance the needs and rights of the treated individual and society at large.

Political support, economic resources, and appropriate staffing are prerequisites for meaningful preventive efforts. Individuals at risk should be identified as early as possible, ideally before any crime has been committed. In this context, society has a responsibility to provide appropriate facilities, eg training of personnel in correctional services, health care, and social services. Other potentially meaningful measures might include provision of readily accessible support for people at risk, eg telephone-based help-lines and the establishment of specialised outpatient teams or units. The absolute majority of those convicted of child molestation have no previous sexual convictions, and the risk of sexual reoffending is lower than reoffending risks for perpetrators of non-sexual, violent offences [38]. The social status of sexual offenders is low, and placing sexual offenders on public registers does not seem to reduce recidivism despite substantial economic and humanitarian costs. Stigmatisation might actually increase the risk of recidivism under certain circumstances [27].

Society at large, including current and future child victims, have the right to expect effective treatment of people who have committed, or are at risk of committing, sexual offences against children. It would be unethical to continue using treatment programmes that have not been thoroughly evaluated. We cannot yet state with certainty what type of treatment is effective. Not to treat at all, due to a lack of scientific evidence, also raises ethical problems. The European Council has adopted a convention on protection of children from sexual exploitation and sexual abuse. Sweden is a signatory to the convention, and the question of whether or not we should ratify the convention is under investigation [39]. The discussion within Europe proposes that people at risk of committing sexual offences against children should have access to effective treatment programmes and measures. This could place an obligation on Sweden to offer effective treatments and evaluate the treatments offered. The research currently available does not clarify which treatments are effective. While we await conclusive results from larger and better studies, we should continue offering treatment according to currently promising methods and the RNR principles (Facts 3.1) to achieve the greatest possible benefit while inflicting minimal harm. Treatment effects should be documented and thoroughly evaluated.

Several ethical dilemmas in the field relate to interventions for people at risk of committing sexual offences against children. Society has an interest in combating crime, and public opinion presses for strict punishment of people who have assaulted children. Children are entitled to be protected from sexual abuse and assault. Meanwhile, people have a right to self-determination, integrity, and influence over the care and treatment given. Should exceptions to this principle be made for persons who have committed sexual offences against children? Can we weigh the rights of the child against the rights of the perpetrator, or do we believe that perpetrators have forfeited their right to integrity? How is it possible to combine sentences for sexual offences against children with effective treatment measures that require collaboration and respect for the individual? We need to highlight several important issues relevant to our view of the perpetrator and the interventions that society has to offer. The prime objective of this work should be to prevent children

from becoming victims of sexual crime. However, this ambition requires continuous evaluation to determine which prevention efforts are truly effective. Otherwise, we might risk diverting increasingly large sums of money away from interventions that work and into inefficient and even counterproductive interventions.

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# 5. Economic aspects of rehabilitation programmes for child molesters

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## Conclusions

- ❑ The scientific evidence is insufficient to determine the cost effectiveness or the societal economic consequences of psychological or pharmacological treatment of adult child molesters (⊕○○○).
- ❑ The evidence is insufficient regarding health economic studies on treating adolescent sex offenders or children with sexual behaviour problems (SBP). This also applies to people that have not committed, but are at risk of committing, sexual offences against children (lack of studies).

## Introduction

Cost-effectiveness analyses (CEA) can be used to compare the outcome of a (new) treatment versus a reference treatment (or standard treatment). Cost-effectiveness analyses give the ratio of the incremental costs and the effects of the treatment compared to the reference treatment. Another type of analysis is cost-benefit analysis (CBA), which values the effects in monetary terms. Most economic studies on sexual reoffence prevention programmes have used cost-benefit analyses.

The effects of sexual offences against children concern four main stakeholders: 1) victims, 2) relatives and those close to both the offender and the victim, 3) offenders, and 4) society, especially the judicial, social service, and health care sectors. Other parties may also experience negative effects of child sex offences, eg residents in an affected community.

The costs for a reoffence consist of direct, indirect, and intangible costs.

- *Direct costs*, eg the judicial system's cost to handle a reoffence, the cost of the incarceration period for convicted offenders, and health care costs for victims.
- *Indirect costs*, eg the costs to involved persons (relatives and others close to the victim and/or offender) or institutions (social services) that are not explicitly covered under direct costs. Production loss, both for the offender and the victim, is a typical indirect cost.
- *Intangible costs* are costs that are difficult to value, eg effects on quality of life (QoL). Intangible costs relate mainly to the pain and suffering that victims and their relatives experience. The perpetrator may also have reduced QoL after a reoffence. Intangible costs are often measured as loss in QoL, but they can also be estimated in monetary terms.

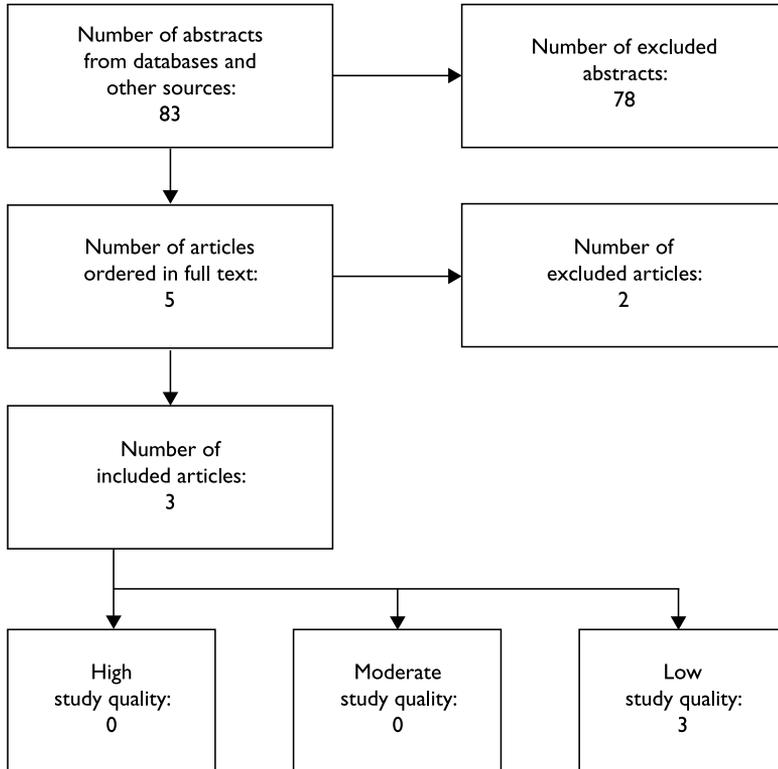
We identified only three studies addressing the health economic aspects of treating convicted persons for child sex offences. One of these studies can be considered a cost calculation or cost comparison rather than a cost-effectiveness analysis (see above) [1]. Another study uses sensitivity analysis to estimate the break-even point where treatment becomes cost effective. However, it used estimates of treatment effects from other studies and provided no original data [2]. These two studies failed to report comparisons between two unique groups, treatment versus non-treatment, or to describe in detail what treatment had been used. A third study (from New Zealand) described the programme, the participants, and the outcomes in detail, but the health economic part of the study was unclear and provided no specified calculation of the costs. This study was included in the systematic review (Chapter 3), but was found to be of low quality [3]. A fourth study is included in this review because it deals with the societal costs in Canada related to child sexual abuse. However, the study does not address treatment aspects [4]. In summary, no studies of adequate quality deal with cost effectiveness of treatments for persons who have committed, or are at risk of committing, child sexual offences.

## Systematic synthesis of available evidence

### Research question

- Are treatment or preventive methods cost effective?

### Results of literature search and study selection



**Figure 5.1** Flow diagram of the selection of health economic studies.

Three studies met the inclusion criteria [1–3], all of which were found to have low study quality.

## Description of studies and results

In a paper from 2001, Shanahan et al calculated possible outcomes of cognitive behavioural therapy programmes for convicted paedophilic sexual offenders in Australia [2]. The study discusses the proportion of direct and indirect costs compared with intangible costs to the victims. It was assumed that a treatment programme could reduce recidivism rates by 2% to 14%. The authors show that a programme would be considered beneficial for society if it could reduce recidivism rates by 4% to 8%, depending on how the effects of an offence were valued. Furthermore, they point out that if recidivism includes multiple victims the benefits of the programme would be even greater. They argue that between 13% and 62% of the total costs for a single reoffence can be related to variations in the estimates of the intangible costs. This paper is useful in respect to identifying different types of costs related to reoffence.

Prentky et al evaluate recidivism outcomes for child molesters at a US treatment centre that were followed up during 1960 to 1985 [1]. Of 1 790 possible candidates for treatment, 564 were committed to a treatment, 315 were discharged, but ultimately only 129 child molesters were followed up regarding recidivism. The paper provides no information on the type of treatment, and the long time period makes it questionable whether the treatment used would still be applicable today. The outcome was: charges for victim-involved sexual offences that included physical contact. Using results from other studies, recidivism among non-treated offenders was estimated to be 40% within 5 years, a significantly higher recidivism rate than the 25% among the cases followed up. The study used a lower cost of incarceration for the therapy group than for the untreated group, which was inaccurate. However, Donato and Shanahan [2,5] corrected this erroneous calculation in 2001 and concluded that a 5.5% reduction in the recidivism rate for the treated group in the Prentky et al study would be sufficient to motivate the treatment programme [5]. This study is difficult to use because of missing information about specific treatment in the programme, the absence of a control group, and errors in calculation.

The *Kia Marama* programme in New Zealand showed about a 50% reduction in recidivism rates (from 21% to 10%) between treated versus untreated child molesters [3]. Since the follow-up period was not the same for treated cases and controls, the favourable outcome can be questioned due to differences in the time at risk (average of 4.2 years for cases and 8.5 years for controls). Although the intervention is well described, the economic calculation is not. The cost estimate for reoffence is an unspecified lump sum retrieved through personal communication with an expert. Our systematic review presented in Chapter 3 includes the *Kia Marama* study, which was found to be of low quality.

Hankivsky et al calculated societal costs attributable to child sexual abuse in Canada in the late 1990s [4]. Costs were calculated as percentages of different budgets, and several cases used cost averages. For instance, 4 666 cases were heard for crimes related to child sexual abuse, which was about 1% of all cases that could be applied to the national budget. About 1 800 individuals were found guilty, and this number applies to 7% of all adults found guilty of crimes. Direct costs comprised about 85% of total costs, and indirect costs related to morbidity and mortality comprised the remaining 15%.

## Discussion

To some extent, the Swedish figures differ from those in countries such as Australia, the United States, and Canada. Compared to the United States, Sweden sentences a larger proportion of all convicted persons to outpatient programmes involving community service or treatment [6]. This also applies to some less-severe sexual offences against children. Moreover, Sweden has shorter imprisonment periods than the USA. In 2007, the average sentences for those convicted to imprisonment for rape and aggravated rape of a child were 16 and 36 months, respectively [7]. Consequently, the average judicial cost for sexual offenders is lower in Sweden. The recidivism rates for Swedish child sexual offenders are also relatively low compared to other countries. A follow-up of all sex offenders released in 2004 reported about 6% reconviction for sexual offences within 3 years of discharge [8]. A 9-year follow-up study of

offenders after release from prison during the mid 1990s reported that 9% were reconvicted for a sexual crime [9].

Addressing treatment of medium- and high-risk offenders, where recidivism rates are significantly higher compared to low-risk offenders, would increase the potential gain of a treatment programme [10]. Correctional treatment of offenders at low risk of reoffending is likely to be less effective in reducing recidivism compared to offenders with a more pronounced risk profile [11]. In line with the RNR principles (Facts 3.1), if resources are limited, an argument can be made to focus primarily on medium- and high-risk offenders ahead of persons at low risk of reoffending.

A reoffence is associated with direct costs for the judicial system (eg police, prosecutor, court of law, and correctional services), social services, and health services (eg forensic care). The incarceration of offenders accounts for most of the direct costs in the international studies presented. Indirect costs are measured in terms of production loss and health problems.

A major part of the intangible cost relates to the QoL loss experienced not only by the victim, but also by relatives and persons close to the victim. Some victims may have life-long difficulties related to health and may experience problems later in life, eg anxiety, mood disorders, and suicide attempts [12–14]. Other intangible costs can be found at the societal level when the offence affects third parties [15,16], eg the fear and anxiety that residents may experience in a community if a stranger has committed offences against children. Although it is difficult to estimate these intangible costs, some attempts have been made in related fields of research [17]. Fear of crime in the population is geographically and socio-economically dependent, even if the causality is under debate. Residents in areas with above-average unemployment and criminality experience greater fear compared to residents in low-risk environments [18].

One way to value intangible costs is to estimate the willingness to pay (WTP) in society. The WTP approach has been tested for programmes

related to crimes against children in a population survey in Alabama, USA [19]. In general, citizens' WTP to prevent sexual crimes appears to be high [20]. According to the US Department of Justice, child sexual abuse ranks second to murder as the most costly crime, followed by rape, child physical abuse, and arson [16]. Even though the US studies of WTP are not directly applicable, nothing indicates that WTP would be much less in Sweden. This suggests that even interventions with modest effects would probably be cost effective because typically the costs are not exceedingly high, but society places a high value on every case prevented.

Priority setting between interventions is necessary because resources, eg money, therapists, or other components needed to implement the intervention, are limited. Making sound policy decisions requires access to information that is as extensive and as solid as possible in terms of the effects and cost effectiveness of different interventions.

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## 6. Uncertainties and concluding discussion

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### Number and quality of intervention studies for child molesters

Only 22 studies met the inclusion criteria for the systematic review of intervention studies aimed at reducing sexual recidivism among sexual offenders against children. Of these studies, 14 were rated as low quality. Rigorous inclusion criteria constituted the main reason for the small remaining number of included studies of adequate quality (Chapter 2). We reviewed studies of identified child molesters or people presumed to be at increased risk of committing sexual offences against children. The latter was defined as individuals charged with child pornography offences and self-referred individuals with paedophilia or hebephilia. In addition, we included studies on children with sexual behaviour problems.

Many studies address mixed populations of offenders, with varying proportions of child molesters, rapists of adults, and exhibitionists. Because sexual offenders against children differ somewhat from other sexual offenders (eg rapists of adults) regarding risk factor profiles (see Facts 1.2) it is likely that interventions could be effective for rapists, but not for child molesters and vice versa. Hence, for studies with mixed sexual offender populations, we required that at least 70% of the sample were child molesters, unless the outcome was specified separately for sexual offenders against children. We considered only studies that involved contemporary and credible interventions. Cognitive behavioural therapy, relapse prevention, and, for adolescents, structured and integrated work with family and youth (eg multisystemic therapy, MST) were included, as were pharmacological interventions such as antiandrogen treatment.

We excluded historical interventions based entirely on treatments such as unfocused, psychoanalytical group psychotherapy, aversion therapy, and surgical castration. Studies eligible for inclusion had to use outcome measures directly reflecting sexual offences against children (arrests, convictions, breaches of parole conditions related to sexual offences against children) and self-reported child molestation. Child pornography offences were also included. As secondary outcomes we aimed to include studies that measured sexual offences against adults and self-reported sexual impulses that included sexual abusive behaviour against children.

Among all of the 22 included studies, *any sexual reoffence* (ie not specifically against children) was the outcome measure, most likely because of the low overall recidivism rate. Only studies based on prospective data collection were used, including well-executed register studies if the registers were based on prospective data collection. All studies required a relevant control or comparison group. The control group could receive treatment ("standard treatment", "treatment as usual") or no treatment. The reason why the comparison group did not receive the active treatment was a crucial factor in determining inclusion. Individuals who refuse or discontinue treatment often differ markedly from those who accept and complete treatment for risk factors known to be related to risk of recidivism [1]. Hence, we excluded studies where the comparison group consisted only of treatment drop-outs or treatment refusers. Finally, included studies needed a follow-up period of at least one year. Studies that met these criteria were judged relevant for the systematic review and subjected to quality assessment. For this procedure, we used checklists derived from the generic SBU checklists for randomised controlled trials and observational studies, but tailored for evaluation of interventions in the corrections field following scrutiny of the Collaborative Outcome Data Committee (CODC) guidelines [2].

Using a set of minimum requirements, studies were rated as high, moderate, or low quality (Chapter 2). For example, moderate-quality studies required that the treatment and control groups were balanced at the outset with respect to risk factors for relapse, whereas high-quality studies should include a certain population size with the statistical power to detect possible differences and also quality control

of intervention integrity. For randomised controlled studies, we required an adequate randomisation procedure. For observational studies we required that most of the known confounding factors had been identified at baseline, and that the statistical analysis had adjusted for any differences between the groups. Studies that met the inclusion criteria but not the minimum requirements for at least moderate quality were rated as low quality and omitted from the synthesis.

## **Adult child molesters**

Despite the dire consequences that face the victims of sexual abuse against children, we found remarkably little research of adequate quality regarding its prevention. Of the few studies identified for adult child molesters, the only randomised controlled trial failed to support the effectiveness of a cognitive behavioural approach involving relapse prevention [3]. Even though the study was the largest among those included in this review, it lacked power to detect any difference between the treated and untreated groups. Also, as the offenders investigated in the randomised trial were primarily of medium risk, cognitive behavioural methods might still be effective in preventing sexual reoffending in higher or lower risk offenders. It is also possible that forms of cognitive behavioural therapy other than the one examined by Marques et al could be effective [3]. More high-quality research will hopefully resolve these questions. Awaiting such research, we may assume that intervention programmes targeting higher-risk offenders are more likely to be effective [4,5]. Targeting higher-risk offenders is rational also from a cost-effectiveness standpoint. One could argue that denying treatment to low-risk offenders conflicts with principles of equal care. However, it has even been suggested that interventions may increase the risk for sexual reoffence in low-risk offenders (see eg [5]). Nevertheless, we found no evidence supporting contemporary interventions for this group of offenders.

Some advocate the use of antiandrogen treatment of adult child molesters. However, the available evidence does not support this practice. Considering the risk for serious adverse effects associated with antiandrogen treatment, studies are warranted that carefully

evaluate the effects of antiandrogens on sexual reoffending in relation to treatment safety.

- The scientific evidence is insufficient to determine if programmes with cognitive behavioural therapy, including relapse prevention, that target adult child molesters are effective. This also applies to pharmacotherapy, ie antiandrogen treatment. Future studies should investigate the effects of psychological and pharmacological interventions.

## **People at risk of committing sexual offences against children**

In addition to interventions for identified child molesters, we were also commissioned to evaluate methods targeting individuals presumed to be at increased risk of sexually abusing children, but who had not yet done so. In scoping this project, we defined at-risk adults as self-referred paedophiles or hebephiles (see Facts 1.3) or individuals convicted of child pornography offences. Given the outcome measures of interest, we found no studies that investigated an intervention on such populations. This was to be expected, due to the difficulty of identifying and recruiting such a group of risk individuals to a study. In this context, however, the *Prevention Project Dunkelfeld* (PPD) and *Stop it Now!* initiatives deserve to be mentioned. PPD is a German project launched in 2004 that aims at reaching self-identified individuals with paedophilia and hebephilia in the community by means of a media campaign and offering preventive treatment to individuals at risk [6]. The original proposal for the PPD project included outcome evaluation based on random assignment. This, however, broke down during implementation due to insufficient referrals per geographic region [7]. *Stop it Now!* is a similar social marketing campaign based in several English-speaking countries [8]. Both campaigns have been successful in identifying many self-identified risk individuals, but have yet to show that interventions are effective in preventing sexual abuse against children [9]. By introducing such a campaign in Sweden, it is likely that such individuals at risk could be reached and offered preventive therapy. The extent to which the preventive therapy would be effective is unknown.

- No scientific evidence is available to determine the effect of preventive methods targeted at persons who have not committed, but are presumed to be at increased risk of committing sexual offences against children. More research is needed. Programmes to recruit self-identified paedophiles or hebephiles are a prerequisite for evaluating preventive treatment.

## Adolescent sex offenders

Between 20% and 30% of perpetrators of sexual offences against children are adolescents under 21 years of age. Although sexually abusive behaviour during adolescence rarely continues into adulthood, about half of all adult perpetrators of sexual crimes admit to having been sexually attracted to children already before 18 years of age [10,11]. Adolescents who commit sexual offences often exhibit other problems concurrently, eg social adaptation problems [12]. Antisocial traits beyond the accepted norm, criminality, and substance abuse during early years can develop into an antisocial personality in adulthood. Some adolescents may be affected by shortcomings in their social environment and by emotional immaturity, neuropsychiatric disorders, and learning difficulties. Hence, adolescents who commit sexual offences may have complex needs that need to be met within the framework of social services, child psychiatry, and authorities.

Two studies (one randomised controlled trial and one observational study) were identified that addressed interventions targeting adolescent sexual offenders. The randomised trial investigated the effect of *multi-systemic therapy* (MST) on a small sample of young sex offenders [13], and the observational study investigated the *Sexual Abuse: Family Education and Treatment* (SAFE-T) programme [14]. Neither of the studies specified the victims of sexual offences as being children, but other studies have shown that young offenders often choose victims of the same age or younger [15,16]. Both MST and SAFE-T include treatment components from structured family therapy and cognitive behavioural therapy. Both studies suggested that treatment effectively reduced sexual reoffending. However, due to study limitations and low statistical power, the quality of the evidence was deemed to be limited

for MST and insufficient for SAFE-T. Future studies in the field need to address the question of which specific types of intervention are most effective for young persons who have committed sexual offences. Early social support measures based on social learning theory and systemic family theory might affect negative trends and initiate more positive development. Empirical studies on the cost effectiveness of early interventions are lacking. However, in spite of the limited strength of the evidence supporting them, these programmes are likely to be cost effective.

- Evidence of limited quality suggests that multisystemic therapy, a psychological intervention programme based on systemic family theory and social learning theory, may be effective in preventing sexual reoffending among adolescent sex offenders. Although more research is warranted on identifying the most effective treatment, early interventions are likely to arrest a negative trend in many young sexual offenders and to be cost effective.

## **Children with sexual behaviour problems (SBP)**

The boundaries between natural sexual curiosity and a sexual offence can be difficult to determine. That a child is active in sexually explorative games does not necessarily constitute an offence. A problem arises, however, when children exhibit exaggerated sexualised behaviour that risks harming others, particularly in combination with aggressive behaviour.

Children with sexual behaviour problems (SBP) have received increased attention over the years due to their potential risk for problems continuing into adolescence and adulthood [10,11]. The main concern with children with SBP is the risk for sexual offending against other children. Considering the consequences for potential future victims and their families, and for the offender and society, this is an important group to identify. Hence, there is a need for effective, developmentally appropriate preventive treatments and interventions targeting children with sexual behaviour problems. It could be argued that there is a risk that the child's behaviour may be misinterpreted as more threatening than

it actually is, arousing a disproportionately strong reaction in others. Under this line of reasoning, if one perceives the child as a potential future offender, an exaggerated reaction may lead to unnecessary stigmatising that could disturb his or her normal development. This potential outcome must be weighed against the opposite risk, ie that children with sexual behaviour problems might commit sexually abusive acts against other children.

In Sweden, a few specialised units work with children with SBP (eg the child and adolescent psychiatric units *BUP Grinden* in Stockholm and *BUP Elefanten* in Linköping). To some extent, the therapeutic work conducted and treatment components used seem comparable to the cognitive behavioural therapy model described in the study by Carpentier et al [17]. A separate parallel report by the Swedish National Board of Health and Welfare describes the current state in Sweden regarding treatments for children with sexual behaviour problems [18].

We identified one high-quality randomised controlled trial that investigated the effect of group cognitive behavioural therapy with parental support for children with SBP [17]. Compared to group play therapy with parental support, CBT reduced the incidence of sexual offences during a 10-year follow up. The effect was considerable, although not statistically significant when conventional statistical methods were applied. Hence, the scientific evidence is insufficient to determine whether group CBT with parental support is effective compared to group play therapy in preventing future sexual offences committed by children with SBP.

- The evidence is insufficient to determine if group cognitive behavioural therapy (CBT) with parental support is superior to group play therapy with parental support in reducing the risk that children with sexual behaviour problems will commit sexual offences in the future.

## **Access to treatment**

The most common reasons why sexual offenders do not receive treatment are language problems, insufficient time remaining in their sentence, and refusal to participate in treatment. However, not every sex offender who speaks Swedish or English and has a sufficiently long incarceration period is eligible for treatment. For example, limited intellectual capacity and psychopathic personality traits are often mentioned as criteria for exclusion from treatment evaluation programmes. However, if treatment is adapted according to the responsivity principle, it might still be possible to include such clients. Also, some evidence suggests that clients at low risk for (re)offending do not benefit from treatment. Some studies even suggest that treatment may increase the likelihood of reoffence in this group [4,19]. This implies that treatment for low-risk offenders should adhere to the RNR principles – offer little or low-intensity treatment and not mix low-risk offenders with higher risk offenders. Every intervention should be documented and carefully evaluated, eg in a controlled observational study.

## **Societal benefits of treatment programmes**

Reduction of sexual violence has an immense value to society, primarily by lowering the human suffering related to victims and their immediate social networks and by raising the sense of personal security in the general population – particularly among parents. Even small reductions in offence or recidivism rates could be considered significant benefits. In fact, only a small share (about 10%) of all sexual offences lead to reporting and criminal convictions [20]. It is reasonable to assume that correctional treatment also reduces the number of unrecorded offences, thereby adding to the beneficial treatment outcome. A future challenge for researchers will be to acquire some sense of the assumed causality between treatment (and other interventions) and lower rates of unrecorded offence.

The high intangible cost associated with sex crimes against children is a strong reason for investing in better prevention and intervention strategies guided by well-developed research.

## Uncertainties and future research

As expected, the literature search in this project revealed several uncertainties regarding prevention of sexual abuse against children. One area with essentially no supportive evidence is the identification of, and preventive interventions for, individuals who have not committed, but are presumed to be at increased risk of committing, sexual violence against children. Potentially beneficial societal consequences relate to improvements in recruiting and treating individuals at increased risk for sexual abuse of children [9,21].

We found insufficient evidence that psychological interventions are effective in reducing the rate of sexual reoffending in adult child molesters. However, a recent meta-analysis of sexual offender rehabilitation in general suggested that interventions that adhere to the risk-needs-responsivity (RNR) model (see Facts 3.1), which includes prioritising moderate and higher risk cases for treatment, are more likely to succeed [4]. This may also apply to child molesters. However, we found no evidence supportive of any effects of treating high-risk child molesters, eg extra-familial child molesters who repeatedly offend against several child victims. Hence, given the absence of supportive evidence, the assumption that RNR-based sexual offender treatment is effective even in higher risk child molesters remains unproven.

Other important subgroups of sexual offenders against children where the evidence base for treatment is non-existent include individuals with psychiatric disorders (diagnosed as learning disorders or mental retardation) and those with severe psychopathic personality disorder. The responsivity principle of the RNR model suggests that adaptation of an intervention according to an individual's learning styles should be able to accommodate offenders with these conditions. However, for people having more severe forms of these disorders, specific treatment modules or entire programmes might need to be developed.

The ambition to offer treatment to most, or all, eligible clients creates a delicate problem regarding how to evaluate treatment effects. The ideal assessment method is the randomised controlled trial where clients are randomised to either treatment or control conditions, eg standard

treatment. If two treatments are available, then randomisation could be applied to one of them. However, if the policy is to offer treatment to all, then the option of no-treatment controls is limited. Nevertheless, one possibility could remain since new treatment programmes are implemented gradually, depending on the balance of demand and resources. During this implementation stage, not all offenders can be treated. Hence, provided adequate political will and research infrastructure, it would be possible to randomise offenders to treatment or control conditions. Clients that are ineligible for treatment (eg due to treatment refusal, insufficient incarceration time, or language problems) and treatment drop-outs are less suitable as controls. In the absence of matched controls, the second-best method would be to compare recidivism rates of treated subjects with historical controls.

Large samples are needed to obtain adequate statistical power, particularly for important subgroups of sexual offenders against children (eg extrafamilial compared to intrafamilial child molesters, or those with or without learning disorders). Recidivism rates for child molesters are low on average, and longer follow-up periods (3-5 years to increase time-at-risk for recidivism) are desirable even though they increase the risk of losing subjects to follow-up (eg due to migration). Assuming control-group event-rates of 5%, 10%, and 20% for low-, medium-, and high-risk offenders respectively, sample sizes of approximately 10 600, 5 000 and 2 300 would be needed for each intervention group (treatment and control) to detect a relative risk reduction of 20% (Figure 6.1). Such large samples are impossible to recruit in small countries like Sweden. Consequently, future randomised studies on prevention programmes must be international, large-scale, multicentre studies. Countries ratifying the Council of Europe Convention [22] are obliged to deliver evaluation strategies of intervention programmes for child molesters. One scenario would be if Sweden could collaborate with other countries on one or more multicentre studies.

Another possible way to increase statistical power would be to register changes in dynamic risk factors during treatment. These risk factors are attitudes supporting sex with children, sexualisation of thoughts and emotions, hypersexuality, paedophilia, and substance abuse. Such intermediate outcomes might also provide insight into the mechanisms

involved in an observed effect. Other sensitive measures, eg suspicion of crime, might also help increase statistical power. Research on the effectiveness of interventions for child molesters is probably lacking for several reasons. Researchers must deal with how the judicial system handles convictions of sexual offenders. Other problematic issues include placement, safety aspects, and restrictions. Moreover, the judicial system, including correctional services, are less used to evaluating their interventions than are the health services in general. Furthermore, the client group is often difficult to motivate to participate in treatment. The clients have not sought treatment themselves, but are offered relapse prevention treatment because they have committed offences. Denial and minimising the severity of crimes is common. Not least, the consequences of relapse among those who have *not* received what is perceived to be the best possible (ie active) treatment may be serious. Massive media interest, lawsuits, and calls to shut down programmes have occurred in the United States and other countries.

## **Possible consequences of this report**

Ongoing initiatives in Europe, eg the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse, aim at combating sexual abuse of children, including child pornography [22]. If Sweden ratifies this convention, we would agree to offer effective intervention programmes to prevent and minimise sexual abuse against children and to evaluate such programmes. Due to small study samples and the low base rate of reoffending, collaborative international research initiatives are needed to develop and evaluate intervention programmes.

Intervention studies are needed both for known child molesters and for individuals presumed to be at increased risk of sexually abusing children. Identifying individuals at increased risk is a prerequisite for evaluating prevention programmes. Currently, Sweden does not have a programme to identify those at risk of sexually abusing children. Examples in Germany (*Prevention Project Dunkelfeld* in Berlin) and several English-speaking countries (*Stop it Now!*) suggest that national telephone- and Internet-based help lines may be effective in reaching and recruiting for treatment those individuals in the community with

paedophilic or hebephilic sexual arousal patterns. Although it remains unclear whether such prevention programmes are effective in reducing the risk of sexual abuse of children, establishing a national help line may be a necessary first step in developing effective interventions. Creating awareness of such a service in the general population and among professionals is likely to be crucial for success.

There are no clear guidelines for individuals who view themselves to be, or are judged by others to be, at risk of committing sexual offences against children. Awaiting research findings, the most ethical position might be to offer assessment of the occurrence of dynamic risk factors for sexual abuse of children (see Facts 1.2), assessment of psychiatric morbidity, and action plans such as individualised treatment based on the RNR principles.

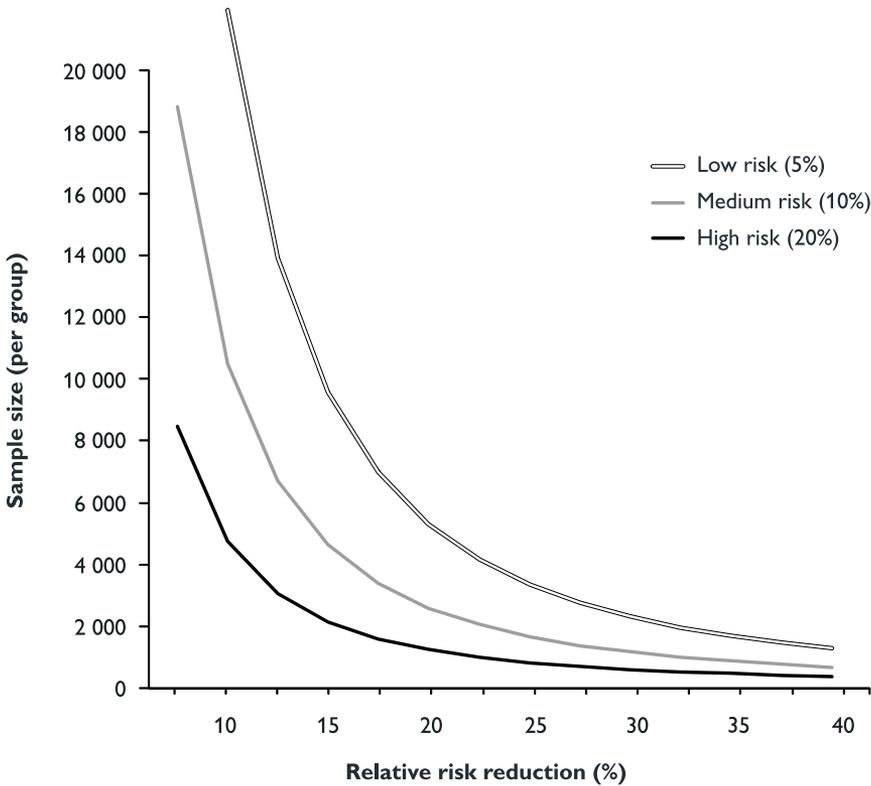
Available evidence fails to show that psychological interventions targeting adult sexual offenders against children effectively reduce the rate of sexual reoffending. Some studies suggest that using psychological interventions to treat low-risk offenders might even increase the risk of reoffending. Hence, there is indirect support to prioritise individuals at high or moderately high risk of sexual reoffense against children in intervention programmes, in accordance with the RNR principles. To facilitate future observational studies, interventions should be documented and carefully followed up.

For adolescent sexual offenders, limited-quality evidence suggests that multisystemic therapy, an outpatient programme based on social learning theory and systemic family theory, may be effective at reducing the risk of reoffending. Implementation of such programmes is warranted.

For children with sexual behaviour problems, the scientific evidence is insufficient to determine whether cognitive behavioural therapy with parental support is effective in preventing future sexual offences. The method appears to be promising, but more research is needed to show a statistically significant effect.

Access to interventions for those who sexually abuse children is unevenly distributed in Sweden. To live up to the principles of equal care, speciali-

sed units with high-level expertise and good geographical representation across Sweden should be considered. Such units could serve as regional centres for training and knowledge development. Professionals working for Swedish Prison and Probation services, health services, and social services should receive training on the best available treatments for identifying, assessing, and treating sexual offenders against children and at-risk individuals, and when and how to make referrals to specialised services.



**Figure 6.1** Estimated sample size per group (treatment and control) for different expected risk reductions, assuming that the risk of reoffence is 5%, 10%, and 20% respectively for offenders of low, medium and high risk. The figures are calculated for a level of statistical significance of 5% ( $\alpha=0.05$ ), a statistical power of 80% ( $\beta=0.20$ ) and a one-sided test.

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# 7. Project group members, external reviewers, financial disclosures, and declarations of conflicts of interest

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## Project Group Members

*Pia Enebrink*

PhD, Clinical Psychologist, Licensed Psychotherapist, Division of Psychology, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

*Elisabeth Gustafsson (Project Assistant)*

SBU, Stockholm, Sweden

*Eva-Marie Laurén*

MD, Senior Psychiatrist, Senior Forensic Psychiatrist, Forensic Psychiatric Clinic, Löwenströmska Hospital, Upplands Väsby and Forensic Psychiatric Clinic of Stockholm, Karolinska University Hospital, Huddinge, Sweden

*Jonas Lindblom (Assistant Project Director)*

PhD, SBU, Stockholm, Sweden

*Niklas Långström (Chair)*

Professor, MD, PhD, Child and Adolescent Psychiatrist, Centre for Violence Prevention, Karolinska Institutet and National Prison and Probation Administration R&D: Stockholm Unit, Stockholm, Sweden

*Mikael Rahmqvist*

PhD, Health Economist, Center for Medical Technology Assessment,  
University of Linköping, Linköping, Sweden

*Sophie Werkö (Project Director)*

PhD, SBU, Stockholm, Sweden

## **Adjunct Expert Adviser**

*R Karl Hanson*

PhD, Clinical Psychologist, Corrections Research, Public Safety,  
Ottawa, Ontario, Canada

## **External Reviewers**

*Bengt-Åke Armelius*

Professor Emeritus, Department of Psychology, Umeå University, Umeå,  
Sweden

*Elizabeth Letourneau*

Associate Professor, PhD, Family Services Research Center, Department  
of Psychiatry and Behavioral Sciences, Medical University of South  
Carolina, USA

*Franca Cortoni*

Professor, Clinical Psychologist, École de criminologie  
(School of Criminology), Université de Montréal, Canada

## **Financial disclosure and declaration of conflicts of interest**

SBU requires all participants in a project group to submit written declarations with respect to any financial associations or conflicts of interest. Such conflicts of interest may exist if members of the group receive financial support from parties with an interest in the group's findings. The chair of the group and SBU then decide whether any

such circumstances would make it difficult to objectively appraise the evidence and, if necessary, recommend appropriate action.

In accordance with SBU's requirements, the expert advisers and external reviewers involved in the project have submitted declarations of financial disclosures and conflicts of interest. These documents are available at SBU's office. SBU has not identified any conflicts of interest.



# Appendix 1. A tentative cost-benefit calculation of rehabilitation programmes for child molesters

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## Introduction

In Chapter 5 we concluded that no scientific evidence is available to estimate the cost effectiveness of rehabilitation programmes for child molesters. However, it is possible to identify many of the different costs associated with a reoffence and to present a tentative cost-benefit calculation of rehabilitation programmes in a Swedish setting. A cost-benefit analysis estimates both the cost of the programme and its effects on reducing the number of reoffences. This type of analysis values costs and effects in monetary units. As long as the value of the effects (the benefits) exceeds the costs, the programme achieves a positive net benefit for society.

In this appendix we first estimate the cost of the rehabilitation programme and the cost of a reoffence. We also estimate the potential reduction rate generated by a rehabilitation programme and multiply this with the cost of a reoffence to estimate the net benefit of the programme. The inspiration for this calculation stems from an example by Donato et al [1].

## Costs of the rehabilitation programme

The cost of an ongoing Swedish national programme for prisoners convicted of sexual offences, “Relationships and Life Together” (*Relation och Samlevnad, ROS*) can be estimated. The programme is based on a Canadian Sex Offender Treatment Programme (SOTP), which consists of two group sessions over a period of 18 to 28 weeks, usually complemented with one private session per week. Although it consists of 153 to 168 hours for 6 to 8 participants [2], more private sessions could be added. Assuming that every participant has a 2-hour

private session per week, the therapists would use 360 hours per group. Adding 10% for preparation and documentation, the total would come to approximately 400 hours per therapist. The programme involves two highly qualified therapists per group. One of the therapists should be either a psychologist/psychotherapist or a trained social worker with additional education in psychotherapy.

A previous programme for prisoners with addiction problems set the costs for leading the programme at SEK 460 per hour for the therapist and SEK 270 for an assistant [2]. Hence, a cost of SEK 800 would be a reasonable cost per hour to lead the ROS programme with two therapists. Assuming 400 hours per programme, the cost would total SEK 320 000 per completed programme. Divided by six clients, each treatment would cost approximately SEK 53 000.

## Offender-related costs

To estimate the potential savings from preventing reoffences, the costs for the offender must be known. This cost includes incarceration, productivity loss, and loss in quality of life (QoL).

One year of incarceration costs, on average, SEK 500 000 [3]. Depending on the type of imprisonment, this figure can vary from SEK 350 000 to SEK 700 000 per year. Another SEK 100 000 is added for each conviction as the judicial system is burdened with investigations, interrogations, lawyers, and trials. Hence, each conviction that results in a 1-year incarceration generates direct costs equal to SEK 600 000. The normal incarceration time for violent offences, including sexual offence, ranges from 24 to 55 months, but the expected incarceration time is two thirds ( $2/3$ ) of this time. Table 1 presents the costs of three different incarceration periods.

Nearly all convicted men in Sweden are of working age. Hence, an estimate of productivity loss is an appropriate measure for indirect costs. The average cost of lost production for a Swedish male is estimated at SEK 400 000 per year [4].

**Table 1** *Estimated offender-related costs for conviction and reconviction scenarios of violent offences, including sexual offence, for three different incarceration periods. Figures in thousand SEK.*

	Scenario		
	A	B	C
Number of months	16	24	36
Direct costs	770	1 100	1 600
Indirect costs	530	800	1 200
<b>Total costs</b>	<b>1 300</b>	<b>1 900</b>	<b>2 800</b>

Another type of cost for the offender is loss in QoL. A study from southern England with a 6-year follow-up reported that child sexual offenders had a suicide rate 183 times the average rate [5]. Among multi-criminal child sexual offenders, the corresponding suicide rate was far lower; above average, but not statistically significant different from the average suicide rate [5]. Obviously offenders experience intangible losses, but since we have no estimate of the effect size this is not included in the calculations.

## Victim-related costs

Victim-related costs include the cost of treatment, productivity loss (indirect costs), and loss of QoL (intangible costs). The total direct and indirect costs for child abuse (including sexual abuse) have been quantified at USD 9 500 per victim [6]. Converted to the cost level of 2010 this equals about SEK 95 000. This calculation sets the direct and indirect costs for the victim at SEK 100 000.

The loss in QoL (intangible costs) is difficult to value, but probably exceeds the other victim-related costs. We use three alternative estimates in our calculations: SEK 100 000, SEK 500 000, and SEK 1 million. The intangible loss for a victim may be up to 10 times greater than the tangible loss. The National Institute of Justice in the United States estimated the costs to victims in cases of sexual abuse of children, including

rape, totalled USD 99 000, of which SEK 90 000 related to intangible costs and the remainder were direct costs [6]. In 1996, the intangible costs related to rape and sexual assault of women aged 18 to 69 years in the United States were estimated to be 16 times greater than the direct costs [7]. Table 2 presents victim-related costs, with separate estimates for one and two victims.

**Table 2** Estimated victim-related costs after violent offences. Figures in thousand SEK.

	Proportion of intangible costs		
	1/1	5/1	10/1
<b>One victim</b>			
Scenario	<i>i</i>	<i>ii</i>	<i>iii</i>
Direct and indirect costs	100	100	100
Intangible costs (QoL loss)	100	500	1 000
<b>Total costs</b>	<b>200</b>	<b>600</b>	<b>1 100</b>
<b>Two victims</b>			
Scenario	<i>iv</i>	<i>v</i>	<i>vi</i>
Direct and indirect costs	200	200	200
Intangible costs (QoL loss)	200	1 000	2 000
<b>Total costs</b>	<b>400</b>	<b>1 200</b>	<b>2 200</b>

QoL = Quality of life

## Total cost of a reoffence

Using the above estimates, the total cost of a reoffence could range between SEK 1.5 million and SEK 5 million (Tables 1 and 2), depending on outcomes in sentence length, the number of victims involved, and how intangible costs are valued.

One case of conviction for sexual offence could include more than two victims as plaintiffs. In 1984, Sweden reported an average of 1.3 victims per police-reported sexual crimes against children and 1.5 victims in cases that resulted in prosecution [8]. Some reoffenders are sentenced to psychiatric care for the purpose of extending preventive detention. In such cases, the incarceration costs would exceed the figures given for the longest, and most costly, scenario in Table 1.

## **Estimate of effects from the treatment programme**

To estimate the reduced costs generated by rehabilitation programmes, we must know the reduction in reoffences attributed to the programme. However, such scientific evidence is not available. Data in the example come from a 9-year follow-up of a Swedish cohort study (N=1 303) consisting mainly of child molesters (46%) and prisoners convicted of rape or sexual coercion (42%) [9] who were discharged from prison in 1993 through 1997. About 50% of the prisoners belonged to the medium-risk group, and 10% belonged to the high-risk group.

Based on the percentages from the Swedish study above, the rehabilitation programme would consist of 140 prisoners yearly (1 303 prisoners; 90% sexual offenders; 60% at medium or high risk/5 years). If the intervention included only child molesters they would consist of 72 prisoners yearly (1 303 prisoners; 46% child molesters; 60% at medium or high risk/5 years).

In the same Swedish study, about 7% of all prisoners were reconvicted of sexual offending in the follow-up period, while another 14% were convicted of other violent, but nonsexual, crimes, yielding a total of 21% reconvicted prisoners. Among persons reconvicted of sexual offence, one third were reconvicted for a nonsexual violent offence. If the rehabilitation programme could reduce the reconviction rates for other violent offences to the same degree as it reduces the recidivism rate for sexual offences, the programme would have multiple effects.

Our example calculates the costs for 140 prisoners. If no rehabilitation programme is provided, we assume that the recidivism rate would be 12%. Assuming that the rehabilitation programme reduces the recidivism rate by 20%, this would prevent 3 reoffences, 50% (1.5) of which would involve child molesters. The societal benefits of these prevented cases can be calculated from the figures presented in Table 1 and Table 2. A mix of the scenarios can be calculated from the tables, from *Ai* to *Cvi*, yielding 18 theoretical outcomes for each case prevented. For example, the estimated offender-related costs could be as shown in scenario A (SEK 1.3 million) added to the costs for victims as shown in scenario *v* (SEK 1.2 million), resulting in a total cost of SEK 2.5 million.

## Results of the example

Our example includes 140 treated offenders, of which about 50% were child molesters. The rehabilitation programme for the entire group would be SEK 6.9 million and about half that if only the child molesters were treated. We assumed that the programme would prevent three cases. If all three cases of avoided recidivism were convictions classified as *Ai* in Table 1 and Table 2, the cost savings would equal SEK 4.5 million. In this scenario, since the cost for the programme is higher than the cost savings, the programme would not be beneficial for society. However, it is unlikely that all reconviictions would be of type *Ai*. If a single avoided reconviiction is of type *Cvi* (SEK 5 million), and the two others are type *Ai*, the total cost savings would equal SEK 8 million. In this scenario, the benefits of the programme outweigh the costs of the programme.

Our example used a 20% reduction in reconviictions generated by the programme, which might be too optimistic. On the other hand, the suspected recidivism rate might exceed the 12% used in the example. We used a suspected recidivism rate of 15% and a 10% reduction to test an alternative scenario. This scenario indicates that two reconviictions could be avoided by a rehabilitation programme for the cohort. Since the assumed cost of the programme is SEK 6.9 million, the benefit of each prevented case must be worth about SEK 3.5 million for the rehabilitation programme to generate a positive net benefit.

## Discussion

Our example demonstrates the possibility that rehabilitation programmes could be beneficial for society, but only if the programme leads to fewer reconvictions. As discussed in Chapter 3, no evidence supports the effectiveness of these programmes. Furthermore, the results depend on how the benefits of the programme are valued and how many victims are involved.

An alternative method used to estimate the benefits of a programme is the willingness-to-pay (WTP) method. If the aggregated WTP exceeds the total cost, the programme is beneficial for society. However, estimating a hypothetical WTP often leads to biases compared to a real situation, causing problems in using this method. The WTP approach has been tested for programmes related to crimes against children in a population survey in Alabama, USA [10]. Generally, citizens' WTP to prevent sexual crimes such as assault and rape appears to be relatively high [11]. According to the US Department of Justice, child sexual abuse ranks second to murder as the most costly crime, followed by rape, child physical abuse, and arson [6].

Costs that occur in the future should be discounted to their present value. Often this is also done for effects, although opinions differ. A discount rate of 3% annually is often used in Sweden. Our example excluded discounting since it was hypothetical and did not specify a time horizon. However, we should mention that discounting of effects could influence prioritisation between interventions. If an intervention has an immediate positive effect (eg reducing recidivism), the investment in that intervention should be valued higher compared to an investment in an intervention where a corresponding effect is expected several years later.

Priorities among interventions are necessary because resources in general are scarce. To make sound policy decisions, the information at hand must be as good as possible. Researchers at the Washington State Institute for Public Policy (WSIPP) have presented an example of net benefits of alternate interventions that can reduce general criminality [12]. Of the 14 programmes for adult offenders, 13 had a positive net

benefit, and of the 19 programmes for juvenile offenders, 14 had a positive net benefit. The research group at WSIPP has done extensive work by analysing 545 comparison-group evaluations in different areas and by collecting specific data on recidivism for a 13-year period. Their method is well described, but the included studies are not presented in detail.

Finally, it is important to reiterate that our example is hypothetical. Although we have tried to use costs and data that are as relevant as possible, the analysis should not be viewed as the real situation in Sweden due to considerable uncertainty in these input data. However, the example may be of use in illustrating the important aspects to consider when assessing rehabilitation programmes. We can also conclude that if the programme is effective in reducing reconvictions, it has a high chance of being considered cost effective for society.

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## Appendix 2. Search strategies

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## Medical and Psychological Methods for Preventing Sexual Offences Against Children

### PubMed (National Library of Medicine), May 2010

Pedophilia (Me)	AND	Androgen antagonists (Me)
Child abuse, sexual (Me)		Gonadotropin-releasing hormone /AG (Me)
Incest (Me)		Pedophilia/DT (Me)
Pedophil* (TiAb)		Pedophilia/TH (Me)
Paedophil* (TiAb)		Pedophilia/PX (Me)
Child sexual abuse (TiAb)		Serotonin uptake inhibitors/TU (Me)
Child sex abuse (TiAb)		Sexual behavior/DE (Me)
Incest* (TiAb)		Sexual behavior/TH (Me)
Pederast* (TiAb)		Sexual behavior/PX (Me)
		Sexual dysfunctions, psychological/DT (Me)
Sex offenses (Me)		Sexual dysfunctions psychological /PX (Me)
AND Child* (TiAb)		Sexual dysfunctions, psychological/TH (Me)
OR Adolesc* (TiAb)		Sex offenses/PC (Me)
		Child abuse, sexual/PC (Me)
		Behavior therapy (Me)
		Socioenvironmental therapy (Me)
		Psychotherapy (NoExp)
		Antiandrogen* (TiAb)
		LHRH agonist* (TiAb)
		Serotonin uptake inhibitor* (TiAb)
		Pharmacological treatment (TiAb)
		Psychotherap* (TiAb)
		Psychol* (TiAb)
		Cognitive (TiAb)
		Behavior* (TiAb)
		Behaviour* (TiAb)
		CBT (TiAb)
		Systemic (TiAb)
		Multisystemic (TiAb)

Limits: English, Danish, Norwegian, Swedish

("Pedophilia"[Mesh] OR "Child Abuse, Sexual"[Mesh] OR ("Sex Offenses"[Mesh] AND (child\*[tiab] OR adolesc\*[tiab])) OR "Incest"[Mesh] OR pedophil\*[tiab] OR paedophil\*[tiab] OR "child sexual abuse"[tiab] OR "child sex abuse"[tiab] OR incest\*[tiab] OR pederast\*[tiab]) AND ("Androgen Antagonists"[Mesh] OR "Gonadotropin-Releasing Hormone/agonists"[Mesh] OR "Pedophilia/drug therapy"[Mesh] OR "Pedophilia/therapy"[Mesh] OR "Serotonin Uptake Inhibitors/therapeutic use"[Mesh] OR "Sexual Behavior/drug effects"[Mesh] OR "Sexual Behavior/therapy"[Mesh] OR "Sexual Behavior/psychology"[Mesh] OR "Pedophilia/psychology"[Mesh] OR "Sexual Dysfunctions, Psychological/drug therapy"[Mesh] OR "Sexual Dysfunctions, Psychological/psychology"[Mesh] OR "Sexual Dysfunctions, Psychological/therapy"[Mesh] OR "Sex Offenses/prevention and control"[Mesh] OR "Child Abuse, Sexual/prevention and control"[Mesh] OR "Behavior Therapy"[Mesh] OR "Socioenvironmental Therapy"[Mesh] OR "Psychotherapy"[Mesh:NoExp] OR antiandrogen\*[tiab] OR LHRH agonist\*[tiab] OR serotonin uptake inhibitor\*[tiab] OR "pharmacological treatment"[tiab] OR psychotherap\*[tiab] OR psychol\*[tiab] OR cognitive[tiab] OR behavior\*[tiab] OR behaviour\*[tiab] OR CBT[tiab] OR systemic[tiab] OR multisystemic[tiab]) AND ("treatment outcome"[mesh] OR "Recurrence"[Mesh] OR "Crime/legislation and jurisprudence"[Mesh] OR "Crime/prevention and control"[Mesh] OR recurrence[tiab] OR conviction[tiab] OR recidivism[tiab] OR relapse[tiab] OR rehabilitation[tiab] OR "Child Abuse, Sexual/prevention and control"[Mesh] OR "Treatment failure"[Mesh]) AND ("clinical trial"[Publication Type] OR "comparative study"[Publication Type] OR "meta analysis"[Publication Type] OR "multicenter study"[Publication Type] OR "randomized controlled trial"[Publication Type] OR "cohort studies"[mesh] OR "cohort"[title] OR "observational"[ti] OR "random"[ti] OR "randomized"[ti] OR "randomly"[tiab] OR "review"[pt] OR prevent\*[ti] OR "Case-Control Studies"[mesh] OR Systematic[sb])

**Medical and Psychological Methods for Preventing Sexual Offences Against Children, continued**

**PsycInfo (EBSCO), May 2010**

Pedophilia (De)	AND	Antiandrogens (De)
Sexual abuse (De)		Adolescent psychotherapy (De)
Child molest* (TW)		Analytical psychotherapy (De)
Incest (De)		Behavior therapy (De)
Pedophil* (TW)		Aversion therapy (De)
Paedophil* (TW)		Dialectical behavior therapy (De)
Child sexual abuse* (TW)		Cognitive behavior therapy (De)
Child sex abuse* (TW)		Group psychotherapy (De)
Incest* (TW)		Therapeutic community (De)
Pederast* (TW)		Individual psychotherapy (De)
		Insight therapy (De)
Rape (De)		Integrative psychotherapy (De)
AND Child* (TW)		Interpersonal psychotherapy (De)
OR Adolesc* (TW)		Psychoanalysis (De)
		Psychodynamic psychotherapy (De)
		Cognitive therapy (De)
		Male castration (De)
		Antiandrogen* (TW)
		LHRH agonist* (TW)
		Serotonin uptake inhibitor* (TW)
		Pharmacological treatment (TW)
		Psychotherap* (TW)
		Psychol* (TW)
		Cognitive (TW)
		Behavior* (TW)
		Behaviour* (TW)
		CBT (TW)
		Systemic (TW)
		Multisystemic (TW)
		Rehab* (TW)
		Criminal rehabilitation (De)

Limits: English, Danish, Norwegian, Swedish

((DE "Pedophilia") or (DE "Sexual Abuse") or ((DE "Rape") AND ((TX child\*) or (TX adolesc\*))) or (TX child molest\*) or (DE "Incest") or (TX pedophil\*) or (TX paedophil\*) or (TX child sexual abuse\*) or (TX child sex abuse\*) or (TX incest\*) or (TX pederast\*)) AND ((DE "Antiandrogens") or (DE "Adolescent Psychotherapy") or (DE "Analytical Psychotherapy") or (DE "Behavior Therapy") or (DE "Aversion Therapy") or (DE "Dialectical Behavior Therapy") or (DE "Cognitive Behavior Therapy") or (DE "Group Psychotherapy") or (DE "Therapeutic Community") or (DE "Individual Psychotherapy") or (DE "Insight Therapy") or (DE "Integrative Psychotherapy") or (DE "Interpersonal Psychotherapy") or (DE "Psychoanalysis") or (DE "Psychodynamic Psychotherapy") or (DE "Cognitive Therapy") or (DE "Male Castration") or (TX antiandrogen\*) or (TX LHRH agonist\*) or (TX serotonin uptake inhibitor\*) or (TX pharmacological treatment) or (TX psychotherap\*) or (TX psychol\*) or (TX cognitive) or (TX behavior\*) or (TX behaviour\*) or (TX CBT) or (TX systemic) or (TX multisystemic) or (TX rehab\*) or (DE "criminal rehabilitation")) AND ((DE "Treatment Outcomes") or (DE "Psychotherapeutic Outcomes") or (DE "Relapse Disorders") or (DE "Relapse Prevention") or (DE "Treatment Effectiveness Evaluation") or (DE "Criminal Conviction") or (DE "Criminal Behavior") or (TX relapse) or (TX rehabilitation) or (TX recurrence) or (TX conviction) or (TX recidivism) OR (DE "Rehabilitation") or (DE "Criminal Rehabilitation") or (DE "Relapse Prevention")) AND ((TX cohort) or (TX observational) or (TX random) or (TX randomized) or (TX randomised) or (TX randomly) or (TI prevent\*) or (DE treatment effectiveness evaluation) OR (DE Program Evaluation) OR (DE relapse prevention) OR (MR longitudinal study) OR (MR followup study) OR (KW systematic review) OR (TX systematic review))

**Medical and Psychological Methods for Preventing Sexual Offences Against Children, continued**

**National Criminal Justice Reference Service Abstracts (EBSCO), April 2010**

Child sexual abuse (SU)	AND	Sex offender treatment (SU)	AND	Recidivism (SU)	AND	Cohort* (TW)
Incest (SU)		Cognitive therapy (SU)		Inmate health (SU)		Observation* (TW)
Child molesters (SU)		Psychotherapy (SU)		Convictions (SU)		Random (TW)
Statutory rape (SU)		Program* (TW)		Arrest and apprehension (SU)		Randomized (TW)
Child molest* (TW)		Prevent* (TW)		Relapse* (TW)		Randomised (TW)
Incest (De)		Controlled drugs (SU)		Rehabilit* (TW)		Randomly (TW)
Pedophil* (TW)		Prescription drugs (SU)		Recurren* (TW)		Prevent* (Ti)
Paedophil* (TW)		Castration of rapists (SU)		Convict* (TW)		Longitudinal (TW)
Child sexual abuse* (TW)		Rehabilitation (SU)		Recidiv* (TW)		Program evaluation (SU)
Child sex abuse* (TW)		Rape prevention programs (SU)				Program design (SU)
Incest* (TW)		Inmate programs (SU)				Corrections effectiveness (SU)
Pederast* (TW)		Antiandrogen* (TW)				Juvenile corrections effectiveness (SU)
		LHRH agonist* (TW)				Treatment effectiveness (SU)
Rape (SU)		Serotonin uptake inhibitor* (TW)				Evaluation (SU)
AND Child* (TW)		Pharmacological treatment (TW)				
OR Adolesc* (TW)		Psychotherap* (TW)				
		Psychol* (TW)				
		Cognitive (TW)				
		Behavior* (TW)				
		Behaviour* (TW)				
		CBT (TW)				
		Systemic (TW)				
		Multisystemic (TW)				
		Rehab* (TW)				

*The table continues on the next page*

((SU "Child sexual abuse") or (SU "Incest") or (SU "Child molesters") or (SU "statutory rape") or ((SU "Rape") AND ((TX child\* or (TX adolesc\*))) or (TX child molest\* or (DE "Incest") or (TX pedophil\* or (TX paedophil\* or (TX child sexual abuse\* or (TX child sex abuse\* or (TX incest\* or (TX pederast\*))) AND ((SU "sex offender treatment") OR (SU "cognitive therapy") OR (SU "psychotherapy") OR (TX program\* OR (TX prevent\* OR (SU "controlled drugs") OR (SU "prescription drugs") OR (SU "castration of rapists") OR (SU "rehabilitation") OR (SU "rape prevention programs") OR (SU "inmate programs") OR (TX antiandrogen\* or (TX LHRH agonist\* or (TX serotonin uptake inhibitor\* or (TX pharmacological treatment) or (TX psychotherap\* or (TX psychol\*

or (TX cognitive) or (TX behavior\*) or (TX behaviour\*) or (TX CBT) or (TX systemic) or (TX multisystemic) or (TX rehab\*)) AND ((SU "recidivism") OR (SU "inmate health") OR (SU "convictions") OR (SU "arrest and apprehension") OR (TX relapse\* or (TX rehabilit\* or (TX recurren\*) or (TX convict\*) or (TX recidiv\*)) AND ((TX cohort\* or (TX observation\*) or (TX random) or (TX randomized) or (TX randomised) or (TX randomly) or (TI prevent\*) OR (TX longitudinal) OR (SU "program evaluation") OR (SU "program design") OR (SU "Corrections effectiveness") OR (SU "Juvenile corrections effectiveness") OR (SU "treatment effectiveness") OR (SU "evaluation"))

**Medical and Psychological Methods for Preventing Sexual Offences Against Children, continued**

**International Bibliography and the Social Sciences (EBSCO), May 2010**

Incest (De)	AND	Psychotherapy (De)	AND	Recidivism (De)
Paedophilia (De)		Group psychotherapy (De)		Criminality (De)
Child molest* (TW)		Prevention (De)		Relapse (TW)
Pedophil* (TW)		Program* (TW)		Rehabilit* (TW)
Paedophil* (TW)		Prevent* (TW)		Recurren* (TW)
Child sexual abuse* (TW)		Antiandrogen* (TW)		Convict* (TW)
Child sex abuse* (TW)		LHRH agonist* (TW)		Recidiv* (TW)
Incest* (TW)		Serotonin uptake inhibitor* (TW)		Evaluation (De)
Pederast* (TW)		Pharmacological treatment (TW)		Cohort* (TW)
		Psychotherap* (TW)		Observation* (TW)
Sexual abuse (De)		Psychol* (TW)		Random (TW)
OR Rape (De)		Cognitive (TW)		Randomized (TW)
AND Children (De)		Behavior* (TW)		Randomised (TW)
OR Child* (TW)		Behaviour* (TW)		Randomly (TW)
OR Adolesc* (TW)		CBT (TW)		Longitudinal (TW)
OR Child abuse (De)		Systemic (TW)		Programme evaluation (De)
		Multisystemic (TW)		Systematic review (TW)
		Rehab* (TW)		

((DE "Incest") OR (DE "paedophilia") or (TX child molest\*) or (TX pedophil\*) or (TX paedophil\*) or (TX child sexual abuse\*) or (TX child sex abuse\*) or (TX incest\*) or (TX pederast\*) OR ((DE "Sexual abuse") or (DE "Rape")) AND ((DE "Children") OR (TX child\*) or (TX adolesc\*) OR (DE "child abuse\*")))) AND ((DE "psychotherapy") OR (DE "group psychotherapy") OR (DE "prevention") OR (TX program\*) OR (TX prevent\*) OR (TX antiandrogen\*) or (TX LHRH agonist\*) or (TX serotonin uptake inhibitor\*) or (TX pharmacological treatment) or (TX psychotherap\*) or (TX psychol\*) or (TX cognitive) or (TX behavior\*) or (TX behaviour\*) or (TX CBT) or (TX systemic) or (TX multisystemic) or (TX rehab\*)) AND ((DE "recidivism") OR (DE "criminality") OR (TX relapse\*) or (TX rehabilit\*) or (TX recurren\*) or (TX convict\*) or (TX recidiv\*) OR (DE "evaluation") OR (TX cohort\*) or (TX observation\*) or (TX random) or (TX randomized) or (TX randomised) or (TX randomly) or (TX longitudinal) OR (DE "programme evaluation") OR (TX systematic review))

**Medical and Psychological Methods for Preventing Sexual Offences Against Children, continued**

**Cochrane Library (Wiley), May 2010 PubMed (National Library of Medicine), May 2010**

Pedophilia (Me)	AND	Androgen antagonists (Me)
Child abuse, sexual (Me)		Gonadotropin-releasing hormone /AG (Me)
Incest (Me)		Pedophilia/DT (Me)
Pedophil* (TiAb)		Pedophilia/TH (Me)
Child sexual abuse (TiAb)		Pedophilia/PX (Me)
Child sex abuse (TiAb)		Serotonin uptake inhibitors/TU (Me)
Incest* (TiAb)		Sexual behavior/DE (Me)
Pederast* (TiAb)		Sexual behavior/TH (Me)
		Sexual behavior/PX (Me)
Sex offenses (Me)		Sexual dysfunctions, psychological/DT (Me)
AND Child* (TiAb)		Sexual dysfunctions psychological /PX (Me)
OR Adolec* (TiAb)		Sexual dysfunctions, psychological/TH (Me)
		Sex offenses/PC (Me)
		Child abuse, sexual/PC (Me)
		Behavior therapy (Me)
		Socioenvironmental therapy (Me)
		Psychotherapy (NoExp)
		Antiandrogen* (TiAb)
		LHRH agonist* (TiAb)
		Serotonin uptake inhibitor* (TiAb)
		Pharmacological treatment (TiAb)
		Psychotherap* (TiAb)
		Psychol* (TiAb)
		Cognitive (TiAb)
		Behavior* (TiAb)
		Behaviour* (TiAb)
		CBT (TiAb)
		Systemic (TiAb)
		Multisystemic (TiAb)

- #1 MeSH descriptor Pedophilia explode all trees
- #2 MeSH descriptor Child Abuse, Sexual explode all trees
- #3 MeSH descriptor Sex Offenses explode all trees
- #4 MeSH descriptor Incest explode all trees
- #5 (child\*):ti,ab OR (adolesc\*):ti,ab
- #6 (pedophil\*):ti,ab OR (child sexual abuse):ti,ab OR (child sex abuse):ti,ab OR (incest\*):ti,ab OR (pederast\*):ti,ab
- #7 (#1 OR #2 OR ( #3 AND #5 ) OR #4 OR #6)
- #8 MeSH descriptor Androgen Antagonists explode all trees
- #9 MeSH descriptor Gonadotropin-Releasing Hormone explode all trees with qualifier: AG
- #10 MeSH descriptor Pedophilia explode all trees with qualifiers: DT,TH,PX
- #11 MeSH descriptor Serotonin Uptake Inhibitors explode all trees with qualifier: TU
- #12 MeSH descriptor Sexual Behavior explode all trees with qualifiers: DE,TH,PX
- #13 MeSH descriptor Sexual Dysfunctions, Psychological explode all trees with qualifiers: DT,TH,PX
- #14 MeSH descriptor Sex Offenses explode all trees with qualifier: PC
- #15 MeSH descriptor Child Abuse, Sexual explode all trees with qualifier: PC
- #16 MeSH descriptor Behavior Therapy explode all trees
- #17 MeSH descriptor Socioenvironmental Therapy explode all trees
- #18 MeSH descriptor Psychotherapy, this term only
- #19 (antiandrogen\*):ti,ab OR (LHRH agonist\*):ti,ab OR (serotonin uptake inhibitor\*):ti,ab OR (pharmacological treatment):ti,ab OR (psychotherap\*):ti,ab OR (psychol\*):ti,ab OR (cognitive):ti,ab OR (behavior\*):ti,ab OR (behaviour\*):ti,ab OR (CBT):ti,ab OR (systemic):ti,ab OR (multisystemic):ti,ab
- #20 (#8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19)
- #21 (#7 AND #20)

**Campbell Library, May 2010**

- Pedophil\* (AF)
- Paedophil\* (AF)
- Child sexual abuse (AF)
- Child sex abuse (AF)
- Incest\* (AF)

pedophil\* in All text or paedophil\* in All text or child sexual abuse in All text or child sex abuse in All text or incest\* in All text

## Health Economics

### PubMed (National Library of Medicine), May 2010

Pedophilia (Me)	AND	Androgen antagonists (Me)	AND	Costs (TiAb)
Child abuse, sexual (Me)		Gonadotropin-releasing hormone /AG (Me)		Cost effective (TiAb)
Incest (Me)		Pedophilia/DT (Me)		Economic (TiAb)
Pedophil* (TiAb)		Pedophilia/TH (Me)		Costs and cost analysis (Me)
Paedophil* (TiAb)		Pedophilia/PX (Me)		/EC
Child sexual abuse (TiAb)		Serotonin uptake inhibitors/TU (Me)		
Child sex abuse (TiAb)		Sexual behavior/DE (Me)		
Incest* (TiAb)		Sexual behavior/TH (Me)		
Pederast* (TiAb)		Sexual behavior/PX (Me)		
		Sexual dysfunctions, psychological/DT (Me)		
Sex offenses (Me)		Sexual dysfunctions psychological /PX (Me)		
AND Child* (TiAb)		Sexual dysfunctions, psychological/TH (Me)		
OR Adolesc* (TiAb)		Sex offenses/PC (Me)		
		Child abuse, sexual/PC (Me)		
		Behavior therapy (Me)		
		Socioenvironmental therapy (Me)		
		Psychotherapy (NoExp)		
		Antiandrogen* (TiAb)		
		LHRH agonist* (TiAb)		
		Serotonin uptake inhibitor* (TiAb)		
		Pharmacological treatment (TiAb)		
		Psychotherap* (TiAb)		
		Psychol* (TiAb)		
		Cognitive (TiAb)		
		Behavior* (TiAb)		
		Behaviour* (TiAb)		
		CBT (TiAb)		
		Systemic (TiAb)		
		Multisystemic (TiAb)		

Limits: English, Danish, Norwegian, Swedish

(“Pedophilia”[Mesh] OR “Child Abuse, Sexual”[Mesh] OR (“Sex Offenses”[Mesh] AND (child\*[tiab] OR adolesc\*[tiab])) OR “Incest”[Mesh] OR pedophil\*[tiab] OR paedophil\*[tiab] OR “child sexual abuse”[tiab] OR “child sex abuse”[tiab] OR incest\*[tiab] OR pederast\*[tiab]) AND (“Androgen Antagonists”[Mesh] OR “Gonadotropin-Releasing Hormone/agonists”[Mesh] OR “Pedophilia/drug therapy”[Mesh] OR “Pedophilia/therapy”[Mesh] OR “Serotonin Uptake Inhibitors/therapeutic use”[Mesh] OR “Sexual Behavior/drug effects”[Mesh] OR “Sexual Behavior/therapy”[Mesh] OR “Sexual Behavior/psychology”[Mesh] OR “Pedophilia/psychology”[Mesh] OR “Sexual Dysfunctions, Psychological/drug therapy”[Mesh] OR “Sexual Dysfunctions, Psychological/psychology”[Mesh] OR “Sexual Dysfunctions, Psychological/therapy”[Mesh] OR “Sex Offenses/prevention and control”[Mesh] OR “Child Abuse, Sexual/prevention and control”[Mesh] OR “Behavior Therapy”[Mesh] OR “Socioenvironmental Therapy”[Mesh] OR “Psychotherapy”[Mesh:NoExp] OR antiandrogen\*[tiab] OR LHRH agonist\*[tiab] OR serotonin uptake inhibitor\*[tiab] OR “pharmacological treatment”[tiab] OR psychotherap\*[tiab] OR psychol\*[tiab] OR cognitive[tiab] OR behavior\*[tiab] OR behaviour\*[tiab] OR CBT[tiab] OR systemic[tiab] OR multisystemic[tiab]) AND (costs[Title/Abstract] OR cost effective[Title/Abstract] OR economic[Title/Abstract] OR “costs and cost analysis”[MeSH Terms] OR “economics”[MeSH Subheading])

## Health Economics, continued

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### Health Economic Evaluations Database (Wiley), May 2010

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Pedophil\* (AF)  
 Paedophil\* (AF)  
 Child sexual abuse (AF)  
 Child sex abuse (AF)  
 Incest\* (AF)

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pedophil\* OR paedophil\* OR "child sexual abuse" OR "child sex abuse" OR incest\*  
 [All data]

**Health Economics, continued**

**PsycInfo (EBSCO), May 2010**

Pedophilia (De)	AND	Antiandrogens (De)	AND	Treatment outcomes (De)	AND	Costs and cost analysis (De)
Sexual abuse (De)		Adolescent psychotherapy (De)		Psychotherapeutic outcomes (De)		Health care costs (De)
Child molest* (TW)		Analytical psychotherapy (De)		Relapse disorders (De)		Health care economics (De)
Incest (De)		Behavior therapy (De)		Relapse prevention (De)		Economics (De)
Pedophil* (TW)		Aversion therapy (De)		Treatment effectiveness evaluation (De)		Costs (TW)
Paedophil* (TW)		Dialectical behavior therapy (De)		Criminal conviction (De)		Cost (TW)
Child sexual abuse* (TW)		Cognitive behavior therapy (De)		Criminal behavior (De)		Cost effective (TW)
Child sex abuse* (TW)		Group psychotherapy (De)		Relapse (TW)		Economic (TW)
Incest* (TW)		Therapeutic community (De)		Rehabilitation (TW)		Cost/benefit analysis (KW)
Pederast* (TW)		Individual psychotherapy (De)		Recurrence (TW)		Economic evaluation (KW)
		Insight therapy (De)		Conviction (TW)		Economic evaluation (TW)
Rape (De)		Integrative psychotherapy (De)		Recidivism (TW)		
AND Child* (TW)		Interpersonal psychotherapy (De)		Rehabilitation (De)		
OR Adolesc* (TW)		Psychoanalysis (De)		Criminal rehabilitation (De)		
		Psychodynamic psychotherapy (De)		Relapse prevention (De)		
		Cognitive therapy (De)				
		Male castration (De)				
		Antiandrogen* (TW)				
		LHRH agonist* (TW)				
		Serotonin uptake inhibitor* (TW)				
		Pharmacological treatment (TW)				
		Psychotherap* (TW)				
		Psychol* (TW)				
		Cognitive (TW)				
		Behavior* (TW)				
		Behaviour* (TW)				
		CBT (TW)				
		Systemic (TW)				
		Multisystemic (TW)				
		Rehab* (TW)				
		Criminal rehabilitation (De)				

Limits: English, Danish, Norwegian, Swedish

((DE "Pedophilia") or (DE "Sexual Abuse") or ((DE "Rape") AND ((TX child<sup>\*</sup>) or (TX adolesc<sup>\*</sup>))) or (TX child molest<sup>\*</sup>) or (DE "Incest") or (TX pedophil<sup>\*</sup>) or (TX paedophil<sup>\*</sup>) or (TX child sexual abuse<sup>\*</sup>) or (TX child sex abuse<sup>\*</sup>) or (TX incest<sup>\*</sup>) or (TX pederast<sup>\*</sup>)) AND ((DE "Antiandrogens") or (DE "Adolescent Psychotherapy") or (DE "Analytical Psychotherapy") or (DE "Behavior Therapy") or (DE "Aversion Therapy") or (DE "Dialectical Behavior Therapy") or (DE "Cognitive Behavior Therapy") or (DE "Group Psychotherapy") or (DE "Therapeutic Community") or (DE "Individual Psychotherapy") or (DE "Insight Therapy") or (DE "Integrative Psychotherapy") or (DE "Interpersonal Psychotherapy") or (DE "Psychoanalysis") or (DE "Psychodynamic Psychotherapy") or (DE "Cognitive Therapy") or (DE "Male Castration") or (TX antiandrogen<sup>\*</sup>) or (TX LHRH agonist<sup>\*</sup>) or (TX serotonin uptake inhibitor<sup>\*</sup>) or (TX pharmacological treatment) or (TX psychotherap<sup>\*</sup>) or (TX psychol<sup>\*</sup>) or (TX cognitive) or (TX behavior<sup>\*</sup>) or (TX behaviour<sup>\*</sup>) or (TX CBT) or (TX systemic) or (TX multisystemic) or (TX rehab<sup>\*</sup>) or (DE "criminal rehabilitation")) AND ((DE "Treatment Outcomes") or (DE "Psychotherapeutic Outcomes") or (DE "Relapse Disorders") or (DE "Relapse Prevention") or (DE "Treatment Effectiveness Evaluation") or (DE "Criminal Conviction") or (DE "Criminal Behavior") or (TX relapse) or (TX rehabilitation) or (TX recurrence) or (TX conviction) or (TX recidivism) OR (DE "Rehabilitation") or (DE "Criminal Rehabilitation") or (DE "Relapse Prevention")) AND ((DE "Costs and Cost Analysis") or (DE "Health Care Costs") or (DE "Health Care Economics") or (DE "Economics") or (TX "costs") OR (TX "cost") OR (TX "cost effective") OR (TX "economic") OR (KW "cost/benefit analysis") OR (KW "economic evaluation") OR (TX "economic evaluation"))

## Abbreviations

*	Wildcard indicating a variable number of characters (including none)
/AG	agonists (MeSH Subheading)
/DE	drug effects (MeSH Subheading)
/EC	economics (MeSH Subheading)
/LJ	legislation and jurisprudence (MeSH Subheading)
/PC	prevention and control (MeSH Subheading) or prevention (EMTREE disease subheading)
/PX	psychology (MeSH Subheading)
/TH	therapy (MeSH Subheading or EMTREE disease subheading)
/TU	therapeutic use (MeSH Subheading)
AF	All fields
De	Descriptor (EMBASE), Subject (PsycInfo)
KW	Keyword (Cochrane Library)
Me	Medical Subject Headings (MeSH, PubMed)
NoExp	MeSH No Explode (PubMed)
PT	Publication type
SB	Subset
Ti	Title
TiAb	Title/Abstract
TW	Text word
SU	Subject

## Appendix 3. Evaluation protocols

### Check list for appraisal of study relevance (child sex offenses)

First author, year, reference number	
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Relevance	Yes	No	Cannot answer	Not applicable
<i>1. Study population</i>				
a) Is the population from which the participants were selected clearly described and relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Were acceptable procedures applied to recruit participants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Are the inclusion criteria adequate? <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Are the exclusion criteria adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summary 1 a) – 1 d): Is the study population relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>2. The test intervention</i>				
a) Is the test intervention one of those previously specified? <sup>2</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Was the test intervention administered/ performed in a correct and reproducible manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summary 2 a) – 2 b): Is the test intervention relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>3. Comparison intervention</i>				
a) Is the comparison intervention one of those previously specified? <sup>3</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is it possible to exclude the risk that the choice of comparison intervention, dose, or method has introduced a systematic error which would favour either intervention?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summary 3 a) – 3 b): Is the comparison intervention relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Relevance</b>	<b>Yes</b>	<b>No</b>	<b>Cannot answer</b>	<b>Not applicable</b>
<i>4. Effect measure</i>				
Are relevant effect measures applied in the study? <sup>4</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>5. Duration of study</i>				
Does the study have an adequate follow-up time? <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**<sup>1</sup>Population**

- Convicted for child sex offenses
- Self-reported paedophiles/hebephiles
- Convicted for child pornography offenses
- Convicted for other sexual offenses

**<sup>2</sup>Test intervention**

- Pharmacological
- Psychological/psychotherapeutical
- Combinations of the above

**<sup>3</sup>Comparison intervention**

- Conventional treatment
- No active treatment

**<sup>4</sup>Outcomes**

- Convictions for child sexual offenses
- Arrests by police on suspicion of child sex offenses
- Breach of conditions following sentences for sexual offenses
- Self-reported child sex offenses
- Self-reported sexual impulses which include assault against children
- Sex offenses against adults

**<sup>5</sup>Study duration**

- Follow-up at least one year after completion of the intervention

# Critical Appraisal Form Randomised Controlled Trials

## Summary of critical appraisal

Author, year, alternative SBU identification number:

Overall evaluation of study quality:

High

Moderate

Low

Instructions:

The alternative “unclear” is used when the information was not forthcoming in the text.

The alternative “not applicable” is used when the question is not relevant.

Some sub-questions have clarifying comments. These are presented as footnotes.

Study Quality	Yes	No	Not clear	Not applicable
<b>1. Study population</b>				
a) Does the study state how many individuals were excluded before randomisation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the study adequately account for those who were not randomised, although they qualified for inclusion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. Distribution of measure/intervention/treatment</b>				
a) Was the method of randomisation applied in such a way as to acceptably minimise the risk of manipulation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Was randomisation carried out in such a way that the distribution was unpredictable and random? <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Did all participants who were randomised begin treatment? <sup>2</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3. Comparability (similarity) of groups</b>				
a) Were the groups reasonably similar at baseline, with respect to characteristics which can influence the results (eg age, sex, severity of illness)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Study Quality</b>	<b>Yes</b>	<b>No</b>	<b>Not clear</b>	<b>Not applicable</b>
<b>4. Blinding (masking)<sup>3</sup></b>				
Were the following blinded satisfactorily?				
a) Patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Those who administered the treatment (operators)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Those who evaluated the results (observers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>5. Attrition (loss to follow-up) (the number of randomised participants who have not been followed in accordance with the study protocol)<sup>4</sup></b>				
a) Is it possible to follow the progress of the participants through the study eg by means of a flow chart?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the level of attrition after randomisation acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is the attrition adequately accounted for?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>6. Compliance, adherence, concordance<sup>5</sup></b>				
a) Does the study state to what extent the participants completed the treatment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Did an acceptable proportion of participants complete the treatment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>7. Reporting of effectiveness and side effects</b>				
a) Was the primary outcome (measure of effectiveness) defined beforehand and adequately reported?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Were the secondary outcomes (measures of effectiveness) defined beforehand and adequately reported?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Were the conclusions based solely on previously defined outcomes (measures of effectiveness) and analyses of subgroups? <sup>6</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have the outcomes of all important measures of effectiveness been adequately presented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Were side effects/complications reported satisfactorily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Study Quality</b>	<b>Yes</b>	<b>No</b>	<b>Not clear</b>	<b>Not applicable</b>
<b>8. Results and precision</b>				
a) Were the results adequately presented? <sup>8</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the results been calculated using an appropriate method of analysis? <sup>9</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Was the minimum clinically relevant effect defined beforehand?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Is the selected minimum clinically relevant effect of appropriate magnitude?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have acceptable methods been applied to measure the outcomes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Was inter-observer agreement evaluated in an acceptable way? <sup>10</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Are the factors and calculations used to determine the minimum number of participants acceptable (power analysis)? <sup>11</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>9. Conflicts of interest</b>				
a) Have potential conflicts of interest been disclosed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Are you satisfied that the study results have not been influenced by conflicts of interest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Overall assessment of study quality</b>				
<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				

### **Comments/footnotes to critical appraisal form for RCT**

1. The risk that randomisation will be predictable to the observer or the participants can occur eg with block randomisation. This is used in multicenter studies to counteract random, uneven distribution between different centers or countries.
2. This heading determines the risk that the results have been influenced by selective exclusion of participants from the study after randomization, but before treatment start. The number of participants who failed to complete the study should be considered in relation to the size of the study. If the number is evenly distributed between the groups and the reasons presented are acceptable, then the risk that the results have been compromised is minor. If more than 5% of the

randomized participants have been lost to follow-up, or if no reason is given for the attrition, or if the reasons given are not acceptable, then the risk is considered to be major.

3. It is preferable that both participants and observers in a study are blinded. Sometimes for practical reasons it can be difficult or impossible to conceal from the observer/operator and/or subject which treatment is being given. However, in most cases it is possible to ensure that the observer, the person evaluating the effect of the intervention, is blinded.

The following alternatives are available:

- Open testing: no parties are blinded
- Single-blind: a) the participants are blinded; b) the operator and/or the observer (the person evaluating the results) is blinded
- Double-blind: a) the participants and the operator and/or the observer are blinded and the study description affirms that the observations were recorded before the test code, identifying test and control subjects, was broken.

There are numerous examples of studies where blinding has been unsuccessful because of characteristic effects or side effects of active intervention, such as mouth dryness associated with administration of neuroleptic agents and uterine bleeding associated with oestrogen treatment. In some cases it is possible to administer preparations which counteract the side effects, in order to reduce the risk of compromising the blinding. Other factors which can make blinding difficult are differences between tablets, inhalant compounds etc. with respect to appearance or taste. A pronounced 'placebo-effect' in the control group can indicate successful blinding. In some studies the participants are asked to guess whether they have received active or control treatment.

4. The attrition assessed here refers to subjects who drop out of the study after randomisation. There may, however be occasions where even considerable attrition is probably coincidental. The examples presented below should therefore be regarded as general guidelines.

- Small (<10%)
- Medium (10–19%)
- Large (20–29%)
- Very large ( $\geq 30\%$ ). Such a large loss potentially invalidates the results, which can indicate that the study should be excluded.

Attrition varies at different time points in a study and can vary with respect to different outcome measures. Loss to follow-up often increases over time. Therefore the validity of treatment results recorded at the final visits may be doubtful, whereas the results from earlier visits may be valid.

5. Keeping note of participant compliance is especially important in cases where statistical analysis discloses no significant difference in outcomes between the two groups. Poor compliance can reduce both the effects of the intervention and side effects. If the intervention shows a significant effect then records of compliance are less important. The exception is in studies where compliance is poorer in the group which received reference treatment. This can occur in a placebo controlled study if blinding was inadequate, or if a reference treatment has a much higher frequency of side effects.

A guide for acceptable compliance is that more than 80% of the subjects participated in more than 80% of the treatment.

6. It is not unusual for studies with negative results to include explanatory or post hoc analyses, in order to identify certain subgroups in the study sample which have benefited from the intervention. These analyses can have an important function in generating hypotheses, but there is of course a great degree of uncertainty. Study conclusions must therefore never be based on such analyses.

7. Even when the reported outcome is reasonable, defined beforehand and adequately reported, there can be other important outcome measures which have been omitted. Most frequently this applies to the outcome measure for risk assessment, which is also assessed under footnote 8.
8. The usual measurements for dichotomous variables are the relative risk (RR), odds ratio (OR), or absolute risk reduction/risk difference and number needed to treat (NNT). For continuous variables the difference in means, mean difference, is usually used. All such measures should be presented with an appropriate measure of dispersion, preferably with a 95% confidence interval.
9. The results can be analyzed according to Intention-to-treat (ITT) and /or per protocol (PP). An ITT analysis means that all subjects who have been randomised are followed up within the frame of the study, regardless of whether they have been assigned to the treatment group or not. This is often the method of choice. If the results are calculated in other ways there is a risk that the treatment effect will be overestimated. ITT analysis can be complemented with a sensitivity analysis according to the “worst case scenario” in which subjects lost to follow-up from the group showing the best results are included, but assigned the worst possible outcome and those lost to follow-up from the group with the worst outcome are assigned the best possible outcome. Sometimes it is desirable for a PP analysis to be presented, which means that only those subjects who have followed the entire study protocol are included in the analysis. In the event of attrition in studies using continuous variables or rating scales, occasionally a calculation method is used in which the most recent results are considered to apply even for later time points for which data are unavailable: last observation carried forward (LOCF).
10. In registering the outcomes in a treatment study, interobserver variation can be a weakness (source of error), for example, in studies where several observers are to evaluate radiographs or cytology samples. In such cases, interobserver agreement among most or all of the observers should be reported. This can be expressed in the

form of a Kappa-coefficient, or Intra-class correlation coefficient (ICC), depending on which scale is used.

11. Power calculations are used to calculate the statistical strength of a study, ie to calculate beforehand how many subjects should be included in order to demonstrate a treatment effect with reasonable probability. It is important that the authors describe how they have arrived at the selected sample size and that the calculations have been done prior to study start. Otherwise it is impossible to rule out the likelihood that the authors have successively added subjects to the study until statistical significance has been achieved.

# Critical appraisal form: cohort studies with control groups

## Summary of appraisal

Author, year, alternative SBU identification number:

Overall evaluation of study quality:

High       Moderate       Low

To be used for:

Evaluating the effect and safety of interventions.

Evaluating the importance of risk factors/risk markers in predicting disease.

The terminology can vary, but in all cases an intervention group (synonyms: exposed group, cases or risk factor group) is compared with a control group (synonyms: unexposed group, comparison or reference group).

1. Comparability/similarity	Yes	No	Unclear	Not applicable
<i>1.1 The groups being compared</i>				
a) Have the compared groups been adequately selected? <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the control group relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is it likely that the intervention and control groups were selected and diagnosed in a similar manner? <sup>2</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>1.2 Group comparability (similarity) and confounders</i>				
a) Have the authors identified all important confounding factors (see below)? <sup>3</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have the authors taken these factors into account in their analyses? <sup>3</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Were any differences in baseline characteristics negligible (see confounding factors listed below)? <sup>3</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Is the risk of selection or indication bias small? <sup>4</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Unclear	Not applicable
<b>1.3 The intervention</b>				
a) Is the intervention clearly defined with respect to content and quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the intervention in the comparison group clearly defined with respect to content and quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Confounding factors</u> <ul style="list-style-type: none"> <li>• age</li> <li>• previous convictions for sexual offences</li> <li>• non-contact sexual offences</li> <li>• previous violence against a person</li> <li>• other criminality</li> <li>• relationship to victim (known/unknown)</li> <li>• the sex of the victim</li> <li>• stable adult relationships</li> <li>• for historical controls – time aspects</li> </ul>				
<b>2. Compliance, attrition</b>				
<b>2.1 Compliance, adherence</b>				
a) Does the paper disclose the proportion of participants who completed the treatment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Was the proportion completing treatment acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2.2 Attrition (loss to follow-up) (number of participants were not followed up in accordance with the study protocol)</b>				
a) Is the magnitude of attrition (loss to follow-up) presented? <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Are the reasons for loss to follow-up presented? <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is this level of attrition acceptable? <sup>5</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3. Blinding</b>				
Were the observers (those responsible for evaluating the outcomes) unaware of whether the subject belonged to the intervention or the control group? <sup>6</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>4. Statistical power</b>				
a) Is there a clear description of the factors and calculations on which the minimum sample size was determined? <sup>7</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the statistical power high enough? <sup>7</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Unclear	Not applicable
<b>5. Effect measure and statistical analysis</b>				
a) Are individuals showing a primary effect measure adequately identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is there only minor risk of recording or measurement bias?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Has the statistical analysis of reliability been adequately managed? <sup>8</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have the authors adequately corrected imbalances between the groups with respect to confounders? <sup>9</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have treatment drop-outs been taken into account?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>6. Side effects</b>				
Were side effects/complications measured in a satisfactory manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>7. Conflicts of interest</b>				
a) Does the paper include a list of potential conflicts of interest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Are you satisfied that the study results have not been influenced by conflicts of interest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>In total, evaluation of study quality:</b>				
<input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				

**Comments on the critical appraisal form for cohort studies with control groups**

In studies designed as cohort studies with control groups, at least two groups are followed longitudinally, ie into the future, in order to observe what happens to them. This can apply to both non-randomised control studies and other observational studies in which either treatment measures or risk factors are studied.

Synonymous terms are:

Intervention group = exposed group = risk factor = cases

Control group = unexposed group = comparison group= reference group

1. Is the comparison group clearly defined? Was the intervention compared with another intervention or with no intervention at all? Has the comparison group been sampled from the general population or from a limited, selected population? If the comparison group is a historical control then particular caution is warranted in appraisal of the study.
2. An important question is whether the same methodology was used to assign subjects to the intervention and control groups respectively.
3. Confounders are background variables which influence the outcome. They can be unevenly distributed between the groups and thus compromise the “true” result. Among important confounders are age, sex, underlying history of disease, concurrence of several diseases, risk factors and not least, socioeconomic status. Socioeconomic status is probably the greatest risk factor for ill health and premature death.

Information which can disclose pronounced differences between the groups is usually presented in an introductory table of baseline characteristics.

4. Selection bias occurs when there are one or several intrinsic differences between the groups which may explain the results. The risk is especially high with respect to preventive measures or measures to alleviate symptoms, which well-informed patient groups may request. The risk of selection bias is also high if the intervention is particularly appropriate for application in high- or low-risk patients.
5. High attrition in general increases the risk that the results can have been compromised by systematic errors. Cases can arise, however where even a high level of attrition is probably random/coincidental. As a general guideline in drug studies, the risk is minor if attrition is less than 10%, medium if attrition is between 10 and 19% and high if attrition is between 20 and 29%. If the attrition in drug studies is 30% or more then the losses may potentially invalidate the study and it may be excluded. Attrition can vary between different timepoints

and with respect to different outcome measures. In studies with long term follow-up, a somewhat higher level of attrition may be acceptable.

6. If the observers are aware of which treatment the subjects have received this can increase the risk of systematic errors in registration.
7. Small studies in which the researchers did not calculate beforehand the minimum sample size required to achieve a statistically significant result for the primary outcome often have major shortcomings with respect to quality. It is important to assess the study's statistical power for each individual outcome measure. An example is reporting of side effects. Studies are usually planned to highlight the positive effects and may not have taken into account the minimum number of participants required to achieve statistically confirmed negative effects.
8. Assess whether the confidence intervals or other relevant measures are adequately presented or if there is an explanation as to why such information has not been presented. This can apply for example to total examinations of large sets of data.
9. Methods that can be applied in this context are matching/restriction, stratified analysis, multivariate model analysis (eg regression analysis) or propensity score-methods.

# Assessment form for health economics studies

## Summary of assessment

Author, year, or SBU's reference number

Assessment of study quality with respect to *health economics*

High       Moderate       Limited       Insufficient

Assessment of study quality with respect to *medical data*

(determined by the project's medical experts)

High       Moderate       Limited       Insufficient

**The following questions are to be answered by the project's economics experts. Section 3 refers to assessment of the quality of the study**

	Yes	No	Unclear	Not applicable
<b>1. Questions regarding the relevance ("PICO") of the study to the issues being considered by the project (Requirements for a positive response for inclusion)</b>				
a) Is the studied patient population relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the intervention relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is the comparison intervention relevant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Is the outcome measure relevant (eg QALY, LYS)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. Questions on economics (Requirements for a positive response for inclusion)</b>				
a) Is the study perspective stated or is it apparent from the text?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Were both costs and effects evaluated separately, or were the effects assumed to be similar, without being evaluated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Are the effects evaluated correctly/adequately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Is the health care organisation relevant for Swedish conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Unclear	Not applicable
e) Are the relative prices relevant for Swedish health care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Do disqualifications due to conflicts of interest present a problem for the study?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3. Questions for assessment of study quality with reference to the economic analysis</b>				
<i>3.1 Presentation of the study results</i>				
a) Does the study highlight the economic importance of the issue under investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the selected form of economic analysis motivated in relation to the issue under investigation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is the method of data collection presented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Are the conclusions well-based and clearly expressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Was a decision made about estimation of subgroup analysis at the start of the study?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Have comparisons been made with other studies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Was generalisability shown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Were questions about allocation discussed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Were negative outcomes shown?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Was an adequate consequence analysis presented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Was a discussion about alternative costs included?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>3.2 Analysis of sensitivity</i>				
a) Have appropriate statistical methods been applied?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the distribution of outcome effect acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is the outcome robust in relation to the values of the variables investigated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Is patient compliance included in the analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Unclear	Not applicable
<b>3.3 Incremental analysis</b>				
Has an incremental analysis been made of both costs and effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.4 Discounting (for studies longer than one year)</b>				
a) Discounting of costs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Discounting of effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3.5 Study Model</b>				
a) Is the model appropriate for the actual issue being investigated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Is the model transparent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Is the selected time horizon reasonable in comparison with empirical data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Markov: Are the time cycles clearly described?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Markov: Are the time cycles motivated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Summary of answers to relevant questions under Section 3</b>				
<b>Guidelines for assessment of study quality</b>				
Conditions: positive responses to questions in Sections 1–2, and the number of positive responses to the relevant questions in Section 3.				
<input type="checkbox"/> Over 80% positive responses: high quality	<input type="checkbox"/> 60–80% positive responses: moderately high quality	<input type="checkbox"/> 40–59% positive responses: low quality	<input type="checkbox"/> Less than 40% positive responses: inadequate quality	
Comments on the study, if any:				

### **Criteria, clarification of some points in Sections 3**

1. Is generalisability demonstrated?  
Yes = The results can reasonably be extrapolated with respect to “setting”, ie the environment in which the study was carried out (eg a study conducted in a university clinic can be generalised to apply to patients in primary care).

2. Were questions of allocation discussed?  
Yes = Discussion with respect to national priority; discussion with respect to age, sex, geographic region, socioeconomic aspects etc.
3. Were negative result outcomes presented?  
Yes = Negative outcomes are presented in the text or in a figure, or it is stated that there were no negative results (eg no side effects of medication).
4. Was the consequence analysis adequate?  
Yes = Consequence analysis of the study results is included, preferably from a societal aspect, but at least from a health-care aspect.
5. Was there consideration of alternative costs?  
Yes = At least in the discussion section.
6. Is the distribution of outcome measures acceptable?  
Yes = Small confidence interval; low coefficient of variation (standard deviation compared with the mean).

# Reports *published by SBU*

## **SBU Reports in English (2001–2011)**

- 
- Medical and Psychological Methods for Preventing Sexual Offences Against Children (2011), 207E
- 
- Treatment of Hemophilia A and B and von Willebrand Disease (2011), no 208E
- 
- Dementia (2008), three volumes, no 172E
- 
- Obstructive Sleep Apnoea Syndrome (2007), no 184E
- 
- Interventions to Prevent Obesity (2005), no 173E
- 
- Moderately Elevated Blood Pressure (2004), Volume 2, no 170/2
- 
- Sickness Absence – Causes, Consequences, and Physicians' Sickness Certification Practice, *Scandinavian Journal of Public Health*, Suppl 63 (2004), no 167/suppl
- 
- Radiotherapy for Cancer (2003), Volume 2, no 162/2
- 
- Treating and Preventing Obesity (2003), no 160E
- 
- Treating Alcohol and Drug Abuse (2003), no 156E
- 
- Evidence Based Nursing: Caring for Persons with Schizophrenia (1999/2001), no 4E
- 
- Chemotherapy for Cancer (2001), Volume 2, no 155/2
- 

## **SBU Summaries in English (2006–2011)**

- 
- Treatment of Hemophilia A and B and von Willebrand Disease (2011), no 510-59
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- Peripheral Arterial Disease – Diagnosis and Treatment (2008), no 510-42
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Tympanostomy Tube Insertation for Otitis Media in Children (2008), no 510-40
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Methods of Treating Chronic Pain (2006), no 510-31

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## **SBU Reports in Swedish**

### ***Yellow Reports (2008–2011)***

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Blödande magsår (2011), nr 206
Tandförluster (2010), nr 204
Rotfyllning (2010), nr 203
Program för att förebygga psykisk ohälsa hos barn (2010), nr 202
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Transkraniell magnetstimulering (Uppdatering av Kapitel 8 i SBU-rapport 166/2 från 2004) (2007), nr 192. <i>Publiceras endast i elektronisk version på <a href="http://www.sbu.se">www.sbu.se</a></i>
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### ***White Reports (1999–2011)***

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ADHD hos flickor (2005), nr 174
Evidensbaserad äldrevård (2003), nr 163
Rökning och ohälsa i munnen (2002), nr 157
Placebo (2000), Ges ut av Liber, nr 154
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Evidensbaserad omvårdnad: Patienter med måttligt förhöjt blodtryck (1998), nr 2
Evidensbaserad omvårdnad: Strålbehandling av patienter med cancer (1998), nr 1
Evidensbaserad sjukgymnastik: Patienter med ländryggsbesvär (1999), nr 102
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