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Dr Prathiba Chitsabesan

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 Development of the Comprehensive Health Assessment Tool

Dr James Tonks

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Dr Seena Fazel

Clinical Senior Lecturer in Forensic Psychiatry
 University of Oxford
Honorary Consultant Forensic Psychiatrist
 Oxfordshire and Buckinghamshire Partnership
 Mental Health NHS Trust
 Risk analyses

Mr Howard Jasper

Strategy Advisor, Health Lead
 Youth Justice Board

Dr Nathan Hughes

Lecturer in Social Policy and Social Work
 University of Birmingham
 Maturity factors in crime

Dr Simone Fox

Senior Lecturer, Department of Psychology, Clinical, Health and Social Psychology
 Royal Holloway, University of London
 Consideration of interventions for young offenders and issues of gender

Dr Susan Young

Clinical Senior Lecturer in Forensic Clinical Psychology in the Department of Forensic and Neurodevelopmental Sciences
 Institute of Psychiatry, King's College London
 Integrating care and justice Pathways

Dr Karen McAuliffe

Senior Lecturer in Law
 National and International legal Frameworks

Dr Adrian Harris

Consultant in Emergency Medicine
 Royal Devon and Exeter Hospital, Exeter

Dr Adam Reuben

Consultant in Emergency Medicine
 Royal Devon and Exeter Hospital, Exeter

Ms Rebecca Davies

Research Assistant
 University of Exeter
 Literature Searches

Mr Max Rutherford

Criminal Justice Programme Manager
 Barrow Cadbury Trust
 Editorial Guidance

Deborah Fortescue

Head of Foundation
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 Service development

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Who is this report for?

The audience for this report is broad, but will be of particular interest to commissioners and practitioners working in the fields of criminal justice, health and social care. It is also of great relevance to policy-makers with an interest in crime prevention and health improvement.

What is the Transition to Adulthood Alliance?

The Transition to Adulthood (T2A) Alliance is a coalition of 12 of the leading organisations in the criminal justice, youth and health sectors. Convened by the Barrow Cadbury Trust in 2008, the Alliance has conducted research and demonstrated practice to support the development of a more effective approach for young people in the transition to adulthood throughout the criminal justice process. A 2012 report, Pathways from Crime, set out ten steps to delivering a T2A approach (www.t2a.org.uk/pathway). Three T2A pilot projects, running since 2009, have demonstrated that the holistic integrated approaches that support desistance from crime, and improve employability, health and family relationships.

The Transition to Adulthood Alliance's work on maturity and criminal justice

In 2011, T2A began a specific work stream to look at the concept of maturity in a criminal justice context. At a meeting hosted by Lord Keith Bradley, experts from neurology, psychology and criminology all confirmed that research supports the T2A position that developmental maturity should be taken into account throughout the criminal justice process. Indeed, maturity can be a better indication of adulthood than reaching a particular chronological age.

A subsequent poll for T2A by Com Res found public and political support for this position, with 7 in 10 members of the public agreeing that the maturity of a young adult should be taken into account in sentencing. 8 out of 10 MPs thought the same. A literature review by Birmingham University for T2A in 2011 found that the adult brain is not fully mature until at least the mid-20s, and that temperance and impulse control are among the last areas of the brain to develop fully. Later in 2011, the Sentencing Council for England and Wales included, for the first time, 'lack of maturity' as a mitigating factor in sentencing guidelines for adults. The Crown Prosecution Service is currently consulting on including 'lack of maturity' as a factor reducing culpability in its new Code of Conduct.

Given the prominence of research findings from neurology in T2A's work on maturity to date, this report sets out more clearly the key issues related to brain functioning and development, with a focus on the impact of brain injury and its association with offending.

About the author: Professor Huw Williams

Huw Williams is an Associate Professor of Clinical Neuropsychology and Co-Director of the Centre for Clinical Neuropsychology Research (CCNR) www.psychology.ex.ac.uk/rescntr/ccnr.shtml at the University of Exeter. He gained his PhD and his Doctorate in Clinical Psychology from the University of Wales, Bangor. He trained in Neuropsychology at Walton Centre for Neurology and Neurosurgery in Liverpool and then worked at a number of Clinical Neuropsychological services in London. He was on the founding staff team of the Oliver Zangwill Centre (OZC) for Neuropsychological Rehabilitation in Ely and was a Visiting Scientist at the Cognition and Brain Sciences Unit in Cambridge. He has also been a visiting scholar at key Australian centres of excellence in brain injury: The Rehabilitation Studies Unit, University of Sydney and the Monash-Epworth Rehabilitation Centre, Melbourne.

He has been a frequent key note speaker nationally and internationally. He has published widely in Neuropsychology, from assessment and management of the effects of Mild through to severe TBI - in children, adults and in particular populations such as athletes and offenders. He has honorary positions with the OZC and the Royal Devon and Exeter Hospital's Emergency Department. He is past Chair of the Division of Neuropsychology of the British Psychological Society. He has worked with a range of charity sector organisations, such as Headway UK and the Encephalitis Society. He recently worked with the Child Brain Injury Trust to establish the Criminal Justice and Acquired Brain Injury Group (CJABIG) as an umbrella organisation for a range of law and brain injury charities for working on brain injury issues within the justice system. His has had funding for research in the area of crime and brain injury from the Economic Social Research Council (ESRC), UK Brain Injury Forum (UKABIF), the Big Lottery Fund, Barrow Cadbury Trust and the Office of the Children's Commissioner.

w.h.williams@exeter.ac.uk
 (44)1392 264661

FOREWORD



The concept of managing youth to adult transitions in the criminal justice process has been around for many decades. I remember it was part of the discussions in the early days of the Youth Justice Board. Many of us were concerned that there was too great a divide between youth justice and adult justice, resulting in many young people, who were being steered away from crime by the youth justice system, suddenly having the help pulled from under them and ending up deep in the adult system post 18.

At that time there was insufficient academic, practitioner or political backing for substantial change. Trying to discuss the concept of transition and the need to treat young adults differently to older adults, whether with the media, policy makers or even friends was usually met with similar responses based on a belief that young people: 'know what they are doing'; 'should think of the consequences'; 'have to be taught a lesson'; 'there are no excuses for their behaviour'. Reasoning on my part about the developmental process of maturity, impulsive and risk taking behaviour and brains that were still forming were met with raised eyebrows.

For the last few years this has begun to change, with increasing interest in concepts of maturity and brain development. What excellent timing then for this report by the University of Exeter's Centre for Clinical Neuropsychology Research. Its findings, into the effects of brain injury, and the recommendations add significantly to the knowledge and practice research that the Transition to Adulthood (T2A) Alliance has been amassing since 2008. This growing body of knowledge supports the T2A's view that young adults, at every stage in the criminal justice system, need a distinct, focused and flexible approach if we are going to reduce reoffending and improve social outcomes for the young adults themselves, their families and our communities. We need to get the message of this report out far and wide.

In 2011, research by the University of Birmingham highlighted that there were lessons from neurology that supported T2A's work. It showed that the human brain is not fully developed or 'adult' until the early or even mid-20s. Aspects such as impulse control and forward planning are the last elements in the brain to develop fully, and these directly correspond to the behaviours we often see (or remember having) in young people in the transition to adulthood.

In this report the University of Exeter goes further and details the impact that a brain injury can have on a young person's behaviour and life, and highlights the relationship between receiving an acquired brain injury and involvement in the criminal justice system. It draws together the important research from the UK and abroad to show that there is a high prevalence of acquired brain injuries among those in the criminal justice system, many of whom have received little or no treatment, and whose injury has not been taken into account at any stage of the process.

The transition to adulthood is difficult enough for all of us even when we have family and friends to rely on. The process gets longer and longer as we take on those markers of adulthood, such as employment or starting a family of our own, later and later. Our developing brains can lead to behaviours 'not expected of adults'. For those who lack the family support and rely on services that are not geared to their particular needs the result can be poor indeed. Add to this the effects of acquired brain injury that this report sets out for us and it becomes clearer and even more important that agencies and practitioners, who will come across such young people within the criminal justice system, know and understand what can and should be done.

The report makes clear recommendations for service commissioners and providers in the health and criminal justice sectors as to how they should work together to respond appropriately, ensuring that acquired brain injuries are picked up early, treated effectively, and taken into account throughout the criminal justice process. It outlines some simple steps that can be taken by practitioners, which, if implemented, would have a major impact on the lives of people with acquired brain injury, and to our efforts to reduce offending amongst young adults.

Joyce Moseley OBE,
Chair of the Transition to Adulthood Alliance

INTRODUCTION

Brain Injury is a major cause of death and disability in children and working age adults [1]. Acquired Brain Injury (ABI) may occur for many reasons, but most commonly it is a result of trauma, infection, or stroke. Traumatic Brain Injury (TBI) is the biggest cause of injury. TBI may affect around 8.5% of the population during their lifetime. Prevalence of ABI among certain populations is much higher – such as those involved in contact sports, victims of domestic violence, and adolescent males who drink.

In recent years, repeated calls have been made for better means of meeting the mental and physical health needs of prison populations [2–4], not only to improve individual wellbeing, but also as a way to divert those with underlying health problems into appropriate services at multiple stages in the criminal justice process, to reduce reoffending among this ‘revolving doors’ population, and importantly to reduce costs.

Yet it is rare that brain injury is considered by criminal justice professionals when assessing the rehabilitative needs of an offender. Recent studies from the UK have shown that prevalence of TBI among prisoners is as high as 60%, and brain injury has been shown to be a condition that may increase the risk of offending. It is also a strong ‘marker’ for other key factors that indicate risk for offending.

Brain injury is largely neglected in recent policy documents (see for example [4, 5]). This report provides an overview of developments in understanding of TBI in relation to crime, with a particular focus on its impact on developmental maturity. The links between TBI and crime may be complex, but three key themes have emerged in recent research:

- 1** There is growing evidence of links between incurring a TBI and subsequent offending. This indicates a need to reduce injuries and to manage consequences of injury to enable rehabilitation to be at its most effective;
- 2** There is compelling evidence of a very high prevalence rate of TBI in offenders in custody relative to the general population. Moreover, such injury may be linked to earlier and more frequent custodial sentences, and to more violent offending; and
- 3** TBI in childhood and young adulthood may be particularly associated with offending behaviour. Earlier and more effective means to assess and manage the consequences of TBI in the offender population, and those at risk of offending, may lead to improved outcomes for affected individuals and for society.

Such findings underlie calls for increased awareness of TBI throughout the criminal justice process and, indeed, related areas of health, social, and educational provision.

This report is in three parts: //

Part one outlines a brief overview of the brain – its structures and functions, and how it develops – how the brain may be injured, who is at risk of injury, and the consequences of injury.

Part two explores the links between TBI and offending behaviour.

Part three provides a summary of key action points to enable more effective management of brain injury in children and young people, people at risk of offending, and those already in the criminal justice process.

A full **glossary of terms (where written in bold)** is provided at the end of the report.



EXECUTIVE SUMMARY

This report explains the connection between acquired brain injury (ABI) and increased contact between children, young people and young adults with criminal justice processes, with a particular focus on the impact of ABI upon developmental maturity. This report combines a review of current studies on the subject with recommendations for commissioners and practitioners.

WHAT IS TRAUMATIC BRAIN INJURY?

Traumatic Brain Injury (TBI) is the leading form of **Acquired Brain Injury (ABI)** and is considered a silent epidemic. The condition most frequently occurs in young people, resulting predominantly from falls, sporting injuries, fights and road accidents, and is the major cause of death and disability amongst this group. Both sexes are equally affected when very young, however males are much more at risk than females in teenage years and adulthood.

The consequences of brain injury include loss of memory, loss of concentration, decreased awareness of one's own or others emotional state, poor impulse control, and, particularly, poor social judgment. Unsurprisingly behavioural problems such as conduct disorder, attention problems, increased aggression, and impulse control problems are prevalent in people with ABIs. The brain during childhood, adolescence and young adulthood is rapidly growing and its connections are shaped and strengthened by experience. It is these developing connections and pathways which enable it to pass information and drive the processes necessary to respond to and sustain life. An injury to the brain before these areas have fully developed may cause them to never entirely evolve or 'misfire'. Recent research has shown that skills that are developing at the time of injury may be the most vulnerable to being disrupted, while already established skills may be more robust.

For example, a literature review by Birmingham University on maturity and criminal justice in 2011 found that temperance and impulse control, located in the **frontal lobes** at the front of the brain, are among the last areas of the brain to develop fully, often as late in life as the mid-twenties.

An injury to this part of the brain during its development can result in long-term problems with impulse control and decision-making, both of which are factors associated with anti-social and violent behaviour. Consequently, while those without a TBI are likely to grow out of immature and antisocial behaviour by their mid-twenties, those with TBI are likely to continue to grapple with these issues throughout young adulthood and beyond. The most damaging brain injuries are those that are classified as moderate (more than 30 minutes unconscious) and severe (more than 6 hours). It is worth noting, however, that even a mild TBI can result in changes in brain function and can have lasting effects.

While the brain is resilient, it is not always able to repair the damage done. When a TBI occurs during childhood or adolescence, the brain will attempt to compensate for the damage or disruption caused to its structures and find a way of rerouting functions. However this compensation is not the same as the brain being able to regenerate in the same way as skin or muscle. There may be some '**neuro-plasticity**', particularly in younger brains, but even though some functions may be 're-routed', problems can still emerge.

RESOURCE

- University of Birmingham literature review on maturity and criminal justice 2011
<http://www.t2a.org.uk/wp-content/uploads/2011/09/Birmingham-University-Maturity-final-literature-review-report.pdf>



WHY BRAIN INJURY IS RELEVANT TO CRIMINAL JUSTICE?

In a review of the research, in this report, it is shown that the level of brain injuries amongst offenders in custody is much higher than in the general population. A recent study in England found that 60 per cent of young people in custody reported experiencing a traumatic brain injury, a finding consistent with others from around the world.

Despite their prevalence, it is rare for criminal justice professionals to consider whether an offender may have a brain injury, or for neuro-rehabilitation services to be offered. Consequently it is common for related health and mental health needs of children, young people and young adults go unmet, while appropriate care and treatment that could divert away from the criminal justice process or help to manage the factors that contribute to criminal behaviour is not provided.

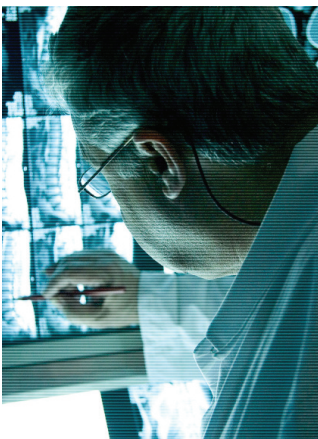
Such findings indicate the need for increased awareness of ABI throughout the criminal justice process and beyond, in related areas of health, social care, and educational. The recommendations of this report have been written with commissioners and practitioners in mind, identifying steps that can be taken to assess, manage and divert people with brain injuries earlier before they enter into the criminal justice process, support desistance for those within prison, and to improve the effectiveness of rehabilitation services.

While the links between brain injury and criminal justice are evident, it should be noted that the research found that there is a two-way link between brain injury and criminal justice, in that risk-taking individuals may be at particular risk of impulsive criminal behaviours, and similarly, at greater risk of engaging in thrill-seeking behaviours where injury is more likely. Furthermore, being involved in crime may put individuals into situations where injury is more probable. Finally, in younger people and children, there is a link between deprivation and brain injury, while in women there is a clear link between victimisation from domestic violence and brain injury.

Conclusion

There is already a substantial body of evidence that defines why younger offenders up to their mid-twenties require a distinct and more effective approach throughout the criminal justice process. The transition to adulthood is a critical time, where the right intervention can lead to a life free of crime, and the wrong one to a criminal career. However, the need for a distinct approach is even more acute for offenders with a brain injury, where the severity of the injury and the developmental stage at which the injury occurred will dictate the extent to which skills and brain functions may have been lost. Importantly, the effects of injury in a young person may not be fully realised, given that functions that may be developing may be compromised. This underlines the importance of assessment and management of brain injury in young people.

This research shows that people with brain injury are substantially overrepresented in prison, and that brain injury is associated with earlier, repeated, and greater total time spent in custody. Given that brain injury is largely neglected within the criminal justice process, both as a health issue and as a factor in offending, it is clear that addressing the rehabilitative needs resulting from brain injury would deliver significant benefits in terms of reducing offending, improving lives and saving money to public services.



KEY FINDINGS:

1 There is compelling evidence of a very high prevalence rate of TBI in offenders in custody relative to the general population.

Studies of TBIs amongst offenders in custody show a high prevalence. A study of young people in a Young Offender Institution in England found that 60% reported some kind of 'head injury', with 46% of the sample reporting loss of consciousness. These findings are consistent with other studies undertaken in Europe and the United States.

2 There is growing evidence of the links between an TBI and subsequent offending

Studies have shown that the rate of TBI is much higher in offenders compared to society as a whole. As well as much higher prevalence rates of TBI among prisoners, a recent Swedish study found that 8.8% of people with an TBI later committed a violent crime, compared with 3% of the general population. Young offenders with a history of TBI were 2.37 times more likely to commit a serious violent crime. This further increased if the young person had lost consciousness. Research has also shown that there are certain factors that make brain injury and offending more likely, such as social deprivation, risk-taking behaviour and addictions.

3 Injury in childhood and young adulthood may be particularly associated with offending behaviour.

Offenders who acquired a head injury younger than age 12 were found to have committed crimes significantly earlier than those who acquired a head injury later in their lives. TBI in adult offenders seems to be associated with younger age of first imprisonment.

4 TBI, mental health and drug problems

People with an TBI are at risk of greater mental health problems and adults who were younger when they acquired their head injury had higher rates of depression or mood disorder and /or childhood developmental disorders including Attention Deficit Hyperactivity Disorder (ADHD) or disruptive behaviour difficulties. Research in Finland found that a brain injury acquired during childhood or adolescence was associated with a fourfold increased risk of developing later mental health problems in adult male offenders.

5 TBI increases the risk of offending in women

Studies suggest that the prevalence of TBI may be even higher in female prisoners than in males. An analysis of women offenders found that 42% who had committed violent offences had suffered an average of two TBIs. Further analysis revealed that three factors were significantly associated with current violent convictions: the number of years since their last episode of receiving domestic violence, the number of prior suicide attempts, and traumatic brain injuries with loss of consciousness.

KEY ACTION POINTS:

Early intervention

- 1 Brain injury is a chronic health condition with associated on-going symptoms, and this should be recognised throughout service delivery
- 2 There should be improved management of brain injuries in the immediate period following the incident
- 3 There should be improved monitoring of the symptoms of brain injuries amongst children and young people in their developing and adolescent years
- 4 Training for education staff should be routine, particularly head-teachers, to raise general awareness of brain injury

Criminal justice responses

- 1 As part of comprehensive health assessments, there should be standardised screening of young people for brain injury when they come into contact with criminal justice process, particularly pre-sentence and in custody
- 2 There should be increased awareness for criminal justice professionals about the prevalence of brain injury among offender populations, and an understanding of the need for assessment and management within the justice system, in both community (e.g. Youth Offending and Probation Teams) and custodial settings
- 3 There should be reference to brain injury history in pre-sentence reports, which should be considered as a factor in decision-making in the same way that maturity and mental health are already considered.



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Download all of the T2A Alliance's publications at www.t2a.org.uk

The Barrow Cadbury Trust is an independent, charitable foundation, committed to supporting vulnerable and marginalised people in society.

The Trust provides grants to grassroots voluntary and community groups working in deprived communities in the UK, with a focus on the West Midlands. It also works with researchers, think tanks and government, often in partnership with other grant-makers, seeking to overcome the structural barriers to a more just and equal society.

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