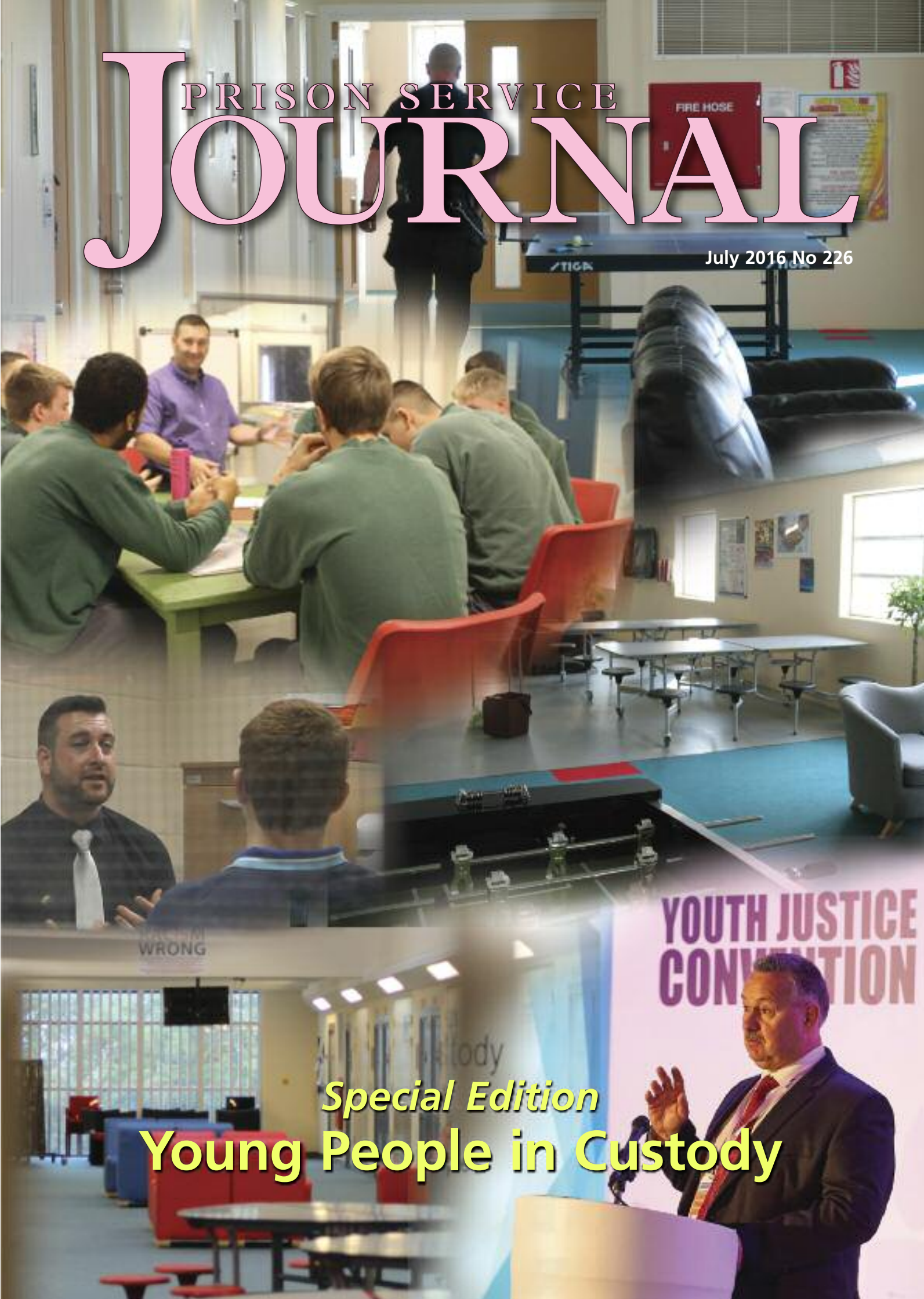


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Special Edition
Young People in Custody

Disabled Inside:

Neurodevelopmental impairments among young people in custody

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Childhood neurodevelopmental impairments are physical, mental or sensory functional difficulties that arise when the development of the brain or nervous system is significantly affected by problems related to genetics, birth trauma, illness, traumatic head injury, and/or severe nutritional or emotional deprivation.¹ Resulting difficulties may relate to:

- **Cognitive functioning:** acquiring, understanding and applying knowledge, including skills related to learning, memory, attention, evaluation, reasoning, and;
- **Emotional functioning:** regulating and expressing emotions, or understanding the emotions of others, and related expressions of withdrawal or anxiety, impulsivity, or difficulties in restraining emotional reactions;
- **Communication:** functions related to the comprehension and production of language, including speech, expressive language and receptive language.

Specific impairments are commonly experienced in combination, as clinically defined childhood neurodevelopmental disorders, described in the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5) as:

a group of conditions... [which] typically manifest early in development, often before the child enters grade school, and are characterized by developmental deficits that produce impairments of personal, social, academic, or occupational functioning.²

Such disorders include: learning or intellectual disability; specific learning difficulties, such as dyslexia; communication disorders; attention-deficit / hyperactivity disorder (ADHD); autism spectrum disorder; and fetal alcohol spectrum disorder (FASD). The key diagnostic criteria for each of these disorders are presented in Table 1.

Table 1. Prevalence of neurodevelopmental disorders⁵⁶

Neurodevelopmental disorder	Definition ⁵⁷	Prevalence rates among young people in the general population	Prevalence rates among young people in custody
Learning / Intellectual Disability	Deficits in: cognitive capacity (measured by an IQ score of less than 70); and adaptive functioning (significant difficulties with everyday tasks). Onset prior to adulthood.	2–4%	23–32%
Fetal Alcohol Spectrum Disorders	Permanent defects resulting from prenatal alcohol exposure due to maternal consumption during pregnancy, including: reduced height, weight, or head circumference; characteristic facial features; deficits in executive functioning, memory, cognition, intelligence, attention, and/or motor skills.	0.1–5%	10.9–11.7%
Communication Disorders	Problems with speech, language or hearing that significantly impact upon an individual's academic achievement or day-to-day social interactions. Includes: expressive and receptive language; speech sound disorder; and stuttering.	5–7%	60–90%
Attention-Deficit / Hyperactivity Disorder	Persistence in multiple symptoms of inattention and/or hyperactivity/impulsivity.	1.7–9%	12%
Autistic Spectrum Disorder	Qualitative abnormalities in reciprocal social interactions and communication, and markedly restricted repetitive and stereotyped patterns of behaviour and interests.	0.6–1.2%	15%

1. Patel, D.P., Greydanus, D.E., Omar, H.A. & Merrick, J. (eds.) (2011) *Neurodevelopmental Disabilities: Clinical Care for Children and Young Adults*. New York: Springer.
2. American Psychiatric Association (APA) (2013) *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington DC: APA. Page 31.

The prevalence of neurodevelopmental impairment among young people in custody

Table 1 also illustrates the high prevalence of neurodevelopmental disorders among young people in youth justice custodial institutions, as consistently highlighted by research in various nation states and summarised in a recent review.³ Reviewing such a range of research can be problematic given the various definitions, measures, methods, populations and national contexts within individual studies. Nonetheless, in each case, the prevalence within such institutions appears disproportionate to rates reported by studies of comparable groups of young people in the general population. This sizeable body of research therefore suggests that large numbers of young people in custody have one or more clinically defined neurodevelopmental disorder. Furthermore the levels of need are even greater if we also consider those who may not meet specific clinical diagnostic criteria, yet experience very real and significant impairments. This is illustrated by a systematic review of research regarding experiences of traumatic brain injury (TBI)⁴, as summarised in Table 2.

Table 2. Prevalence of traumatic brain injury: summary of a systematic review⁵⁸

Nature of TBI	Prevalence rates among young people in the general population	Prevalence rates among young people in custody
Any head injury	24–42%	49–72%
Head injury resulting in loss of consciousness	5–24%	32–49.7%
Head injury resulting in loss of consciousness for 20 minutes or more	5%	18.3%
More than one head injury	9.2–12%	45–55%

Whilst TBI is not a neurodevelopmental disorder, it is associated with a wide range of related impairments in cognition, emotion, and communication, particularly where injuries lead to concussion, or when they occur at

key developmental phases. Again, individual studies vary greatly in their definition, methodology and therefore reported prevalence, but comparison to control groups or equivalent studies undertaken with young people in the general population consistently demonstrates a much higher prevalence of TBI in custodial populations. What is more, this disparity is seemingly more pronounced as the severity of the injury increases, and among those who have experienced multiple injuries. This disproportionate prevalence is echoed in evidence emerging from the recently introduced Comprehensive Health Assessment Tool (CHAT), now completed for all young people entering custodial institutions in England and Wales.⁵ In interviews undertaken with 93 young people in custody, 82 per cent reported experiencing at least one TBI, with 44 per cent reporting 'ongoing neuropsychological symptoms' as a result.

This weight of evidence poses fundamental questions about the failure of education, health and family support services to identify and meet the needs of young people with impairments so as to prevent engagement with the youth justice system.⁶ It warrants improved understandings of how specific impairments may be directly related to behavioural traits that, in certain contexts and situations, can increase the propensity towards aggressive or antisocial behaviour, and therefore criminality.⁷ It also calls into question the extent to which impairment is recognised and effectively responded to within youth justice systems, with various practices seemingly increasing the risk of criminalization of young people with neurodevelopmental impairments.⁸

Most pertinently to this article, it also illustrates that the youth justice custodial estate has become the primary service provider to a large number of young people with significant neurodevelopmental impairment. This suggests considerable challenges for practices and interventions within custodial institutions. In this paper, we reflect upon these challenges and offer reflections on their implications for practice reform. Using illustrative examples drawn from the wide variety of specific functional and behavioural difficulties associated with neurodevelopmental impairments that are likely to impact upon the experiences of young people in custody, we will consider the particular influence of impairment on:

- Hughes, N., Williams, H., Chitsabesan, P., Davies, R. & Mounce, L. (2012) *Nobody Made the Connection: The prevalence of neurodisability in young people who offend*. London: Office of the Children's Commissioner for England.
- Hughes, N., Williams, W.H., Chitsabesan, P., Walesby, R., Mounce, L.T.A. and Clasby, B. (2015) 'The Prevalence of Traumatic Brain Injury Among Young Offenders in Custody: A Systematic Review', *Journal of Head Trauma Rehabilitation*, 30(2): 94-105.
- Chitsabesan, P., Lennox, C., Williams, H., Tariq, O. and Shaw, J (2015) 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 Rehabilitation*, 30(2): 106-115.
- Hughes, N. (2015) 'I would build... comprehensive school and family support systems for young people with neurodevelopmental impairments', *Centre for Crime and Justice Studies Briefing Paper*, CCJS: London.
- Hughes, N. (2015) 'Understanding the influence of neurodevelopmental disorders on offending: utilizing developmental psychopathology in biosocial criminology', *Criminal Justice Studies: A Critical Journal of Crime, Law and Society*, 28(1): 39-60.
- Hughes, N. (2015) Neurodisability in the youth justice system: recognising and responding to the criminalisation of neurodevelopmental impairment, *Howard League for Penal Reform, What is Justice? Series*, Available at: www.academia.edu/15237699/Neurodisability_in_the_youth_justice_system_recognising_and_responding_to_the_criminalisation_of_neurodevelopmental_impairment

interactions with staff and fellow prisoners, particularly in relation to conflict, bullying and victimization; the ability to understand and follow prison rules or particular commands; and engagement with interventions, particularly those intended to alter behaviour. In doing so, we highlight the importance of effective screening and assessment.

The need for specialist and responsive interventions

Recognition of impairment and its influence on behaviour is essential in order to develop support services and interventions that are responsive to specific cognitive and emotional deficits. Young people with neurodevelopmental impairments typically have specific needs and learning styles that can affect an ability to engage in interventions intended to support rehabilitation or to address identified behavioural, educational or mental health needs. Recognition of these varied needs directly contradicts current use of generic approaches which assume typical levels of verbal and cognitive competence, and which those with atypical neurodevelopment struggle to adhere too. For example, research has suggested that individuals with a history of TBI may find it more difficult to engage with offence related rehabilitation due to information processing difficulties or disinhibited behaviour.⁹

Guidelines on how to support young people with specific neurodevelopmental disorders are already established and can be readily utilised, including, for example, those published by the National Institute for Health and Clinical Excellence regarding ADHD¹⁰ and autistic spectrum disorders.¹¹ Guidelines with specific reference to offending behaviour have also been developed. For example, NICE recently published advice regarding 'Challenging behaviour and learning disabilities'.¹² The Advocates Gateway also offer a range of toolkits for working with clients with neurodisability.¹³

There is also growing evidence of the efficacy of individual therapeutic approaches to address and manage aspects of the disorder and associated risk of offending; for example, adapted cognitive behaviour therapy¹⁴ and skills development using social stories and comic strip cartoons address emotional recognition and help develop coping strategies to manage stress and conflict.¹⁵ Additionally, Tonks et al suggest that programmes tailored for young offenders with a history of TBI may help reduce their vulnerability to depression, anxiety and negative behavioural outcomes in later life.¹⁶

Existing behavioural support programmes may need to be adapted to meet the needs of young people with neurodevelopmental impairments. For example, the Good Way model of working with young people who have committed sexual offences demonstrates the value of flexible approaches based on the 'intellectual functioning' of the individual.¹⁷ Marked success in working with those with learning disability is attributed to an approach that recognizes the inability to engage with and apply abstract concepts. Young people are therefore enabled to externalise the 'bad side' of their behavior, and to then choose between this and a 'good way' of behaving.

Similarly, Boland et al suggest the need 'to modify existing, well recognized programs in the areas of social and life skills, cognitive skills, substance abuse and anger management' when working with young people with cognitive deficits.¹⁸ Specifically they suggest that such programmes need to be 'simplified', 'made very concrete', delivered in 'regular daily' sessions but 'shorter in duration' and 'with frequent reviews' and opportunities for revision. Streissguth also highlights the need for such programmes to be run with very small groups, and preferably one-to-one.¹⁹

Young people with neurodevelopmental impairments may also require specialist educational support and intervention. Various neurodevelopmental disorders are strongly associated with difficulties in engaging in mainstream education, and these young

9. Williams, W. H., Cordan, G., Mewse, A. J., Tonks, J. and Burgess, C. N. (2010). Self-reported traumatic brain injury in male young offenders: a risk factor for re-offending, poor mental health and violence? *Neuropsychological Rehabilitation*. 20(6): 801-812.
10. National Institute for Health and Clinical Excellence (2008) *Attention deficit hyperactivity disorder: Diagnosis and management of ADHD in children, young people and adults*. NICE clinical guideline 72. London: NICE.
11. National Institute for Health and Clinical Excellence (2011) *Autism: recognition, referral and diagnosis in children and young people on the autism spectrum*. NICE clinical guideline 128. London: NICE.
12. National Institute for Health and Clinical Excellence (2015) *Challenging behaviour and learning disabilities: prevention and interventions for people with learning disabilities whose behaviour challenges*. NICE guidelines NG11. London: NICE
13. www.theadvocatesgateway.org/toolkits/
14. Hare D.J. and Paine C. (1997). Developing cognitive behavioural treatments for people with Asperger's syndrome. *Clinical Psychology Forum*. 110: 5-8.
15. Murphy, D. (2010). Extreme violence in a man with an autistic spectrum disorder: Assessment and treatment within high-security psychiatric care. *Journal of Forensic Psychiatry and Psychology*. 21: 462-477.
16. Tonks J, Yates P, Frampton I, Williams WH, Harris D, Slater A. (2011) Resilience and the mediating effects of executive dysfunction after childhood brain injury: a comparison between children aged 9–15 years with brain injury and noninjured controls. *Brain Injury* 25:870–881.
17. Aylard, L., & West, B. (2006). The Good Way model: A strengths-based approach for working with young people, especially those with intellectual difficulties, who have sexually abusive behaviour. *Journal of Sexual Aggression*, 12(2), 189-201.
18. Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.
19. Streissguth, A. P. (1997). *Fetal Alcohol Syndrome: A guide for families and communities*. MD: Pearl H. Brooks Publishing Company, cited by Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.

people are at elevated risk of extended periods of disengagement from school. This may be because of a learning disability or specific learning difficulty. It may also be because of difficulties understanding and engaging with the expectations of the classroom, as in the case of young people with FASD who can experience difficulty translating verbal directions into action, or understanding rules such as putting up of hands or sitting still when feeling the need to move around the classroom. Again, a misunderstanding of the basis of this behaviour can lead to its interpretation as wilful noncompliance, rather than indicators of impairment. Similarly a variety of symptoms associated with ADHD can inhibit functioning in the classroom. Impulsivity, poor capacity for attention, and hyperactivity can all 'hinder [the] ability to acquire crucial skills such as focusing on teachers, interacting with peers and authority figures, and learning emergent literacy, mathematics and language', while associated executive functioning deficits are found to cause 'problems with memory, reasoning, [and] conceptual development'.²⁰

Bespoke or tailored interventions are also required regarding rehabilitation and transition out of community and into the community. Young people with impairment must be supported to develop the social and life skills and coping mechanisms necessary to manage their impairment and its influence on behaviour, so as to avoid recidivism. This might include managing issues that directly impact upon the likelihood of further offending. For example, ADHD is characterised by a combination of symptoms, including impulsivity, which can be expressed as impatience, sensation-seeking, or an inability to restrain an emotional reaction.²¹ Such behavioural traits can increase the likelihood of spontaneous anger or aggression, and young people therefore need to develop the means to manage such feelings. Similarly executive functioning deficits associated with abstraction can lead to difficulties understanding the perspectives of others or the potential consequences of actions.²² Specific cognitive skill training may therefore be needed.

Practical life skills may also be needed to counter indirect risks of future offending. For example, Boland et al highlight the importance of addressing any difficulties that may impact on an ability to live independently,

including 'problems handling money' or 'paying bills', engaging in education, or in acquiring or holding on to employment.²³

The need for such support is recognised in the development of the linkworker role, supporting young people with a history of TBI in HMP Leeds, HMYOI Wetherby and HMYOI Hindley.²⁴ The linkworkers develop personalised support programmes to address particular problems arising from the brain injury, such as with anger management or poor memory. They also support the young people to more effectively engage with generic rehabilitation programmes within the custodial institution, and therefore provide support to other staff working with the young person. Finally the linkworkers also provide support in accessing community services upon release.²⁵

Understanding the influence of impairment on behaviour and day-to-day interactions

Awareness of the prevalence of neurodevelopmental impairment among young people in custody supports the development of day-to-day practices that do not assume cognitive and communicative competence or understanding of procedures, and therefore support better engagement, whether an impairment has been formally diagnosed or not. For example, impaired social or pragmatic communication skills, as associated with a range of neurodevelopmental disorders, can effect social interaction, and in particular the use and interpretation of non-verbal communication techniques. This can result in difficulties expressing emotions or understanding the emotions being expressed by others, or the use of challenging behaviour as a means to communicate emotions.²⁶ Clearly this can influence daily interactions with staff and fellow inmates. An awareness of such difficulties can therefore inform the development of more effective approaches to communication with young people. This should include:

- Speaking slowly and carefully, using simple, everyday language, and avoiding technical terms or abstract concepts.
- Keeping questions simple, avoiding complex sentences with multiple clauses.

20. Daley, D. & Birchwood, J. (2010) 'ADHD and academic performance: why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom?', *Child: Care, Health and Development*, 36(4), pp. 455–464. Page 456.

21. Williams, W.H. (2013) *Repairing shattered lives: brain injury and its implications for criminal justice*. London: Transition to Adulthood Alliance.

22. Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.

23. Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.

24. Chitsabesan, P., Lennox, C., Williams, H., Tariq, O. and Shaw, J (2015) 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 Rehabilitation*, 30(2): 106-115.

25. The Disabilities Trust Foundation (2015) *Brain Injury Linkworker Service*. Available at: www.thedtgroup.org/media/513066/16.01.15_Linkworker_Service_Report.pdf

26. Ryan, N.P, Anderson V., Godfrey C., Eren S., Rosema S., Taylor K., & Catroppa C. (2013) 'Social communication mediates the relationship between emotion perception and externalizing behaviors in young adult survivors of pediatric traumatic brain injury (TBI)', *International Journal of Developmental Neuroscience*, 31, pp. 811–819.

- Giving sufficient time to process a question, avoiding interrupting during pauses.
- Maintaining eye contact and ensuring body language is neutral, avoiding expressions such as nodding which might encourage confirmatory responses.
- Where appropriate, supporting communication through visual aids (such as prompt cards or photos) and appropriately trained intermediaries (such as speech pathologists).

Indeed such practices may be usefully employed with all young people in custody based on assumptions of impairment and difficulty with communication, even where such difficulties are subclinical or undiagnosed.

An awareness of the myriad potential influences of neurodevelopmental impairment on behaviour and functioning among custodial staff is also crucial to the accurate interpretation of that behaviour, and therefore an appropriate response. In particular, this recognition should encourage staff to avoid assumptions that such behaviour demonstrates attitudinal problems, such as a lack of motivation or wilful non-compliance with directives. In doing so, staff can avoid the inappropriate negative labelling of young people with impairment that can cause 'additional disadvantage for the young person's passage through the justice system'.²⁷ For example, rather than deliberate non-compliance with orders from custodial staff, rule breaking may reflect deficits in executive functioning, as associated with a range of disorders, including FASD and learning disability. Executive functioning is an umbrella term describing the various cognitive processes used to undertake complex goal-oriented thought and action.

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Deficits in such functioning can therefore imply difficulties with concentration, planning and sequencing tasks, responding to new or changing situations, and self-regulating contextually appropriate behaviour.²⁸

An awareness of how such deficits may be the root cause of difficulties with behaviour and functioning can also encourage more appropriate means of engagement. This can range from relatively simple changes to everyday practice. For example, young people with FASD are thought to respond well to 'order, structure and predictable routines', but to require instructions to be 'clear' and 'consistent', and given 'in a simple concrete fashion'.²⁹ However, patience may also be required since cognitive deficits associated with FASD can mean initial difficulties in understanding instructions or rules, and therefore their inadvertent contravention.³⁰ Streissguth therefore highlights the need for 'constructive feedback' when rule breaking initially occurs.³¹

Similarly, understanding how deficits in emotional functioning may lead to particular reactions in contexts of stress, confusion and anxiety can promote alternative means to manage and resolve tension, with negative instances reduced through appropriate structure to daily routines, and close monitoring and recognition of early signs of distress. In particular aggressive responses may be more likely among young people with particular neurodevelopmental impairments. For example, young people with autism can have low levels of serotonin,³² which is known to heighten the risk of 'behavioural disinhibition'.³³ In parallel, autism can negatively affect stress response mechanisms, particularly in unfamiliar situations, impeding the ability to read and respond to emotional social cues, and increasing the

27. Snow, P.C., Powell, M.B. & Sanger, D.D. (2012) 'Oral Language Competence, Young Speakers, and the Law', *Language, Speech and Hearing Services in Schools*, 43, pp. 496–506. Page 502.
28. Meltzer, L. (ed.) (2007) *Executive Function in Education: From Theory to Practice*. New York: The Guilford Press.
29. Funahashi, S. (2001) 'Neuronal mechanisms of executive control by the prefrontal cortex', *Neuroscience Research*, 39, pp. 147–65.
29. Streissguth, A. P. (1997). *Fetal Alcohol Syndrome: A guide for families and communities*. MD: Pearl H. Brooks Publishing Company, cited by Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.
30. Fast, D.K. and Conry, J. (2004) The challenge of Fetal Alcohol Syndrome in the criminal justice system. *Addiction Biology*. 9: 161-166.
31. Streissguth, A. P. (1997). *Fetal Alcohol Syndrome: A guide for families and communities*. MD: Pearl H. Brooks Publishing Company, cited by Boland, FJ, Burrill, R, Duwyn, M and Karp, J. (1998) *Fetal Alcohol Syndrome: Implications for Correctional Service*. Correctional Services Canada.
32. Chugani, D. C., Muzik, O., Behen, M., Rothermel, R., Janisse, J. J., Lee, J., & Chugani, H. T. (1999) 'Developmental changes in brain serotonin synthesis capacity in autistic and nonautistic children', *Annals of Neurology*, 45, pp. 287–295.
33. van Goozen, S.H.M., Fairchild, G., Snoek, H., & Harold, G.T. (2007) 'The evidence for a neurobiological model of childhood antisocial behaviour', *Psychological Bulletin*, 133, pp. 149–182. Page 162.

likelihood of 'hot-headed' behaviour or reactive aggression.³⁴ Executive functioning deficits can also increase propensity towards aggressive behaviour³⁵ by 'decreasing behavioral inhibition, impairing the ability to anticipate behavioral consequences and assess punishment and reward, [or] damaging the capability to generate socially appropriate behavior in challenging contexts'.³⁶

Revisions to everyday practices of engagement so as to take account of such explanations for aggressive behaviour have the potential to have a very significant impact on the use of force and restraint. For example, evidence suggests that young people with learning disability are around 'five times as likely to have been subject to control and restraint, and over three times as likely to report having spent time in segregation'.³⁷ This finding is also echoed by Gooch and Treadwell, who found that young people who self-reported a disability 'were often over-represented ... in adjudications and in the use of force'.³⁸

Awareness of a young person's needs can also help practitioners in regular contact with them to offer appropriate support in the development of adaptive coping mechanisms. For example, the education of prison staff around the impact of TBI and management strategies to support offenders has been found to have positive outcomes for both staff and prisoners, leading to a reduction in the number of negative interactions.³⁹

Whilst practice is clearly varied, the Office of the Children's Commissioner for England also highlights a general 'tendency to focus on physical controls to manage risk and deal with challenging behaviour rather than through developing relationships and

transparency'.⁴⁰ This is in contrast to recurring messages within the research literature regarding the importance of forming effective relationships between staff and young offenders.⁴¹ The importance of such relationships appears to be particularly key in relation to young people with particular impairments.⁴²

Neurodevelopmental impairment can similarly affect relationships with peers. Young people with neurodevelopmental impairment are prone to bullying, meaning 'they will need special consideration to prevent victimisation'.⁴³ For example, deficits in social communication can influence the formation and maintenance of peer relationships. In particular, Conti-Ramsden and Botting suggest that young people with speech and language difficulties are approximately three times more likely to be 'regular targets for victimization' when compared to those without such difficulties.⁴⁴ This has been echoed in research with young people with a learning disability.⁴⁵

Recent research by Gooch and Treadwell similarly highlights the particular risk of bullying of those with 'disability' among young prisoners.⁴⁶ However, Gooch and Treadwell also suggest that: 'Prisoners with disabilities were also just as likely to be perpetrators as victims'.⁴⁷ This may reflect behavioural symptoms related to some forms of impairment. It may also reflect the complex inter-relationship between bullying and victimization which may see these vulnerable young people manipulated to perpetrate violence by other young prisoners. For example, those with FASD have been found to 'be influenced negatively by their peers because they want to 'fit in' and 'be liked'.⁴⁸ This suggests that young people with neurodevelopmental impairments may be readily

34. Crockett M. J. (2009) 'The neurochemistry of fairness: clarifying the link between serotonin and prosocial behavior', *Annals of the New York Academy of Sciences*, 1167, pp. 76–86; Spratt, E.G., Nicholas, J.S., Brady, K.T., Carpenter, L.A., Hatcher, C.R., & Meekins, K.A (2012) 'Enhanced cortisol response to stress in children with autism', *Journal of Autism and Developmental Disorders*, 42(1), pp. 75-81.
35. De Brito, S.A., Viding, E., Kumari, V., Blackwood, N. & Hodgins, S. (2013) 'Cool and Hot Executive Function Impairments in Violent Offenders with Antisocial Personality Disorder with and without Psychopathy', *PLoS One*, 8(6), DOI: 10.1371/journal.pone.0065566; Giancola, P.R., Mezzich, A.C. & Tarter, R.E. (2001) 'Executive cognitive functioning, temperament, and antisocial behavior in conduct-disordered adolescent females', *Journal of Abnormal Psychology*, 107(4), pp. 629–641.
36. Ogilvie, J.M., Stewart, A.L., Chan, R.C.K. & Shum, D.H.K. (2011) 'Neuropsychological measures of executive function and antisocial behavior: A meta-analysis', *Criminology*, 49(4), pp. 1063–1107. Page 1064.
37. Talbot, J. (2008) *Prisoners' Voices: Experiences of the criminal justice system by prisoners with learning disabilities and difficulties*, London: Prison Reform Trust
38. Gooch, K. and Treadwell, J. (2015) *Prison Bullying and Victimization*. Birmingham: University of Birmingham. Page 49.
39. Ferguson, P.L., Pickelsimer, E.E., Corrigan, J.D., Bogner, J.A., Wald, M. (2012) Prevalence of traumatic brain injury among prisoners in South Carolina. *Journal of Head Trauma Rehabilitation*, 27: E11-20.
40. Office for the Children's Commissioner (2011) *I think I must have been born bad: emotional wellbeing and mental health of children and young people in the youth justice system*. OCC: London.
41. Mason, P. and Prior, D. (2008) *Engaging Young People Who Offend – Source Document*. London: Youth Justice Board; Centre for Social Justice (2012) *Rules of Engagement: Changing the Heart of Youth Justice*. London: Centre for Social Justice; Rose, J. (2014) *Working with young people in the secure estate: from chaos to culture*. Second edition. Hove: Routledge.
42. The Disabilities Trust Foundation (2015) *Brain Injury Linkworker Service*. Available at: www.thedtgroup.org/media/513066/16.01.15_Linkworker_Service_Report.pdf
43. Fast, D.K. and Conry, J. (2004) The challenge of Fetal Alcohol Syndrome in the criminal justice system. *Addiction Biology*, 9: 161-166.
44. Conti-Ramsden, G. & Botting, N. (2004) 'Social difficulties and victimization in children with SLI at 11 years of age', *Journal of Speech, Language, and Hearing Research*, 47, pp. 145–161.
45. Baumeister, A., Storch, E. & Geffken, G. (2008) 'Peer victimization in children with learning disabilities', *Child and Adolescent Social Work Journal*, 25, pp. 11–23. Mishna, F. (2003) 'Learning disabilities and bullying: Double jeopardy', *Journal of Learning Disabilities*, 36, pp. 336–347.
46. Gooch, K. and Treadwell, J. (2015) *Prison Bullying and Victimization*. Birmingham: University of Birmingham. Page 48.
47. Gooch, K. and Treadwell, J. (2015) *Prison Bullying and Victimization*. Birmingham: University of Birmingham. Page 48.
48. Fast, D.K. and Conry, J. (2004) The challenge of Fetal Alcohol Syndrome in the criminal justice system. *Addiction Biology*, 9: 161-166.

targeted and manipulated by peers. Further research is clearly needed here.

Ensuring assessment and recognition of impairment

Given the relevance of neurodevelopmental impairment to behaviour, screening and assessment are key — both to understanding and responding to difficulties facing individual young people, and to recognising collective levels of need so as to appropriately commission specialist health, education and employment services for young offenders. However screening and assessment are also clearly challenging. A number of recent reviews of criminal justice service provisions in the UK highlighted concerns about the lack of effective recognition of neurodevelopmental impairment.⁴⁹ Of particular relevance are the findings of the Office of the Children's Commissioner for England, published in the report 'I think I was born bad'.⁵⁰ Following an extensive programme of inspections of secure children's homes, secure training centres and young offenders' institutions in 2010 and 2011, the Children's Commissioner raised concern regarding the significant number of young people in the secure estate who demonstrated symptoms indicating potential neurodevelopmental disorders, and the perceived level of undetected or unassessed needs amongst this group.

There have been recent advances in assessment in the criminal justice system within the UK undertaken in response to these concerns. In particular, an assessment system has been validated for use with young offenders within the secure estate across England and Wales, and is now utilized in all youth custodial institutions. The Comprehensive Health Assessment Tool (CHAT) includes initial screening for a range of different disorders,

including ADHD, autism, learning disability, communication disorders, and TBI, alongside broader assessment of physical and mental health needs, and substance use.⁵¹ The section of the CHAT relevant to 'neurodisability' is intended to be completed by a trained clinical practitioner within ten days of initial admission. Such a time scale allows opportunities to observe and engage the young person, as well as accessing corroborative and informant history.

However, as highlighted by the findings of the influential Bradley Report⁵² regarding the experiences people with mental health problems or learning disabilities in the criminal justice system, the existence of screening tools is necessary but not sufficient for ensuring effective responses to meet the needs of those who are assessed. In particular, it is vital that such assessments

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inform the practice of those working on a daily basis with young people identified as having a particular disorder. This is seemingly not universally the case. For example, Gooch and Treadwell found that prison staff were often seemingly unaware 'of who had reported a disability, how this might affect their behaviour or what support they might need' as a result.⁵³

Furthermore there are evident gaps in the coverage of the CHAT, particularly regarding fetal alcohol spectrum disorder.

This reflects the significant challenges in diagnosing FASD,⁵⁴ but means that such disorders have the potential to remain unrecognized. Assessments also need to be alert to impairments that may not meet the criteria or severity for diagnosis of a clinical disorder, but may nonetheless significantly impact upon functioning. Recognition of need does not necessarily imply diagnosis of a disorder. Assessments should also emphasise function and need, rather than diagnosis, and should maintain a holistic rather than medical approach.

49. Department of Health (2009) *The Bradley Report: Lord Bradley's review of people with mental health problems or learning disabilities in the criminal justice system*. London: Department of Health. Available at: www.centreformentalhealth.org.uk/pdfs/Bradley_report_2009.pdf
50. Office for the Children's Commissioner (2011) *I think I must have been born bad: emotional wellbeing and mental health of children and young people in the youth justice system*. OCC: London.
51. Offender Health Research Network. (2013). *The Comprehensive Health Assessment Tool (CHAT): Young people in the secure estate – Version 3*. Manchester: University of Manchester; Chitsabesan, P., Lennox, C., Williams, H., Tariq, O. and Shaw, J (2015) 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 Rehabilitation*, 30(2): 106-115.
52. Department of Health (2009) *The Bradley Report: Lord Bradley's review of people with mental health problems or learning disabilities in the criminal justice system*. London: Department of Health. Available at: www.centreformentalhealth.org.uk/pdfs/Bradley_report_2009.pdf
53. Gooch, K. and Treadwell, J. (2015) *Prison Bullying and Victimisation*. Birmingham: University of Birmingham. Page 48.
54. Benz, J., Rasmussen, C., & Andrew, G. (2009). Diagnosing fetal alcohol spectrum disorder: History, challenges and future directions. *Paediatrics & Child Health*, 14(4), 231.

In addition to formal systems of assessment and diagnosis, staff should be trained so as to identify signs of impairment that require assessment. Custodial staff therefore need to be equipped to distinguish between 'normal' adolescent behaviour, and 'abnormal' behaviour that indicates an unidentified neurodevelopmental disorder may underpin the behaviour.⁵⁵ Clearly identifying impairment is challenging due to the complexity of needs of many young people in custody and the context in which staff are working with them, as well as reluctance among many young people to divulge such difficulties. However, it is important to be aware of possible signs of impairment and the coping strategies young people may use to cover up any difficulties they have. For example, when speaking to a young person it is useful to consider whether he or she: has difficulty explaining him or herself; shows signs of hyperactivity, fidgeting or can not sit still; is easily distracted, or does not listen or concentrate; or is easily angered or responds aggressively. All of these may be signs of impairment and may warrant referral to an appropriate professional and consideration to previous assessments of the young person that have been undertaken. There are also a range of short tasks that can be utilized to test certain skills, such as asking the young person to recall a list of words, to name objects, or to write a sentence.

Given the challenges in effectively diagnosing some conditions and impairments in this context, it is also important that assessments undertaken in custody are not disconnected from those undertaken previously in community settings. Information should be shared, including, where possible, that regarding treatment and support received, and the associated trajectories of development and impairment.

Our account of the multiple and diverse influences of neurodevelopmental impairment on functioning and behaviour, coupled with the apparent high prevalence of such impairment among young people in custody, highlights the significance of effective recognition and response. An effective response necessarily includes the development of bespoke, tailored and responsive interventions and support programmes able to address the specific needs of young people with impairment, as well as the necessary revisions to generic programmes, such as those related to education or substance use, so as to ensure effective engagement of all young people. An effective response also requires consideration to appropriate daily interactions between staff and young people, particularly in understanding the reasons for problematic behaviour or non-compliance with rules or orders. Such responses are necessarily underpinned by effective assessment of impairments and by staff awareness of 'warning signs' or indicators of particular difficulties.

These suggestions clearly pose considerable challenges for custodial institutions. In particular they suggest the need for significant levels of training and awareness among staff. They also suggest the need for effective communication with a range of agencies or services so as to share previous assessments, provide specialist support when in custody, or enable appropriate transition to such support following transition into the community. However, not to act on the increased awareness of the prevalence and importance of neurodevelopmental impairment is to continue to impede the practice of custodial staff, and to fail to meet the needs of young people made vulnerable by emotional and cognitive difficulties.

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- 55. Rose, J. (2014) *Working with young people in the secure estate: from chaos to culture*. Second edition. Hove: Routledge. Page 6.
 - 56. Hughes, N., Williams, H., Chitsabesan, P., Davies, R. & Mounce, L. (2012) *Nobody Made the Connection: The prevalence of neurodisability in young people who offend*. London: Office of the Children's Commissioner for England. Available online: https://www.academia.edu/7349196/Nobody_Made_the_Connection_the_prevalence_of_neurodisability_in_young_people_who_offend
 - 57. American Psychiatric Association (2010) *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington DC: APA; American Psychiatric Association (2013) *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington DC: APA
 - 58. Hughes, N., Williams, W.H., Chitsabesan, P., Walesby, R., Mounce, L.T.A. and Clasby, B. (2015) 'The Prevalence of Traumatic Brain Injury Among Young Offenders in Custody: A Systematic Review', *Journal of Head Trauma Rehabilitation*, 30(2): 94-105. Available online: https://www.academia.edu/11345460/The_Prevalence_of_Traumatic_Brain_Injury_Among_Young_Offenders_in_Custody_A_Systematic_Review