

Youth Justice Reform Select Committee inquiry into youth justice reform in Queensland

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Submission to the inquiry into the ongoing reforms to the Youth Justice System and support for victims of crime in Queensland

This submission is made by a group currently developing a new model for the assessment, diagnosis, and treatment of ADHD and co-occurring conditions, based on a multidisciplinary team-based care approach (ADHD collaborative care model). The group is planning to launch the ADHD collaborative care model this year.

Key members of the group are:

- **Dr Geoff Kewley**, Neurodevelopmental Paediatrician. Geoff has written 3 books on ADHD and worked in the UK for 23 years, developing and running a nationally recognised ADHD service where he was at the forefront of increasing ADHD awareness and services. He chaired the ADHD special interest group [The George Still Forum] within the Royal College of Paediatrics and Child Health for many years. He now runs a practice for children and youth with ADHD and related conditions in Sydney.
- **Dr Peter Heffernan**, Consultant Psychiatrist & Psychoanalytic Psychotherapist MBBS MPM FRANZC Founder and previous Chair RANZCP ADHD Network Committee.
- **Professor T Ewais**, Consultant Child & Adolescent Psychiatrist whose current research interests include anti-inflammatory therapies for youth chronic illness and their psychosocial co-morbidities, depression, anxiety, fatigue, stress and pain. Additional areas of research include resilience in medical students, doctors and health professionals, the role of social determinants of health and health and justice partnerships in youth with chronic illness and development and appraisal of integrated care pathways and mental health guidelines.
- **Scott Beachley**, Lawyer and governance advisor to the health, tech and not for profit sectors. Scott is on the National and International Boards of Smart Recovery, a support organisation for those with Substance Misuse and Addictive Behaviour, former chair of a youth mental health charity, founder and former CEO of a digital mental health social enterprise.
- **Chris Brideson**, Business Consultant. Chris has over 30 years' experience in consulting on strategy, governance and risk, primarily in the Financial Services industry. He has lived experience of ADHD.
- **Brooke Fogarty**, ADHD Coach. Website designer.
- **Corey Lane**, Clinical Psychologist and an Adjunct Lecturer in Criminology and Criminal Justice Studies at James Cook University, Australia.

The following sets out the group's perspectives on relevant issues for the Inquiry to consider, as well as recommendations on how to address these issues. The perspectives and recommendations are based on over 2 years research into the many roadblocks to the effective assessment and management of people with ADHD in the Youth Justice System, the discrepancy between capacity and demand for ADHD services in Australia, as well as research into ADHD care models, clinical guidelines and leading practices in the UK, Canada and the USA.

The submission addresses each of the Inquiry's terms of reference, unless indicated otherwise.

Introduction:

We consider the Queensland Youth Justice Strategy 2019-2023 to be an excellent document, including the pillars of action. Our comments below use that document as the basis for action. However, we consider that, for there to be more effective outcomes, much higher priority must be given to the underlying causes of youth crime, and in particular the vulnerability caused by untreated or partially treated ADHD, even where there are significant social challenges. For example, recent **Practice Guidelines from the Australian ADHD Professionals Association** clearly points out the link between ADHD and youth crime [P155]. The report noted that:

- 'Attention deficit hyperactivity disorder (ADHD) rates are higher in custodial settings than in the general population, estimated to be 5 times higher among youth prisoners and 10 times higher among adult prisoners. There may likely be higher rates among Aboriginal prisoners, and this is likely associated with Foetal Alcohol Syndrome. Many prisoners positively screened for ADHD were never previously diagnosed. Among people in prison, ADHD is often complicated by substance misuse and co-occurring mental health disorders.
- ADHD, its identification, treatment &/or prevention has received limited specific attention in most major recent reviews & inquiries into youth & criminal justice populations in Australia.
- ADHD symptoms increase the risk of institutional aggressive disturbances/critical incidents in prison. ADHD is also associated with conduct disorder in children and later anti-social behaviour, multiple socio-economic disadvantages, and other criminogenic factors. If left untreated, symptoms create unnecessary challenges in our jails and juvenile facilities. There are therefore advantages in managing ADHD in custodial settings. However, managing ADHD in custodial settings is difficult because many prison health systems are already overstretched and tend to focus their resources on acute mental illness and suicidal ideation. Many prisons are unable to offer mental health services to community standards.
- Many people in prison experience socioeconomic disadvantage, and co-occurring conditions (particularly substance use disorders), meaning that complexity is the norm. However, in prison there may an opportunity to provide interventions which may be lacking or not be readily accessed in community settings.
- There are potential benefits of addressing ADHD in prison. Treatment may reduce symptoms, reduce the rate of critical incidents in prison and make them safer places for both staff and those in custody, reduce the rate of recidivism after release, assist in the treatment of other disorders (such as personality disorders, substance use disorders, anxiety disorders).'

Lane and Chong have reviewed studies on the incidence of ADHD in Australian prisons:

Study	Setting	Prevalence
Moore, Sunjic Kaye, Archer & Indig, (2013).	4 x Selected NSW Prisons	<ul style="list-style-type: none"> • 17% of adults met full ADHD criteria • 35% subclinical ADHD.
2009 NSW Inmate Health Survey (Indig, et al., 2010)	Self-Reported ADHD	<ul style="list-style-type: none"> • 10.8% total • 11.8% men • 6% women
2015 Young People in Custody Health Survey (Justice Health & Forensic Mental Health Network and Juvenile Justice New South Wales, 2017)	Self-reports and clinical interviews of young people in custody during survey period in 2015 (classifies ADHD as attentional/behavioural disorder)	<u>Self-Report</u> <ul style="list-style-type: none"> • 40.3 % <u>Clinical Interview</u> <ul style="list-style-type: none"> • 22.3% males • 27.3 % females • 24% ATSI young people <u>Conduct Disorder (ADHD is precursor)</u> <ul style="list-style-type: none"> • 45.3%

The Deloitte Report on the criminal costs of ADHD in Australia:

- The Deloitte report estimated that total cost of crime due to ADHD, including the cost to the justice system, was \$307 million in 2019.
- People with ADHD are more vulnerable to engage in antisocial and criminal behaviour, likely due to their impulsive actions and behaviours, disengagement from education and comorbidities that develop in adolescence such as conduct disorder and substance use disorders.
- Australian and international research suggests that a disproportionately high number of individuals with ADHD are involved in criminal activity and within the criminal justice system. An Australian study conducted in NSW found that 17% of inmates screened positive for a full ADHD diagnosis (DSM-IV), which is considerably higher than the prevalence in the general population.
- Not only are people with ADHD overrepresented in prisons both domestically and internationally, there is evidence to suggest that the cost of incarceration for people with ADHD is significantly higher than those without ADHD. One UK based study estimated that the annual incremental cost of inmates with ADHD was £590 more than inmates without ADHD. This cost comprises both medical treatment costs within the correctional facility, and behavioural related prison costs.

Response to Submission

1.a. The most important reform is better recognition of the mental health predisposition to youth offending in general and ADHD in particular. Whilst ADHD comes under the broad umbrella of Mental Health, it is in fact a neurodevelopmental disorder. A high degree with impulsiveness, [i.e. lack of self-control] is one of the core symptoms, correlates well with criminology studies. There is no robust international evidence of the much higher incidence of ADHD in the prison population and the vulnerability it creates to other adverse coexisting conditions. An informed understanding of the condition creates several challenges. It is often part of the foetal alcohol syndrome complex particularly in the indigenous population.

Historically the overriding professional view has been that a lack of self-control or excessive impulsiveness has been due to poor parenting and/or environmental issues as postulated in the 'Theory of Crime'. This still very much pervades current thinking of those working in the justice system, society in general and particularly politicians.

More recently, Criminologists have recognised, as did Pratt that: *'the cause low self-control has clearly been shown to be an important causative factor in the genesis of crime, previous criminology theories may be wrong or at least substantially incorrect.'*

The incidence of ADHD in the Youth Justice population has been shown by authors such as Young et al. to be between 30 and 40%. It is only the last 10 years that the lifespan importance of ADHD is fully recognised. Thus, it is likely that many youth and young adults with ADHD have progressed through school, there problems of the last by their learning difficulties and/or environmental factors.

People with ADHD are more likely to be:

- i) Misread by behaviour as defiance, evasiveness, or evidence of guilt.
- ii) 2.5 times more likely to be arrested.
- iii) As high as 3.5 times as likely to receive a court conviction.
- iv) As high as 3 times as likely to be imprisoned.

2.a. The prevention of entry and diversion all youth offenders from the justice system with specific consideration of risk the factors that reduce crime.

As a starting point the Recommendations of the Australian ADHD Guidelines regarding good practice should be considered and incorporated into the Queensland Youth Justice Strategy:

- i. **Screening and assessment processes should be established to identify the presence of ADHD and co-occurring conditions among people entering the criminal justice system.**

Comment: very early on in the process, evidence of the characteristics of those involved in youth crime, be identified. We consider that the most appropriate screening tool is CHAT – The Comprehensive Assessment Tool for young offenders.

<https://www.uominnovationfactory.com/expressip/expressip-healthcare/chat/>

By doing this, appropriate decisions re subsequent strategies can be made. International evidence strongly suggests that not only are environmental and economic issues important in this field, that additionally the person having learning difficulties, the early onset of conduct disorder or hyperactivity, and having inherently low self-control also important factors. {see Moffitt in the Dunedin Study and Farrington.}

- ii. **Custodial staff and those within the criminal justice system (e.g. police, magistrates) should receive ADHD awareness training.** Essential training in ADHD and related neurodevelopment

and mental health issues for staff must be made available. Our group is currently developing an appropriate training program specifically for criminal justice staff.

- iii. **Treatment in custodial settings should include pharmacological and non-pharmacological approaches, equivalent to the treatment available in the community.**
- iv. **Prisons should include ADHD tailored educational and occupational programs to increase engagement and skills development.**
- v. **Prisons should establish safe processes of administering longacting stimulant medication to those with ADHD (similar to ways of administering other controlled drugs and ensuring the safety of the person in prison receiving stimulant medication). Specific screening for comorbid substance use disorders should be undertaken before administering stimulant medication**
- vi. **Prisoners with ADHD should have a comprehensive multi-agency integrated and coordinated care plan, with particularly close coordination between criminal justice, mental health agencies and disability services, and at all transition points, with appropriate identified care pathways into the community.**
- vii. **Prisons should be resourced to enable identification and treatment of offenders with ADHD, to improve clinical and criminal justice outcomes.**

RE costings, Lane and Chong further emphasised that one significant motivation towards addressing the overrepresentation of those with ADHD is cost. The total cost of ADHD to Australia was estimated to be nearly US\$13 billion for the period 2018 to 2019. The annual ADHD-related service costs in the UK were estimated to be £670 million. ADHD-related criminal justice annual costs in Australia have been estimated to be A\$ 215 million annually, whereas annual youth justice costs in the United States has been estimated to be between US\$2 billion and US\$4 billion. Young and Cocallis have also suggested that the motivation for redressing the issue of ADHD over-representation in criminal justice populations could lie in reducing the cost associated with ADHD in prison populations. In a relevant 2018 study, Young, Gonzalez, Fridman, Hodgkins and Gudjonsson discovered that costs associated with behaviour-related problems and medical treatment in the Scottish prison system appeared to amount to £590 greater per annum for individual prisoners with ADHD when compared to those individuals without ADHD. Furthermore, when taking into account ADHD prison prevalence rates, they estimated that the annual medical and behaviour-related cost for the Scottish prison systems would amount to £11.7 million.

Additionally, Young and Cocallis stress that the appropriate provision of treatment for prisoners with ADHD would likely result in a highly beneficial rate of return for wider society. The same argument may be made for those with ADHD who are considered offenders within youth and criminal justice systems as a whole. As might be assumed, Young and Cocallis' base this proposition on the observed efficacy of ADHD treatments outside and inside prison populations. Support for the reduced costs associated with treating ADHD in criminal justice populations is provided in a 2019 study by Freriks and colleagues. Stimulant treatment appeared to be cost-effective for the treatment of ADHD in children and adolescents.

Silvia and colleagues in Western Australia in 2014 conducted the study of almost 10,000 boys and almost 3000 girls diagnosed with ADHD, compared to a control group. They found ADHD was 2.5 times more likely to be present in boys and three times more likely in girls who had Community Corrections Contact Records. In boys the first contact occurred at a younger age. They found that girls were seven times and boys 2.5 times more likely to have a juvenile detention record if they had ADHD. Burglaries and break-and-enters were more common in ADHD youths.

2.b Effective ways to stop recidivism and protect the community from offending and the opportunity for community-controlled organisations with specific reference to the role of First Nations peoples to provide support solutions and services.

Screening for ADHD as part of an overall mental health and neurodevelopmental screen, both at entry to, and at certain key points in the system, including exit from, redirection to drug and alcohol programs, and reoffending are essential.

Anything said in this document applies equally to First Nations peoples, as a number of studies have shown that ADHD is a significant issue in this population, in addition to all the other more often addressed issues. It is essential that the concept that the first nations people may have ADHD, in addition, or instead of other environmental or cultural issues is addressed by policymakers

In addition, anything said in this document also likely applies to the perpetrators of Intimate Partner violence.

Studies show that effective identification and management of ADHD and related conditions can significantly reduce recidivism. This is really what one might have expected given the high degree of impulsiveness in this population. By treating the impulsiveness medically in combination with appropriate additional supports, recidivism can be reduced. One study showed that it could be reduced from 62% down to 12%.

The ADHD Guidelines comment re indigenous people that:

'Clinicians should conduct a culturally appropriate screening assessment of ADHD in Aboriginal and Torres Strait Islander peoples. A strengths-based focus should be employed wherever possible.

Clinicians should be aware that ADHD symptom questionnaires and other tools used for screening and assessing ADHD may not be valid in Aboriginal and Torres Strait Islander peoples and should be used with caution. Clinicians should seek the assistance of a cultural interpreter or Aboriginal and Torres Strait Islander health worker.

Culturally and psychometrically validated symptom questionnaires should be developed for ADHD presenting in Indigenous children, adolescents and adults.

Clinicians should conduct a culturally appropriate assessment of ADHD in Aboriginal and Torres Strait Islander peoples. This should include a cultural and social assessment of the meaning and significance of symptoms. A strengths-based focus should be employed wherever possible. The assistance of a cultural interpreter or Aboriginal and Torres Strait Islander health worker should be sought if needed.

Interventions should include input from parents, families, community, and Elders, as appropriate, to maximise treatment effectiveness given strong family values in Aboriginal and Torres Strait Islander cultures. The wishes of parents, families and individuals with ADHD regarding treatment options (e.g. cultural, pharmacological versus nonpharmacological treatments and their combination) should be prioritised.

Non-pharmacological interventions need to be culturally sensitive and appropriately tailored for Aboriginal and Torres Strait Islander peoples with consideration for the local cultural context.

Pharmacological interventions should be explained carefully with an awareness of potential cultural issues. Pharmacological options may be more acceptable if offered as part of a broad package aimed at helping a person reach their potential'.

2.c The efficacy of:

i. Justice programs including on-country programs, education, health, and housing.

Building on all the Queensland Youth Justice strategies, but doing this from an ADHD perspective, is essential. For example, a robust psychological treatment developed for youth offenders is Reasoning and Rehabilitation 2 ADHD (R&R2ADHD). There is RCT support for R&R2ADHD multimodal treatment for antisocial behaviour in community and inpatient male samples (Young et al., 2017) The R & R2 program developed by Dr Susan Young is an evidence-based and well-recognised program for early intervention and prevention. This is done in association with medication where appropriate.

<https://www.psychology-services.uk.com/R-and-R2-2>.

We would be interested to develop a Restorative Justice program where the nature of the perpetrators underlying neurodevelopmental and/or mental health difficulties was explained to the victim. Associated other community understanding supports. group support etc, with a provider contract in place with targets to increase housing, education, employment etc.

In custodial settings ADHD has been found to be disproportionately associated with incidents involving verbal aggression, damage to property, violence, non-compliance and behavioural disturbances, such assessment and management programs would include largely telehealth support as well as 'on ground' support coming from an understanding of ADHD and related coexisting conditions. There would need to be support for the often associated, learning difficulties, ASD, substance misuse, and psychosocial issues. Such supports need come from an ADHD perspective, rather than from just a psychosocial perspective. Our group is developing essential ADHD awareness and support training for those working in social and community sectors.

ii. Reducing people carrying weapons.

iii. Evidence-based early intervention and prevention programs.

Systems based on Multisystemic therapy have some basis, provided they are linked in with the possibility of additional use of medication to minimise impulsiveness, help with concentration and reduce hyperactivity. There is usually a flow on effect to self-esteem, social skills and mood swings but occasionally additional medications are required. Medication alone in this sort of situation is rarely sufficient without additional Psychological, ADHD coaching or other supports. Such supports are available through various organisations providing and offering multisystemic therapy including <https://www.ozchild.org.au/service/multisystemic-therapy-mst/>.

RCTs demonstrated robust treatment effect for osmotic-release methylphenidate (OROS-MPH) including overall minimal use in custodial settings likely due to perceived potential for misuse, malingering, drug seeking behaviour.

iv. Reducing the numbers in custody on remand.

In 2021 it was suggested that the incidence of ADHD among youth and adult offenders across police custody, prison, probation and forensic mental health settings falls at around one in four (25%). Given the phenomenology of ADHD involving disinhibition, impulsivity and impaired executive functioning, this is not surprising.

We consider that this would be an ideal population to screen for ADHD in addition to other mental health problems, as noted above.

v. **Alternatives to detention.**

Alternatives to detention must include facilities that come from understanding of the difficulties that have made the individual more vulnerable to entering the justice system, rather than just considering them to be 'a bad lot'. By understanding the factors that have likely predispose them to difficulty, including understanding the nature of ADHD, of associated learning difficulties, of the vulnerability to substance misuse, and the progression of ADHD with low self-esteem, underachievement, and social skills problems, appropriate rehabilitation and community alternatives to detention can be put in place. One of our directors, Scott Beachley, was the Executive Chair of such an operation spanning the NSW Northern Rivers and Southeast Queensland. Whilst this approach likely contrasts with some of the current approaches, it must be continually emphasise that this is not an excuse, rather an explanation, and that attempts to treat the underlying neurodevelopmental and mental health difficulties are not only to help the individual and society, but to minimise reoffending.

vi. **Detention and other consequences of offending.**

At the moment it is largely the case that if a person with ADHD is detained, there appears to be little consideration to the high incidence of violence in those with ADHD, the difficulty in putting someone who is hyperactive into solitary confinement, into minimising their impulsiveness, and into the whole court and justice system. They are more likely to tell mistruths, to say the first thing that comes into their mind to get out of the situation, and many other issues. There is a need for the ADHD to be properly understood and managed throughout the whole process of the judicial system including requisite specialised training.

vii. **The most suitable infrastructure used for custody, detention, or residential components necessary to reduce crime.**

Mental health and associated issues, especially the needs of a person with complex ADHD should be considered.

2.d. Systems and processes to provide immediate and ongoing support for victims of crime.

Consideration of a restorative justice system that includes sharing with the victim, the likely antecedents of that person performing the crime. For example, if the victim understands that the perpetrator has ADHD, coexisting with ASD, with learning difficulties and came from a poor environment, there may be some basis for understanding. That is not to say that any of this as an excuse, but rather it is an explanation.

The whole issue of neurodevelopmental difficulty in the context of youth justice creates very significant societal, political, and personal undertones and annoyance. In carefully managing an approach to ADHD in the context of other mental health issues, this needs to be very much born in mind and handled carefully.

Summary and recommendations:

- 1) **A thorough understanding of ADHD with appropriate training** of those making policy in the youth justice system and also those working within the system. A system of coping with the recognition that the very nature of ADHD - particularly because of there being a biological lack of impulse control or self-control – will challenge many existing societal and professional beliefs regarding the perpetrators being an 'bad lot' needs to be addressed by training and appropriate restorative justice support. By having this understanding, emphasis can then be

given to helping with the underlying conditions and vulnerabilities, rather than purely punishing, and hoping that as a result the issues will disappear.

- 2) A mechanism of **effective screening** is an essential first step. This particularly applies to those at the earlier stages of the justice system, those on community orders, and re-offenders, assessment and management of those with ADHD can make an enormous difference to their lives, to society generally, and to the costs of the youth justice system.
- 3) Prepare a detailed **costing analysis**. For example, The Deloitte report on the costs of ADHD to Australia, and to the Australian ADHD Professionals Association's recent guidelines. We also referred to the voluminous international literature on the subject. We would emphasise that ADHD is an internationally recognised condition of brain function that is very treatable but that it creates a vulnerability to many other conditions particularly substance misuse.
- 4) Work on instigating the appropriate strategies as outlined in **ADHD guidelines**.
- 5) Consider **funding a pilot proof of concept trial** of screening in a local Primary Health network. Our group is applying for a Queensland Youth Justice Crime Prevention Grant for this purpose. For example, our group has been developed to take a lead role in facilitating this type of operation. We are a Social Enterprise specialising in the Collaborative Care model of management of ADHD and related conditions. One component of our service is education and training such as to all of those involved in the youth justice system including police, care workers and others. Another component of our organisation will be clinical management. There will be a range of professionals skilled in the assessment and management/treatment of people with ADHD and related conditions. This will also include management of substance misuse, links to educational providers, psychologists, and other supports.

The third component of our service will be able to provide screening and other appropriate supports, prior to and after full assessment. We are keen to come to an arrangement with a Primary Health Trust or similar specialised organisation, for an initial trial. This could be done either with those on Community Care orders, repeat offenders to try minimise and assess reoffending, and/or with those on probation.

- 6) Identify staff suitable for training and place them on an appropriate course.
- 7) Form a high-level committee to activate the committee's recommendations.
- 8) Consider implementing the relevant Australian items from: Healthcare Standards for Children & Young People in Secure Settings. ***This is a really important document that could be used as a basis for Australian policy.***
- 9) Include awareness of Foetal Alcohol Syndrome within the broad concept of ADHD when screening and general management are involved.

In the context of social policy and Youth Justice reform, ADHD is much more than just another mental health or neurodevelopmental condition. The vulnerability it creates, in large part by virtue of the inherent associated lack of self-control, but also by its complications, opens doors for a complete rethink to all the questions posed by this Committee. We would encourage the Committee to use this opportunity to become informed regarding the information in this submission, incorporate it much more into the Queensland Youth Justice Strategy, so that a new era of much more effective and cost-effective management of offenders can be enabled.

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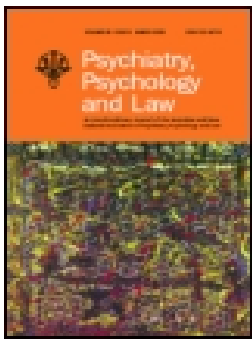
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Attention Deficit Hyperactivity Disorder (ADHD) and the Criminal Law

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Attention Deficit Hyperactivity Disorder (ADHD) and the Criminal Law

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Attention Deficit Hyperactivity Disorder (ADHD) has been identified as significantly over represented in the prison population and being a likely precipitant to engagement in criminal conduct. There should be little surprise in this fact, as impulsivity, inattentiveness to instructions, inability to retain information and limitations in the ability to think rationally through the likely consequences of actions have long been recognised as criminogenic factors. This article adds to the literature on ADHD and the criminal law. It reviews the history of ADHD diagnosis and treatment and scrutinises important English, Australian, New Zealand and Canadian judgments, in particular at appellate level, in which the relevance of ADHD to criminal offending has been evaluated. It notes the vulnerability of persons with ADHD in the context of being interviewed by police on suspicion of having committed criminal offences, it raises issues related to the fitness to stand trial of accused persons with ADHD and it identifies a need for forensic psychiatrists and psychologists to give particular attention in their reports and evidence to an assessment of the extent and nature of an offender's ADHD symptomatology and whether it played a causative or influential role in the person's engagement in criminal conduct, as well as to whether symptomatology is likely to be worsened by imprisonment or to render the offender especially vulnerable in a custodial environment.

Key words: ADHD; attention deficit; diagnosis; hyperactivity; moral culpability; sentencing; treatment.

'Let me see if Philip can
Be a little gentleman;
Let me see if he is able
To sit still for once at table':
Thus Papa bade Phil behave;
And Mamma looked very grave.
But fidgety Phil,
He won't sit still;
He wriggles,
And giggles,
And then, I declare,
Swings backwards and forwards,

And tilts up his chair,
Just like any rocking horse
'Philip! I am getting cross!'
See the naughty, restless child
Growing still more rude and wild,
Till his chair falls over quite.
Philip screams with all his might,
Catches at the cloth, but then
That makes matters worse again.
Down upon the ground they fall,
Glasses, plates, knives, forks, and all.
How Mamma did fret and frown,

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When she saw them tumbling down!
And Papa made such a face!
Philip is in sad disgrace.

Dr Heinrich Hoffman, *Struwwelpeter:
Merry Tales and Funny Pictures* (1844)²

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is the commonest neuropsychiatric disorder of childhood,³ its most severe form, hyperkinesis,⁴ having been asserted to affect about 1% of Western children.⁵ In 2000, Wender contended that between 3% and 10% of school-age children and 4% to 5% of adults had ADHD.⁶ More recently, the prevalence of ADHD has been estimated at between 3% and 7% of school-age children,⁷ whereas worldwide prevalence rates in the general population have been identified as approximately 5.29% of children and 2.5% of adults meeting the diagnostic criteria for ADHD,⁸ with persistence into adulthood at between 24.6% and 63% of affected women and men across ADHD categorisations. However, using standardised diagnostic criteria, there was no evidence that rates are increasing over time.⁹ A United States study has noted that 1 in 13 parents with children aged between 3 and 17 have been informed that their children had ADHD.¹⁰ Parent-reported prevalence of ADHD between children aged between 4 and 17 rose from 7.8% to 11% between 2003 and 2011.¹¹ The role of popular media in influencing parental views in this regard is uncertain.

Meta-analyses have concluded that ADHD is an important risk factor for overall delinquency¹² and that childhood ADHD has been associated with double the risk of arrest, over three times the risk of having convictions and almost three times the risk of a period of incarceration during adolescence or adulthood, compared to controls.¹³ It appears that those with inattentive symptomatology are more

likely than controls to commit most forms of criminal conduct, save perhaps robbery.¹⁴

Those with ADHD appear to be significantly over-represented amongst persons who come into contact with the criminal justice system. For instance, At Norrtälje Prison, Sweden, 315 male inmates were assessed for childhood ADHD by the Wender Utah Rating Scale (WURS-25) and for the presence of ADHD by the Adult ADHD Self-Report Screener (ASRS-Screener), with a response rate of 62%. The estimated prevalence of adult ADHD among longer-term inmates was 40%. Only 2 out of 30 prison inmates confirmed with ADHD had received a diagnosis of ADHD during childhood, despite the fact that most of them needed health services and educational support.¹⁵

A meta-analysis of 42 studies showed that 25.5% of the prison population met diagnostic criteria for ADHD, this constituting nothing short of multiples of the prevalence in the general population.¹⁶ It is a very important finding.

There are indications too that the condition may be a predisposing factor for a significant incidence of recidivist commission of offences, especially by young persons.¹⁷ In 2017, Cunial and Kebbell¹⁸ published a study involving interviews with 46 Australian detectives, looking to understand police officers' ability to identify ADHD in children whom they interviewed. They found that detectives reported frequently encountering ADHD in interviewees and perceived such interviewees as being at a very significant future risk within the criminal justice system. Interestingly, assessors commonly view hyperactivity as a 'male' ADHD symptom and inattention as a 'female' ADHD symptom; it may be that this bias is interfering with accurate diagnoses of males who lack overt indicia of hyperactivity.¹⁹

The United Kingdom Youth Justice Centre ('the Centre') has argued that it is important for police to know whether a child has ADHD:

This may affect how the police treat a child, how the police view the child's behaviour and whether the child gets a criminal record. Modifications (changes) can be made to

how the police conduct a police interview. This can make it easier for a child with ADHD to answer questions and give their best evidence. An intermediary can be used to help with communication and a child must have an appropriate adult (see effective participation).

If a child has ADHD and they are a witness or a victim, it is important to tell the police.²⁰

Similarly, the Centre has pointed out that if a child has ADHD, straightforward procedural adjustments to standard procedure can assist the child to be able to participate effectively in court, for example, by provision for:

- regular breaks for movement and medication;
- opportunity to doodle, therapy cushion, use of a stress ball; and
- explaining that fidgeting is not a sign of disrespect.

If the child is a defendant or witness, special measures can also be used. For example, use of an intermediary when preparing for giving evidence, to explain what is happening in court and to help with communication when giving evidence or other aids to communication. It is important that a child can effectively participate in the court process.²¹

In 2018 Nolte argued:

Never has there been an opportunity like the one now present for Australia's legal community to set about creating a major paradigm shift in how the judiciary determines sentences and outcomes for those whose lives have been genuinely impacted by ADHD and now find themselves falling foul of the law.

[U]nderstanding the issues of ADHD will create for [lawyers] opportunities to mitigate cases with greater efficiency and deliver the right outcomes that will see people receiving the appropriate care and treatment.

ADHD is a condition that must be taken seriously, and lawyers must now begin to appreciate its legitimacy and existence.²²

The diagnosis and treatment of ADHD have long been controversial.²³ So too is the issue of whether it is properly to be treated as mitigating of criminal culpability. Instancing the polarised views of the community about the condition, a magistrate in Ipswich, Queensland, in the context of sentencing a 29-year-old man charged with creating a public nuisance and obstructing police, is reported as stating that he had 'very little time for this ADHD nonsense. It's people trying to medicalise what 20 years ago was just an annoying kid'.²⁴

An aspiration of this article is to provide information so as to reduce the incidence of uninformed drawing of inferences about ADHD in the forensic context, but also to add to the modest library of medico-legal literature on ADHD and the criminal law by identifying how the courts are factoring into their decisions contemporary knowledge about the symptomatology and potential treatment of ADHD. In turn this may assist expert witnesses to focus their evaluation most effectively so as to assist decisions as to both criminal responsibility and culpability by the courts.

A Short History of ADHD Diagnosis and Treatment

In 1798 the Scottish physician Sir Alexander Crichton²⁵ published *An Inquiry into the Nature and Origin of Mental Derangement: Comprehending a Concise System of the Physiology and Pathology of the Human Mind and a History of the Passions and their Effects*. He identified two forms of abnormal inattention as the opposition poles of pathologically increased or decreased 'sensitivity of the nerves':

The morbid alterations to which attention is subject, may all be reduced under the two following heads:

First. The incapacity of attending with a necessary degree of constancy to any one object.

Second. A total suspension of its effects on the brain.

The incapacity of attending with a necessary degree of constancy to any one object, almost always arises from an unnatural or morbid sensibility of the nerves, by which means this faculty is incessantly withdrawn from one impression to another. It may be either born with a person, or it may be the effect of accidental diseases.

When born with a person it becomes evident at a very early period of life, and has a very bad effect, inasmuch as it renders him incapable of attending with constancy to any one object of education. But it seldom is in so great a degree as totally to impede all instruction; and what is very fortunate, it is generally diminished with age.²⁶

He observed that:

In this disease of attention, if it can with propriety be called so, every impression seems to agitate the person, and gives him or her an unnatural degree of mental restlessness. People walking up and down the room, a slight noise in the same, the moving a table, the shutting a door suddenly, a slight excess of heat or of cold, too much light, or too little light, all destroy constant attention in such patients, inasmuch as it is easily excited by every impression. The barking of dogs, an ill tuned organ, or the scolding of women, are sufficient to distract patients of this description to such a degree, as almost approaches to the nature of delirium. It gives them vertigo, and headache, and often excites such a degree of anger as borders on insanity. When people are affected in this manner, which they very frequently are, they have a particular name for the state of their nerves, which is expressive enough of their feelings. They say they have the fidgets.²⁷

In the 1840s, symptoms of what we would today identify as ADHD were described by Heinrich Hoffmann, a physician who later founded the first hospital for mentally ill patients in Frankfurt. His descriptions were published in a children's book entitled *Struwwelpeter*, which he had designed for his three-year-old son, Carl Philipp. The symptomatology is depicted in the colourfully illustrated story of 'Zappel-Philipp' ('Fidgety Philip'), probably the first written mention of ADHD by a medical professional.²⁸

In 1902, Sir George Still described symptoms of ADHD in 20 children whom he regarded as having a 'defect of moral control without general impairment of intellect and without physical disease'.²⁹ The male to female sex ratio was 3:1, and a number exhibited symptoms before the age of seven. He listed nine symptoms:

- (1) passionateness; (2) spitefulness cruelty; (3) jealousy; (4) lawlessness; (5) dishonesty; (6) wanton mischievousness destructiveness; (7) shamelessness immodesty; (8) sexual immorality; and (9) viciousness. The keynote of these qualities is self gratification, the immediate gratification of self without regard either to the good of others or to the larger and more remote good of self.³⁰

By impulsivity, Still was referring to a 'quickness to display all emotion and especially those of frustration, anger, hostility, and aggression'.³¹ He observed that many of his patients exhibited a 'quite abnormal incapacity for sustained attention. Both parents and school teachers have specially noted this feature in some of my cases as something unusual'.³² He did not particularly refer to inattentive-impulsive children, but Rafalovich has observed that Still's lectures can be regarded as having laid 'the groundwork for a category of mental illness that is ... specific to child deviance',³³ and Barkley³⁴ has described them as 'an historically significant moment for child psychopathology'.

In the aftermath of Still's analysis, the similarity between the symptoms of the children he described and persons with brain injuries was observed, leading to theories about their condition being caused by brain damage in infancy. An example of this diagnostic analysis was that of Laufer, Denhoff and Solomons in 1957:

It has long been recognized and accepted that a persistent disturbance of behavior of a characteristic kind may be noted after severe head injury, epidemic encephalitis and communicable disease encephalopathies, such as measles, in children. It has often been observed that a behavior pattern of a similar nature may be found in children who present no clear cut history of any of the classical causes mentioned. This pattern will henceforth be referred to as hyperkinetic impulse disorder. In brief summary, hyperactivity is the most striking item. This may be noted from early infancy on or not become prominent until five or six years of age. There are also a short attention span and poor powers of concentration, which are particularly noticeable under school conditions. Variability also is frequent, with the child being described as quite unpredictable and with wide fluctuations in performance. The child is impulsive and does things 'on the spur of the moment,' without apparent premeditation. Outstandingly also these children seem unable to tolerate any delay in gratification of their needs and demands. They are irritable and explosive, with low frustration tolerance.³⁵

Earlier, though, during the 1930s, the German physicians, Franz Kramer and Hans Pollnow, described a 'hyperkinetic disease of infancy', with a marked motor restlessness unrelated to a post-encephalitic behaviour disorder which had been commonly identified in the preceding years.³⁶ They described children unable to stay still, running up and down a room, climbing on furniture, irritable when inhibited from acting on their impulses, touching everything around them without an apparent purpose, apparently being highly distractable, unstable in mood, including being

excitable, prone to rage, aggression and tearfulness, and unable to concentrate on specific tasks, although paradoxically able to persevere at some activities of interest for extended periods of time. They emphasised the propensity of such children to be disobedient, to experience educational difficulties and to disturb other students at school. They regarded the symptoms as having implications into adulthood.

However, there is no shortage of high-profile individuals in adulthood who have achieved remarkably in spite of exhibiting at some stages of their life symptomatology of ADHD. It has been hypothesised for instance that luminaries such as Mozart, Beethoven, Leonardo da Vinci, Benjamin Franklin and Winston Churchill may have had ADHD.³⁷

In 1937, Charles Bradley reported from a home for neurologically impaired children in Rhode Island in the United States a positive effect for the treatment of children with various behavioural disorders from treatment with stimulant medication.³⁸ His discovery was serendipitous, arising from treatment he provided to children with headaches in the aftermath of pneumoencephalograms administered in order to examine structural brain abnormalities. He observed that:

It appears paradoxical that a drug known to be a stimulant should produce subdued behavior in half of the children. It should be borne in mind, however, that portions of the higher levels of the central nervous system have inhibition as their function, and that stimulation of these portions might indeed produce the clinical picture of reduced activity through increased voluntary control.³⁹

He was later to conclude that the children most likely to benefit from benzedrine treatment were 'characterized by short attention span, dyscalculia, mood lability, hyperactivity, impulsiveness, and poor memory'.⁴⁰ The medication breakthrough for treatment of ADHD came in 1944 by Leandro Panizzon, when the drug that has become the treatment

of first choice for the condition, methylphenidate (marketed as Ritalin⁴¹ by Ciba-Geigy Pharmaceutical Company from 1956), was synthesised – at first it was used for treatment of symptomatology of chronic fatigue, lethargy, depressive states, disturbed senile behaviour and psychoses associated with depression and narcolepsy.⁴² However, in 1963, Leon Eisenberg and Keith Conners published an article that described the improvements made by treatment of disturbed children with the drug for behavioural symptoms from ‘demanding’ and ‘disobedient’ to ‘leads into trouble’ and ‘lying’.⁴³ Conners, a psychologist at Johns Hopkins School of Medicine in the United States, later developed the ‘Conners Comprehensive Behavior Rating Scale’ (with a third version published in 2008)⁴⁴ to measure the severity of ADHD symptomatology, and also the therapeutic efficacy of stimulant medication on hyperactive children.⁴⁵

As long ago as 2000, Wender made the claim that two-thirds of both children and adults respond positively to treatment with stimulant medications.⁴⁶ The therapeutic effect was summarised as follows by a psychiatrist in a case that went before the New Zealand Court of Appeal in 2005:

His restlessness decreased significantly. He became calmer, polite, patient and able to pay attention. His eye contact and social skills improved substantially. He was also able to pay attention to conversations, allow others to finish and was more able to respond appropriately to the content of a conversation. He reported an increased ability to understand discussions as well as less distractibility; he characterised this as there being less ‘white noise’ in his immediate environment. He also reported that he was better able to pay attention to how he was thinking and feeling. He went from being barely able to tolerate a 15 minute interview to easily sitting still and talking for an hour or longer.⁴⁷

A contrasting, albeit less prescribed drug used to treat ADHD is atomoxetine (marketed

as Strattera), a selective norepinephrine reuptake inhibitor (SNRI), a drug developed by Eli Lilly to treat depression.⁴⁸ In the mid-1990s, a seven-week, placebo-controlled, double-blind, cross-over pilot study showed positive findings for treating patients with ADHD. An advantage of Atomoxetine is that it is not a stimulant.⁴⁹

According to the 2018 NICE guidelines for management of ADHD in adults, medications should be considered as first-line treatment, with methylphenidate or lisdexamfetamine as the first choice, or atomoxetine if these cannot be tolerated or do not provide benefit.⁵⁰

In Australia, the rate of treatment for ADHD has increased dramatically over time – for instance, from 0.9 per 100 children in 1987 to 3.4 per 100 children in 1997.⁵¹ In 2002, over 4.2% of Australian children under the age of 18 were being prescribed stimulant medication, most of them for ADHD.⁵² In that year, atomoxetine received Food and Drug Administration approval in the United States as an alternative medication for the condition and in 2004 by the Australian Food and Drug Administration.⁵³

The DSM Definitions

In 1968, ADHD was first officially included by the American Psychiatric Association in its *Diagnostic and Statistical Manual of Mental Disorders* (DSM) as ‘Hyperkinetic Reaction of Childhood’ by *DSM-II*,⁵⁴ utilising a version of the terminology of Kramer and Pollnow, defined by being characterised by ‘overactivity, restlessness, distractibility, and short attention span, especially in young children; the behavior usually diminishes by adolescence’. In the years leading up to the next edition of the DSM, the focus moved toward attention deficits in children, but an influential paper by Douglas in 1972 contended that deficits in sustained attention and impulse control were more significant features of the disorder than hyperactivity.⁵⁵ This played a role in the new formulation of the disorder in the 1980 *DSM-III*.⁵⁶

‘Attention Deficit Disorder (ADD)’, which introduced criteria for age of onset, duration symptoms and exclusion of other aetiologies. The terminology was changed to ‘ADHD’ in 1987 in the *DSM-III-R*,⁵⁷ with the symptoms of inattention, impulsivity and hyperactivity being aggregated into a list of symptoms with a single cut-off score. The subtype ‘ADD without hyperactivity’ was removed and assigned to a residual category named ‘undifferentiated ADD’.

By the time of the 1984 *DSM-IV*,⁵⁸ three types of ADHD were recognised: a predominantly inattentive type, a predominantly hyperactive-impulsive type and a combined type with symptoms of both dimensions.

Under the 2013 *DSM-5*⁵⁹ the diagnostic criteria for ADHD are:

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

1. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
2. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).

3. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
4. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
5. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
6. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
7. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
8. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
9. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

2. **Hyperactivity and impulsivity:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older

- adolescents and adults (age 17 and older), at least five symptoms are required.
- a. Often fidgets with or taps hands or feet or squirms in seat.
 - b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
 - c. Often runs about or climbs in situations where it is inappropriate. (*Note:* In adolescents or adults, may be limited to feeling restless.)
 - d. Often unable to play or engage in leisure activities quietly.
 - e. Is often ‘on the go,’ acting as if ‘driven by a motor’ (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).
 - f. Often talks excessively.
 - g. Often blurts out an answer before a question has been completed (e.g., completes people’s sentences; cannot wait for turn in conversation).
 - h. Often has difficulty waiting his or her turn (e.g., while waiting in line).
 - i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people’s things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).
- B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.
 - C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).

- D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

The *DSM-5* revisions include modifications to each of the ADHD diagnostic criteria (A–E), a terminological change in the ADHD subtype nosology and the addition of two ADHD modifiers. Criterion A (ADHD symptoms) is unchanged from *DSM-IV* except for additional examples of how symptoms may manifest in adolescence and adulthood, and there is a reduction from six to five in the minimum number of symptoms in either symptom domain required for older adolescents and adults. Criterion B (age of onset) changed from ‘onset of symptoms and impairments before age 7’ to ‘onset of symptoms before age 12’. Criterion C (pervasiveness) was changed from evidence of impairment to evidence of symptoms in two or more settings. Criterion D (impairment) requires that functional impairments only need to ‘reduce the quality of social, academic or occupational functioning’ instead of requiring that they be ‘clinically significant’. Criterion E (exclusionary conditions) no longer includes Autism Spectrum Disorder as an exclusionary diagnosis. Regarding nosology, the *DSM-IV* ADHD ‘types’ are now referred to as ‘presentations’. Hoffmanesque fidgeting remains as a diagnostic consideration. Finally, as elsewhere in the *DSM*, there is now an expectation that the patient’s experience of the severity of the disorder (ie, mild, moderate or severe) will be specified.

It is important, including for forensic purposes, that ADHD is highly heterogeneous,

with those diagnosed differing considerably in behaviours, presence of comorbid diagnoses, developmental trajectories and treatment responsiveness.⁶⁰

In 2009, Fletcher and Wolfe⁶¹ usefully summarised the diverse adverse consequences of ADHD:

The influence of ADHD on children occurs along several dimensions. Children with ADHD have been found to have fewer close friends and exhibit antisocial behavior. Poorer educational outcomes may be the most important economic consequence of ADHD. In particular, ADHD has been tied to poor concentration and impulsiveness during preschool, lower grades and greater retention and suspension, poorer perceptions by teachers and lower eventual educational attainment. Researchers have also found an increase in risky behaviors, including earlier sexual intercourse and lower rates of contraceptive use.

However, important work has been undertaken to understand better and more deeply the effects of ADHD. Multiple regions of the brain have been found to be associated with the pathophysiology of ADHD, with some demonstrating greater activation (such as the default mode network, somatomotor, visual) and others demonstrating reduced activation (such as frontoparietal, ventral attention, right somatomotor and putamen). Dysregulation of the frontal/subcortical/cerebellar catecholaminergic circuitry and abnormalities in the dopamine transporter system are fundamental to the pathophysiology of ADHD. Cortese and others demonstrated that a pattern of hypoactivated frontoparietal functioning persists into adulthood.⁶²

Assessments of executive function in persons with ADHD have shown pervasive dysfunction as well as deficits in cognitive control.⁶³ Evaluations have also highlighted estimates of the prevalence of working memory deficits among elementary-aged youth with ADHD ranging from 30.1% to 98%.⁶⁴ Less is known about this issue in relation to

older persons with ADHD, but research utilising fMRI may shed further light on the relationship between working memory and ADHD. Another area deserving of further research is the role of impaired reward processing and ADHD. As Musser and Raiker have observed:

ADHD has been repeatedly demonstrated to be associated with a preference for small immediate over larger delayed rewards, as well as steepened discounting function when anticipating future rewards. This has been supported via performance on laboratory and computerized tasks. For example, meta analytic work has demonstrated medium associations between ADHD and delay aversion ($r=0.38$) among preschool age youth.⁶⁵

ADHD is nearly three times as commonly diagnosed in boys as in girls⁶⁶ but the explanation for the differential is not fully understood:

There are many theories as to why ADHD is more commonly diagnosed in boys than girls. One possibility is that girls are in some way 'protected' from developing ADHD, and so it takes a higher burden of risk factors than in boys for girls to develop problems. Another possibility is that ADHD symptoms are missed in girls or that mental health problems in girls develop into problems other than ADHD.⁶⁷

An important characteristic of ADHD is anosognosia – the lack of awareness on the part of many with the condition that they have its symptoms and limitations. A theory in this regard is that this is associated with reduced conscious perception of errors and limitations.⁶⁸ The reality of the anosognosia in respect of ADHD has ongoing forensic ramifications because of the fact that not only is the diagnosis often missed by mental health practitioners, but those with it are unaware of it, including when charged, resulting in the need on occasion to attempt to adduce new evidence on appeal of not just the disorder but its potential impact upon criminal culpability.

Definitive biomarkers have not yet been identified for ADHD, leaving diagnosis essentially to be made on the basis of behaviour.⁶⁹ The aetiology of ADHD is not straightforward, although heritability plays a major role and is regarded as reflecting genetic factors and environmental influences, as well as their interplay.⁷⁰

Comorbidity

Comorbidity with ADHD, especially with other neurodevelopmental disorders, is the rule rather than exception.⁷¹ Other relevant diagnoses include:

- conduct disorder;⁷²
- learning disability or intellectual disability;⁷³
- oppositional defiant disorder;⁷⁴
- Tourette's syndrome;⁷⁵
- Depression;⁷⁶
- anxiety disorders;⁷⁷
- hypersexuality;⁷⁸
- sleep disorders;
- language disorder (formerly mixed receptive expressive language disorder);⁷⁹
- dyslexia;⁸⁰
- obsessive compulsive disorder;⁸¹
- personality disorders;⁸²
- anxiety disorder;⁸³
- post-traumatic stress disorder;⁸⁴
- autism spectrum disorder/Asperger's disorder;⁸⁵ and
- foetal alcohol spectrum disorders.⁸⁶

A particular overlap can be observed between ADHD and mild cognitive impairment.⁸⁷

Di Nicola and others⁸⁸ hypothesised the co-occurrence of ADHD in patients with bipolar disorder (15% in their sample) or major depressive disorder (7.5% in their sample) to be associated with maladaptive personality traits, such as neuroticism, conscientiousness and extraversion plus worse clinical characteristics, outcome and level of functioning.

In a study of 2881 children and adolescents (aged 5–17 years), 67% met the diagnostic criteria for ADHD; 650 (34%) had only ADHD, and 1269 (66%) had at least one comorbid psychiatric disorder (learning disorders: 56%; sleep disorders: 23%; oppositional defiant disorder: 20%; anxiety disorders: 12%).⁸⁹ Patients with ADHD of combined type and with severe impairment were more likely to present with comorbidity.

Another phenomenon that has been observed in the criminal offending context is the potential for some offenders with ADHD to self-medicate with a variety of illegal stimulants, including methylamphetamine.⁹⁰

Case Law

In a series of judgments by the Court of Appeal for England and Wales, the potential relevance of ADHD for sentencing has been accepted. In addition, important guidance has been provided by the Western Australian decision of *Paparone v The Queen*, and the New Zealand Court of Appeal decision of *H v The Queen* has highlighted limitations in terms of inferences that are to be drawn from no more than reference to the existence of ADHD in an offender. While the criminal law cases referred to hereunder are far from an exhaustive catalogue of key judgments in which ADHD has been identified as an important factor, the judgments cited are all appellate authorities and provide a useful insight into the approach of the courts on a number of the forensic issues that have been traversed in recent years in relation to ADHD and the criminal law.

R v Friend

In *R v Friend*,⁹¹ the Criminal Cases Review Commission (CRCC)⁹² referred to the Court of Appeal the conviction of Billy Joe Friend for murder and his sentence to detention during Her Majesty's Pleasure under section 53(1) of the *Children and Young Persons Act 1933* (Eng & Wales). Friend did not give

evidence at his trial. At the time of his conduct he was aged 14⁹³ and at trial he was 15. During the initial hearing in 1996 before the Central Criminal Court, Dr (later Professor) Gudjonsson gave evidence on a voir dire about the mental state of Friend and his ability to give evidence in his own defence. It was argued on Friend's behalf that no adverse inference should have been drawn from his having failed to give evidence.

According to Dr Gudjonsson, if Friend was allowed plenty of time and if he could be induced to settle down and concentrate, he was capable of providing a coherent account, although he would find it more difficult to listen to questions and to concentrate if he was under stress. Dr Gudjonsson expressed concern about whether Friend could do justice to himself. His distractibility would be a concern. He would not have the same intellectual resources as others. He contended that it was necessary to take an overall view of Friend's ability to concentrate.

However, the trial judge said that it appeared to him that Friend had given a very coherent, even though in certain respects not true, account of what had happened in answers in an interview with police. He took into account that Dr Gudjonsson had said that he was not a very suggestible young man. At the time the power to draw inferences in relation to a failure to give evidence applied only to those of age 14 or over, but the judge took the view that that applied to calendar age and not to mental age. The trial judge concluded that on balance Friend's mental condition was not such as to make it undesirable for him to give evidence. He based his conclusion, amongst other things, on the explanation given by Friend in interview as well as to Dr Gudjonsson when seen by him, and on the powers of the court to ensure a witness was not put under any undue pressure.

Before the Court of Appeal, the appellant placed reliance upon reports from an expert in adolescent psychiatry, Dr Susan Bailey, obtained by the CRCC, and a report obtained

subsequently by the Crown from Dr Susan Young of the Maudsley. Dr Bailey expressed the view that Friend had features of ADHD. She expressed the opinion that, although he had been just fit to plead, Friend did not have the cognitive or psychological function or capacity to participate effectively in the trial as a result of, firstly, his level of mental impairment; secondly, inattentiveness and lack of ability to concentrate; and thirdly, his emotional state. Thus, it had been undesirable for him to give evidence. Further, she expressed the view that in any event a less emotive setting could have been arranged, such as involving a separate trial or a video link. She said Friend's functional capacities were such that he could only have comprehended simple questions with one concept within a question and that he would have been unlikely to remember earlier answers while giving evidence at trial.

When contacted in relation to the report of Dr Bailey, Dr Gudjonsson said he observed that he had not specifically stated originally that it would be undesirable for Friend to give evidence because he thought that that was an (ultimate) issue for the court to determine.⁹⁴ He conceded that if Friend met the criteria for ADHD at the time of his trial then this might have strengthened the arguments that it had been undesirable for adverse inferences to be drawn due to his not giving evidence at his trial. Dr Bailey then saw Friend, and after reviewing Friend's account of his early life, his understanding of the offences, the trial process, sentencing and life at Glenthorne Youth Treatment Centre which he had attended, she expressed the view that the information obtained confirmed her prior opinions that he could not effectively have participated in the trial.

Before the Court of Appeal, the evidence from Dr Young was important. She identified as the core symptoms of ADHD inattention, impulsiveness and hyperactivity. She estimated that:

3 5% of the childhood population has ADHD and symptoms generally gradually

remit as they mature. Nevertheless, up to two thirds of ADHD children will continue to have residual symptoms in young adulthood and it is estimated the disorder is present in about 13% of adults or one in every 35 people. Some adults continue to be symptomatic in their 40s or even 50s.⁹⁵

She noted that:

ADHD is ... strongly associated with specific learning problems, problems in employment and instability in relationships. Around one third of ADHD children are subject to a Statement of Special Educational Needs and either receive additional support to cope in mainstream education or referred to special school due to their learning and/or behaviour problems. Comorbid problems are commonly reported including conduct disorder (50%), depression (70%), anxiety (25%) and personality disorder (30%). ... [A] sizeable subgroup misuse drugs and engage in criminal behaviour.⁹⁶

Dr Bailey emphasised that:

Because of their cognitive deficits, individuals [with ADHD] are predisposed towards poor impulse control, an attention deficit and a desire for immediate gratification without consideration for the consequences. There is a significant risk for anti social outcomes, including criminal behaviour, disinhibited and aggressive behaviour. In addition to these behavioural problems, they suffer a range of neurocognitive impairments, including attentional, executive (ie poor planning, sequencing and organisational ability) and memory dysfunction. Although these deficits appear widespread, it is thought that their neuropsychological basis involves dysfunction in working memory, the self regulation of cognition and future directed behaviour.⁹⁷

Bailey concluded that the residual symptoms of attention and impulsivity fell within a level of significant impairment and at the time of Friend's trial would have been 'considerably more prevalent and severe'. She also concluded

that his scores for intellectual deficit would have been accentuated by his inability to concentrate consequent upon his ADHD and his anxiety. She expressed the view that:

The implication of having ADHD and significant cognitive impairments of this type means that Mr Friend would have had difficulty sustaining attention over a prolonged period, he would have become easily distracted and his mind may have wandered onto different and/or irrelevant topics. His verbal deficits meant that he was disadvantaged in terms of his understanding of what was being said (ie not understanding the meaning of some of the words used) but his ADHD cognitive deficits meant that he may have completely missed some parts of the process (eg by going off task, ie not listening or 'tuning out'). When I interviewed Mr Friend he described this to be the case saying that he did not understand what was being talked about and at times his mind wandered onto other topics such as thinking about a football game. ... Aside from having difficulty following the proceedings, it is unlikely that Mr Friend would have coped satisfactorily with giving evidence for prolonged periods in the witness box. Although his poor attentional control was considered at the time, the implication of his impulsivity or difficulty inhibiting an immediate (and perhaps inappropriate) response was not. This latter point would have particular relevance as to whether it was desirable for Billy Joe Friend to give evidence. For example, aside from concentration problems in the witness box causing him to lose his train of thought, Mr Friend may have blurted out the first thing that came to mind. He may have been inconsistent and given conflicting evidence. People with ADHD often speak and act without thinking of the consequences. He may have become emotionally labile, distressed and/or angry when giving evidence. He may not have been able to inhibit a verbally aggressive response. These vulnerabilities are likely to be misinterpreted by a jury.⁹⁸

Her opinion was that at the time of his trial Friend was hampered by:

- a. severe cognitive deficits associated with ADHD in attention and impulsivity;
- b. poor behavioural controls (hyperactivity, restlessness, emotional lability);
- c. verbal intellectual deficits;
- d. deficits in short-term verbal memory;
- e. anxiety;
- f. his young age; and
- g. no concessions made at trial.

The Court of Appeal unanimously permitted the fresh evidence and concluded that Friend's conviction could no longer be regarded as safe:

It is clear that the judge would not have ruled in favour of drawing any adverse inference, certainly in respect of the failure to give evidence, and we think probably also in respect of the interview or silence at the first interview in so far as he did direct the jury that they might do so. Indeed, the Crown has conceded that it would not even have invited any adverse inference as regards the failure to give evidence.

Even if there had been any direction regarding an adverse inference, the judge would still have had to direct the jury with reference to the new evidence and in any event, and quite apart from these points, he would in the light of the new evidence certainly have directed the jury in quite different terms as regards any inference from silence or lies told in interviews.⁹⁹

In what constitutes one of the most important legal precedents about the relevance of ADHD for the operation of the criminal law, the court allowed the appeal and quashed Friend's conviction.

R v Osborne

In *R v Osborne*¹⁰⁰ the Court of Appeal heard another referral from the CRCC, this time in relation to Osborne's 2005 conviction for murder (committed when he was aged 14) and detention for life with a minimum term

assessed at nine years. At trial, Osborne unsuccessfully pleaded not guilty on the ground of self-defence and at sentencing did not rely on any mental health expert evidence.

On appeal, fresh evidence was submitted on the issue of whether Osborne at the relevant time suffered from ADHD, the prominent feature of which was impulsiveness constituting an abnormality of mind which substantially impaired his ability to form a rational judgment and exercise control over his actions when he struck the deceased, thereby affording him a defence of diminished responsibility and supporting the defence argument that he lacked the necessary intent for murder.

The fresh evidence from two psychiatrists and a psychologist addressed the likelihood of Osborne having experienced the symptoms of ADHD at the relevant time. The court was pointed in rejecting criticism that the argument of ADHD was not advanced at the time, identifying no error in the omission.

The forensic psychiatrist, Dr Cleary, identified a triad of relevant ADHD symptoms in Osborne: inattention, hyperactivity and impulsivity, the last being the most relevant and being much greater than would normally be expected in a child of 14 years. However, he conceded that Osborne's use of three joints of 'skunk' would have had an intoxicating and disinhibiting effect on him and would have been likely to have reduced his ability to control his impulses. The court expressed reservations about the psychologist, Mrs Stevens, finding her to be overly prepared to work on the basis of Osborne's own descriptions of his behavioural difficulties and to set aside favourable descriptions of Osborne from those who had educated him. The psychiatrist, Dr Browne, who was called by the Crown, did not personally support the diagnosis of ADHD but was prepared to defer to the diagnostic opinion of Dr Cleary. However, he expressed strong reservations about the seriousness of Osborne's symptomatology.

The Court of Appeal took into account the effects of Osborne's consumption of cannabis,

the racism in his attack on the deceased, the lack of apparent impulsivity in his attack and the deliberateness in his assault.¹⁰¹ In these circumstances, it concluded that the level of Osborne's ADHD, putting it as high as it could, did not substantially impair his mental responsibility for his actions at the time of the killing: 'There is clear evidence of calculation and deliberation. He knew exactly what he was doing, and why he was doing it. No jury properly exercising its responsibilities could have concluded that diminished responsibility was established on the basis of the appellant's ADHD'.¹⁰²

Ibrahim v the Queen

In *Ibrahim v The Queen*,¹⁰³ the Court of Appeal heard an appeal against a trial judge's decision to decline to admit expert evidence concerning the effects of ADHD on a not guilty plea by Ibrahim to causing grievous bodily harm to a family member with whom he had a history of bad relations. At the commencement of his trial, an attempt was made to adduce expert evidence from a psychiatrist about the effects of ADHD. However, the author had not met Ibrahim so he was reporting on what he had read and had been told, and some of the comments made by him were found to have been based on misunderstandings of what had happened and what the defence was. The trial judge gave three reasons for disallowing the application to admit the expert evidence:

The first reason was that the application was being made far too late in the proceedings without any proper explanation. The second reason was that it was very unsatisfactory to admit expert evidence from a medical expert who had not interviewed or met the defendant. The third reason was that the report was inappropriate because it was not relevant to the issues in the case. After the recorder had so ruled the trial proceeded.¹⁰⁴

The Court of Appeal found the psychiatrist's speculation about what Ibrahim was

thinking and why he acted as he did 'of no great assistance. He never met the appellant and misunderstood the factual basis of the appellant's defence'. The key issue in the trial was as to who struck the first blow. The prosecution evidence, supported by CCTV footage, was that Ibrahim was waiting for the victim and struck the first blow. This was not an issue on which the psychiatrist's evidence had the potential to provide assistance. The Court of Appeal found that the expert opinions 'could only have provided slender assistance to the appellant at best'.¹⁰⁵ Thus it found no error in the decision at trial and dismissed the appeal.

Paparone v the Queen

The decision of the Western Australian Court of Appeal in *Paparone v The Queen*¹⁰⁶ in 2000 is Australia's leading decision on the relevance of ADHD for sentencing. Paparone was sentenced by the District Court at Perth to an effective term of 5.5 years' imprisonment and a fine of \$750 for various drug offences, including manufacturing amphetamines. At the appellate hearing, the main ground pursued was that the sentencing judge had not accepted that an attention deficit disorder (ADD) had been the real cause of Paparone's offending and should be treated as a mitigating factor. Paparone had asserted that his ADD had resulted in his taking drugs on a self-help basis for the purpose of alleviating his disorder and that this had resulted in the circumstances leading to the offences. The sentencing judge had said that he was not able to make a finding of fact on the matter and that while the disorder was not in dispute, it had no necessary connection with the manufacture or possession of illicit drugs. He observed that many people with the disorder had no connection with the drug trade at all.

A psychologist, Ms Coxon, gave evidence for Paparone that often ADHD sufferers self-medicate with a variety of substances in order to be able to function normally in society and that it seemed that in a bid to get rid of the boredom and to get things done Paparone had

turned to illicit drugs. He had initially experimented with a friend's prescribed medication for ADHD and found that this made his life more manageable and that he performed more efficiently at work. Paparone asserted that this led him to attempt to make his own variety of amphetamine from a recipe he discovered on the Internet.

A psychiatrist, Dr Srna, conducted three interviews with Paparone and arranged for electroencephalographic recording, axial tomography of the brain and relevant blood tests. He also arranged a urine toxicology screen for alcohol, illicit substances and substances of abuse.

Paparone told Dr Srna that one of his friends had been diagnosed with ADD and had been taking stimulants prescribed for him by his psychiatrist. Paparone said he had accepted several stimulant tablets from his friend. Within a short time he had felt significantly better, with his self-esteem and concentration improving. Instead of seeking expert help, he had embarked upon the use of amphetamines and cocaine. He had initially benefited from using these, but later the effect had worn off and the whole exercise had become very expensive. He had been buying methylamphetamine from drug dealers. He said that guilt had been nagging at him all the time and he had started to become depressed. In order to save money and benefit from the methylamphetamine, he had started to manufacture it at home, using 3–4 grams per week, which occasionally increased to 7 grams per week. However, when he had tried to get off the substance he had started to experience withdrawal symptoms and severe depressive symptoms.

The psychiatrist noted that the psychologist had found many significant clinical factors which were of concern, including areas of obsession with ill-health, feelings of guilt, self-criticism, uselessness and thoughts of being persecuted by others. There had also been evidence of Paparone feeling out of touch with reality and being 'obsessive compulsive', with thoughts of self-destruction

and evidence of low energy and depression. There had been a disorganised thought process and a moderately high level of anxiety. The psychologist thought that Paparone had scored 'high' on all ADD and ADHD scales and had concluded that he clearly fitted the ADHD criteria, particularly in respect of hypersensitivity.

On examination, the psychiatrist had found that Paparone was 'accelerated and pressured'. He had shown foreclosure of thought and significant impulsivity in the interview. He had expressed paranoid beliefs about certain people and situations, but these had not been of a bizarre nature. Dr Srna made a diagnosis of an early stage of amphetamine-induced psychotic disorder with delusions in a young man with ADD which had gradually developed from childhood attention deficit/hyperactivity disorder, combined type (ADHD). An additional diagnosis, instancing another aspect of the complexity of comorbidities in respect of ADHD, was made of amphetamine dependence due to self-treatment of ADHD symptoms. Dr Srna concluded:

I see Mr Paparone's alleged offence as directly linked to him seeking relief from symptoms of attention deficit disorder which he has been suffering from since his childhood. The disorder seems to have been interfering with his overall functioning and performance and upon experimentation with prescription stimulants he turned to illicit stimulants instead. Sufferers from ADHD tend to act in an impulsive and often self damaging manner which has resulted in Mr Paparone's case in his dependence upon illicit stimulants. His obsessional personality and associated depression further complicated the matter. At the time of his presentation he was clearly suffering from a mild psychotic state related to excessive use of stimulants.¹⁰⁷

He proffered the view that the effect of imprisonment would be 'counter-productive and damaging' for Paparone.

The decision in the Western Australian Court of Appeal was split. Kennedy and

Murray JJ dismissed the appeal and summed up the law as follows:

The presence in the offender of [mental health] conditions ... will be relevant to the sentencing process in a number of different ways and for different reasons where there is a causal connection or link of a relevant kind established between the condition of the offender and the commission of the crimes for which he or she is to be sentenced. Generally speaking, where that is the case, the effect of the condition or disorder will be mitigatory, but that will not always be the case and indeed in some circumstances the effect may be one of aggravation, eg, where an intractable condition related to the offending behaviour leads to the conclusion that the offender will represent in the future a continuing danger to the community by reason of the commission of further offences. Such a condition may have an impact upon the type of disposition chosen and its severity.

Where it is advanced that an offender suffers from a condition or disability which should mitigate punishment, then as I have mentioned, it will be necessary to demonstrate a causal relationship between the offending and the condition, as I put it in *CW*, 'at least in the sense that as a result of the intellectual deficit the offender was not inhibited from committing the offence or offences in question.' In such a case the mitigation may be found in the conclusion that the offender's moral culpability, as opposed to his or her criminal responsibility, has been lessened so as to reduce the seriousness of the offending and the need for a denunciatory sentence.

Alternatively, or perhaps in addition to that factor, the offence and the offender may be seen to provide inappropriate vehicles for general and particular deterrence to be given their full weight. The extent to which such factors should be given weight will be a matter of degree depending upon the particular circumstances of the case in point, but it will often be the case, as Kennedy J put it

in *Dalgety*, that such considerations of deterrence will continue to operate 'sensibly moderated'. Only in an extreme case will the relevance of such considerations be eliminated entirely.¹⁰⁸

They accepted that where a sentence which would otherwise be proportionate to the criminality involved may have a more severe impact upon the particular offender than upon others, then the court will be led in mercy, as well as by reason of the application of the general principles of sentencing, to moderate the punishment or choose an alternative disposition.¹⁰⁹ In applying the general considerations to the appeal by Paparone, they concluded that the sentencing Judge's conclusion was correct:

There was no causal link of the required kind between the applicant's attention deficit disorder and his offending behaviour. He did not commence to manufacture, consume and sell amphetamines because he suffered from the disorder, but by reason of his deliberate choice, initially taken to obtain relief from the symptoms of the disorder. There was never any suggestion that the disorder precluded him from seeking treatment and the prescription of appropriate medication. No doubt the fact that he suffered from the disorder provides some explanation for his commission of the offences, but it does not in my opinion in any way mitigate punishment.¹¹⁰

Thus, they rejected the appeal.

By contrast, Wallwork J in dissent concluded that:

[I]t is clear that the learned Judge was not satisfied on the balance of probabilities that the applicant's offences were connected to a significant extent to the ADHD problem. However a question arises as to whether his Honour adequately and correctly dealt with the submission which had been made to him on that aspect. ... [T]he learned Judge erred when he stated that the medical diagnosis had no necessary connection with the manufacture or the possession of the drugs. The word 'necessary' indicates

that his Honour was apparently not applying the correct standard of proof.¹¹¹

H v the Queen

In *H v The Queen*,¹¹² the New Zealand Court of Appeal heard an important appeal in a case where H had been found guilty by a jury at trial of three counts of indecent assault on a young person, his 12-year-old niece, one of which was representative, and one count of sexual violation by unlawful sexual connection. The issue on appeal was whether the trial judge had erred in ruling as admissible questions posed by the prosecutor about H's ADHD. H argued that the evidence elicited by the prosecution was unfairly prejudicial and had resulted in a miscarriage of justice.

At trial in evidence the complainant's mother, in answer to a question from the jury, said in respect of a complaint that H had been jumping on her in her bed, 'But [H] has got ADHD as well so I sort of thought ... he was always kind of, a little bit, he a little bit childish'.¹¹³ In later evidence, H conceded he had ADHD, and the cross-examination by the prosecutor continued:

Q: Do you take medication for ADHD, [H]?

A: I don't need to, no, but I do, yes.

Q: And that medication that you do take is designed to suppress some of the behaviours of ADHD?

A: No, it's designed to help me focus on a task that I'm trying to do.

Q: Would you agree that when you are not on your medication some of your behaviour can be quite childish?

A: No.

The trial judge permitted the evidence on the basis that the prosecution was entitled to

explore the answers given by H as to the state of his ADHD and whether he needed medication to control his symptoms. The prosecutor then asked H a series of questions seeking to establish that H's behaviour would become 'quite childlike', 'unfocussed', 'a little bit impulsive' and 'physically a bit fidgety' when he was not medicated. Further, the proposition was put to H that he had a history of not taking his medication on his days off work. H rejected all of these propositions.¹¹⁴ H's ADHD was referred to only in passing by the prosecution in its address to the jury.

The Court of Appeal rejected the appeal by H although it accepted that the questioning of H about his being on ADHD medication had 'potentially sinister overtones', as did the questions about H's stopping his medication. It noted that there was a risk that the jury would accept by implication that H was suffering from a medical condition, the nature of which had not been explained by reference to expert evidence. However, the Court of Appeal held that the critical issue was whether cross-examination crossed the line to which it might have been unfairly prejudicial in the case against H:

[I]t was not relied upon in support of any of the key aspects of the Crown's case in closing. The passing reference to the impugned evidence by the prosecutor in the context of summarising the evidence given by the complainant's mother could not be said to have involved unfair prejudice. The fact that it was not relied upon by the Crown, not addressed by the defence and not referred to by the Judge in summing up demonstrated that it was not part of the central Crown case, nor did form part of the issues the jury had to decide.¹¹⁵

Diagnostic Issues for Mental Health Practitioners

It remains common for expert evidence about ADHD symptomatology in offenders, both young and adult, not to be placed before courts because the condition has not been diagnosed.

Diagnosis of ADHD, along with diagnosis of common comorbidities, is an area of expertise for both psychiatrists and psychologists that requires clinical knowledge not possessed by all mental health practitioners and, in particular, by all forensic mental health practitioners.

A particular issue has been held to exist, at least in some jurisdictions, in respect of psychologists' entitlement to diagnose. Somewhat surprisingly, in the United Kingdom and at least in parts of Australia, this remains unresolved.¹¹⁶ Wood J, in *R v Peisley*¹¹⁷ in the New South Wales Court of Criminal Appeal, commented:

I consider it necessary to observe once again that it is important that clinical psychologists do not cross the barrier of their expertise. It is appropriate for persons trained in the field of clinical psychology to give evidence of the results of psychometric and other psychological testing, and to explain the relevance of those results, and their significance so far as they reveal or support the existence of brain damage or other recognised mental states or disorders. It is not, however, appropriate for them to enter into the field of psychiatry.¹¹⁸

In *WW v The Queen*¹¹⁹ the New South Wales Court of Appeal applied the *Peisley* passage specifically to the diagnosis of ADHD, observing:

It was open to Mr Mahoney [a psychologist] to test the applicant for indications that at the time of testing he was suffering from ADHD. He could describe the characteristics of the condition of ADHD. What he could not do as a psychologist was to express an opinion as to whether and to what extent the ADHD condition affected the applicant at the time of the offence.¹²⁰

Concluding Observations

It is very important that the current indications are that there is a major over-representation of persons with ADHD in the prison population. Impulsive, inattentiveness to

instructions, inability to retain information and limitations to the ability to think rationally through the likely consequences of actions are all criminogenic factors. Such characteristics can have a variety of causes: mental illness, brain injury, intellectual disability, personality disorders, autism spectrum disorder, foetal alcohol spectrum disorders, to name but some. ADHD is another and can be crucial both to explaining and contextualising engagement in criminal activity, but also in predicting the likelihood of recidivism by an offender.

The diagnosis on its own of ADHD in an offender will not provide either a defence or, necessarily, a significant mitigation of culpability;¹²¹ it depends on the nature of the symptoms experienced by the accused person, the conduct engaged in, and the extent to which the symptoms played a precipitating role in the conduct. However, ADHD does have the potential to be relevant to fitness to stand trial¹²² and to the partial defence of diminished responsibility, in jurisdictions where that exists. It can also have a variety of other explanatory applications in respect of the voluntariness of police interviews, the circumstances in which a person does not give evidence and potentially to explain unusual conduct in court, which otherwise might be misinterpreted.¹²³ Most particularly, it is relevant during the sentencing phase, including that it may result in the offender experiencing difficulties, while untreated, with self-regulation and impulsivity,¹²⁴ and in the offender finding 'prison life more difficult than prisoners who do not share his condition'.¹²⁵ It has the potential to explain some of the context in which a person exercised problematic judgment or engaged in antisocial behaviour.

Often ADHD will be found to exist in conjunction with other conditions, both in respect of young offenders and those who are adults. This has the potential to make disaggregation of the contributing elements of comorbidities difficult for forensic practitioners and also to

give limited assistance to offenders, as conditions such as ADHD can persist and provide cause for judicial disquiet about the potential for recidivism.

However, two factors are relevant in this regard: many young persons diagnosed with ADHD do not continue to experience its symptoms into adulthood,¹²⁶ and if an offender is prepared to be adherent to medication to treat ADHD, this may substantially reduce symptomatology and the likelihood of ongoing commission of criminal offences. Marcotte and others in 2009 carried out a statistical regression analysis between crime rates and the prescription rates for stimulants used to treat ADHD in the United States between 1997 and 2004. They found that for every 1% increase in stimulant prescription there was a 0.129% decrease in violent crimes; put another way there was an inverse correlation.¹²⁷

A 2012 Swedish study gathered information on 25,656 patients with a diagnosis of ADHD, their pharmacologic treatment and subsequent criminal convictions in Sweden between 2006 and 2009. As compared with non-medication periods, among patients receiving ADHD medication, there was a significant reduction of 32% in the criminality rate for men and 41% for women. The rate reduction remained between 17% and 46% in sensitivity analyses among men, with factors that included different types of drugs (eg, stimulant vs non-stimulant) and outcomes (eg, type of crime). The authors concluded that: 'These findings raise the possibility that the use of medication reduces the risk of criminality among patients with ADHD'. However, of course, prescription of a drug which has the potential for misuse and diversion, because of its amphetamine content,¹²⁸ poses its own issues, making atomoxetine a potentially attractive treatment alternative.

Without expert evidence about the ramifications of ADHD for an offender's

criminal conduct, it will generally not be accorded particular significance at sentencing.¹²⁹ For the opinions of mental health practitioners about persons having ADHD to be considered helpful by the courts, though, expert witnesses will generally both need to have the requisite diagnostic expertise and to have examined the individual.¹³⁰ Care needs to be taken not to be overly influenced by patients' self-reports¹³¹ or by accounts from parents. Critical clinical judgment needs to be exercised. If an offender has also taken illegal drugs which may have played a role in generating disinhibition, this will tend to render a diagnosis of ADHD less valuable in mitigation.¹³²

A key issue is the extent to which the symptomatology of ADHD played a causative or at least contributing role to the commission of a criminal offence.¹³³ If there is clear evidence of premeditation and planning, that will go a considerable distance to negating the relevance of an ADHD diagnosis.¹³⁴ A subsidiary consideration at sentencing should also be the extent to which symptomatology of ADHD may be exacerbated by the custodial environment or may make the person particularly vulnerable to maltreatment by others.

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Notes

1. An earlier version of this article was presented as a paper to the conference of the Royal Australian and New Zealand College of Psychiatrists and the Australian and New Zealand Association of Psychiatry, Psychology and Law, 'Collaboration and Challenges Across the Global South', Singapore, November 2019. The author acknowledges the helpful suggestions and comments on an earlier draft of the paper by Dr Robert Adler, Dr David List and Dr Patricia Molloy.
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5. See H Leltzer and others, 'Mental Health of Children and Adolescents in Great Britain' (2003) 15 International Review of Psychiatry 185.
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13. C Mohr Jensen and HC Steinhausen, 'A Meta Analysis and Systematic Review of the Risks Associated with Childhood Attention Deficit Hyperactivity Disorder on Long term Outcome of Arrests, Convictions, and Incarcerations' (2016) 48 Clinical Psychology Review 32.
14. Fletcher and Wolfe (n 10) 119.
15. T Ginsberg, T Hirvikoski and B Lindfors, 'Attention Deficit Hyperactivity Disorder (ADHD) Among Longer term Prison Inmates is a Prevalent, Persistent and Disabling Disorder' (2010) 10 BMC Psychiatry 112 doi: [10.1186/1471-244X-10-112](https://doi.org/10.1186/1471-244X-10-112)
16. See S Young and others, 'A Meta Analysis of the Prevalence of Attention Deficit Hyperactivity Disorder in Incarcerated Populations' (2015) 45(2) Psychological Medicine 247. Compared with published general population prevalence, there was a fivefold increase in prevalence of ADHD in youth prison populations (30.1%) and a tenfold increase in adult prison populations (26.2%).
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27. *Ibid.*
28. H Hoffman, *Struwwelpeter: Merry Tales and Funny Pictures* (1844) <http://www.gutenberg.org/files/12116/12116_h/12116_h.htm>. See, too, J Thome and KA Jacobs, 'Attention Deficit Hyperactivity Disorder (ADHD) in a 19th Century Children's Book' (2004) 19(5) *European Psychiatry* 303; A Schwartz, *ADHD Nation: The Disorder, the Drugs, the Inside Story* (Little Brown 2016) 16 17.
29. GF Still, 'Some Abnormal Psychical Conditions in Children: The Goulstonian Lectures' (1902) 1 *The Lancet* 1008.
30. Still (n 28) 1165.
31. RA Barkley, 'The Relevance of the Still Lectures to Attention deficit/Hyperactivity Disorder: A Commentary' (2006) 10 *J Atten Disord* 137.
32. Still (n 28) 1166.
33. A Rafalovich, 'The Conceptual History of Attention Deficit Hyperactivity Disorder: Idiocy, Imbecility, Encephalitis and the Child Deviant, 1877 1929' (2001) 22 *Deviant Behav* 93.
34. Barkley (n 30).
35. MW Laufer, E Denhoff and G Solomons, 'Hyperkinetic Impulse Disorder in Children's Behavior Problems' (1957) 19 *Psychosomatic Medicine* 38.
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39. Bradley (n 37) 582.
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 71. See, eg, Anderson, Northam and Wrennall (n 59).
 72. See, eg, *R v Osborne* [2010] EWCA Crim 547 at [26]; *Fuller v The Queen* [2016] EWCA Crim 1867 at [15]; *R v AB*, 2017 ONCJ 419 at [68]; *R v KLC*, 2004 SKPC 98 (CanLII) at [14].
 73. See, eg, *R v Osborne* [2010] EWCA Crim 547 at [26]; *Dixon v The Queen* [2013] EWCA Crim 465; *R v Newton* [2017] EWCA Crim 874 at [15]; *R v Conroy* [2017] EWCA 81 at [8].
 74. *WW v The Queen* [2012] NSWCCA 165 at [36]; *Davis v The Queen* [2019] NZCA 40 at [42].
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 77. See *Jackson v The Queen* [2013] EWCA Crim 163 at [9], arising from PTSD; *R v Balogh* [2015] EWCA Crim 44 at [4].
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 82. See *R v Haigh* [2010] EWCA Crim 570; *R v KLC*, 2004 SKPC 98 (CanLII) at [14]; *Singh v Police* [2016] NZHC 1739 at [36]; *R v Browne* [2017] NZHC 2389 at [54].
 83. See, eg, *R v Williams* [2005] NSWCCA 355.
 84. See, eg, *Judge v The Queen* [2018] NSWCCA 203; *R v Williams* [2005] NSWCCA 355.
 85. *R v Hayes* [2015] EWCA Crim 1944 at [105]; *R v Grant Murray* [2017] EWCA Crim 1228 at [47]; *R v Lewis* [2019] EWCA Crim 253; *R v AS* [2019] EWCA Crim 1458 at [11], [30]; *R v Conroy* [2017] EWCA 81 at [8]; *R v Vittori* [2019] NSWDC 583; *Norman v The Queen* [2012] NSWCCA 230; *R v Griffiths* [2018] NACA 1104 at [20].
 86. *R v AB*, 2017 ONCJ 419 at [70]; *R v Heke Gray* [2019] NZHC 2841 at [31]; *Pomare v The Queen* [2017] NZCA 155 at [18].
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 95. [2004] EWCA Crim 2661 at [25].

96. [2004] EWCA Crim 2661 at [25].
97. [2004] EWCA Crim 2661 at [25].
98. [2004] EWCA Crim 2661 at [25].
99. [2004] EWCA 2661 at [30] [31]. Compare *Dixon v The Queen* [2013] EWCA Crim 465.
100. [2010] EWCA Crim 547.
101. See, too, *Arlidge v Police* [2014] NZHC 2202 at [13] where Mander J observed ‘given the length and nature of Mr Arlidge’s drug dealing activities which showed him to be careful and forensically aware, the ADHD, while relevant, does not explain the premeditation and planning inherent in his illegal activities’.
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103. [2014] EWCA Crim 121.
104. *R v Ibrahim* [2014] EWCA Crim 121 at [13].
105. *R v Ibrahim* [2014] EWCA Crim 121 at [27].
106. (2000) 112 A Crim R 190; [2000] WASCA 127.
107. (2000) 112 A Crim R 190; [2000] WASCA 127 at [22].
108. (2000) 112 A Crim R 190; [2000] WASCA 127 at [50] [52].
109. (2000) 112 A Crim R 190; [2000] WASCA 127 at [54].
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115. [2014] NZCA 124 at [24].
116. See Freckelton, *Expert Evidence: Law, Practice, Procedure and Advocacy* (n 93) 10.0.80; I Freckelton, ‘Psychologists’ Entitlement to Diagnose’ (1998) 5 *Psychiatry, Psychology and Law* 159; see, too, *Allanson v Toncich* [2002] WASCA 216 at [12]; *R v Kucma* (2005) 11 VR 472. Compare *R v Whitbread* (1995) 78 A Crim R 452 and *Nepi v Northern Territory* [1997] NTSC 153.
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118. See also *R v Petroulias (No 36)* [2008] NSWSC 626 at [164].
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123. See, eg, in the context of Asperger’s disorder *Sultan v The Queen* [2008] EWCA Crim 6; *McGraddie v McGraddie* [2009] ScotCS CSOH 142.
124. See *R v Lochore* [2018] NZHC 2693 at [25].
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128. See *Rodrigo v Police* [2014] NZCA 68 at [2] per Mallon J; see too *Sudol v Police* [2014] NZHC 1264.
129. See, eg, *Affleck v Police* [2017] NZHC 3220 at [20].
130. See, eg, the issue in *R v Ibrahim* [2014] EWCA Crim 121 at [13].
131. See *R v Osborne* [2004] EWCA 2661 at [30] [31].
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133. See *Paparone v The Queen* (2000) 112 A Crim R 190; [2000] WASCA 127.
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A HARD PILL TO SWALLOW: THE NEED TO IDENTIFY AND TREAT ADHD TO REDUCE SUFFERERS' POTENTIAL INVOLVEMENT IN THE CRIMINAL JUSTICE SYSTEM

COREY J LANE* AND MARK DAVID CHONG†

ABSTRACT

This paper explores the nature of Attention-Deficit Hyperactivity Disorder (ADHD), its prevalence among offender populations, and its consequent impact on the Australian criminal justice system. To that end, it will be divided into two major sections. The first encompasses an extensive review of what is currently known about ADHD, including the historical development of the diagnosis, its known aetiology, ADHD and correlates, estimates of its prevalence, its successful treatment, high-level adverse trajectories for sufferers, and associated costs. The second will examine the significant overrepresentation of ADHD sufferers in youth and adult criminal justice populations and highlight the concerning lack of acknowledgment in major Australian criminal justice reviews of the prevalence and impact of ADHD. Finally, a call for action in relation to its strategic diagnosis, early intervention and treatment as a crucial part of an optimal criminal justice crime prevention strategy will be made.

I INTRODUCTION

Wakefield posited that mental disorders are an experienced state of human existence that result in dysfunction in one or more universal psychological adaptations (i.e. abilities) that leads to harm to the individual through such outcomes as impairment, increased mortality or increased morbidity.¹ Attention-Deficit Hyperactivity Disorder (ADHD) is a pervasive neurodevelopmental/neurogenetic disorder characterised by inattentive and hyperactive/impulsive behavioural and emotional symptoms primarily arising in early childhood.² ADHD, especially where unidentified and or untreated, results in extremely adverse psychosocial and socio-economic outcomes and costs for sufferers and wider society.³ This paper examines ADHD, the overrepresentation of individuals with ADHD in criminal justice populations, and calls for action in relation to strategic diagnosis, early intervention and treatment as a crucial part of an optimal criminal justice crime prevention strategy. The paper is divided into two parts. The first is an extensive review of what is currently known about ADHD, including the historical

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¹ Wakefield, 'The concept of mental disorder: Diagnostic implications of the harmful dysfunction analysis' (2007) 6(3) *World Psychiatry* 149.

² Russell A Barkley, 'Advances in Diagnosis, Etiologies, and Management of ADHD' (Speech, Australian Conference of Neurodevelopmental Disorders, 2019).

³ Deloitte Access Economics, *The social and economic costs of ADHD in Australia: Report prepared for the Australian ADHD Professionals Association* (Report, 2019) <<https://www2.deloitte.com/au/en/pages/economics/articles/social-economic-costs-adhd-Australia.html>>.

development of the diagnosis, its known aetiology, ADHD and correlates, estimates as to its prevalence, its successful treatment, high-level adverse trajectories for sufferers and associated costs. The second examines the significant overrepresentation of ADHD sufferers in youth and adult criminal justice populations and highlights the concerning lack of acknowledgment of the impact and prevalence of ADHD in major Australian criminal justice reviews. Finally, recommendations and suggestions are made for a comprehensive Australian youth and adult criminal justice strategy aimed at optimally dealing with the impact of the disproportionately high prevalence of ADHD in criminal justice populations.

II PART 1: ADHD — WHAT IT IS AND WHAT IS KNOWN ABOUT IT.

A *Development of and Current Diagnostic Requirements of ADHD Diagnosis*

The idea of persistent inattention, impulsivity and/or hyperactivity being problematic is not a modern invention. Ancient and other historical representations of individuals with problematic ADHD-like symptoms can be found in the early arts and in historically prominent literary works such as Shakespeare and the Bible.⁴ The first medical descriptions of problematic symptoms somewhat resembling ADHD appeared in early medical textbooks from the late 18th to the end of the 19th century.⁵ The first recognised clinical description of the cluster of symptoms clearly approximating a modern-day diagnosis of ADHD is often attributed to British paediatrician, George Still, in 1902.⁶

Despite this early recognition of problematic clusters of symptoms approximating an ADHD diagnosis, and even some successful use of stimulant medications to treat ADHD symptoms as early as the 1930s,⁷ the first Diagnostic and Statistical Manual (DSM) produced by the American Psychiatric Association (APA), and published in 1952, did not contain any reference to an ADHD-like disorder. It was not until the second edition of the manual that the APA officially proposed 'Hyperkinetic Impulse Disorder' (resembling modern ADHD) as a distinct disorder.⁸ The third edition of the DSM further developed and specified the diagnosis as Attention Deficit Disorder with two subtypes differentiated by the presence or absence of hyperactivity.⁹ A further development of the conceptualisation of the disorder was presented in the revised version of that edition, where the combined symptoms of inattention, hyperactivity and

⁴ Jose Martinez-Badia and Jose Martinez-Raza, 'Who says this is a modern disorder? The early history of attention deficit hyperactivity disorder' (2015) 5(4) *World Journal of Psychiatry* 379.

⁵ Erica D Palmer and Stanley Finger, 'An early description of ADHD (inattentive subtype): Dr Alexander Crichton and 'Mental Restlessness' (1798)' (2001) 6(2) *Child Psychology and Psychiatry Review* 66.

⁶ Klaus W Lange, Susanne Reichl, Katharina M Lange, Lara Tucha and Oliver Tucha, 'The history of attention deficit hyperactivity disorder' (2010) 2(4) *ADHD Attention Deficit and Hyperactivity Disorders* 241.

⁷ Kimberly Holland and Valencia Higuera, 'The History of ADHD: A Timeline', *healthline* (Webpage, 12 October 2017) <<https://www.healthline.com/health/adhd/history>>.

⁸ American Psychiatric Association, *Diagnostic and statistical manual of mental disorders* (American Psychiatric Publishing, 2nd ed, 1968).

⁹ American Psychiatric Association, *Diagnostic and statistical manual of mental disorders* (American Psychiatric Publishing, 3rd ed, 1980).

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impulsivity were merged in one disorder and its name was changed to ADHD, as it remains today.¹⁰ Finally, the fourth edition of the DSM, for the first time, recognised the existence of three subtypes of ADHD i.e. combined type, predominantly inattentive type, and predominantly hyperactive-impulsive — which are consistent with the present-day conceptualisation of the condition.¹¹

The DSM-V provides the most developed and up-to-date diagnostic criteria for consistently and systematically identifying, understanding and treating ADHD.¹² Consistent with the DSM-IV, the DSM-V sets out the three potential diagnostic presentations of the disorder as predominantly inattentive type, predominantly hyperactive/impulsive type and combined type. DSM-V requires that identified symptoms must be present before the age of 12 years, be present in two or more contexts (e.g. school, home, work), not be accounted for, better, by another potential diagnosis and cause significant dysfunction in day-to-day living, social, school or occupational functioning.

Under the DSM-V, an ADHD combined type diagnosis requires the criteria for both the predominantly inattentive and predominantly hyperactive/impulsive presentation be met. For an individual to be diagnosed with ADHD predominantly inattentive type, the individual must experience five or more identified symptoms of inattention. They include: difficulty sustaining attention; trouble initiating tasks/procrastination; trouble completing tasks, losing important items, difficulties with organisation; easy distractibility; forgetfulness; and poor attention to detail/making careless mistakes. For an individual to be diagnosed with ADHD predominantly hyperactivity/impulsivity type, the individual must experience five or more identified symptoms of hyperactivity/impulsivity. Identified hyperactive/impulsive symptoms include: intrudes/ interrupts others; 'On the go'/'driven by a motor'; Runs/climbs excessively; cannot play or work quietly; squirms and fidgets; cannot stay seated; talks excessively; blurts out answers; and cannot wait their turn. It is clear that many of these symptoms are symptoms that, at times, most of the population will experience, however, it is their frequency, degree and the contextual impairment that they cause, which differentiates an ADHD diagnosis from a normal spectrum of behaviour.

B *Prevalence of ADHD and its Symptoms*

The prevalence of ADHD appears relatively stable across differing socio-cultural populations and is conservatively estimated to affect between 5-8% of those populations.¹³ Some research indicates that there has been a concerning increase in

¹⁰ American Psychiatric Association, *Diagnostic and statistical manual of mental disorders* (American Psychiatric Publishing, 3rd ed Review, 1987).

¹¹ American Psychiatric Association, *Diagnostic and statistical manual of mental disorders* (American Psychiatric Publishing, 4th ed, 2000).

¹² American Psychiatric Association, *Diagnostic and statistical manual of mental disorders* (American Psychiatric Publishing, 5th ed, 2013)

¹³ Guilherm V Polanczyk, Eric G Willcutt, Giovanni A Salum, Christian Keiling & Luis A Rohde, 'ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis' (2014) 43(2) *International Journal of Epidemiology*, 434 ('Polanczyk et al'); Rae Thomas,

ADHD since the 1990s.¹⁴ Hinshaw and Hutchinson argue that the historical recognition of, and recent reported increase in, ADHD diagnoses may be explained by the coincidental increase in the complexity of, and requirements for, performance in educational and occupational settings over time that do not align with other equally-valuable and valuable potential expressions of human existence.¹⁵ Other research however, proposes that indicated increases in ADHD diagnosis appear to be made on the basis of crude indicators (e.g. parental report of diagnosis) or non-standardised assessments. A systematic review and meta-analytic research of such studies using standardised diagnostic practice does not indicate, though, an alarming or widespread increase in ADHD diagnosis in the past 30 years.¹⁶ It should be noted that another potential factor that may have impacted on the reported frequency of ADHD diagnoses,¹⁷ could be the changes in the conception of the disorder and associated diagnostic criteria.

ADHD is the most common neurodevelopmental disorder for young people.¹⁸ In Australia, it is conservatively estimated that 800,000 people are affected by ADHD, including approximately 281,000 young people (19 years old and under) and 533,000 adults (20 years old and over).¹⁹ The ratio of male to female sufferers may be as high as 3:1²⁰ and symptoms appear to be more severe for males than females.²¹ Studies indicate that the severity of significantly problematic symptoms of ADHD (especially hyperactivity/impulsivity) appear to decline with age.²² Motivational and inattentive

Sharon Sanders, Jenny Doust, Elaine Beller and Paul Glasziou, 'Prevalence of attention-deficit/hyperactivity disorder: a systemic review and meta-analysis' (2015) 135(3) *Pediatrics* ('Thomas et al'); Eric Willcutt, 'The prevalence of DSM-IV attention-deficit/hyperactivity disorder: a meta-analysis review' (2012) 9(3) *Neurotherapeutics* 262.

¹⁴ Susanna N Visser, Melissa L Danielson, Rebecca H Bitsko, Joseph R Holbrook, Michael D Kogan, Reem M Ghandour, Ruth Perou and Stephen Blumberg, 'Trends in the Parent-report of Health Care Provider Diagnosed and Medicated ADHD: Unites States, 2003 – 2001 (2014) 53(1) *Journal of the American Academy of Child & Adolescent Psychiatry* 34 ('Visser et al'); Guifeng Xu, Lane Strathearn, Buyun Liu, Binrang Yang and Wei Bao, 'Twenty-Year Trends in Diagnosed Attention-Deficit/Hyperactivity Disorder Among US Children and Adolescents, 1997-2016' (2018) 1(4) *JAMA Network Open* <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6324288/>>

¹⁵ Stephen P Hinshaw and Katherine Ellison, 'ADHD, What everyone needs to know.' (2016) New York Oxford University Press; Stephen P Hinshaw and Richard M Scheffler (2014) *The ADHD explosion: Myths, medications, money and today's push for performance*. New York Oxford University Press.

¹⁶ Polanczyk et al (n 13)

¹⁷ Visser et al (n 14).

¹⁸ Coleen A Boyle, Sheree Boulet, Laura A Schieve, Robin A Cohen, Stephen J Blumberg, Marshalyne Yeargin-Allsopp, Susanna Visser and Michael D Kogan, 'Trends in the Prevalence of Developmental Disabilities in US Children, 1997-2008' (2011) 127(6) *Pediatrics* 1034.

¹⁹ Deloitte Access Economics (n 3)

²⁰ Eric Willcutt (n 13).

²¹ Anne B Arnett, Bruce F Pennington, Erik G Willcutt, John C DeFries, and Richard K. Olson. 'Sex differences in ADHD symptom severity.' (2015) 56(6) *Journal of Child Psychology and Psychiatry* 632.

²² Arthur Caye, Thiago Botter-Mario Rocha, Luciana Anselmi, Joseph Murray, Ana M B Menezes, Fernando C Barros, Helen Goncalves, Fernando Wehrmeister, Christina M Jensen, Hans-Christoph Steinhausen, James M Swanson, Christian Kieling and Luis Augusto Rohde, 'Attention-Deficit/Hyperactivity Disorder Trajectories From Childhood to Young Adulthood – Evidence From a Birth Cohort Supporting a Late-Onset Syndrome' (2016) 73(7) *JAMA Psychiatry* 705 ('Caye et al'); Thomas et al (n 13); Kees-Jan Kan, Conor V Dolan, Michel G Nivard, Christel M Middeldorp,

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symptoms are most correlated in adults.²³ ADHD has also been consistently shown to have a high degree of comorbidity with other problematic child and adult developmental and psychological diagnoses including dyslexia and other developmental disorders, oppositional defiant disorder (ODD), conduct disorder (CD), antisocial personality disorder (ASPD), substance use disorder, sleep disorder, depression, anxiety and autism spectrum disorder.²⁴

C *Aetiology of ADHD*

ADHD presentations represent the appearance of the extreme end of two-dimensional traits (inattention, and impulsivity/hyperactivity) that most commonly vary across the human population.²⁵ The empirical consensus appears to be that ADHD is caused by genetic/biological factors, although some evidence indicates environmental factors may activate or exacerbate problematic symptoms.²⁶ Studies examining the heritability of

Catharina E M van Beijsterveldt, Gonneke Willemsen and Dorret I Boomsma, 'Genetic and Environmental Stability in Attention Problems Across the Lifespan: Evidence From the Netherlands Twin Register' (2013) 52(1) *Journal of the American Academy of Child & Adolescent Psychiatry* 12 ('Kan et al'); Stephen V Faraone, Joseph Biederman and Eric Mick, 'The age-dependent decline of attention deficit hyperactivity disorder: a meta-analysis of follow-up studies' (2006) 36(2) *Psychological Medicine* 159; Joseph Biederman, Eric Mick and Stephen V Faraone, 'Age-dependent decline of symptoms of attention deficit hyperactivity disorder: impact of remission definition and symptom type' (2000) 157(5) *American Journal of Psychiatry* 816.

²³ Nora D Volkow, James M Swanson and Jeffrey H Newcorn, 'Dopamine reward pathway in adult ADHD Reply' (2010) 303(3) *JAMA* 232.

²⁴ Stephen Faraone, Yanli Zhang James, Qi Chen, Henrik Larsson 'Predicting comorbid disorders in ADHD using machine learning' (2019) 85(10) *Biological Psychiatry* S6; Shannon Lange, Jurgen Rehm, Evdokia Anagnostou and Svetlana Popova, 'Prevalence of externalizing disorders and Autism Spectrum Disorders among children with Fetal Alcohol Spectrum Disorder: systematic review and meta analysis' (2017) 96(2) *Biochemistry and Cell Biology* 241 ('Lange et al'); Tinca C Polderman, Rosa A Hoekstra, Danielle Posthuma and Henrik Larsson, 'The co-occurrence of autistic and ADHD dimensions in adults: an etiological study in 17 770 twins' (2014) 4(9) *Translational Psychiatry* 435 ('Polderman et al'); Sebastian Lundstrom, Mats Forsman, Henrik Larsson, Nora Kerekes, Eva Serlachius, Niklas Langstrom and Paul Lichtenstein, 'Childhood neurodevelopmental disorders and violent criminality: A sibling control study' (2014) 44(11) *Journal of Autism and Developmental Disorders* 435 ('Lundstrom et al'); Nitin Patel, Mita Patel and Harsha Patel, 'ADHD and Comorbid Conditions', *Current Directions in ADHD and Its Treatment* (eBook Chapter, 15 February 2012) <<https://www.intechopen.com/books/current-directions-in-adhd-and-its-treatment/adhd-and-comorbidity>>; ('Patel et al'); Matthew A Jarrett, and Thomas H. Ollendick, 'A conceptual review of the comorbidity of attention-deficit/hyperactivity disorder and anxiety: Implications for future research and practice.' (2008) 28(7) *Clinical Psychology Review* 1266; Esther Sobanski, 'Psychiatric comorbidity in adults with attention-deficit/hyperactivity disorder (ADHD)' (2006) 256(1), *European archives of psychiatry and clinical neuroscience*, i26.; Timothy E Wilens, Joseph Biederman, Sarah Brown, Sarah Tanguay, Michael C Monuteaux, Christie Blake and Thomas J Spencer, 'Psychiatric Comorbidity and Functioning in Clinically Referred Preschool Children and School-Aged Youths With ADHD' (2002) 41(3) *Journal of the American Academy of Child & Adolescent Psychiatry* 262.

²⁵ Russell A Barkley (n 2)

²⁶ Kan et al (n 22); Henrik Larsson, Philip Asherson, Zheng Chang and Theresa Ljung, 'Genetic and environmental influences on adult attention deficit hyperactivity disorder symptoms: A large Swedish population-based study of twins' (2013) 43(1) *Psychological Medicine* 1; Joseph Gordon Millichap, 'Etiologic Classification of Attention-Deficit/Hyperactivity Disorder' (2008) 121(2) *Pediatrics* e358; Molly Nikolas and S. Alexandra Burt, 'Genetic and Environmental Influences on ADHD Symptom Dimensions of Inattention and Hyperactivity: A Meta-Analysis' (2010) 119(1) *Journal of Abnormal Psychology* 1

ADHD estimate it to be at between 77% and 88%,²⁷ a figure in excess of most other diagnosable mental health disorders.²⁸ Other factors potentially impacting on the appearance and/or exacerbation of ADHD symptoms appear to include perinatal complications, maternal smoking during pregnancy, foetal exposure to lead and other toxins, foetal alcohol exposure, premature/low birthweight, parental psychopathology, socioeconomic disadvantage, exposure to trauma, family dysfunction, parental unemployment, parental absence during rearing, poor parenting practices and poor parental attachment.²⁹

A common criticism of ADHD is that it is a ‘‘made-up’’ diagnosis without a legitimate or biological basis. However, a variety of meta-analyses of neuroimaging studies consistently show brain structure and function differences between ADHD sufferers and neuro-normative individuals.³⁰ One of the more intricate (as well as seminal) analyses of the biological basis of ADHD is provided by prominent ADHD researcher Russell Barkley.³¹ He postulates that ADHD is an executive function spectrum disorder which varyingly and adversely impacts upon all seven executive functions: (1) self-awareness; (2) inhibition (self-restraint); (3) verbal working memory; (4) non-verbal

²⁷ Faraone, Stephen V., and Henrik Larsson. ‘Genetics of attention deficit hyperactivity disorder.’ (2019) 24(2) *Molecular psychiatry* 562.

²⁸ Tinca JC Polderman, Beben Benyamin, Christiaan A De Leeuw, Patrick F Sullivan, Arjen Van Bochoven, Peter M Visscher, and Danielle Posthuma. ‘Meta-analysis of the heritability of human traits based on fifty years of twin studies.’ 47(7) *Nature genetics* 702.

²⁹ Daryl Efron, Alisha Gulenc, Emma Sciberras, Obioha C Ukomunne, Philip Hazell, Vicki Anderson, Timothy J Silk and Jan M Nicholson, ‘Prevalence and Predictors of Medication Use in Children with Attention-Deficit/Hyperactivity Disorder: Evidence from a Community-Based Longitudinal Study’ (2019) 29(1) *Journal of Child and Adolescent Psychopharmacology* 50; Kapil Sayal, Vibhore Prasad, David Dale, Tamsin Ford and David Coghill, ‘ADHD in children and young people: prevalence, care pathways, and service provision’ (2018) 5(1) *The Lancet Psychiatry* 175; Clarissa Cavallina, Chiara Pazzagli, Veronica Ghiglieri, and Claudia Mazzeschi. ‘Attachment and parental reflective functioning features in ADHD: enhancing the knowledge on parenting characteristics.’ (2015) 6 *Frontiers in psychology* 1313; Marc-Andreas Edel, Susanne Edel, Marie Krüger, Hans-Jörg Assion, Georg Juckel and Martin Brüne, ‘Attachment, recalled parental rearing, and ADHD symptoms predict emotion processing and alexithymia in adults with ADHD’ (2015) 14(1) *Annals of general psychiatry* 43; David Lawrence, Sarah Johnson, Jennifer Hafekost and Katrina Boterhoven de Haan, *The Mental Health of Children and Adolescents: Report on the second Australian Child and Adolescent Survey of Mental Health and Wellbeing* (Department of Health Report, January 2015); Gordon T Harold, Leslie D Leve, Douglas Barrett, Kit Elam, Jenae M Neiderhiser, Misake N Natsuaki, Daniel S Shaw, David Reiss and Anita Thapar, ‘Biological and Rearing Mother Influences on Child ADHD Symptoms: Revisiting the Developmental Interface between Nature and Nurture’ (2013) 54(10) *Journal of Child Psychology and Psychiatry* 1038; Joseph Gordon Millichap (n 26); Joel T Nigg, ‘What causes ADHD?: Understanding what goes wrong and why.’ Guilford Press, 2006.

³⁰ Karen Ersche, Guy B Williams, Trevor W Robbins and Edward T Bullmore, ‘Meta-analysis of structural brain abnormalities associated with stimulant drug dependence and neuroimaging of addiction vulnerability and resilience’ (2013) 23(4) *Current opinion in neurobiology* 615; Eve M Valera, Stephen V Faraone, Kate E Murray and Larry J Seidman, ‘Meta-Analysis of Structural Imaging Findings in Attention-Deficit/Hyperactivity Disorder’ (2007) 61(12) *Biological Psychiatry* 1361; Ian Ellison-Wright, Zoë Ellison-Wright and Ed Bullmore, ‘Structural brain changes in Attention Deficit Hyperactivity Disorder identified by meta-analysis’ (2008) 8(1) *BMC Psychiatry* 51;

³¹ Russell A Barkley, *Executive Functions: What are they, how they work, and why they evolved* (Guilford Press, 2012).

working memory; (5) emotional self-regulation; (6) self-motivation; and (7) planning/problem solving.

In explaining his theory, Barkley emphasises that neuroimaging research relating to executive functions show that they primarily work due to and through the activation of certain brain structures including the basal ganglia, thalamus, as well as the cortical and cerebellar regions of the brain.³² To further support his overarching theory and the biological basis of ADHD, Barkley then draws attention to substantial neuroimaging research results showing that, on average, these same brain structures are slightly smaller, less active and developmentally delayed in ADHD sufferers, as compared with non-sufferers.³³

D *Treatment of ADHD*

ADHD is treated through the administration of both psychopharmacological and non-psychopharmacological interventions. Psychopharmacological interventions include methylphenidate or amphetamine stimulant medications (e.g. Ritalin, Concerta, Adderall, Vyvanse), and, to a lesser degree, non-stimulant medications (e.g. Strattera, Intuniv, Catapress, Pristiq). A variety of systematic reviews and meta-analyses have consistently and clearly shown pharmacological interventions, especially stimulant medications, are highly efficacious in reducing problematic ADHD symptoms in sufferers.³⁴ For this reason, stimulant medications are generally proposed as the front-line treatment for individuals diagnosed with ADHD who suffer highly problematic symptoms.³⁵ Despite rumour and innuendo to the contrary, substantial evidence exists which indicates that short-term use of appropriate pharmacological interventions for child and adult sufferers of ADHD is both safe and effective.³⁶

Non-pharmacological treatment interventions are varied in scope and nature. Systematic reviews and meta-analyses of non-pharmacological treatments indicate that

³² Russell A Barkley (n 2).

³³ *Ibid.*

³⁴ Samuele Cortese, Nicolette Adamo, Cinzia Del Giovane, Christina Mohr-Jensen, Adrian J Hayes, Sara Carucci, Lauren Z Atkinson, Luca Tessari, Tobias Banaschewski, David Coghill, Chris Hollis, Emily Simonoff, Alessandro Zuddas, Corrado Barbui, Marianna Purgato, Has-Christoph Steinhausen, Farhad Shokraneh, Jun Xia and Andrea Cipriani, 'Comparative efficacy and tolerability of medications for attention-deficit hyperactivity disorder in children, adolescents, and adults; a systematic review and network meta-analysis' (2018) 5(9) *The Lancet Psychiatry* 727 (Cortese et al); Franco De Crescenzo, Samuele Cortese, Nicolette Adamo and Luigi Janiri, 'Pharmacological and non-pharmacological treatment of adults with ADHD: a meta-review' (2017) 20(1) *Evidence-Based Mental Health* 4 (De Crescenzo); Marie-Laure Kaiser, Marina M Schoemaker, Jean-Michael Albaret and Reint Geuze, 'What is the evidence of impaired motor skills and motor control among children with attention deficit hyperactivity disorder (ADHD)? Systematic review of the literature' (2015) 36 *Research in developmental disabilities* 338; Ágnes Mészáros, Pál Czobor, Sára Bálint, Sarolta Komlósi, Viktória Simon and István Bitter, 'Pharmacotherapy of adult attention deficit hyperactivity disorder (ADHD): a meta-analysis' (2009) 12(8) *International Journal of Neuropsychopharmacology* 1137; Saskia Van der Oord, Pier J M Prins, Jaap Oosterlaan and Paul Emmelkamp, 'Efficacy of methylphenidate, psychosocial treatments and their combination in school-aged children with ADHD: a meta-analysis' (2008) 28(5) *Clinical Psychology Review* 783 (Van der Oord).

³⁵ De Crescenzo et al (n 34).

³⁶ Cortese et al (n 34).

parent skill training for parents of children diagnosed with ADHD,³⁷ Cognitive Behavioural Therapy³⁸ and Neurofeedback Therapy³⁹ have seen some success. That said, broad-scale assessments of the clear efficacy of non-pharmacological interventions appears to be hindered by both the heterogeneity between some interventions as well as categorical overlaps between others (e.g. Behavioural versus Cognitive-Behavioural interventions). This makes delineation of exactly 'what works' more difficult to identify. Other potentially promising non-pharmacological interventions include, but are not limited to, mindfulness training, executive function training, multimodal training, and ADHD coaching.⁴⁰

The bulk of relevant research shows the efficacy of psychopharmacological interventions is superior to that of non-pharmacological interventions.⁴¹ However, the best results appear to occur when both types are used simultaneously.⁴² Encouragingly, it should be noted that the use and empirical assessment of non-pharmacological interventions is still in relatively early development.⁴³

Despite the superiority of pharmacological ADHD interventions, continued investigation, development and refinement of efficacious non-pharmacological interventions is warranted and worthwhile for several reasons. First, as highlighted earlier, the combined effect of these interventions appears to produce best results. Therefore, it follows that the development of even more efficacious non-pharmacological interventions will aid in the potential provision of best treatment. Second, for some, the moral distaste, ethics, and stigma associated with medicating

³⁷ Jilian M Mulqueen, Christine A Bartley and Michael H Bloch, 'Meta-analysis: parental interventions for preschool ADHD' (2015) 19(2) *Journal of Attention Disorders* 118; Pei-chin Lee, Wern-ing Niew, Hao-jan Yang, Vincent Chin-hung Chen and Keh-chung Lin, 'A meta-analysis of behavioral parent training for children with attention deficit hyperactivity disorder' (2012) 33(6) *Research in Developmental Disabilities* 2040 ('Lee et al').

³⁸ Laura E Knouse, Jonathan Teller and Milan A Brooks, 'Meta-analysis of cognitive-behavioral treatments for adult ADHD' (2017) 85(7) *Journal of Consulting and Clinical Psychology* 737; Christina Jensen, Birgitte Lind Amdisen, Karsten Juhl Jorgensen and Sidse Marie Arnfred, 'Cognitive behavioural therapy for ADHD in adults: systematic review and meta-analyses' (2016) 8(1) *ADHD Attention Deficit and Hyperactivity Disorders* 3; Zoe Young, Nima Moghaddam and Anna Tickle, 'The efficacy of cognitive behavioral therapy for adults with ADHD: A systematic review and meta-analysis of randomized controlled trials' (2016) *Journal of Attention Disorders* <<https://doi.org/10.1177%2F1087054716664413>>.

³⁹ Kristy D Hodgson, Amanda Hutchinson and Linley Denson, 'Nonpharmacological Treatments for ADHD: A Meta-Analytic Review' (2014) 18(4) *Journal of Attention Disorders* 275.

⁴⁰ Jilian M Mulqueen, Christine A Bartley and Michael H Bloch (n 37); Lee et al (37).

⁴¹ Lixia Yan, Siyuan Wang, Yang Yuan and Junhua Zhang, 'Effects of neurofeedback versus methylphenidate for the treatment of ADHD: systematic review and meta-analysis of head-to-head trials' (2019) 22(3) *Evidence-Based Mental Health* 111; De Crescenzo et al (n 34); Van der Oord (n 34).

⁴² Ferrán Catalá-López, Brian Hutton, Amparo Núñez-Beltrán, Matthew J. Page, Manuel Ridao, Diego Macías Saint-Gerons, Míguel A. Catalá, Rafael Tabarés-Seisdedos and David Moher, 'The pharmacological and non-pharmacological treatment of attention deficit hyperactivity disorder in children and adolescents: A systematic review with network meta-analyses of randomised trials' (2017) 12(7) *PLoS One* e0180355; Zoe Young, Nima Moghaddam and Anna Tickle (n 37).

⁴³ De Crescenzo et al (n 34).

ADHD sufferers, especially children, outweighs the perceived benefit.⁴⁴ Third, there appears to be a high degree of efficacy for certain non-pharmacological interventions (e.g. Cognitive Behavioural Therapy) for other disorders that are highly comorbid with ADHD, including anxiety and depression.⁴⁵ Fourth, non-pharmacological treatments may provide an inoculatory effect to children with sub-clinical ADHD in a manner that might prevent development of clinical-level ADHD symptoms.⁴⁶ Finally, for the minority of ADHD sufferers who find pharmacological interventions ineffective or who find the side effects from medication insufficiently bearable, there are a variety of highly efficacious non-pharmaceutical treatments still available to them.

Despite the existence of highly effective treatments for ADHD, it is estimated that between 23-31% of children⁴⁷ and more than 80% of adults⁴⁸ with ADHD do not undertake any sustained treatment. A variety of important studies, systematic reviews and meta-analyses have shown that untreated ADHD results in a disproportionately high occurrence of adverse long-term life trajectories and outcomes for ADHD sufferers, including poor educational attainment, antisocial behaviour and criminality, difficulties associated with driving of motor vehicles (accidents and infringements), increased mortality rates, substance use and addiction, socioeconomic disadvantage, occupational difficulties, social service reliance, obesity, low self-esteem, poorer mental health and general health outcomes, as well as poorer social functioning.⁴⁹

⁴⁴ Stephen P Hinshaw and Richard M Scheffler (n 15); Efron, Daryl. 'Attention-deficit/hyperactivity disorder: Are we medicating for social disadvantage? (Against),' 42(9) *Journal of paediatrics and child health* (2006) 548; David Isaacs, 'Attention-deficit/hyperactivity disorder: Are we medicating for social disadvantage? (For),' (2006) 42(9) *Journal of Paediatrics and Child Health* 548.

⁴⁵ Zoe Young, Nima Moghaddam and Anna Tickle (n 37).

⁴⁶ Sampurna Chakraborty and Susmita Halder, 'Cognitive training for subclinical attention problem: A case study' (2019) 15(1) *Journal of Indian Association for Child and Adolescent Mental Health* 121; Nella Schiavone, Maarit Virta, Sami Leppämäki, Jyrki Launes, Ritva Vanninen, Annamari Tuulio-Henriksson, Satu Immonen, Ilkka Järvinen, Eliisa Lehto, Katrína Michelsson and Laura Hokkanen, 'ADHD and Subthreshold Symptoms in Childhood and Life Outcomes at 40 Years in a Prospective Birth-Risk Cohort' (2019) 281 *Psychiatry Research* <<https://doi.org/10.1016/j.psychres.2019.112574>>.

⁴⁷ Melissa Danielson, Rebecca H Bitsko, Reem M Ghandour, Joseph R Holbrook, Michael D Kogan and Stephen J Blumberg, 'Prevalence of Parent-Reported ADHD Diagnosis and Associated Treatment Among U.S. Children and Adolescents, 2016' (2018) 47(2) *Journal of Clinical Child & Adolescent Psychology* 199; Visser et al (n 14).

⁴⁸ Ylva Ginsberg, Javier Quintero, Ernie Anand, Marta Casallas and Himanshu P Upadhyaya, 'Underdiagnosis of attention-deficit/hyperactivity disorder in adult patients: a review of the literature' (2014) 16(3) *The primary care companion for CNS disorders* <doi: 10.4088/PCC.13r01600>; Wolfgang Retz, Petra Retz-Junginger, Johannes Thome and Michael Rösler, 'Pharmacological treatment of adult ADHD in Europe' (2011) 12(Sup1) *The World Journal of Biological Psychiatry* 89; John Fayyad, Ron De Graaf, Ronald Kessler, Jordi Alonso, Matthias Angermeyer, Koen Demyttenaere, Giovanni De Girolamo, Josep Maria Haro, Elie G Karam, Carmen Lara, Jean-Pierre Lépine, Johan Ormel, José Posada-Villa, Alan M Zaslavsky and Robert Jin, 'Cross-national prevalence and correlates of adult attention-deficit hyperactivity disorder' (2007) 190(7) *The British Journal of Psychiatry* 402; Jeffrey H Newcorn, Margaret Weiss and Mark A Stein, 'The complexity of ADHD: diagnosis and treatment of the adult patient with comorbidities' (2007) 12(S12) *CNS Spectrums* 1.

⁴⁹ Deloitte Access Economics (n 3); Sarah E Johnson, David Lawrence, Francisco Perales, Janeen Baxter and Stephen R. Zubrick 'Poverty, Parental Mental Health and Child/Adolescent Mental Disorders: Findings from a National Australian Survey,' (2019) 12(3) *Child Indicators Research* 963; Russell A Barkley, Kevin R Murphy and Mariellen Fischer, *ADHD in Adults: What the Science Says* (Guilford Press, 2010); Joseph Biederman, Stephen V Faraone, Thomas J Spencer, Eric Mick, Michael

E Costs

In 2018, the Australian ADHD Professionals Association (AADPA) commissioned Deloitte Access Economics to examine and estimate the annual monetary cost of ADHD in Australia.⁵⁰ Their reported estimate incorporated analyses of a variety of sub costs. Health costs included inpatient hospital costs, out of hospital costs, pharmaceutical costs, and research costs. The annual cost was estimated as just shy of \$814 million and was found to be borne mostly by government (80%). The remainder was shared between individuals and their families (10%) and other contributors (10%).

Productivity costs included estimates of phenomena including absenteeism, presenteeism (comparatively reduced work output), lower workplace participation, premature mortality and the costs associated with the circumstance of required informal care arrangements. They were estimated to be nearly \$10.2 billion and were reportedly borne mostly by employers (50%), with Government and individuals and their families bearing approximately equal proportions of the remainder (25% each).

Burden of disease costs were measured through the dollar cost estimate of disability adjusted life years (DALYs) related to ADHD. DALYs incorporate costs associated with premature mortality and years of life lost due to disability. The burden of disease associated with ADHD was reported to be \$7.6 billion. Other financial costs included costs to the education system (\$106 million) and deadweight (e.g. lost tax, welfare and disability payments) losses (\$1.4 billion). Costs associated with the criminal and civil justice systems were estimated to be \$307 million. Putting all of these costs together, it was estimated ADHD would cost Australia almost \$20.5 billion in 2019.

Given the identified costs of ADHD and the existence of highly efficacious interventions to treat it, it is little wonder that a number of studies have analysed and highlighted the significant fiscal benefit associated with active treatment of ADHD.⁵¹ In the most recent of these analyses, Fredriks et al. added to the research findings indicating treatment cost effectiveness by incorporating the costs of serious delinquency into their analysis.⁵² Cost effectiveness was measured by Net Monetary

C Monuteaux and Megan Aleardi 'Functional impairments in adults with self-reports of diagnosed ADHD' (2006) 67(4) *The Journal of Clinical Psychiatry* 524.

⁵⁰ Deloitte Access Economics (n 3).

⁵¹ Peter S Jensen, L Eugene Arnold, John E Richters, Joanne B Severe, Donald Vereen and Benedetto Vitiello, 'A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder' (1999) 56(12) *Archives of general psychiatry* 1073; Peter Jensen, Joe Albert Garcia, Sherry Glied, Maura Crowe, Mike Foster, Michael Schlander, Stephen Hinshaw, Benedetto Vitiello, L Eugene Arnold, Glen Elliott, Lily Hechtman, Jeffrey H Newcorn, William E Pelham, James Swanson and Karen Wells, 'Cost-Effectiveness of ADHD Treatments: Findings From the Multimodal Treatment Study of Children with ADHD' (2005) 162(9) *American Journal of Psychiatry* 1628; MTA Cooperative Group, 'National Institute of Mental Health Multimodal Treatment Study of ADHD follow-up: 24-month outcomes of treatment strategies for attention-deficit/hyperactivity disorder' (2004) 113(4) *Pediatrics* 754.

⁵² Roel D Freriks, Jochen O Mierau, Jurjen van der Schans, Annabeth P Groenman, Pieter J Hoekstra, Maarten J Postma, Erik Buskens and Qi Cao. 'Cost-Effectiveness of Treatments in Children With Attention-Deficit/Hyperactivity Disorder: A Continuous-Time Markov Modeling Approach.' (2019) 4(2) *MDM Policy & Practice* 23814683198676.

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Benefit (NMB). Significant fiscal benefits related to treatment were found. Specifically, NMB's of \$95,449 for pharmacological treatment, \$88,553 for non-pharmacological treatment \$90,536 for combined treatment and \$98,660 for medication management were identified.

III PART 2: AN EXAMINATION OF ADHD WITHIN A CRIMINAL JUSTICE SETTING

Part 2 of this paper examines the prevalence of ADHD in criminal justice populations and the associated impact on practice and policy. The prevalence and treatment of ADHD sufferers in youth and adult criminal justice populations globally and in Australia will be initially discussed. The degree of prevalence of ADHD and its associated impact will then be examined. Finally, a recommendation will be made to develop a strategic criminal justice plan for dealing with the disproportionately high prevalence and serious impact that ADHD has had on child and adult offender populations in Australia.

A Global Prevalence of ADHD in Criminal Justice Settings

There appear to be comparatively few studies examining the extent of ADHD sufferers' contact with the youth and adult criminal justice systems. This is surprising given that core diagnostic features of ADHD (e.g. inattention, hyperactivity, impulsivity, emotion dysregulation), as well as other disorders with which ADHD shares significant comorbidity, including CD, ODD, Foetal Alcohol Spectrum Disorder (FASD) and ASPD, are highly correlated with involvement in criminal activity.⁵³ Two seminal systematic reviews and meta-analyses provide some insight into the extent to which those with ADHD have contact with the criminal justice system.⁵⁴ They indicate that, globally, somewhere between 33% and 41% of youths in custodial detention and about 25% of incarcerated adults will have a diagnosis of ADHD. Therefore, the degree to which those with ADHD experience contact with the wider criminal justice system as an alleged offender is likely to be underestimated in the detention/prison statistics. In

⁵³ Young, Susan and Kelly M. Cocallis. 'Attention Deficit Hyperactivity Disorder (ADHD) in the Prison System.' (2019) 21(6) *Current psychiatry reports* 41; Florence Philipp-Wiegmann, Michael Rösler, Oriana Clasen, Toivo Zinnow, Petra Retz-Junginger and Wolfgang Retz. 'ADHD modulates the course of delinquency: a 15-year follow-up study of young incarcerated man.' (2018) 268(4) *European archives of psychiatry and clinical neuroscience* 391; Ana Machado, Diana Rafaela, Tânia Silva, Tânia Veigas and Joaquim Cerejeira. 'ADHD among offenders: prevalence and relationship with psychopathic traits.' (2017) *Journal of attention disorders* 1087054717744880; Gisli H Gudjonsson, Jon Fridrik Sigurdsson, Tomas F Adalsteinsson and Susan Young. 'The relationship between ADHD symptoms, mood instability, and self-reported offending' (2013) 17(4) *Journal of Attention Disorders* 339; Georg G Von Polier, Timo D Vloet and Beate Herpertz-Dahlmann. 'ADHD and delinquency—a developmental perspective.' (2012) 30(2) *Behavioral sciences & the law* 121.

⁵⁴ Stéphanie Gaggio, Ana Fructuoso, Marta Guimaraes, Eveline Fois, Diane Golay, Patrick Heller, Nader Perroud, Candy Aubry, Susan Young, Didier Delssert, Laurent Gétaz, Nguyen T Tran and Hans Wolff. 'Prevalence of attention deficit hyperactivity disorder in detention settings: a systematic review and meta-analysis' (2018) 9 *Frontiers in Psychiatry* 331; Suzan Young, Debby Moss, Otilie Seigwick, Moshe Fridman and Paul Hodgkins. 'A meta-analysis of the prevalence of attention deficit hyperactivity disorder in incarcerated populations.' (2015) 45(2) *Psychological medicine* 247.

this context, it is worth also noting the parallels that can be drawn between the age-dependant decline of problematic ADHD symptoms⁵⁵ and the observation that criminal offending declines across a person's lifespan — a phenomenon that criminologists most often explain simply as offender engagement in 'desistance'.⁵⁶ To be clear, while there is no suggestion of a direct causal relationship between ADHD symptoms and criminal offending, the disproportionate prevalence and impact of ADHD in criminal justice populations should be acknowledged and taken extremely seriously in making decisions about criminal justice system policy and practice.

B *Prevalence of ADHD in Australian Criminal Justice Settings*

There is a paucity of Australian research specifically investigating the prevalence with which ADHD sufferers come into contact with Australian criminal justice systems. A relevant and simple New South Wales study however specifically investigated the prevalence of ADHD in NSW prison populations.⁵⁷ It found that 17% of adults in the four subject prison populations met full ADHD diagnostic criteria while a further 35% met a potentially subclinical ADHD threshold.

An extremely detailed study of the disproportional representation of children and adolescents with ADHD in Australian juvenile justice populations was conducted by Silvia et al.⁵⁸ It compared a Western Australian sample of 9939 boys and 2892 girls diagnosed with, and treated for, ADHD with frequency-matched controls. It found that 3% of girls and 8% of boys with ADHD had a community correction (non-custodial) contact record. This meant that boys were two and a half times, and girls three times more likely to have such a record than matched controls. In terms of incarceration, girls were seven times more likely and boys two and a half times more likely to have a juvenile detention record. Boys with ADHD experienced their first community correction contact record at a younger age than matched controls. Finally, the most common criminal offences related to a first juvenile justice record for youths with ADHD was found to be burglaries and break and enters and these offences were twice as likely to be committed by children with ADHD than matched controls.

The accuracy of that study's ADHD prevalence results are, however, confounded by a number of factors. First, the ADHD sufferers in the subject population had been treated with stimulant medication. Given the established efficacy of stimulant medication in treating ADHD, the comparatively low ADHD prevalence rates reported are likely to have been caused by the effectiveness of stimulant medication. is the figures reported

⁵⁵ Caye et al (22); Thomas et al (n 13); Eric Willcutt (n 13); Kan et al (n 22).

⁵⁶ Beth Weaver, 'Understanding desistance: a critical review of theories of desistance' (2019) 25(6) *Psychology, Crime & Law* 641; Bianca E Bersani and Elaine Doherty, 'Desistance from Offending in the Twenty-First Century' (2018) 1 *Annual Review of Criminology* 311.

⁵⁷ Moore, Elizabeth, Sandra Sunjic, Sharlene Kaye, Vicki Archer and Devon Indig 'Adult ADHD among NSW prisoners: prevalence and psychiatric comorbidity.' (2016) 20(11) *Journal of attention disorders* 958.

⁵⁸ Desiree Silvia, Lyn Colvin, Rebecca Glauert and Carol Bower, 'Contact with the juvenile justice system in children treated with stimulant medication for attention deficit hyperactivity disorder: a population study' (2014) 1(4) *The Lancet Psychiatry* 278.

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are therefore potentially an underestimation. Second, those who identified as Aboriginal or Torres Strait Islander were excluded from the study, thereby limiting the applicability of findings to Aboriginal and Torres Strait Islander populations.

The disproportionate representation of ADHD sufferers in criminal justice populations is also highlighted by general surveys of the prevalence of mental health and developmental disorders within Australian offender populations. In one such survey, the 2009 NSW Inmate Health Survey the prevalence of self-reported ADD/ADHD was found to be 10.8% with a higher prevalence rate for males (11.8%) than for females (6%).⁵⁹

A significantly more comprehensive study, the 2015 Young People in Custody Health Survey, found self-reported prevalence of ADHD to be 40.3%, while ADHD diagnosed through clinical interview was found to be 22.4% of the measured sample.⁶⁰ The prevalence of conduct disorder, for which ADHD has been proposed to be a necessary precursor⁶¹ was found to be at 45.3%. ADHD prevalence: within certain identity groups was found to be 22.3% for males, 27.3% for females, 24% for those identifying as Aboriginal or Torres Strait Islander and 20.7% of those who do not so identify. It is interesting to note that contrary to present ADHD conception, that survey categorised ADHD as a behavioural rather than a neuro-developmental disorder. Examining this variance, falls outside the remit of this paper, though its policy and treatment implications should certainly be studied in the future.

C *Acknowledgment of the Impact of ADHD in Australian Criminal Justice Systems*

Given the disproportionate level of ADHD in Australian criminal justice populations, it is not difficult to understand why the associated cost is estimated to be \$310 million.⁶² Taking into account research that points to a link between ADHD and recidivism,⁶³ that

⁵⁹ Devon Indig, Libby Topp, Bronwen Ross, Hassan Mamoon, Belinda Border, Shalin Kumar and Martin McNamara, *2009 NSW Inmate Health Survey: Key Findings Report* (Report, January 2010) 16.

⁶⁰ Justice Health & Forensic Mental Health Network and Juvenile Justice New South Wales, *2015 Young People in Custody Health Survey: Full Report* (Report, November 2017)

<<https://www.justicehealth.nsw.gov.au/publications/2015YPICHSRreportwebreadyversion.PDF>>.

⁶¹ Olivia E Atherton, Katherine M Lawson, Emilio Ferrer and Richard W Robins. 'The role of effortful control in the development of ADHD, ODD, and CD symptoms.' (2019) *Journal of Personality and Social Psychology* <<https://psycnet.apa.org/doiLanding?doi=10.1037%2Fpspp0000243>>.

Joseph Biederman, Stephen V Faraone, Sharon Milberger, Jennifer Garcia Jetton, Lisa Chen, Eric Mick, Ross W Greene and Ronald L Russell 'Is childhood oppositional defiant disorder a precursor to adolescent conduct disorder? Findings from a four-year follow-up study of children with ADHD.' (1996) 35(9) *Journal of the American Academy of Child & Adolescent Psychiatry* 1193.

⁶² Deloitte Access Economics (n 3).

⁶³ Devon Indig, Amie Frewen and Elizabeth Moore, 'Predictors and correlates of re-incarceration among Australian young people in custody' (2016) 49(1) *Australian & New Zealand Journal of Criminology* 73; Claudia E van der Put, Jessica J Asscher and Geert: Jan JM Stams. 'Differences between juvenile offenders with and without AD (H) D in recidivism rates and risk and protective factors for recidivism.' 2016 *Journal of attention disorders* 20, no. 5 (2016): 445-457.; Jill A Gordon, Robyn L Diehl and Laura Anderson, 'Does ADHD matter? Examining attention deficit and hyperactivity disorder on the likelihood of recidivism among detained youth' (2012) 51(8) *Journal of Offender Rehabilitation* 497; Susan J Young, June Wells and Gisil Hannes Gudjonsson, 'Predictors of

treatments (especially pharmacological treatments) appear to improve functional outcomes⁶⁴ and that most ADHD sufferers in criminal justice populations appear to be undiagnosed and under-referred,⁶⁵ the need for a criminal justice strategy incorporating diagnosis, early intervention and treatment seems to be explicitly obvious.

However, the identification, treatment and/or prevention of ADHD has received close to no significant attention in the most recent major reviews and inquiries into youth and criminal justice in Australia.

For example, the 2018 Queensland Atkinson Report on Youth Justice makes no specific mention of ADHD despite acknowledging the frequency of behavioural disorders and mental health conditions in youth justice populations and its call for appropriate developmental and psychological assessment of children involved at every level of the criminal justice system.⁶⁶

The Associated Queensland Youth Justice Strategy 2019-2023 emphasises the need for mental health initiatives, references the statistic that 58% of children and young offenders who come into the Youth Justice System have a diagnosed or suspected mental health or behavioural disorder, and highlights the important consideration of

offending among prisoners: the role of attention-deficit hyperactivity disorder and substance use' (2011) 25(11) *Journal of Psychopharmacology* 1524.

⁶⁴ Tim L Wigal, Jeffrey H Newcorn, Nelson Handal, Sharon B Wigal, Loulietta Mulligan, Virginia Schmith and Eric Konofal, 'A double-blind, placebo-controlled, phase II study to determine the efficacy, safety, tolerability and pharmacokinetics of a controlled release (CR) formulation of mazindol in adults with DSM-5 attention-deficit/hyperactivity disorder (ADHD)' (2018) 32(3) *CNS Drugs* 289; Fiona G Kouyoumdjian, Kathryn E McIsaac, Jessica Liauw, Samantha Green, Fareen Karachiwalla, Winnie Siu, Kaite Burkholder, Ingrid Binswanger, Lori Kiefer, Stuart A Kinner, Mo Korchinski, Flora I Matheson, Pam Young and Stephen W Hwang, 'A systematic review of randomized controlled trials of interventions to improve the health of persons during imprisonment and in the year after release' (2015) 105(4) *American Journal of Public Health* e13; Martin Grann, Ylva Ginsberg, Tatja Hirvikoski and Nils Lindefors, 'Methylphenidate treatment of adult prison inmates with ADHD: a randomised double-blind placebo-controlled trial with open-label extension' (2013) 25(1 Sup 1) *Acta Neuropsychiatrica* 13; Ylva Ginsberg, Tatja Hirvikoski, Martin Grann and Nils Lindefors, '1465-Osmotic-release oral system methylphenidate (oros-mph) treatment of adult prison inmates with ADHD: a randomised controlled trial with open-label extension' (2013) 28 *European Psychiatry* 1; Ylva Ginsberg and Nils Lindefors, 'Methylphenidate treatment of adult male prison inmates with attention-deficit hyperactivity disorder: randomised double-blind placebo-controlled trial with open-label extension' (2012) 200(1) *The British Journal of Psychiatry* 68. Ginsberg, Ylva, Tatja Hirvikoski, Martin Grann and Nils Lindefors 'Long-term functional outcome in adult prison inmates with ADHD receiving OROS-methylphenidate.' (2012) 262(8) *European archives of psychiatry and clinical neuroscience*. 705.

⁶⁵ Sami Timimi and Eric Taylor, 'ADHD is best understood as a cultural construct' (2004) 184(1) *The British Journal of Psychiatry* 8; Philip Collins and Tom White, 'Forensic implications of attention deficit hyperactivity disorder (ADHD) in adulthood' (2002) 13(2) *The Journal of Forensic Psychiatry* 263.

⁶⁶ Bob Atkinson, *Report on Youth Justice* (Report, v2, 8 June 2018) <<https://www.youthjustice.qld.gov.au/resources/youthjustice/reform/youth-justice-report.pdf>>.

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FASD [of which, incidentally, 52.9% of sufferers have comorbid ADHD⁶⁷] — but it makes no reference to ADHD.⁶⁸

The youth offending review conducted by Major General Stuart Smith references statistics indicating 41 of the 117 young persons then involved in the youth justice system in Townsville had a diagnosed or suspected behavioural disorder but it did not further define that category.⁶⁹ The need for neurodevelopmental screening is also referred to in that review, with primary reference to FASD screening, however no reference whatsoever is made to ADHD in this document.

The report into Children and Young People with Complex Needs in the ACT Youth Justice System,⁷⁰ in applying the New South Wales Law Reform Commission's suggested categorisation of ADHD as a 'cognitive disability',⁷¹ makes appropriate recommendations for screening, treatment and diversion of young offenders with complex needs. It also calls for interventions designed to prevent these young people from coming into contact with the ACT youth justice system. Of concern, though, the Inquiry into Youth Justice Centres in Victoria does not contain any reference to local prevalence statistics related to any mental health or neurodevelopmental disorders of young people living in Victorian Youth Justice Centres.⁷² Also of concern, the 528 page report by the Australian Law Reform Commission into the incarceration rate of Aboriginal and Torres Strait Islander peoples makes no reference to ADHD whatsoever nor of its likely contribution to their disproportionately high incarceration rate.⁷³ This is, of course, a significant issue, which merits future study.

D The Development of a Strategic Plan for Dealing with the Disproportionately High Prevalence and Impact of ADHD in Australian Criminal Justice Populations

In summary, despite the prevalence of ADHD in criminal justice populations, its cost, and its impact, it is extremely concerning that there is such little acknowledgement of it in most of the high-profile Australian criminal justice-related reviews. There also

⁶⁷ Lange et al (n 24).

⁶⁸ Queensland Government, *Working Together Changing the Story — Youth Justice Strategy 2019-2023* (Report, 2018).
<<https://www.youthjustice.qld.gov.au/resources/youthjustice/reform/strategy.pdf>>.

⁶⁹ Stuart Smith, *Townsville's voice: local solutions to address youth crime* (Report, 5 December 2018)
<<https://townsvillecommunities.premiers.qld.gov.au/assets/docs/tsv-voice.pdf>>.

⁷⁰ Alasdair Roy, Brianna McGill and Lisa Fenn, *Children & Young People with Complex Needs in the ACT Youth Justice System – Criminal Justice Responses to Mental Health Conditions, Cognitive Disability, Drug & Alcohol Disorders, and Childhood Trauma* (Report, March 2016)
<<https://hrc.act.gov.au/wp-content/uploads/2016/03/MHYJ-Report.pdf>>.

⁷¹ New South Wales Law Reform Commission, *People with Cognitive and Mental Health impairments in the Criminal Justice System: An Overview* (Consultation Paper No. 5, January 2010)
<<https://www.lawreform.justice.nsw.gov.au/Documents/Publications/Consultation-Papers/CP05.pdf>>.

⁷² Legal and Social Issues Committee, Parliament of Victoria, *Inquiry into youth justice centres in Victoria* (Final Report, March 2018) <<https://apo.org.au/sites/default/files/resource-files/2018/03/apo-nid135561-1229246.pdf>>.

⁷³ Australian Law Reform Commission, *Pathways to Justice — An Inquiry into the Incarceration Rate of Aboriginal and Torres Strait Islander Peoples* (Report, December 2017)
<https://www.alrc.gov.au/wp-content/uploads/2019/08/final_report_133_amended1.pdf>.

does not appear to be any current criminal justice-related plan to address its impact. A comprehensive plan is urgently needed.

The United Kingdom (UK) ADHD criminal justice management strategy provides an extremely useful framework that Australia could adopt.⁷⁴ It was devised through the coming together of various medical, academic, advocacy, government and professional services which acknowledged the problem, and then attempted to address the need for action in a strategic, collaborative, evidence-informed and comprehensive way.⁷⁵ In the Australian context, the AADPA, executive level State youth justice representatives, appropriate researchers, academics, medical and allied health practitioners as well as ADHD advocacy groups could initially meet for that purpose.

In light of the UK experience a variety of priority implementations in and around criminal justice settings in Australia seem warranted. Screening for ADHD and, where appropriate, diagnostic interviews should take place at the earliest opportunity and then throughout ADHD sufferers' contact with the criminal justice system. The staff involved in each element of that system (e.g. police, lawyers, courts, correctional officers) and diversionary services should be taught about and trained in ADHD prevalence, diagnosis, treatment and life-course. Appropriate acknowledgment and accommodation should be provided to ADHD sufferers at each point of contact. The recommendation and provision of appropriate pharmacological treatments and non-pharmacological treatments (including psychoeducation for sufferers and their families) for ADHD should occur at the earliest reasonable opportunity. Provision of pharmacological treatments and non-pharmacological treatments for comorbid conditions should also occur — as should multi-agency care and coordinated case management for the identification and management of clients with ADHD. At a wider level, educational and occupational initiatives designed to identify, refer, and accommodate ADHD sufferers should also be implemented.

IV CONCLUSION

Given the overrepresentation of Aboriginal and Torres Strait Islander peoples in the criminal justice system, appropriate consultation and consideration of cultural factors for them and for ADHD sufferers within their communities must occur.⁷⁶ Research

⁷⁴ Susan Young, Gisli Gudjonsson, Prathiba Chitsabesan, Bill Colley, Emad Farrag, Andrew Forrester, Jack Hollingdale, Keira Kim, Alexandra Lewis, Sarah Maginn, Peter Mason, Sarah Ryan, Jade Smith, Emma Woodhouse and Philip Asherson, 'Identification and treatment of offenders with attention-deficit/hyperactivity disorder in the prison population: a practical approach based upon expert consensus' (2018) 18(1) *BMC Psychiatry* 281; Susan J Young, Marios Adamou, Bianca Bolea, Gisli Gudjonsson, Ulrich Müller, Mark Pitts, Johannes Thome and Philip Asherson, 'The identification and management of ADHD offenders within the criminal justice system: a consensus statement from the UK Adult ADHD Network and criminal justice agencies' (2011) 11(1) *BMC Psychiatry* 32 ('Young et al').

⁷⁵ Young et al (n 74).

⁷⁶ Grace Marie O'Brien, 'Educational experiences of young indigenous males in Queensland: disrupting the school to prison pipeline' (PhD Thesis, University of Queensland, 2019) <<https://opus.lib.uts.edu.au/handle/10453/136134>>; Manonita Ghosh, 'Cultural Influence on the

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indicates that some Aboriginal and Torres Strait Islander ADHD sufferers are significantly unlikely to engage with pharmacological treatments.⁷⁷ Scholars note that standards of judgement differ across subpopulations as to what behaviours are and are not acceptable, which may impact on diagnostic decisions and the development of non-pharmacological interventions.⁷⁸ On that basis, the potentially wider moral distaste towards the use pharmacological interventions, a wide variety of non-pharmacological interventions, including those sensitive to Aboriginal and Torres Strait Islander cultural considerations, should be developed.

A further complicating factor may be that Australia consists of several different youth and adult criminal justice systems and/or regimes. Aligning definitions, categorisations (i.e. cognitive disability versus neurodevelopmental disorder versus behavioural disorder) and approaches across jurisdictions will be complex and difficult to achieve. To ensure credibility of the strategy and accurate diagnoses, the use of standardised diagnostic assessment tools and structured clinical interviews should be the gold standard for standard operating procedure in assessing suspected sufferers.

Given that the police make the initial decisions about how a matter involving a young person will proceed (ie, no action taken, caution, diversion or commencement of proceedings), police understanding of ADHD is important. This is because many offender factors, including offender attitude, impact on discretionary decisions made by police officers in the context of their job, for example, the decision to commence proceedings.⁷⁹

Given that primary ADHD symptoms involve deficiencies related to attention, impulsivity and hyperactivity, the potential for misunderstandings and misattributions by the police regarding ADHD sufferer' behaviour appears high. Recent Australian research has specifically highlighted the propensity of police to misunderstand and misattribute ADHD sufferer behaviour.⁸⁰ One finding was that police who knew of a young offender's ADHD diagnosis were still less likely to differentiate between 'disrespect' and ADHD symptomology as the primary cause for clear displays of ADHD-related behavior.⁸¹ Given their role as initial gatekeepers of the criminal/youth

Treatment for ADHD in Western Australia' (PhD Thesis, The University of Western Australia, 2015) <<https://api.research-repository.uwa.edu.au/portalfiles/portal/10012981/>>.

⁷⁷ Manonita Ghosh, C D'Arcy J Holmon and David B Preen, 'Use of prescription stimulant for Attention Deficit Hyperactivity Disorder in Aboriginal children and adolescents: a linked data cohort study' (2015) 16(1) *BMC Pharmacology and Toxicology* 35.

⁷⁸ Sami Timimi and Eric Taylor (n 67); Efron, Daryl (n 44); David Isaacs (n 44).

⁷⁹ Bethan Loftus, 'Police occupational culture: classic themes, altered times' (2010) 20(1) *Policing and Society* 1; Robert E Worden, Robin L Shepard and Stephen D Mastrofski, 'On the meaning and measurement of suspects' demeanor toward the police: A comment on 'Demeanor and Arrest'' (1996) 33(3) *Journal of Research in Crime and Delinquency* 324.

⁸⁰ Kimberley Cunial, Leanne Casey, Clare Bell and Mark Kebbell, 'Police perceptions of the impact that ADHD has on conducting cognitive interviews with youth' (2019) 26(2) *Psychiatry, Psychology and Law* 252; Kimberley Cunial and Mark Kebbell, 'Police perceptions of ADHD in youth interviewees' (2017) 23(5) *Psychology, Crime & Law* 509.

⁸¹ Kimberley Cunial and Mark Kebbell, 'Police perceptions of ADHD in youth interviewees' (2017) 23(5) *Psychology, Crime & Law* 509.

justice system, police buy-in to better understanding this disorder and appropriate training around it, should form part of the suggested response.

This paper has examined the prevalence of ADHD in criminal justice populations as well as the associated impact on practice and policy. Significant overrepresentation and lack of treatment of ADHD sufferers in youth and adult criminal justice populations, both globally and in Australia, was identified. Despite that, and while the paper is clearly not a full systematic review, it has shown that there is a concerning lack of acknowledgment of the prevalence and impact of the ADHD in major Australian criminal justice reviews. Therefore, it is arguable that a comprehensive youth and adult criminal justice strategy for the purpose of identifying, treating and limiting the effect of the adverse ADHD conditions as part of a comprehensive and sustainable criminal justice crime prevention endeavour is urgently required and recommended.

Youth Justice Reform Select Committee inquiry into youth justice reform in Queensland

Submission No: 107 supplementary submission
Submitted by: Dr Geoff Kewley - ADHD X
Publication: Making the submission and your name public
Attachments: See attachments
Submitter Comments:

Follow-up Submission to the Queensland Youth Justice Enquiry

ADHD X

This submission is made by a group currently developing a new model for the assessment, diagnosis, and treatment of ADHD and co-occurring conditions, based on a multidisciplinary team-based care approach (ADHD collaborative care model). The group is planning to launch the ADHD collaborative care model this year.

Key members of the group are:

- Scott Beachley, Lawyer and governance advisor to the health, tech and not for profit sectors. Scott is on the National and International Boards of Smart Recovery, a support organisation for those with Substance Misuse and Addictive Behaviour, former chair of a youth mental health charity, founder and former CEO of a digital mental health social enterprise.
- Chris Brideson, Business Consultant. Chris has over 30 years' experience in consulting on strategy, governance and risk, primarily in the Financial Services industry. He has lived experience of ADHD.
- Dr David Chapman Adult Psychiatrist in Private Psychiatry after 20 years in the Northern Territory Public Mental Health Services. Special interests in Adult ADHD, Women's Mental Health, and the intersection of the two; and involved in research projects in both areas
- Professor Tatjana Ewais, Consultant Child & Adolescent Psychiatrist at Griffith University and Mater Young Adult Health Centre, whose current research interests include novel therapies for youth with chronic illness, ADHD, depression, anxiety and fatigue, health and justice partnerships and development of integrated care pathways and mental health guidelines. Tatjana is the current chair of the RANZCP Queensland Faculty of Child and Adolescent Psychiatry, an inaugural member of the RANZCP ADHD Network and one of the authors of the Australian first ADHD guidelines.
- Brooke Fogarty, ADHD coach, accredited through ADDCA, a member of ADHD Coaches Australasia, ICF and AADPA. Brooke is a single parent of two primary school aged children who have ADHD. Over the last 25 years she has built a strong foundation in the corporate world starting in advertising in Sydney, and then incentive marketing. She established a successful brand development and digital marketing studio where she honed her business and workplace culture skills. In her spare time, she pursued a B. Psych. Science and completed comprehensive training with ADDCA, enhancing her understanding of ADHD and its management. Brooke has lived experience of ADHD.
- Dr Peter Heffernan, Consultant Psychiatrist & Psychoanalytic Psychotherapist MBBS MPM FRANZCP, Founder and previous Chair RANZCP ADHD Network Committee.
- Corey Lane, Clinical Psychologist and an Adjunct Lecturer in Criminology and Criminal Justice Studies at James Cook University, Australia.
- Dr Geoff Kewley, Neurodevelopmental Paediatrician. Geoff has written 3 books on ADHD and worked in the UK for 23 years, developing and running a nationally recognised ADHD service where he was at the forefront of increasing ADHD awareness and services. He chaired the ADHD special interest group [The George Still Forum] within the Royal College of Paediatrics and Child Health for

many years. He now runs a practice for children and youth with ADHD and related conditions in Sydney.

1. A 10-year strategy for youth justice in Queensland that engages all government agencies and community organizations which deliver services along the youth justice service continuum.

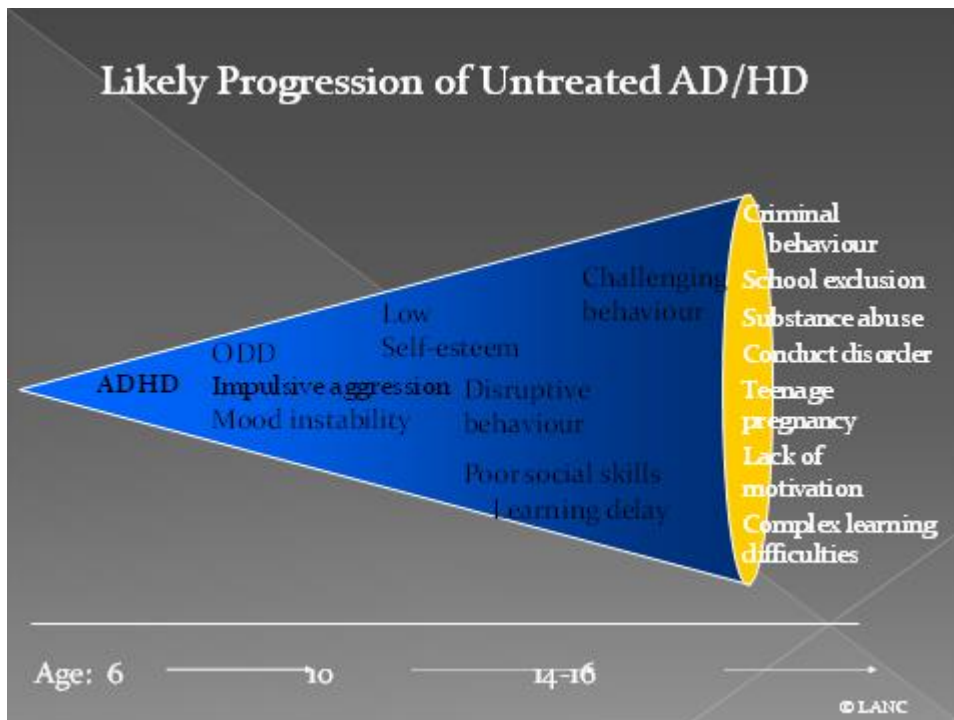
We consider that the development of a 10-year strategy involves three stages:

1. Initial trials of screening programs at all stages of entry to the youth justice system, for mental health and neurodevelopmental conditions, particularly ADHD and related problems.
2. The development of these trials into a practical program of screening and effective management of youth justice entrants. This will involve the retraining of all youth justice professionals, and the further development of assessment, management, and treatment programs. Our training and management (support) of ADHD is an expert team – psychiatrists, psychologists, coaches, etc. We both educate and guide front line staff and individuals with ADHD through the 10 year plan - with clinical/symptomatic information and ongoing practical strategies.
3. The embedding of screening and effective management of such youth throughout the system.

Introduction:

- Traditionally, as has been indicated in numerous government reports, Criminology articles, Psychology articles, and societal and political perspectives, the causes of youth crime have been considered to be social, environmental, cultural, and because of trauma. The basis of these attitudes appears historic and particularly to come from The General Theory of Crime by Gottfredson.
Key long-term research studies on the causes of youth crime clearly show that whilst social and environmental causes are important, a lack of self-control is also an extremely important predisposing factor, that pervades most criminology literature and studies over the last century. [Moffitt et al; Farrington]
- Several criminologists (ie Pratt) have pointed out that if the nature of self-control has a significant biological basis, this puts a very different perspective on the way youth crime is considered.
- *‘Criminology research has consistently linked low self-control to high levels of delinquency and crime. The causes of low self-control are not just be psychosocial, they also have genetic/biological underpinnings. There has been a general failure to consider AD/HD as a potential cause of low self-control. Current criminology theories may therefore be incomplete, if not substantially incorrect’* (Pratt 2002)
- He notes that traditionally low self-control has been considered to be caused by societal, environmental, and particularly by parental difficulties. However, if, as is the case with ADHD, the person is impulsive and thus lacks self-control because of brain dysfunction, this puts a different perspective on the way these issues are considered and opens the possibility of effective management, reduction of offending, and improvement and help to the individual, and to society.
- ADHD is an internationally recognized condition of brain dysfunction. It affects approximately 5% of the child and also the adult population. In previous years there were voluminous myths and misinformation, such that may be very difficult for administrators and society in

general to acknowledge its place in the overall continuum of mental health and neurodevelopmental difficulties. However, this is not the case. It is not as though ADHD has suddenly developed, the cases were always there, however, they were viewed differently, and largely put down to poor parenting or environmental difficulties.



- Research over the last 20 years has clearly shown that between 40 to 50% of youth in the youth justice system meet the criteria for ADHD. In large part, this information has yet to be translated into policy and deciding on mechanisms for screening and effective management of youth in the justice system. We consider that the development of a 10-year plan in Queensland presents an innovative and ideal opportunity for this to be done. It is thus difficult to give precise figures on numbers and likely costs, however, we give an estimate below.
- ADHD is therefore a condition primarily of lack of self-control or excessive degrees of impulsiveness, with often associated hyperactivity and inattentiveness. It has been shown to affect all cultures and races, and thus likely equally affects the indigenous population in Australia.
- Screening would likely give future social and economic savings achieved by identifying those at risk of adult criminality and suicidality because they have been screened in childhood or adolescence. Another benefit is reduction in development of substance use disorders if treated early and hence the future reduction in demand for ED presentations and AOD services

Stage 1 of a 10-year plan

- The development of trials of screening as per our earlier submission for the Queensland Youth Justice Grant. We consider that also be appropriate to develop screening for youth with long school suspensions and exclusions. In Queensland, in 2019 there were 3,132 long

suspensions, 1,674 exclusions, and 971 cancellations of enrolment. Likely, a high percentage of such suspensions and exclusions will later on have involvement with the youth justice system.

- As per the attached proposal we would also pilot a screening program for those within the youth justice system and if successful aim to develop this throughout the State.
- It is also essential that during this period intensive training of all professionals involved be undertaken. This will involve particularly educating staff about the nature of ADHD and the changed aspects of self-control and how this relates to youth in their custody and care. It will also involve the most appropriate training and rehabilitation issues that will likely involve both medication and change attitudes and strategies.
- During this period, it will also be essential to work on societal and public attitudes to youth justice, to design alternative means of restorative justice, and to make sure that the needs of the victim are appropriately addressed.
- On the most recent data from the Department of Children, Youth Justice and Multicultural affairs, in 2019 to 20, there were 30,500 total proven offences, committed by 3395 young people. 72% of these were male, 48% were Aboriginal and Torres Strait Islanders, and 10% of young offenders committed 47% crimes. On an average day during that year, there were 208 people in custody of whom 70% were A T S I, and 78 of this group were on remand. There were 2994 supervised orders during that year, and 2696 community-based orders.
- The Queensland government is providing \$446.4 million in whole of government funding over five years to support community safety, tackle the complex causes of youth crime, and help boost police resources. This includes extra funding of \$189.5 million over five years to the Department of Youth Justice. The overall budget for 2023-24 for the Department of Youth Justice is a record \$396.5 million. The Package includes funding for Youth Co-responder Teams, Intensive Case Management, Specialist Youth Crime Rapid Response Squad, and On-Country programs. From 2015 to 2023-24, the government has invested \$1.4 billion in whole-of-government funding for youth justice Initiatives.
- We consider it likely that effective screening and management of youth with ADHD and related conditions before entry to the youth justice system and throughout it, would likely at least be cost-neutral and possibly enable a reduced budget. We estimate that the cost of screening and initial assessment of the youth for ADHD and related conditions is \$2000-3000, which is approximately the cost of one day's internment. We acknowledge there will be additional costs for training of staff, however, we consider that there would likely not be much need to increase overall staffing, but to retrain them much more along the lines of ADHD coaches with additional expertise in the management of Substance misuse.

Stage 2

- Development of joined-up approaches between health, education, substance misuse services, and youth justice. There is a need for such a collaborative approach to be developed so that early screening can be incorporated into schools, health can manage effective assessments and the medical aspects of these youth, that the high numbers of those with substance misuse can be effectively managed, and that the ethos and understanding of ADHD and related conditions pervades not only the youth justice areas but also the other key portfolios.

- The further development of training programs for all staff involved in the management of youth under supervised and community-based orders. In addition, training should be provided for the police, those in the court system, lawyers, and policymakers. In this stage, such training must be endemic throughout the system, and appropriate policies must be put in place.
- The embedding within the system of the ability to screen any youth entering the system within six weeks to have them fully assessed and appropriate management commenced.
- Review of policies and procedures such that youth with ADHD have their condition understood within the court system, when they might be incarcerated, and when in the community. Effective management should not only involve the use of medication where appropriate, but also putting in place other psychological, and community-based strategies, efforts towards reemployment and re-education [given the high percentage of youth who have associated learning difficulties] , housing, and other social strategies.
- Recognition of the strong genetic and familial bases of ADHD (30% of youth justice offenders in 2019 in Queensland had one parent who has spent time in adult custody). Understanding that ADHD is a highly genetic condition and that this may have been underpinning the transgenerational lights of crime, rather than just being the result of trauma.
- Because of the high number of ATSI people represented in the youth justice system we consider there is a particular need to carefully analyze the factors contributing to this. We note that most initiatives for this group have concentrated on cultural, police, and other socio-economic factors. We would point out that ADHD occurs in all races and cultures and that there is considerable research to show that it occurs in this group at much the same levels if not higher than in the other populations. We are also aware of considerable literature about hunter-gatherer cultures, and we feel there is a need to further explore this in relation to this population. It may well be that the ASTI hunter-gatherer background, changing to a more European model, has an exacerbating effect on ADHD-type symptoms. At the very least, there is a need for the possibility that this group may have ADHD and related conditions, often in a transgenerational way, creating a further availability for other environmental and cultural issues. We consider that this is the approach we would wish to take, typically about the recent Productivity Commission findings on Closing the Gap.
- It is likely that those with ADHD, identified on this type of screening will have other coexisting and compounding factors. They will therefore need to be assessed and managed by professionals with a thorough understanding of the needs of those with complex ADHD. Most people with ADHD will need to be treated medically with a medication such as long-acting Methylphenidate (Ritalin LA or Concerta) or Lisdexamfetamine (Vyvanse) to minimize their impulsiveness and hyperactivity and help them concentrate. However, in the experience of many experienced clinicians, those who have entered the youth justice system are often additionally mood unstable, depressed, anxious, extremely oppositional, and disruptive and frequently benefit from the use of additional medications to help with this and to make them more available to other psychosocial supports. The view of expert clinicians is that about 80% of such youth can be effectively helped and the trajectory of their difficulties greatly improved. We acknowledge that, given the complex constellation of issues in this cohort, they are likely to continue to have significant additional problems in multiple areas of life, but consider that these would be less problematic and easier to address. In collating the numbers below, this has been brought into consideration and it is considered that with effective ADHD management, even in the presence of substance

misuse, about 80% of such youth could be effectively helped. In calculations, we have taken a conservative approach of 50% to be certain.

Stage 3

- Between the 5 to 10-year mark we consider that
 - a) a system will be in place for all professionals in YJ to be appropriately trained in ADHD and related conditions.
 - b.) screening of all long suspensions and exclusion from school will be in place.
 - C) screening will be in place at the potential entry to the youth justice system through the police and at further points through the system as necessary.
 - D) training will be in place for all lawyers, magistrates, barristers, and others in the judicial system.
 - E) costings will show a clear improvement in the situation, showing that the cost of screening and appropriate support and treatment outweighs the costs of incarceration and community orders.
 - F) issues to do with restorative justice, victims' rights, society's attitude to ADHD, and the various professional's attitudes will have been decided on and addressed.

With regards to the terms used in developing a 10-year plan such as market analysis and evaluation of the market, the current situation is detailed below.

It is difficult to give precise calculations as to the likely benefit as there are several possible starting points, and there is a lack of international data as a precedent, as such a groundbreaking development has not been done elsewhere previously.

However, there are a few options for consideration:

1. Screen all youth with long suspensions or exclusions from school. The data that is there suggests about 50% of these will have ADHD. Many of these are likely to be entrants to the justice system and most are likely to have been demotivated with school.
2. If we take the most recent data from the Department of Children, Youth Justice, and Multicultural Affairs, from 2019 to 20, there were 30,500 total proven offenses, committed by 3395 young people. 72% of these were male, 48% were Aboriginal and Torres Strait Islanders, and 10% of young offenders committed 47% of crimes. On an average day during that year, there were 208 people in custody of whom 70% were A T S I, and 78 of this group were on remand. There were 2994 supervised orders during that year, and 2696 community-based orders. If we take the data that a minimum of 50% of those with ADHD could be effectively helped, then 50% of the 3395 young people committing offenses could have ADHD and of those 50% could be effectively managed. This means that 845 young people could have their ADHD effectively managed such that they very likely do not re-offend.
3. Similarly, of the 208 people in custody or on any day, 50% of those are likely to have ADHD and half of them could respond well to multidisciplinary management including medication. At a cost of \$2000+ per youth in custody daily, this would likely represent significant savings.

There would be a slow flow-through effect on numbers effectively managed and costings. **Effective multisystemic management of youth with ADHD is not a panacea but clinical experience shows that it can frequently change the downward trajectory of that youth, make them more responsive to psychological strategies, help them minimize their substance misuse and engage in education or employment.** Studies show that youth with ADHD are 4 to 6 times more likely to be involved with substance misuse, and that ADHD treatment reduces the risk of substance use disorders.

The figures noted above are very conservative and with effective fine-tuned multisystemic management response rates are likely to be even higher. However, it will take time to train staff appropriately, to implement screening programs, and we anticipate that it would be at the between 5 to 10 years stage that significant improvements and cost benefits would start to be seen.

A key component to making change is training and implementation of new diagnostic and management strategies based on an understanding of ADHD. This means understanding that whilst this is not an excuse, it is an important part of the explanation. It will hopefully be much more likely to prevent the initial incident with school screening and it will be possible to minimize reoffending by treating after the first offense to make the person much less impulsive and therefore less likely to re-offend. However, there are many entrenched views both in the youth justice system and in society generally, and changing these will take time. There is a strong view within society, as articulated many years ago by Tony Blair when he said *'We must be tough on crime and on the causes of crime'*. He was talking about the causes of crime in his view being only psychosocial and if we helped this then crime would be reduced. This is clearly not the case, however, there are a great many voices both in and outside of politics that continue with this point of view despite the irrefutable evidence to the contrary.

In summary, our group considers that there are a great many opportunities created by having an informed understanding of ADHD and its place in the identification and management of youth offenders. We consider that making this change is complex and challenging, however over 10 years it would make for a much more effective and cost-effective youth justice service.

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