

# Prediction, Screening and Early Intervention

## Citation for published version (APA):

Horstkötter, D. (2020). Prediction, Screening and Early Intervention: A Critical Analysis. In F. Focquaert, E. Shaw, & B. N. Waller (Eds.), *The Routledge Handbook of the Philosophy and Science of Punishment* (pp. 274-287). Routledge. <https://doi.org/10.4324/9780429507212>

## Document status and date:

Published: 01/01/2020

## DOI:

[10.4324/9780429507212](https://doi.org/10.4324/9780429507212)

## Document Version:

Publisher's PDF, also known as Version of record

## Document license:

Taverne

## Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

## General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

[www.umlib.nl/taverne-license](http://www.umlib.nl/taverne-license)

## Take down policy

If you believe that this document breaches copyright please contact us at:

[repository@maastrichtuniversity.nl](mailto:repository@maastrichtuniversity.nl)

providing details and we will investigate your claim.

# PREDICTION, SCREENING AND EARLY INTERVENTION

## A Critical Analysis

*Dorothee Horstkötter*

*Actually, you are playing with someone's life. Because one is getting a label and all. ... If then one has given someone a label he does not deserve, that is the same as sentencing someone who is innocent.*

(Tom, 16 years, admitted to Judicial Youth Care)

### Introduction

Reduction of antisocial behavior (ASB) is typically considered an important social and political aim. The past decades, however, have shown a significant paradigm shift in this regard from mere reactive punishments to emphasizing the early identification of children at risk and the implementation of early preventive interventions. Accompanying continuous trends in (mental) health care (e.g., Arango et al. 2018; Jacka & Reavley 2014; Ozonoff 2015), the credo “prevention is better than sanction” is also influencing criminology (Beauchaine, Neuhaus, Brenner, & Gatzke-Kopp 2008; Farrington & Welsh 2007), linking it directly to both youth care work and the youth mental health care system. From a scientific and policy point of view, the question is no longer whether prevention is sensible and feasible, but rather which kind of screening method and which preventive and interventional measurements are most effective (Farrington & Welsh 2007; Sherman et al. 1996). The term “early” is thereby taken very seriously. The target group of early intervention is not merely young offenders or those with overt behavioral disturbances, but is also aimed at very young children, still in their infancy if not even prenatally; and preferably before the onset of observable behavioral troubles (Loeber, Slot, Van der Laan, & Hoeve 2008; Tremblay 2010; van Goozen & Fairchild 2008). Traditionally, prediction and prevention concern the assessment of a series of social and psychological risk-factors – for example, showing low attainment and empathy, living in a disrupted family and experiencing poor and inconsistent parenting, and growing up in a deprived area (Farrington & Coid 2003) – in order to decide on and make the appropriate intervention. More recently, this early-prevention paradigm has been given a particular boost by research done in the life sciences, particularly genomics, neurobiology and neurophysiology (Beauchaine et al. 2008; Fishbein 2000; van Goozen & Fairchild 2008). These contemporary approaches aim to identify biomarkers that indicate a risk of developing antisocial behaviors and have therefore triggered great hopes and expectations for the development of more accurate screening methods and more effective means of early ASB-prevention and intervention. Against this background, the following assumption has come to dominate the field: improved prediction, screening and early intervention brings about a win-win situation in which all concerned are better off. Children and juveniles at-risk can enjoy a better future: a future with improved mental

health, less engagement in delinquent behavior, and therefore fewer sanctions or punishments in the form of fines, community services, or admission to closed or judicial youth care facilities. At the same time, public safety will increase, society will be better protected and fewer people will be victimized.

There are, however, reasons to temper this enthusiasm. Screening, prediction and early prevention are not a panacea in crime prevention, and more seriously, they might come to lead a life of their own with unintended and questionable implications and side-effects. Even proponents of prevention programs cautioned *ab initio* that the way to prevention will be rocky and paved with false predictions, warn that:

Caution is... required. In particular, any notion that better screening can enable policy makers to identify the young children destined to join the 5 percent of offenders responsible for 50–60 percent of crime is fanciful. ... This demonstrates the danger of assuming that antisocial five-year-olds are the criminals ... of tomorrow.

*(Sutton, Utting, & Farrington 2004: 5)*

But there is more than limited predictive validity and the lack of crystal balls. There are concrete concerns about what happens with those young children, and their families, who become participants in early prevention efforts. The quotation at the start of this chapter expresses this worry. It comes from my interview with Tom (fictive name, to protect his privacy), a juvenile delinquent whom I asked to think through the personal impact of early identification and prevention (Horstkötter, Berghmans, de Ruiter, Krumeich, & De Wert 2012). Tom was rightly concerned that prevention can be a form of sanction, and even worse, a sanction of the innocent. This very possibility calls on anybody involved in research and practice to reconsider the very relationship of prevention and sanction from an ethical point of view. It also adds up to a whole series of questions and concerns regarding the ethical and social implications of early ASB-prevention elaborated on in criminological (Gatti, 1998), youth mental health (Singh & Rose 2009; Sterzer 2010), sociological (Case 2006; Stephen & Squires 2004) and bioethical (Horstkötter, Berghmans, & De Wert 2014; Horstkötter & De Wert 2013; Walsh 2014) literature.

Against this background, the current chapter critically analyzes common assumptions about the value of prediction and early intervention from an ethical point of view. The relationship of prevention and sanction or punishment might not be a one-way straightforward road but instead involves detours and oncoming traffic. Before I dig into the details, some remarks should be made. So far, I have used the terms of “antisocial behavior,” “delinquency,” “wrongdoing,” or “offending” in a rather loose and synonymous way. This will continue throughout the chapter. By doing so, I fully realize that these terms are notoriously difficult to define and distinguish. In the following, a broad understanding of this conglomerate will be invoked and the discussion will be taken to cover (potential) behaviors that inflict significant harm on self or others (for example violence, truancy, or burglary) as well as (potential) personality traits that render such behaviors more likely (for example, aggressiveness, impulsivity, or low empathy). The chapter will be informed by the scientific and applied ethical literature at hand. In addition, it will revert to the views and experiences of stakeholders (juveniles and parents) as I have elicited them in two qualitative interview studies (Horstkötter et al. 2012; Horstkötter, Berghmans, Feron, & De Wert 2014; Horstkötter, Dondorp, & de Wert under review). I will refer to these voices to provide checks and balances on the academic discourse.

The chapter will proceed in four steps. First, I will briefly present the state of art in screening, prediction and early ASB-prevention (Horstkötter, Berghmans, & De Wert 2014). Second, I will focus on the implications for individual children concerned. Third, given that early prevention targets rather young children, I will also discuss what ASB-prevention might entail for their parents and families. Finally, I will show how early ASB-prevention can lead to tensions between child well-being and public safety and I will discuss the implications of any conflicts of interest.

### **Prediction, Screening and Early Prevention Across Disciplines, a Digest**

Over the years, research has tried to identify risk-factors that might characterize children and juveniles who behave antisocially, commit offences or are likely to do so. Traditionally, this covers psychological and social factors, but more recently, findings from neuroscience and genomics aim to complement the overall picture by identifying a series of biomarkers (Beauchaine 2009; van Goozen & Fairchild 2008). On that basis, various prevention and intervention measurements have been implemented and evaluated (Farrington & Coid 2003; Farrington & Welsh 2007; Loeber et al. 2008; Sherman et al. 1996) and there is great interest in how biomedical findings can enhance these initiatives (Beauchaine et al. 2008; van Goozen & Fairchild 2008). The following discussion will provide a brief overview of features considered important in the context of ASB risk, as well as interventions implemented to attenuate them.

Potential risk-factors not only include individual characteristics, but also familial and social features. On the individual level both psychological and biomedical aspects have been emphasized. From a psychological perspective, low attainment and intelligence, but also little empathy or high impulsiveness have been considered important (Farrington & Welsh 2007). From a biomedical perspective, genetic polymorphisms, structural and functional deviations in the brain and aberrations of psychophysiological responses to stress have been referred to as underlying the behavior of those who behave antisocially and engage in crime (Hodgins, Viding, & Plodowski 2009).

It has long been established that various kinds of risk factor do interact with each other and with protective factors, contributing to resilience, or potentially increasing vulnerability (depending on the specific set of risk and protective factors). In their early work, Viding and colleagues noted a difference in the likely etiology of different kinds of aggressive behavior. The so-called callous-unemotional traits of children who show instrumentally aggressive behavior seem closely related to shared genetic features, whereas reactive forms of aggression are influenced by children's shared – adverse – environment (Viding, Jones, Frick, Moffitt, & Plomin 2008). Even though the idea of “genes for crime” has been debunked, the gene that codes for the enzyme Monoamine Oxidase A (MAOA) has attracted much attention in this context. Caspi and colleagues showed that people with a short version of that gene have increased levels of arrest and police contacts, but only if they had also experienced severe maltreatment during childhood; otherwise their behavior was unremarkable (Caspi et al. 2002). This seminal research provided strong evidence for the now widely established idea that it is not genes or environments alone that impact any individual's risk, but instead complex interactions between these factors (Moffitt 2005). Something similar holds for neurobiological and neurophysiological features. Altered brain function in brain areas responsible for, among others, emotion regulation, processing of social information and inhibitory control have been emphasized (Shirtcliff et al. 2009; Sterzer & Stadler 2009). In addition, divergent neurophysiological reactions, for example lower resting heart rates and skin conductance (Ortiz & Raine 2004) and deviations in neuroendocrinological systems are considered to contribute to aberrant stress reactions, reduced fear experience and increased risks of ASB engagements (McCrary, De Brito, & Viding 2010; van Goozen & Fairchild 2009). Again, these features are not considered in isolation, but instead in the context of children's familial and environmental circumstances. Potentially, this adds to the understanding of well-known familial and environmental risk factors. Living in a disrupted family, having a single teenage parent, or experiencing poor, affectionless, or inconsistent parenting have for a long time been thought to contribute to children's risk of developing ASB. It is now presumed that adverse childhood experiences can disturb children's brain development and contribute to a divergent regulation of the stress system and to low self-regulation capacities. Something similar seems to hold for social risk-factors like growing up in deprived areas or attending a school with high delinquency. Aberration in brain structure and function and in stress systems and executive functions are at first adaptations to adverse circumstances, rendering children better able to cope; but later render them more likely to perform behaviors that are particularly risky, disadvantageous or harmful to others.

The question is: how can we make use of these insights into risk-factors to prevent children from engaging in harmful behavior? Overview articles and reviews present and discuss what works in youth crime prevention and which interventions yield good results or are promising (de Vries, Hoeve, Assink, Stams, & Asscher 2015; Loeber et al. 2008; Sherman et al. 1996). Such programs can operate universally and aim at all children and families living in certain areas or attending specific schools (Coid 2003; Hawkins & Herrenkohl 2003) or they can be set up in a targeted fashion and intervene in the lives of only those children and families who had been identified individually through screening. To that purpose, standardized assessment instruments like the Strengths and Difficulties Questionnaire (Goodman 1997) and the Child Behavior Checklist (Achenbach 1991; ASEBA 2011) have been developed to gather information about children's emotions, behaviors and relationships. More recently, hopes have been raised that life science findings on genomics, brain structure or neurophysiology and neuroendocrinology might lead to improvements in risk assessments and might, in the foreseeable future, contribute to more accurate predictions (van Goozen, Fairchild, Snoek, & Harold 2007).

Today's prevention programs are largely based upon psychosocial findings and interventions typically aim to ameliorate the familial and social conditions under which children grow up. ASB-prevention during infancy largely consists of mentoring and coaching parents and of giving advice on parenthood, care for young children and positive parent-child relationships (Olds et al. 2004). Additional programs are offered to children of elementary school age that enhance children's cognitive development, or provide environmental enrichments (Parks 2000; Webster-Stratton, Kolpacoff, & Hollinsworth 1988). School-based programs aim to reinforce the development of pro-social behaviors and to teach emotional and social interaction skills. (Hawkins & Herrenkohl 2003; Kellam et al. 2011).

It is noteworthy that while these programs are currently deployed in the context of ASB-risk prediction and prevention, initially they had different purposes. Their goal was to enhance cognitive and social skills at the individual and familial level, reduce emerging disruptive behaviors, and thereby support child and family well-being. These programs were not only successful in this regard, but also reduced delinquency and antisocial behavior when children grew older (Tremblay & Japel 2003). This finding then led to a shift in perspective, such that currently what started in the context of youth care and family well-being is now being implemented in the context of crime prevention and public safety. I will later discuss the potential implications of this shift and the new focus, particularly in situations where the interests of individuals or families and the wider community conflict.

Presently, findings in the biomedical sciences have hardly been implemented in actual screening and prevention practices. Still, there are clear indications of how this could occur. First, insights into neurobiological and neurophysiological effects of children's familial and environmental conditions as well as into gene/brain-environment interactions both contribute to the reaffirmation of the worth of well-known psychosocial interventions that try to improve these conditions (Viding, Larsson, & Jones 2009). A recent report from the Dutch Research Office of the Ministry of Justice on the usage of neuroscience findings presented almost exclusively a series of such psychosocial means, covering environmental enrichment, self-regulation training, family interventions, dietary supplements, mindfulness training, and psychophysiological feedback (Cornet, Bootsma, Alberda, & De Kogel 2016) as neuroscience-based applications.

Second, it has been argued that insights into differences among children's neurobiological functioning might be used to further specify the early identification of children at risk. Biomedical measurements could contribute to the establishment of subgroups of children whose stress-systems have or do not have aberrations (Beauchaine et al. 2008; Frick & Petittlerc 2009). A more stable distinction could be drawn between children with so-called callous-unemotional and psychopathic traits and those who instead show reactive aggression (Viding 2012; Blair 2013). Potentially, ratings could be made to decide which children to prioritize (van Goozen & Fairchild 2008). Based on children's neurobiological profile, so the argument goes, therapists might then invoke different and

more tailored treatment approaches. For some it might suffice to provide psychotherapy or any of the above mentioned psychosocial interventions, while for others additional, more specialized treatments might be necessary, such as psychopharmacology or other direct means of neuromodulation (De Brito & Hodgins 2009). In an ideal scenario, neuroscience findings together with their psychosocial companions can be invoked to further mental health literacy among professionals, parents and juveniles and thereby support them in learning to deal autonomously with the features that apparently characterize specific individuals (de Kogel 2018).

### **Children at Risk**

The above seems to present a rather clear picture. There is a series of risk-factors, covering psychological, social and neurobiological/genetic features that render young children and juveniles more likely to engage in ASB, that allow for the early identification of these children and that give guidance on how to set up and further improve prevention and intervention. At first glance, this focus on adverse features and circumstances that seem to characterize children at risk has many advantages over mainly normative ways of understanding antisocial behavior that condemn these behaviors from a moral point of view and aim to consolidate and justify a punitive response. By contrast, if adverse circumstances rather than – mainly – bad intent triggers children's and juveniles' antisocial behavior, punishment seems inapt and therapeutic approaches and attempts to change social and familial circumstances are more appropriate. This is not the place to discuss the philosophical justification of punishment in greater detail, but the following will critically discuss the basic assumption that a preventive and interventional approach would, almost by definition, avoid punishment and solely do good for the children concerned.

Since their onset, risk-based approaches to ASB in general (Case 2006; Gatti 1998; Wright 2017), and those based on the life sciences more recently (Horstkötter, Berghmans, & De Wert 2014; Singh & Rose 2009; Walsh 2014), have been met with a plethora of questions and concerns. While benefits are sensible, pitfalls and drawbacks lurk as well and the science of screening, prediction and early prevention faces a dual-use dilemma. That is, while in theory it could contribute to increased human well-being and the flourishing of children growing up, it can likewise be invoked to make life even more difficult when people are required to meet various demands inherent in these practices.

First, screening and other means engaged to predict who is or isn't at-risk can be rather intrusive. Genetic screening for possible vulnerabilities has the potential to undermine children's "right not to know" and their future autonomy. This right is considered particularly important in situations in which it is not in children's direct interest to be screened (Bortolotti & Widdows 2011; Tarini, Tercyak, & Wilfond 2011), for example, in case no therapy or intervention is available that could mediate the condition looked for; or in which the screening outcome is likely inconclusive because genetic influences can be mitigated by other factors. This is likely to hold in the context of ASB-prevention and intervention, where gene-environment interactions prevail, but where there is also broad consensus that a specific gene that would provoke antisocial behavior does not exist (Viding et al. 2009). Still, one might want to advocate for the screening of children with early symptoms in order to determine who will or will not respond to therapeutic treatments or to identify those who are most vulnerable to developing ASB because of their genetic profile. Van Goozen & Fairchild (2008) have argued that screening should occur in order to determine which children deserve priority in treatment programs, such as children with the short version of the MAOA gene who are also being maltreated. While such an approach might lead to better clinical results, it has serious consequences, particularly for maltreated children who have the long version of the MAOA gene. Their "positive" genetic screening outcome might result in a situation where they are placed at the back of the row because they are considered not at risk to translate their dreadful personal situations into social adversities. In that scenario, screening might have particularly negative consequences for

those children who seem rather resilient from an ASB and a public safety perspective, but still have low individual well-being.

In addition, screening – particularly diagnostic differentiation – might better identify those children who are likely to be “treatment resistant”, and will not, or barely, respond to existing interventions. This might hold, for example, for children with so-called callous-unemotional (CU) traits: children who exhibit behavior with a persistent disregard of others, lack of empathy and a generally deficient affect (Viding, Fontaine, & McCrory 2012). While on the one hand differentiation between children with and without CU traits has triggered new initiatives for the development of interventions for these hard-to-reach children (Dadds & Rhodes 2009), the risk of this differential approach is an increased tendency to write off these children and instead focus on the easier cases. A different problem arises with the way particularly hard-to-reach or hard-to-change children are sometimes described. A subtype of children with severe forms of conduct disorders are presented as children who exhibit *psychopathic traits* (Blair 2013; Rutter 2012). The terminology of “psychopathy”, however, almost by definition triggers a whole set of very negative associations and the question arises whether this term could ever be justified in the case of children and juveniles. *The New York Times* posed the question “Can you call a 9-year old a psychopath?” (Kahn 2012). This is not mainly a question about the diagnostic possibility or reliability. Instead, a moral question has been posed on whether it can ever be morally justified to label a child in such a stigmatic way. The moral criticism here is that creating this subtype of children has the potential to take away any hope that these children could ever change and take a different path in life. This labeling undermines the very idea of childhood and what one might be entitled to as a child: an educational perspective and a focus on one’s developmental potential (Horstkötter & De Wert 2013; Stephen & Squires 2004).

A different but related issue is the risk that children who are identified as being at risk of developing ASB will therefore be labeled, stigmatized or discriminated against in education, leisure time activities and maybe even inside their families (Nuffield Council on Bioethics 2002; Rose 2000; Sterzer 2010). In this sense, screening procedures that try to determine individual children’s risk status run the danger of singling out certain children and portraying them as being essentially different from their peers. For children who show no behavioral disturbance this is particularly problematic, because they might receive negative attention almost “out of the blue”. But also children who show initial behavioral disturbances run the risk of being further singled out and treated differently than their peers when being considered at risk of developing ASB. This initially theoretical concern has been largely confirmed by a group of juvenile offenders who have been interviewed about their views on early prediction and prevention (Horstkötter et al. 2012; Horstkötter, Berghmans, Feron et al. 2014). Juveniles view screening and early prevention efforts with skepticism for two reasons. First, they fear that this will lead to “selective perception” or “prejudice about these people” (Horstkötter et al. 2012: 294). Secondly, they fear that these practices might lead to a situation in which those identified are no longer viewed as “normal” children, and the juveniles greatly feared being labelled abnormal (Wright 2017). As one juvenile put it: “And I know that I am just a normal boy [...] We are also normal humans, you know?” (Horstkötter et al. 2012: 292)

Issues of personal identity have formed a further cluster of concerns. It has been argued that not only biomedical but also psychosocial risk-factors might be perceived as largely stable (Levitt & Manson 2007; Singh & Rose 2009) and that children who early in life come to know that others perceive them in these ways might adopt a personal identity that fits such findings. That is, they might develop low self-esteem, feelings of worthlessness or of being a hopeless case, or actively come to adapt their behavior to their announced risk status, giving rise to a self-fulfilling prophecy. To date, empirical proof of these concerns is largely lacking. Our own studies with delinquent juveniles and with juveniles diagnosed with severe behavioral disorders point in an opposite direction. It is not only that juvenile delinquents perceive themselves as normal human beings (cf. above); for juveniles with serious behavioral disturbances, whose normalcy is challenged, (re)gaining “normalcy” even is

an important motivator to engage in specialized mental health treatment (Horstkötter et al. under review). Moreover, the juveniles concerned emphasize their capacity to make personal choices rather than to be determined by some risk-factor that others attributed to them. Maybe some of their choices have been bad, but still they see themselves as choice-makers, rather than as mere performers of some adverse bodily, psychological, or social factors (Horstkötter, Berghmans, Feron, et al. 2014).

So far, concerns about prediction and early ASB intervention have mainly related to the *indirect* implications of screening, identification and intervention – that is, pitfalls and drawbacks that occur because, for example, the identification of an at-risk child brings about stigmatization or discrimination. But the means that might be employed to tackle any risks and bring about behavior change can also entail *direct* troubles. The most prominent concern in this context regards the risk that findings from the biomedical sciences could lead to increased prescriptions of psychopharmacological drugs and to subjecting children to intrusive medical investigations and interventions. Potentially, these could entail general attacks on children's bodily, and maybe also their mental, integrity (Singh & Rose 2009). Moreover, the greater plasticity of children's brains, as compared to adults', renders young people not only more likely to experience long-term effects, but also to face long-term undesired side-effects. Because of this particular danger, it has been suggested that psychopharmacologically based behavior change should only be applied to the most severe cases of established antisocial behavior and preferably on a voluntary basis only (Glannon 2007). Obviously, this excludes preventive applications, particularly in very young and in asymptomatic children. While this advice seems sensible, the reality is likely to be more complex. Apparently, no psychopharmacological intervention against antisocial behavior as such currently exists. But psychiatric conditions have been identified that may eventually contribute to children's engagement in ASB. In this sense, Lichtenstein and colleagues' study on ADHD, medication and criminality (2012) is noteworthy. Here the authors showed that children with ADHD who used medications showed less criminal behavior later in life, compared with their peers who did not take medicines. The authors accompanied their findings with clear warnings against possible misuse and with requests for due care. However, such findings seem to easily find their way into more widely read newspapers, to attract public attention and to risk further stigmatizing children with ADHD who, for whatever reason, prefer not to be treated psychopharmacologically. Their fear of long-term side effects might be perceived to be less relevant than increased public safety, putting additional pressure on a group of children who are struggling already. Again, this raises questions about the main goal of screening, prediction and prevention and about how to balance conflicting individual and public safety interests.

### Parents of Children at Risk

Screening, prediction and early ASB-prevention in young children is different from similar efforts in adults, and it is also different from efforts to prevent any worsening of existing behavioral disturbances or of recidivism. Targeting young children not only involves the individuals concerned, but also those surrounding them, most notably their parents. Parents might be affected by similar kinds of stigmatization or discrimination to those that their children are confronted with and so the labeling and treatment cover whole families rather than single members only. The following paragraphs will provide a critical analysis of screening, prediction and early ASB-prevention from the perspective of parents and discuss what these efforts entail for them.

Most prominent are concerns about increased social control and the surveillance of parents of children considered at risk. Critical sociologists and criminologists have frequently emphasized the danger that early intervention programs may not only have pronounced positive outcomes and provide support to vulnerable families, but also increase such families' marginalization and social exclusion (Case 2006; Kelly 2000; Muncie, Hughes, & McLaughlin 2002). This danger is particularly pressing, in so far as early ASB-intervention programs apparently target already marginalized, working class families who are likely to experience additional stigmatization and exclusion from wider social



communities when they are included in any ASB-prevention program. In their critical appraisal of early prediction and screening, Munthe and Radovic (2015) warn that social exclusion and the restriction of individuals' freedom might even become the premeditated goals of such measures, rather than "merely" their unintended side-effect. This might occur particularly if screening practices develop more rapidly than therapeutic means to change troublesome behaviors. The danger discussed above – the possibility of "hard cases" being written off earlier and more easily – will not only affect the children themselves, but will also have a negative impact on their parents and wider family. Moreover, adverse inferences about the behavior of parents might be drawn from screening findings and these findings might be invoked to evidence poor parenting (Walsh 2011).

A second concern relates to the respective roles and positions of parents and professionals. According to current ethical standards for the care of children, parents decide whether and when to involve their children in screening and treatment endeavors. Parents ought to be fully informed about such possibilities and then allowed, or even expected, to make decisions on their children's behalf and with their best interests in mind (BMA Ethics Department 2004). Asking parents to have their children screened and then, if appropriate, interventions made to detect and reduce any behavioral disturbances and ASB risk is well in line with these general requirements and preserves parental autonomy. However, given that juvenile delinquency triggers social concerns, the worry is that screening efforts might be extended to all children, reducing parents' say about these matters. Refusing to have one's children screened or even treated by professionals for the sake of ASB-prevention might then be considered an act of irresponsible parenting and render parents suspect, rather than their refusal being seen as an expression of parental autonomy and authority. This, however, raises the question of how to ensure that children and families indeed participate in the programs considered effective in terms of ASB-prevention and intervention. From a policy point of view, one might want to ensure participation by outright pressure and coercion. This was the case in the UK, for example, with *Acceptable Behavior Contracts* (ABCs) that can be imposed on young people aged 10–18 who show behaviors deemed antisocial, and which oblige them to desist (Stephen & Squires 2004). While these contracts are not legally binding, breaches can have severe consequences including legally binding Antisocial Behavior Orders (ASBO's) and possession orders against themselves or their parents if living in social housing. This is not the place to discuss in detail the ethical implications of these particular measures. However, regarding the involvement of very young and asymptomatic children, pressure or coercion to involve participants is highly problematic. Attempts to render prevention programs more attractive to parents and efforts to motivate participation might avoid these problems and still safeguard enrollment. As pointed out before, most ASB-prevention programs were initially developed in the context of family support. Strikingly, ASB-prevention is still frequently presented in that same context of care and support for children and their families. Titles of such programs are rather "user-friendly" (Kemshall 2007), avoid explicit references to crime prevention, and instead make use of terms that emphasize child development and family well-being. On the one hand, such approaches have the potential to facilitate voluntary participation, while avoiding coercion and the labeling and stigmatization of participants. However, at the same time, the question arises whether and to what extent parents indeed give their *informed* consent and are informed about the primary goal of the program in which they, and their children, are participating. If the aim of ASB-prevention is not an explicit part of the information process, parental consent remains uninformed and parental autonomy is undermined.

In a series of interviews we conducted with juvenile delinquents (Horstkötter et al. 2012) and with parents of children with serious behavioral disturbances residing in intramural mental health care (Horstkötter et al. under review), participants voiced fundamental concern about early intervention in general. For parents and juveniles, the main question is the role of parents versus professionals, not whether any practice works or is efficient. Parents clearly indicated that it is central to their role as parents to first have the chance to look for solutions themselves, even in difficult times, rather than immediately being preempted by some professional or outside intervention. Therefore, regardless of how well parents are informed about the primary goal of any preventive measure, the

very idea of prediction and early intervention has the potential to undermine the value of parenthood and the special relationship that parents, rather than professionals, can have with their children. Moreover, particularly in situations where interventions are proposed before or at the very beginning of upcoming problems, parents have pointed towards clear counterproductive effects. As one father put it forcefully: “A child must be able to develop. If one already very early, before someone falls, picks him up already, I would say than he never learns to pick up himself” (Horstkötter et al. under review). By their very intent and design, early interventions can deny children and their families the possibility to make mistakes, go through difficult times, encounter problems and then come to learn from these experiences, manage to deal with problems and rise again on their own. In this sense, early intervention might not only undermine parental autonomy, but more seriously inhibit the natural development of children and the coping and problem-solving capacities of parents. In addition, early intervention can entail the danger that uniform pre-given social formats on what counts as a “good child” and a “good parent” get imposed, potentially hindering the development of individual unique features. Opponents of ASB-prevention programs argue that the behaviors causing concern are not necessarily bad or undesirable, but can in fact have a social function and worth of their own (Horstkötter et al. 2012: 292; Horstkötter et al. under review), and trying to take these away might also be undesirable.

### **Society and Children at Risk**

To date, scientists and professionals easily assume that screening, prediction and early ASB-prevention brings about a win-win situation and benefits the development of children concerned, as well as acting as a safeguard and increasing public safety. Put differently, scientists and professionals take these practices to contribute to population health, that is, to the wellbeing and mental health of the child population; and, in addition, to public health, that is, to the health of the broader public, because fewer victims of ASB are to be expected (Horstkötter 2015; Welsh, Braga, & Sullivan 2012; Wilson 2009). But proponents of this alleged win-win situation apparently ignore the various ways in which the interests of children, and also of their parents, can be endangered rather than served when getting involved in ASB-prevention. Therefore, conflicts of interest between child well-being and public safety are likely to arise. Conflicts of interests, however, require us to reflect carefully on whose interest should be favored and why, and hence to reflect on what ought to be the primary goal of screening, prediction and early prevention.

Public health policies tend to prioritize public interests above individual interests. Criminal law policies uphold high standards of proof to justify any infringement of individual interests; public health policies, however, are less strict about this and operate on only moderate standards of evidence and proof. It is this specific combination of affecting individual interests and inflicting some burden or harm on individual children and parents while accepting relatively low levels of evidence that has given rise to far-ranging concerns about preemptive screenings with a primarily forensic aim (Munthe & Radovic 2015). Findings about risk-factors are always on a group level, but do not necessarily allow for conclusions about specific individuals, who can be false positives. In addition, protective factors can compensate for risk-factors: children who experience behavioral troubles early in life might outgrow them, supported by informal care and education provided by parents, teachers or other significant third persons. Finally, children who are identified by an ASB screening device while no therapeutic or preventive approach is available might face social exclusion, potentially together with their whole family (Munthe & Radovic 2015). The Dutch Centre for Crime Prevention and Safety once clearly warned that “a society in which the precautionary principle predominates comes dangerously close to an authoritarian state” (CCV 2010: 146, translation DH).

Inspired by research in brain development, today there is increasing reciprocal interest and cooperation between educational or youth care approaches, (forensic) youth mental health care, and judicial youth care perspectives. This can be a particularly laudable development, because it allows bridges

to be built between sectors that have operated separately for decades (cf. the Dutch initiatives *Brain and Cognition* and the more recent *Neurolab.nl*). Cooperation can be mutually fruitful and give each domain insight into the promises and perils of the other domain. That is, the judicial perspective that traditionally focuses exclusively on transgressions can learn to understand and take better account of the possible individual underpinnings of these behaviors, while those working from an educational or youth care perspective gain further insights into the wider social and social-safety implications of their work. However, in cases of conflict, for example when parents reject the screening of their child or refuse participation in some preventive ASB-intervention for an apparently high-risk child, mixing up judicial and childcare contexts can become problematic. Here the question about the primary versus the secondary goal of screening, prediction and early ASB-prevention becomes particularly pressing.

Psychosocial intervention measures that are now presented in the context of early ASB- and crime- prevention were initially developed for the sake of child well-being and family support. While the original aim of these interventions was to support vulnerable children and families, it turned out that children who took part in these interventions also developed less antisocial behavior (Tremblay & Japel 2003). That is, prevention of ASB and increased social safety appeared as long-term positive side-effects. From a forensic perspective, social safety and the protection of potential victims of ASB prevail above individual well-being, potentially justifying individual drawbacks or infringements on parental autonomy. From a youth care perspective, however, this justification does not hold: any burdens or drawbacks inflicted upon an individual child can be justifiable only if they are somehow unavoidable and if the intervention or therapy applied is likely to result in an improved individual outcome in the long run.

The participation in any preventive or therapeutic interventions is likely to be burdensome to some extent. It requires, at the very least, additional time-investment, attention to the advice given and effortful behavior change. As long as the primary aim of such measures is increased individual well-being this need not be a problem and interventions can be proportionate. However, when the primary aim is social safety, possible individual drawbacks do not need to be outweighed by individual benefits. For this reason, typical forensic situations request high individual proof of, for example, offending. However, in the context of screening, prediction and early ASB-prevention there is no such certainty, because the main focus is on asymptomatic or merely mildly disturbed children. For these children merely considered “at risk” it remains uncertain whether they might ever benefit personally or instead would only experience the various possible drawbacks of screening, prediction and early preventive intervention.

The same train of thought seems to apply to children and juveniles who have serious behavioral troubles but express these – so far – in a non-criminal way. In our study with parents of children in intramural orthopsychiatric care, many parents expressed very serious concerns about potential future violent and criminal behaviors of their children. Still, their main motivation and primary justification for exposing their child, and themselves as parents, to the troubles of treatment and clinical admission was their hope for their child’s better mental health and increased overall well-being and for building up their prospects for a good future. In the words of two mothers: “that he will be healthy again, just that” and “that he learns to survive in this society. [...] that had been our biggest goal to provide him a bit of a future in our society” (Horstkötter et al. under review). In this sense, the moral justification of screening, prediction and early intervention is not to be found in the potential reduction of crime or ASB-rates, but must be looked for in the positive impact such actions can have on the individuals concerned. This requires taking seriously any negative impacts that might result and weighing these appropriately. This also requires focusing on crime or ASB-prevention not in a direct way, but by facilitating individual and social circumstances that improve the situations of those considered at risk, thereby rendering such behaviors less likely and indirectly contributing to better public safety.

## Conclusion

Screening, prediction and early ASB intervention are potentially powerful means to support individual child and family well-being and to safeguard public security. However, this alleged win-win situation is not self-evident. Relevant practices entail the danger of serious drawbacks and pitfalls for the children and families that are identified and treated. Insofar as very young and asymptomatic children are the preferred primary target group, while an increase in public safety constitutes the main goal of ASB-prevention, this is a problematic situation. Forensic aims in non-offender populations are hard to justify, are almost by definition disproportionate, and could even be taken to constitute a form of punishment in themselves. Therefore, ethically good practice should consist in attempts to primarily serve individual and familial interests in well-being and good mental health. ASB-prevention might then in the long run also result. However, that would be a positive side-effect of screening, prediction and early intervention, rather than their main goal.

## References

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist / 4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Arango, C., Díaz-Caneja, C. M., McGorry, P. D., Rapoport, J., Sommer, I. E., Vorstman, J. A., ... Carpenter, W. (2018) "Preventive strategies for mental health," *The Lancet Psychiatry* 5 7 591–604. doi:10.1016/S2215-0366(18)30057-9
- ASEBA. (2011) "Achenbach System of Empirically Based Assessment ASEBA". Retrieved from: www.aseba.com
- Beauchaine, T. P. (2009) "Role of biomarkers and endophenotypes in prevention and treatment of psychopathological disorders," *Biomarkers in Medicine* 3 1 1–3. doi:10.2217/17520363.3.1.1
- Beauchaine, T. P., Neuhaus, E., Brenner, S. L., & Gatzke-Kopp, L. (2008) "Ten good reasons to consider biological processes in prevention and intervention research," *Development and Psychopathology* 20 3 745–774. doi:doi:10.1017/S0954579408000369
- Blair, R. J. R. (2013) "The neurobiology of psychopathic traits in youths," *Nature* 478 786–799. doi:10.1038/nrn3577
- Bortolotti, L., & Widdows, H. (2011) "The right not to know: the case of psychiatric disorders," *Journal of Medical Ethics* 37 11 673–676. doi:10.1136/jme.2010.041111
- British Medical Association (BMA) Ethics Department. (2004). *Medical Ethics Today, The BMA's Handbook of Ethics and Law*. London: BMJ.
- Case, S. (2006) "Young people 'at-risk' of what? Challenging risk-focused early intervention as crime prevention," *Youth Justice* 6 3 171–179. doi:10.1177/1473225406069491
- Caspi, A., McClay, J., Moffitt, T. E., Mill, J., Martin, J., Craig, I. W., ... Poulton, R. (2002) "Role of genotype in the cycle of violence in maltreated children," *Science* 297 5582 851–853. doi:10.1126/science.1072290
- Centrum voor Criminaliteitspreventie en Veiligheid (CCV). (2010) *Trendsignalement 2010, Ontwikkelingen in maatschappelijke veiligheid*, [Developments in social security] Utrecht, NL.
- Coid, J. W. (2003) "Formulating strategies for the primary prevention of adult antisocial behaviour: 'high risk' or 'population' strategies?" In D. P. Farrington & J. W. Coid (Eds.), *Early Prevention of Adult Antisocial Behaviour* (pp. 32–78). Cambridge: Cambridge University Press.
- Cornet, L. J., Bootsma, F., Alberda, D., & De Kogel, C. H. (2016) *Neurowetenschappelijke toepassingen in de jeugdstrafketen, Inventarisatie instrumenten, preventie en interventie*. [Neuroscientific applications in the juvenile criminal justice system. An inventory of measurement instruments, prevention and intervention methods] Meppel, NL: Boom.
- Dadds, M. R., & Rhodes, T. (2009) "Aggression in young children with concurrent callous-unemotional traits: Can the neurosciences inform progress and innovation in treatment approaches?" In S. Hodgins, E. Viding, & A. Plodowski (Eds.), *The Neurobiological Basis of Violence: Science and Rehabilitation* (pp. 85–99). Oxford: Oxford University Press.
- De Brito, S. A., & Hodgins, S. (2009) "Executive functions of persistent violent offenders: A critical review of the literature," In S. Hodgins, E. Viding, & A. Plodowski (Eds.), *The Neurobiological Basis of Violence: Science and Rehabilitation* (pp. 167–199). Oxford: Oxford University Press.
- de Kogel, C. H. (2018). "More Autonomous or more Fenced-in? Neuroscientific Instruments and Intervention in Criminal Justice," *Neuroethics*. doi:10.1007/s12152-018-9384-5
- de Vries, S. L., Hoeve, M., Assink, M., Stams, G. J. J., & Asscher, J. J. (2015) "Practitioner Review: effective ingredients of prevention programs for youth at risk of persistent juvenile delinquency - recommendations for clinical practice," *Journal of Child Psychology and Psychiatry* 56 2 108–121. doi:doi:10.1111/jcpp.12320

- Farrington, D. P., & Coid, J. W. (Eds.). (2003). *Early Prevention of Adult Antisocial Behaviour*. Cambridge: Cambridge University Press.
- Farrington, D. P., & Welsh, B. C. (2007). *Saving children from a life of crime, Early risk-factors and effective interventions*. Oxford: Oxford University Press.
- Fishbein, D. H. (2000) "How can neurobiological research inform prevention strategies?" In D. H. Fishbein (Ed.), *The science, treatment, and prevention of antisocial behaviors: Application to the criminal justice system* (pp. 25–30). Kingston, NJ: Civic Research Institute.
- Frick, P. J., & Petittler, A. (2009) "The use of callous-unemotional traits to define important subtypes of antisocial and violent youth," In S. Hodgins, E. Viding, & A. Plodowski (Eds.), *The Neurobiological Basis of Violence: Science and Rehabilitation* (pp. 65–83). Oxford: Oxford University Press.
- Gatti, U. (1998) "Ethical issues raised when early intervention is used to prevent crime," *European Journal on Criminal Policy and Research* 6 113–132.
- Glannon, W. (2007) *Bioethics and the brain*. Oxford: Oxford University Press.
- Goodman, R. (1997) "The Strengths and Difficulties Questionnaire: A research note," *The Journal of Child Psychology and Psychiatry* 38 5 581–586.
- Hawkins, J. D., & Herrenkohl, T. I. (2003) "Prevention in the school years," In D. P. Farrington & J. W. Coid (Eds.), *Early Prevention of Adult Antisocial Behavior* (pp. 265–291). Cambridge: Cambridge University Press.
- Hodgins, S., Viding, E., & Plodowski, A. (2009). *The Neurobiological Basis of Violence*. Oxford: Oxford University Press.
- Horstkötter, D. (2015) "Forensic screening and prevention in children and adolescents: Public health ethical aspects," *Public Health Ethics* 8 3 266–269. doi:10.1093/phe/phv027
- Horstkötter, D., Berghmans, R., de Ruiter, C., Krumeich, A., & De Wert, G. (2012) "'We are also normal humans, you know?' Views and attitudes of juvenile delinquents on antisocial behaviour, neurobiology and prevention," *International Journal of Law and Psychiatry* 35 4 289–297. doi:10.1016/j.ijlp.2012.04.006
- Horstkötter, D., Berghmans, R., & De Wert, G. (2014) "Early prevention of antisocial behavior (ASB): A comparative ethical analysis of psychosocial and biomedical approaches," *BioSocieties* 9 1 60–83. doi:10.1057/biosoc.2013.36
- Horstkötter, D., Berghmans, R., Feron, F., & De Wert, G. (2014). "'One can always say no' Enriching the bio-ethical debate on antisocial behaviour, neurobiology and prevention: Views of juvenile delinquents," *Bioethics*, 28 5 225–234. doi:10.1111/j.1467-8519.2012.01997.x
- Horstkötter, D., & De Wert, G. (2013) "The prevention of psychopathy: what we owe to young people," *American Journal of Bioethics Neuroscience*, 4 2 19–20. doi:10.1080/21507740.2013.782921
- Horstkötter, D., Dondorp, W., & de Wert, G. (under review). 'You have to let someone take a fall before they can stand on their own' *Parents and children in residential mental health care on the provision of care and the prospects of early crime prevention: a qualitative pilot study*, Maastricht University.
- Jacka, F. N., & Reavley, N. J. (2014) "Prevention of mental disorders: evidence, challenges and opportunities," *BMC Medicine* 12 1 75. doi:10.1186/1741-7015-12-75
- Kahn, J. (13th May 2012) "Can you call a 9-year-old a psychopath?" *New York Times Magazine*. Retrieved from [www.nytimes.com/2012/05/13/magazine/can-you-call-a-9-year-old-a-psychopath.html?pagewanted=all](http://www.nytimes.com/2012/05/13/magazine/can-you-call-a-9-year-old-a-psychopath.html?pagewanted=all).
- Kellam, S. G., Mackenzie, A. C., Brown, C. H., Poduska, J. M., Wang, W., Petras, H., & Wilcox, H. C. (2011) "The Good Behavior Game and the future of prevention and treatment," *Addiction Science and Clinical Practice* 6 1 73–84.
- Kelly, P. (2000) "The dangerousness of youth-at-risk: the possibilities of surveillance and intervention in uncertain times," *Journal of Adolescence* 23 4 463–476. doi:10.1006/jado.2000.0331
- Kemshall, H. (2007) "Risk assessment and risk management: the right approach?" In M. Blyth, E. Solomon, & K. Baker (Eds.), *Young People and 'Risk'* (pp. 7–23). Bristol: Policy Press.
- Levitt, M., & Manson, N. C. (2007) "My genes made me do it? The implications of behavioural genetics for responsibility and blame," *Health Care Analysis* 15 1 33–40. doi:10.1007/s10728-006-0038-0
- Lichtenstein, P., Halldner, L., Zetterqvist, J., Sjölander, A., Serlachius, E., Fazel, S., ... Larsson, H. (2012) "Medication for attention deficit–hyperactivity disorder and criminality," *New England Journal of Medicine* 367 21 2006–2014. doi:10.1056/NEJMoa1203241
- Loeber, R., Slot, N. W., Van der Laan, P., & Hoeve, M. (Eds.). (2008) *Tomorrow's Criminals. The Development of Child Delinquency and Effective Interventions*. Farnham: Ashgate.
- McCrorry, E., De Brito, S. A., & Viding, E. (2010) "Research Review: The neurobiology and genetics of maltreatment and adversity" *Journal of Child Psychology and Psychiatry* 51 10 1079–1095. doi:10.1111/j.1469-7610.2010.02271.x
- Moffitt, T. E. (2005) "The new look of behavioral genetics in developmental psychopathology: Gene–environment interplay in antisocial behavior," *Psychological Bulletin* 131 4 533–554. doi:10.1037/0033-2909.131.4.533
- Muncie, J., Hughes, G., & McLaughlin, E. (Eds.). (2002) *Youth Justice, Critical Readings*. London: Sage.

- Munthe, C., & Radovic, S. (2015) "The return of Lombroso? Ethical aspects of (visions of) preventive forensic screening," *Public Health Ethics* 8 3 270–283. doi:10.1093/phe/phu048
- Nuffield Council on Bioethics. (2002) *Genetics and Human Behaviour: The Ethical Context*. London: Nuffield Council on Bioethics.
- Olds, D. L., Kitzman, H. R. N., Cole, R., Robinson, J., Sidora, K., Luckey, D. W., ... Holmberg, J. (2004) "Effects of nurse home-visiting on maternal life course and child development: Age 6 follow-up results of a randomized trial," *Pediatrics* 114 6 1550–1559. doi:10.1542/peds.2004-0962
- Ortiz, J., & Raine, A. (2004) "Heart rate level and antisocial behavior in children and adolescents: A meta-analysis," *Journal of the American Academy of Child and Adolescent Psychiatry*, 43 2 154–162. doi:10.1097/01.chi.0000101373.03068.5c
- Ozonoff, S. (2015) "Early detection of mental health and neurodevelopmental disorders: the ethical challenges of a field in its infancy," *Journal of Child Psychology and Psychiatry* 56 9 933–935. doi:10.1111/jcpp.12452
- Parks, G. (2000) "The High/Scope Perry Preschool program," *Juvenile Justice Bulletin of the Office of Juvenile Justice and Delinquency Prevention* October 1–8.
- Rose, N. (2000) "The biology of culpability: Pathological identity and crime control in a biological culture," *Theoretical Criminology* 4 1 5–34. doi:10.1177/1362480600004001001
- Rutter, M. (2012) "Psychopathy in childhood: Is it a meaningful diagnosis?" *British Journal of Psychiatry* 200 175–176. doi:10.1192/bjp.bp.111.092072
- Sherman, L. W., Gottfredson, D., MacKenzie, D., Eck, J., Reuter, P., & Bushway, S. (1996) *Preventing crime: What Works, What Doesn't Work, What Is Promising. A Report to the United States Congress*. Maryland, VS: Department of Criminology and Criminal Justice
- Shirtcliff, E. A., Vitacco, M. J., Graf, A. R., Gostisha, A. J., Merz, J. L., & Zahn-Waxler, C. (2009) "Neurobiology of empathy and callousness: Implications for the development of antisocial behavior," *Behavioral Sciences and the Law* 27 2 137–171. doi:10.1002/bsl.862
- Singh, I., & Rose, N. (2009) "Biomarkers in psychiatry," *Nature* 460 202–207.
- Stephen, D. E., & Squires, P. (2004) "'They're still children and entitled to be children': problematising the institutionalised mistrust of marginalised youth in Britain" *Journal of Youth Studies* 7 3 351–369. doi:10.1080/1367626042000268962
- Sterzer, P. (2010) "Born to be criminal? What to make of early biological risk-factors for criminal behavior," *American Journal of Psychiatry* 167 1 1–3.
- Sterzer, P., & Stadler, C. (2009) "Neuroimaging of aggressive and violent behaviour in children and adolescents," *Frontiers in Behavioral Neuroscience* 3 1–8. doi:10.1176/appi.ajp.2009.09111601
- Sutton, C., Utting, D., & Farrington, D. P. (2004) *Support From the Start: Working With Young Children and Their Families to Reduce the Risks of Crime and Antisocial Behaviour* London: UK government Department of Education.
- Tarini, B. A., Tercyak, K. P., & Wilfond, B. S. (2011) "Commentary: Children and predictive genomic testing: Disease prevention, research protection, and our future," *Journal of Pediatric Psychology*, 36 10 1113–1121. doi:10.1093/jpepsy/jsr040
- Tremblay, R. E. (2010) "Developmental origins of disruptive behaviour problems: the 'original sin' hypothesis, epigenetics and their consequences for prevention," *Journal of Child Psychology and Psychiatry* 51 4 341–367. doi:10.1111/j.1469-7610.2010.02211.x
- Tremblay, R. E., & Japel, C. (2003) "Prevention during pregnancy, infancy, and the preschool years," In D. P. Farrington & J. W. Coid (Eds.), *Early Prevention of Adult Antisocial Behaviour* (pp. 205–242). Cambridge: Cambridge University Press.
- van Goozen, S. H. M., & Fairchild, G. (2008) "How can the study of biological processes help designing new interventions for children with severe antisocial behavior?" *Development and Psychopathology* 20 3 941–973. doi:10.1017/S095457940800045X
- van Goozen, S. H. M., & Fairchild, G. (2009) "The neuroendocrinology of antisocial behaviour," In S. Hodgins, E. Viding, & A. Plodowski (Eds.), *The Neurobiological Basis of Violence: Science and Rehabilitation* (pp. 201–221). Oxford: Oxford University Press.
- van Goozen, S. H. M., Fairchild, G., Snoek, H., & Harold, G. T. (2007) "The evidence for a neurobiological model of childhood antisocial behavior," *Psychological Bulletin* 133 1 149–182. doi:10.1037/0033-2909.133.1.149
- Viding, E., Fontaine, N. M. G., & McCrory, E. (2012) "Antisocial behaviour in children with and without callous-unemotional traits" *Journal of the Royal Society of Medicine* 105 5 195–200. doi:10.1258/jrsm.2011.110223
- Viding, E., Jones, A. P., Frick, P. J., Moffitt, T. E., & Plomin, R. (2008) "Heritability of antisocial behaviour at 9: do callous-unemotional traits matter?" *Developmental Science* 11 1 17–22. doi:10.1111/j.1467-7687.2007.00648.x
- Viding, E., Larsson, H., & Jones, A. P. (2009) "Quantitative genetic studies of antisocial behaviour," In S. Hodgins, E. Viding, & A. Plodowski (Eds.), *The Neurobiological Basis of Violence: Science and Rehabilitation* (pp. 251–264). Oxford: Oxford University Press.

*Prediction, Screening, Early Intervention*

- Walsh, C. (2011) "Youth justice and neuroscience," *British Journal of Criminology* 51 21–39. doi:10.1093/bjc/azq061
- Walsh, C. (2014) "Bioprediction in youth justice," In I. Singh, W. Sinnott-Armstrong, & J. Savulescu (Eds.), *Bioprediction, Biomarkers and Bad Behavior* (pp. 42–56). Oxford: Oxford University Press.
- Webster-Stratton, C., Kolpacoff, M., & Hollinsworth, T. (1988) "Self-administered videotape therapy for families with conduct-problem children: Comparison with two cost-effective treatments and a control group," *Journal of Consulting and Clinical Psychology* 56 558–566.
- Welsh, B. C., Braga, A. A., & Sullivan, C. J. (2012) "Serious Youth Violence and Innovative Prevention: On the Emerging Link Between Public Health and Criminology," *Justice Quarterly* 31 3 500–523. doi:10.1080/07418825.2012.690441
- Wilson, J. (2009) "Towards a normative framework for public health ethics and policy," *Public Health Ethics* 2 2 184–194. doi:10.1093/phe/php012
- Wright, K. (2017). "Inventing the 'normal' child: Psychology, delinquency, and the promise of early intervention," *History of the Human Sciences* 30 5 46–67. doi:10.1177/0952695117737209s