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# Implementing a brain injury offender strategy through the introduction of a specialist support service in prison

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## Introduction

The term acquired brain injury (ABI) is used to describe damage to the brain after birth. Traumatic brain injury (TBI) is a form of acquired brain injury which occurs as a result of impact to the head (e. g. fall, road traffic accident). Traumatic brain injury often results in a characteristic pattern of deficits which includes cognitive and non-cognitive neurobehavioural deficits. The former include memory, expressive communication and executive problems which affect educational and social functioning.<sup>2</sup> The latter include impulsivity,<sup>3</sup> poor emotional regulation<sup>4</sup> and problems in forming and sustaining relationships. All these may increase the likelihood of criminal behaviour. Cognitive deficits may lead to an inability to cope with the demands of life within the boundaries of the law and, in some cases, make people more likely to resort to criminal behaviour.<sup>5, 6</sup> For example, impulsivity may result in an inability to delay gratification or to control aggressive behaviour. Difficulty in managing

anger, resulting in explosive outbursts to minimal provocation, and reduced ability to understand social situations, can in turn lead to an inability to avoid conflict.<sup>7, 8</sup>

These and other difficulties, such as lack of initiation, poor empathy, co-morbid use of drugs and alcohol, can have a significant impact on an individual's ability to engage with offender rehabilitation. This problem is complicated by the fact that a large proportion of individuals with a brain injury do not have the ability to recognise and understand that they have these problems (lack of awareness<sup>9</sup>), which in turn reduces their ability to cope with them, or to engage in treatment.

Evidence that the incidence of brain injury is higher within the criminal justice system (CJS) than in the general population has been mounting in recent years. It is estimated that as many as 51 to 60 per cent of the offender population have a history of brain injury, a rate that is higher than the two to 38 per cent observed in the general population.<sup>10, 11, 12</sup> Research has also shown links between brain injury and early onset of criminal behaviour, violence, vulnerability to self-harm<sup>13</sup> and re-

1. Until April 2016.
2. Hessen, Nestvold, and Anderson, 'Neuropsychological Function 23 Years after Mild Traumatic Brain Injury: A Comparison of Outcome after Paediatric and Adult Head Injuries.' *Brain Injury* 21, no. 9 (2007): 963–79. <http://www.informaworld.com/10.1080/02699050701528454>
3. Tate, 'Executive Dysfunction and Characterological Changes after Traumatic Brain Injury: Two Sides of the Same Coin?' *Cortex* 35, no. 1 (1999): 39–55.
4. Bechara, 'The Role of Emotion in Decision-Making: Evidence from Neurological Patients with Orbitofrontal Damage.' *Brain and Cognition* 55, no. 1 (June 2004): 30–40. doi:10.1016/j.bandc.2003.04.001.
5. Fazel et al., 'Risk of Violent Crime in Individuals with Epilepsy and Traumatic Brain Injury: A 35-Year Swedish Population Study.' *PLoS Medicine* 8, no. 12 (December 2011): e1001150. doi:10.1371/journal.pmed.1001150.
6. Williams et al., 'Self-Reported Traumatic Brain Injury in Male Young Offenders: A Risk Factor for Re-Offending, Poor Mental Health and Violence?' *Neuropsychological Rehabilitation* 20, no. 6 (December 2010): 801–12.
7. Baguley, Cooper, and Felmingham, 'Aggressive Behavior Following Traumatic Brain Injury: How Common Is Common?' *The Journal of Head Trauma Rehabilitation* 21, no. 1 (2006): 45–56.
8. Brooks et al., 'Return To Work Within The First 7 Years Of Severe Head Injury.' 'Return To Work Within The First 7 Years Of Severe Head Injury.' *Brain Injury* 1 (1987): 5–19.
9. Kelley et al., 'Self-Awareness and Neurobehavioral Outcomes, 5 Years or More After Moderate to Severe Brain Injury.' *Journal of Head Trauma Rehabilitation* 29, no. 2 (2014): 147–52. doi:10.1097/HTR.0b013e31826db6b9.
10. Farrer and Hedges, 'Prevalence of Traumatic Brain Injury in Incarcerated Groups Compared to the General Population: A Meta-Analysis.' *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 35, no. 2 (March 2011): 390–94. doi:10.1016/j.pnpbp.2011.01.007.
11. Shiroma, Ferguson, and Pickelsimer, 'Prevalence of Traumatic Brain Injury in an Offender Population: A Meta-Analysis.' *Journal of Correctional Health Care* 16, no. 2 (April 2010): 147–59.
12. Ferguson et al., 'Prevalence of Traumatic Brain Injury among Prisoners in South Carolina.' *Head Trauma Rehabilitation* 27, no. 3 (2012): E11–20. doi:10.1097/HTR.0b013e31824e5f47.
13. Chitsabesan et al., 'Traumatic Brain Injury in Juvenile Offenders: Findings from the Comprehensive Health Assessment Tool Study and the Development of a Specialist Linkworker Service.' *Journal of Head Trauma and Rehabilitation* 30, no. 2 (2015): 106–15.

offending.<sup>6,14</sup> These findings come mostly from studies with adult men.

Initial studies by The Disabilities Trust Foundation sought to verify whether reported high levels of prevalence of brain injury were observed in the UK prisoner population.<sup>15</sup> This led to the development of a screening tool, and showed that as many as 47 per cent of individuals in a male prison reported a history of brain injury, a result consistent with the findings by another UK based research group.<sup>14</sup> Six years on, and given the strong body of evidence suggesting that a brain injury can affect a person's ability to engage in a rehabilitation programme, and ultimately to cope with the demands of society, the question is moving from 'is there a problem?' to 'how do we address it?'

### **Aims and objectives of developing a brain injury strategy**

Given the high prevalence of brain injury among offenders,<sup>10,16</sup> The Disabilities Trust Foundation, developed a new strategy to address it within the Criminal Justice System, focussing on three areas: identification, raising awareness and intervention. This approach consists of a screening method to be used at reception to identify people with probable brain injury as they come into custody, a workforce training programme for staff and a model of intervention for prisoners with brain injury.

The aim is to enable better engagement with established offender rehabilitation programmes and enhance the outcomes for the individual offender in prison and after release, and key objectives are better mental health, reduced alcohol and drug use, reduced anger and violence, increased well-being, increased engagement in Employment, Education and Training (EET), improved accommodation status, and ultimately reduced re-offending.

### **The process**

#### *Screening*

Following pilot studies in an adult male prison (HMP Leeds), we carried out further investigations of brain injury prevalence in women's prisons and Young Offender Institutions. In all cases, a high proportion of prisoners (in the order of 50 per cent), was shown to have suffered a possible brain injury.

These findings further emphasise the importance of screening in order to establish a greater

understanding of the scale and nature of the problem, and to drive a long-term brain injury offender strategy.

Over the past four years The Disabilities Trust Foundation has been refining and validating a screening tool (the Brain Injury Screening Index - BISI) that can be easily embedded into existing reception procedures, requires minimal staff training and little time to administer. The final version, built upon the original tool validated by Pitman and colleagues,<sup>15</sup> is a reliable 11-point questionnaire, which takes 5-10 minutes to complete, and can be used in isolation or embedded in SystemOne<sup>17</sup> or equivalent.

#### *Training and workforce development*

It should be recognised that if brain injury is prevalent amongst prisoners this is likely to impede their rehabilitation. Prisoners with a brain injury may have difficulties in understanding, learning and remembering, and therefore may fail to benefit from rehabilitation that is suitable for prisoners without brain injury. There is therefore a need to raise awareness of ABI, develop the skills of staff to recognise it and to feel confident to support and manage those with brain injury in prison.

Traumatic brain injury, in particular, often gives rise to difficulties in regulating emotions and resisting impulsive actions. De-escalation of such challenging behaviours can be taught to prison staff. Training staff to understand brain injury and upskilling them to deal with its consequences can potentially enhance their safety. An intervention cannot work in isolation, so staff awareness is key to successful implementation. Raising awareness increases prison staff's ability to adapt their delivery of offender rehabilitation programmes to improve outcomes. It is acknowledged that these are designed by NOMS HQ, and whilst it may be practical for small adjustments to be made at a local level, a universal review of programmes may be required to ensure consistent reliable change that meets the needs of people with brain injury and neuro-disabilities.

A training scheme designed to address these areas was developed by a working group including a Consultant Clinical Neuropsychologist and a trainer with extensive experience of working with staff and individuals within brain injury rehabilitation settings. The scheme is intended to be accessible to all practitioners including prison officers, but in the pilot priority was given to mental health, healthcare and offender managers due to the high level of liaison required between these services and the

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14. Williams et al., 'Traumatic Brain Injury in a Prison Population: Prevalence and Risk for Re-Offending.' *Brain Injury* 24, no. 10 (January 2010): 1184–88. doi:10.3109/02699052.2010.495697.
  15. Pitman et al., 'The Association between Neuropsychological Performance and Self-Reported Traumatic Brain Injury in a Sample of Adult Male Prisoners in the UK.' *Neuropsychological Rehabilitation* 25, no. 5 (2015): 763–79. doi:10.1080/09602011.2014.973887
  16. Hughes et al., 'The Prevalence of Traumatic Brain Injury among Young Offenders in Custody: A Systematic Review.' *The Journal of Head Trauma Rehabilitation* 30, no. 2 (2015): 94–105.
  17. The Phoenix Partnership, 2016.

likely impact of brain injury on their work. The training does not require a medical or health background and can be carried out within one three-hour session. The goal of the training scheme is to equip staff with a greater understanding of ABI and familiarise them with 'tips and tricks' that are helpful in the management of behaviours likely to be related to brain injury.

#### *Intervention*

The aim of the Disabilities Trust Foundation was to create a service specification that was realistic and achievable: economically viable, manualised to enable easy replication, and scalable to allow widespread delivery throughout the CJS.

#### *Referrals and eligibility criteria*

The BISI is administered by nurses within standard first night screening. Referrals are received electronically the following morning and processed by the Linkworker, who meets with those referred, repeats the BISI and provides educational information if appropriate. Depending on the results of the BISI, a decision is made with regard to their eligibility for the service. This could result in simply providing the prisoner with educational information about brain injury to enable self-management, or placement on the service waiting list should significant needs be identified. For those indicating a significant history of brain injury, a request is made for medical notes to obtain further details (e. g. neurological indices of severity, attendance at A&E and any other treatment or rehabilitation received).

#### *Identification and prioritisation: Who gets the intervention?*

The model of service is designed to provide dedicated support for eight to 12 weeks prior to release and eight weeks post-release.

Following screening and identification of those requiring support, those meeting the eligibility criteria are invited to an initial assessment. This can take one to four sessions with each session lasting no longer than 45 minutes. A semi-structured clinical interview gathers information on offending history, family background, physical and mental health, history of drug and alcohol use and further information about brain injuries and cognitive difficulties. Also gathered is information about the individual's ambitions and future aspirations.

#### *Identification of problems associated with a brain injury*

For those receiving one-to-one support the main aims are to identify problems associated with a brain injury, such as anger, memory and attention difficulties,

impulsivity, disinhibition and problems with initiation. Appropriate interventions and compensatory strategies to manage these are then developed and practised on a person-centred basis. Individual problems and solutions are translated into personalised SMART goals (specific, measurable, achievable, relevant, and time-bound, for example '*In the next month I will manage my anger by walking away from the situation when confronted by other prisoners, and I will reduce the number of my outbursts by 80 per cent.*').

During one-to-one sessions, time is spent in the development of goals and on psychoeducation about brain injury and coping strategies. Additional information is also available in the form of homework, worksheets and handouts to enable ongoing practice between sessions.

In the build-up to discharge, planning focuses on preparation for release. This can include problem solving around reducing reoffending, how to engage with rehabilitation within the community, and securing appropriate housing and EET opportunities.

Throughout the person's engagement with the service, the Linkworker works with the individual and builds networks with professionals within and outside the prison. Personalised guidelines are provided to stakeholders and agencies to enable better access to and engagement with their services, and potential adaptations to their service. In addition to individual stakeholder management, key relationships are built with health services, including GPs, Mental Health Services and other specialist services (such as Neurology and Rehabilitation), and with Social Workers, Probation, Housing and Community Rehabilitation Companies.

#### *Children and young people in prison*

Following the greater use of community sentencing and rehabilitation, Young Offender Institutions (YOIs) now focus on delivering specialist offender rehabilitation and diversion strategies to more serious offenders, with brain injury likely to be an important contributing factor. Neurodisability, including brain injury has been highlighted as an area of specific need by the Youth Justice Board.<sup>18</sup> The approach described here was piloted with young people at two YOIs. Key differences and adaptations include the use of child specific assessments and interventions and closer involvement of the family. There are differences in the impact of a brain injury when it occurs in childhood as opposed to adulthood, and differences dependent on the age of the child. These developmental differences in the impact of brain injury need to be understood and services designed appropriately.

18. Public Health England & NHS England (2016). Improving Health and Wellbeing services for children placed in the Children and Young People's Secure Estate. NHS England Publications Gateway Reference 01909.

### Women in prison

Women prisoners have been under-represented in research. However a recent review has found that the prevalence of TBI in women prisoners is comparable to that in male prisoners. Furthermore the women had usually suffered their TBI before their first offence and were more likely to report ongoing TBI related symptoms.<sup>19</sup> O'Sullivan and colleagues<sup>20</sup> conducted a systematic review on the association between TBI and violent behaviour in female prisoners and found a small number of studies that suggested a link between the two, though this was complicated by co-morbidities such as mental health problems and childhood abuse.

### Working in the community

This service approach has also been trialled successfully with the homeless community, including with ex-prisoners. Therefore there is an opportunity to further explore its application in other community rehabilitation settings.

### Service evaluation

An independent evaluation indicated that the Linkworker service is designed according to best practice evidence from forensic rehabilitation and from neurorehabilitation, and that it is a helpful approach in the context of young prisoners: 'such services could provide a vital link across staff teams working with individuals with TBI, and effect change' (p. 4).<sup>21</sup>

In March 2016, a controlled study to evaluate the effectiveness and specificity of the Linkworker approach began in a UK prison. Results are expected at the end of 2018.

In all cases internal audit and evaluation is conducted as a standard aspect of service delivery. This includes monitoring individual characteristics and outcomes (e. g. severity of injury, nature of the difficulties experienced, quality of life) and stakeholder satisfaction (individual and referral agency). This information is reviewed on an ongoing basis and a typical service user profile has been developed as highlighted in Box 1.

## Future developments

### Online Service Specification and Case Management Tool

Throughout the implementation of the pilot service, incorporating internal evaluation, The

### Box 1: Prisoner Profile\*

<i>Primarily with history of moderate to severe TBI</i>
Various causes of injury, including Road Traffic Accidents, Falls and Fights or Assaults
Young at first injury (10–28)
Multiple injuries (2–4)
Injuries primarily sustained before first offence (41–60 per cent)
Primarily with history of violent behaviour (33–86 per cent)
Repeat offenders (48–89 per cent)
Average number of head injuries: 2.9
Co-morbid use of alcohol and drugs

\* Based on a total of 80 people undergoing support (2015): 32 young people (15 to 18); 23 young adults (18 to 21) and 25 adult males.

Disabilities Trust Foundation has developed an online service specification with an embedded case management tool. The tool is designed to enable ease of service roll-out, to ensure consistency of approach and to simplify outcome data capture and analysis. This will result in user group characteristics, trends in presentation and frequency of use of specific interventions being easily tracked. Outcomes will be routinely collated which will inform prevention and diversion strategies in the future.

## Summary and Conclusion

Robust evidence is emerging that the prevalence of acquired brain injury within prisoners is higher than in the general population. There is also evidence to suggest that certain types of offending, such as violent crime are particularly associated with brain injury and that these individuals require different forensic rehabilitation. It is therefore important for both the individual and for the protection of the public that such prisoners are identified and offered an approach to rehabilitation that is appropriate to their needs. This strategy supports such an approach across the criminal justice system and thereby provides a real chance of preventing life-long offending.

19. Fitzsimons, 'A Survey of the Available Literature on Traumatic Brain Injury and Incarcerated Female Populations. Unpublished Manuscript.'

20. O'Sullivan et al., 'Traumatic Brain Injury and Violent Behavior in Females: A Systematic Review.' *Aggression and Violent Behavior* 25 (November 2015): 54–64. doi:10.1016/j.avb.2015.07.006.

21. Williams and Chitsabesan, 'Brain Injury in Custody: An Evaluation of a Linkworker Service. Report for Barrow Cadbury Trust and The Disabilities Trust.' [http://www.thedtgroup.org/media/159401/disability\\_trust\\_linkworker\\_2016lores.pdf](http://www.thedtgroup.org/media/159401/disability_trust_linkworker_2016lores.pdf)