

Characteristics of Offenders with Neurodevelopmental Disorders

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Outline of Presentation

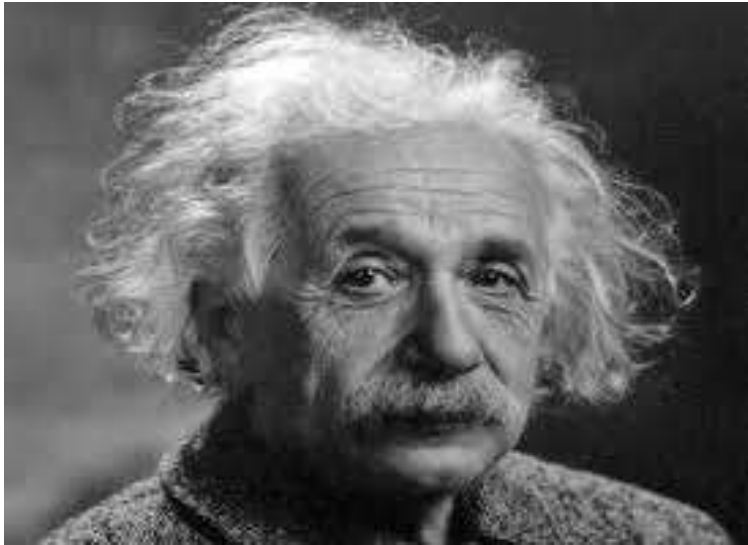
- Overview of Neurodevelopmental disorders (ND)
- Offenders with ND in Prison
- Offenders with ND in the Court setting
- Implications for Research & Practice

Neurodevelopmental disorder

- Onset in the developmental period
- Include Intellectual Disability (ID), Attention Deficit and Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), Communication disorders, Specific learning disorders, Tic disorders
- Impairments of personal, social, academic or occupational functioning
- Symptoms of excess as well as deficits

Autism Spectrum Disorders

- Affects 1 per 100
- Boys more than girls.
- Spectrum of conditions



Intellectual Disability

- A significantly reduced ability to understand new or complex information or to learn new skills (IQ of 70 or less)
- A reduced ability to cope independently



Criteria for ADHD

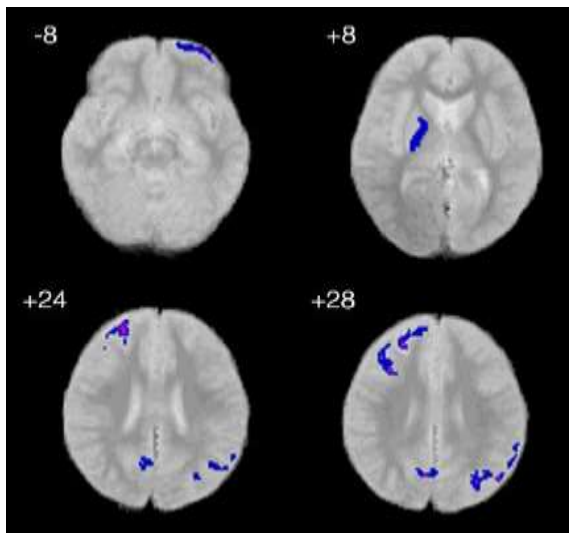
- Persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development
- Symptoms present prior to 12 years



Biology of ND: Difference in brain structure

- ADHD boys had grey matter volume **reduction** in right posterior cerebellum

- ASD boys had grey matter volume **enlargement** in left MTG/STG (Lim et al., 2015, Psych Med, 45, 965-976).



Biology of ND: Difference in neurobiological functioning

ASD

- glutamate/
GABA imbalance

ADHD

- catecholamine/
dopamine/ nicotine
imbalance

Presentation across NDs

- Social Impairment
- Cognitive Impairment
- Emotional regulation

Social & Environmental Risk Factors

- Social deprivation
- Early adversity & Trauma
- Educational Disengagement
- Peer Group – susceptible to bullying & negative peer pressure
- Rejection

Influence of Neurodevelopment on Youth Crime

(Hughes, Williams, Chitsabesan et al, 2012)

ND Condition	Prevalence rates: Young People in General Pop. (%)	Prevalence rates: Young People in Custody (%)
ADHD	1.7-9	12
ASD	0.6-1.2	15
ID	2-4	23-32
FASD	0.1-5	10.9-11.7
TBI	24-31.6	65.1-72.1

Young Violent Offenders with ND

(Billstedt et al.,2017)

- 270 Young Offenders in one region of Swedish Prison & Probation service
- Age: 18 to 25 years
- Sentenced 'hands on violent' offences
 - 63% ADHD in childhood
 - 43% ADHD in adult life
 - 10% ASD
 - 1 % ID

ND Group v. No ND

(Billstedt et al.,2017)

- Earlier onset of conduct disorder/antisocial behaviour
- Younger age for first crime (12.5 v13.9 yrs.) & truancy
- Lower school achievement
- Higher exposure to parental substance/alcohol misuse

Overlap between NDs in Young Offenders

(Billstedt et al.,2017)

- One ND- 40%
- Two NDs – 9%
- Three NDs – 1%
- **ASD Group: 50% had ADHD**
- ADHD Group :11% met criteria for ASD

Crossing the Divide Research

Murphy et al, 2018

- Young People with ASD & ADHD have significant needs during transition
- Mostly undiagnosed even when in contact with clinical services
- As they transition their contact with treatment & support services reduce
- Largest determinant of service contact is age not need

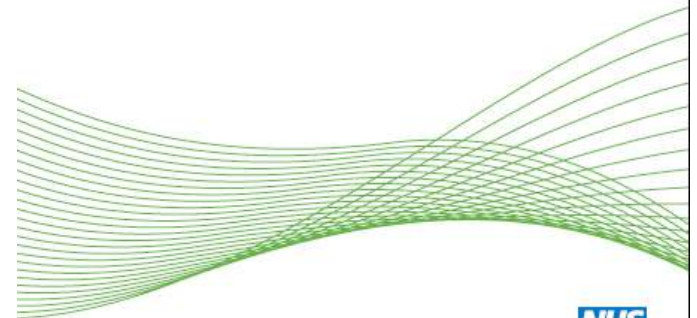
PROGRAMME GRANTS FOR APPLIED RESEARCH

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Crossing the divide: a longitudinal study of effective treatments for people with autism and attention deficit hyperactivity disorder across the lifespan

Declan Murphy, Karen Glaser, Hannah Hayward, Hanna Eklund, Tim Cadman, James Findon, Emma Woodhouse, Karen Ashwood, Jennifer Beecham, Patrick Bolton, Fiona McEwen, Ellie Wilson, Christine Ecker, Ian Wong, Emily Simonoff, Ailsa Russell, Jane McCarthy, Eddie Chaplin, Susan Young and Philip Asherson



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NHS
National Institute for
Health Research

Prevalence of ADHD in Prison populations

- Prevalence of adult ADHD in detention settings was 26.2% (95% CI: 22.7-29.6)(Baggio et al., 2018)
- X8 more aggressive incidents than other prisoners (Young et al., 2011)
- X6 more aggressive incidents than prisoners with Personality Disorder

Prevalence of ID in Prison

- 10 prison survey across 4 countries of 12,000 inmates found prevalence of 0.5 to 1.5% with range 0.5 to 2.8% (Fazel et al., 2012)
- Prevalence of 10.8% in Norway (Søndenaa et al., 2008, JIDR)
- ‘No One Knows’ Prevalence study of UK prisons (Talbot, 2007) & (Murphy et al., 2015)
 - 7% with IQ < 70
 - 23% with IQ < 80

Prevalence of ASD in Prison

- ASD was found in 2-18% of adult & juvenile Forensic populations (Rutten et al., 2017)
- 4.4% with Autistic Traits in Maximum secure prison in USA (Fazio et al., 2012)
- Scottish prison service: 0.93% with ASD (Robertson et al., 2012)

Challenges in Prison system

- Less likely to benefit from Prison Treatment Programmes
- Less likely to access wider occupational & other activities
- ? Increase in vulnerabilities

England & Wales

Prisons Map



Population	Total
Total population	83,364
Male population	79,481
Female population	3883

Prison Population rates:

UK = 140

Norway = 63

NZ = 214

Aims of Study

- Best approach to screening & assessment
- Extent to which neurodevelopmental disorders go unrecognised in prison
- Extent of mental health problems among those with neurodevelopmental disorders

Eligibility Criteria

- Brixton Prison in April 2012 moved from a Remand to a Resettlement category C Closed Prison
- A prisoner at HMP Brixton
- Able to give informed consent
- Number of prisoners = 798
- Aim to screen = 300

Study setting

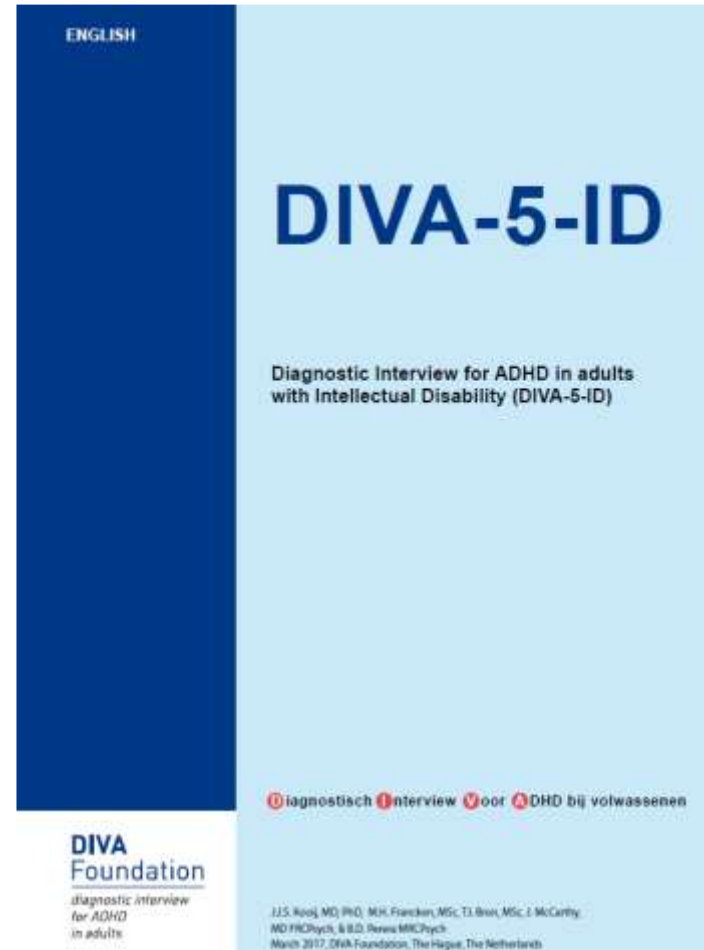
- Healthcare services provided by;
 - GPs, nurses, mental health nurses and a psychiatric 'outreach' service
- No routine screening for neurodevelopmental disorders.
- No assessment apart from self-report and a brief test in the Education department - results not shared with healthcare or other services.

Screening for ND

- **ADHD:** 6 item screening tool for ADHD –WHO Adult ADHD self-report scale (Kessler et al., 2005)
- **ASD:** 20 item AQ then added 10 item AQ (much lower sensitivity in forensic populations)
- **LDSQ** – LD Screening Questionnaire (McKenzie et al., 2012)
- Sensitivity & Specificity about 80%

Diagnostic Assessments

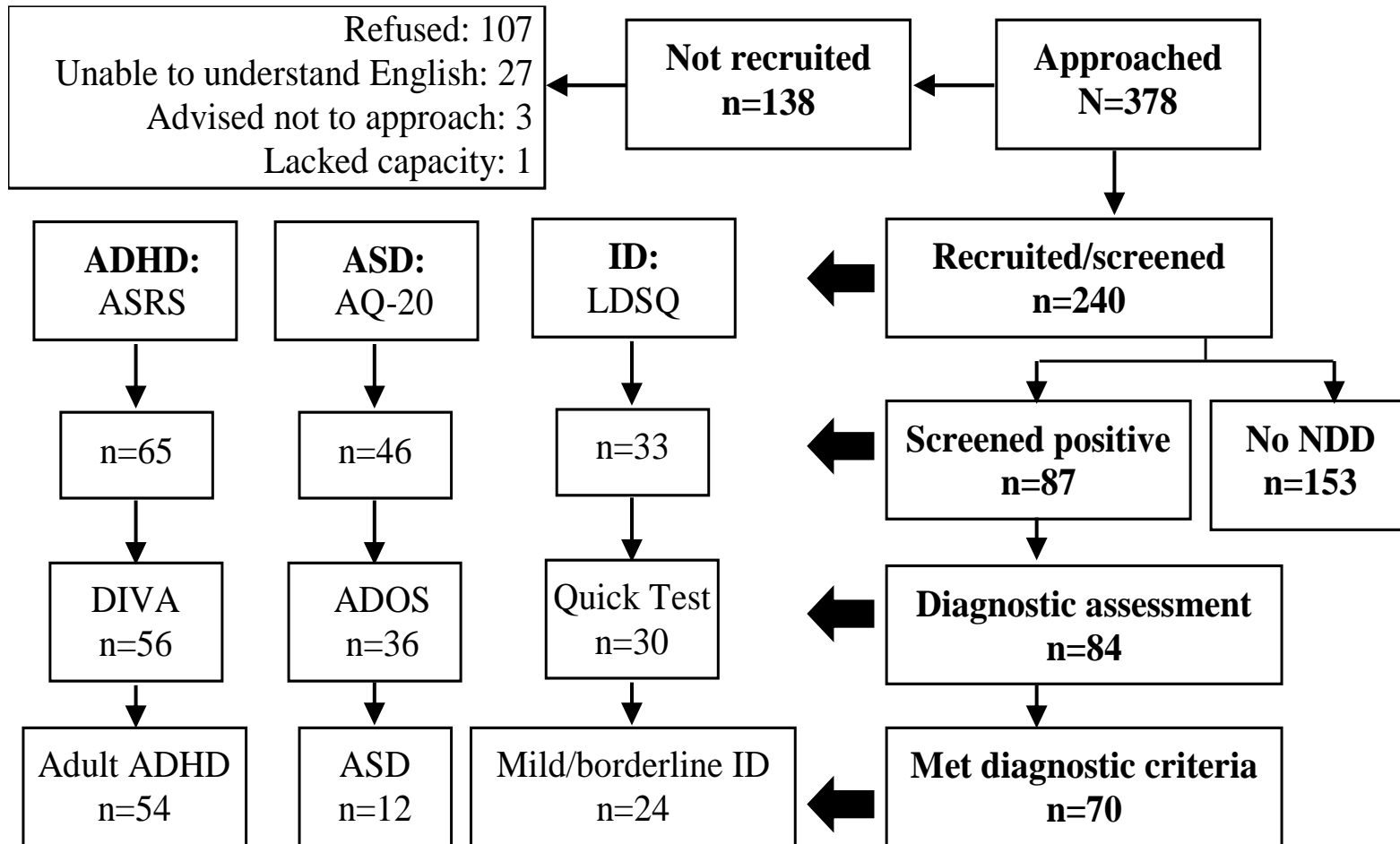
- **ADHD: DIVA**
(Diagnostic Interview for ADHD in Adults; Kooij, 2010)
- **ASD:** if screen positive then will undertake ADOS and ADI
- **ID:** Quick Test



Mental Health Assessment

- **Mini International Neuropsychiatric Interview Plus:** Assessed for comorbid mental health conditions & substance abuse using (MINI Plus; Sheehan et al. 1998)
- Covers 22 DSM-IV/ICD-10 Diagnoses

Recruitment of Prisoners



Age & Ethnicity

ND v No ND

		No ND (n=77)	ND (n=61)
Age at 10 year intervals	20-29	36.4%	57.4%
	30-39	29.9%	19.7%
	40-49	27.4%	18%
	50 +	9.1%	4.9%
Ethnicity	White	48.1%	78.7%
	Afro-Caribbean	44.2%	13.1%
	Asian or other	7.8%	8.2%

Socio-Economic status

ND v. No ND

	ND (n=87)	No ND n=153)	OR (95% CI)
Not in a relationship	60 (69%)	78 (51%)	2.14 (1.17 to 3.89)
Homeless	20 (23%)	13 (9%)	3.7 (1.59 to 8.61)
Not in employment or study	64 (74%)	77 (50%)	2.57 (1.4 to 4.74)
Unable to read and write	17 (20%)	8 (5%)	3.96 (1.52 to 0.37)
No qualifications (GCSEs or equivalent)	62 (74%)	74 (50%)	2.48 (1.32 to 4.65)

Offending Characteristics: ND v. no ND

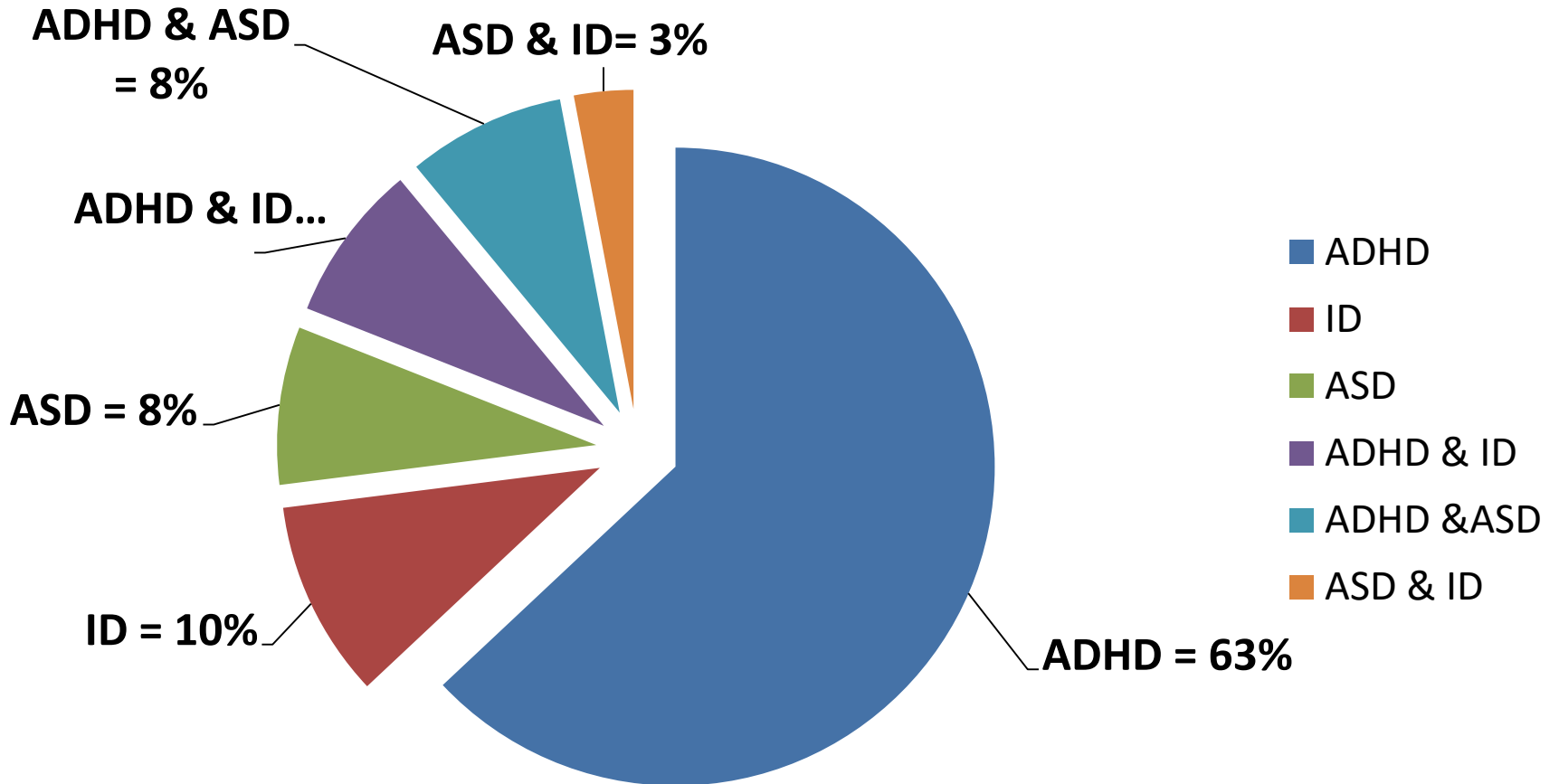
Nature of offence	No ND (n=76)	ND (n=62)	
Sexual Offence	23.9% (n=17)	34.5% (n=20)	$\chi^2 = 1.73, p=0.188$
Violence against the person	18.3 % (n=13)	15.5% (n=9)	$\chi^2 = 1.77, p=0.675$
Drug Offences	14.1% (n=10)	6.9% (n=4)	$\chi^2 = 1.71, p=0.192$
Firearms	5.6% (n=4)	3.4% (n=2)	$\chi^2 = 0.344, p=0.558$
Robbery	5.6% (n=4)	8.6% (n=5)	$\chi^2 = 0.44, p=0.508$

Unrecognised ND among the 87 participants who screened positive

- 49% (n=43) screened positive for ND had NOT been previously recognised prior to prison
- Those who were unrecognised were more likely to be identified as BME (35% v 16% p=0.0042)
- Those who were unrecognised were more likely to be able to both read & write (93% v. 68% p=0.0003)
- Not recognised previously:

80% ASD, 58% ADHD, 6% ID

Comorbidity of ND (n=61)



Rates of Self-harm & Suicide in Prisoners with ND

	No ND (n=77)	1 ND (n=48)	OR (95%CI) for ND vs. 1 ND
Thought about Self Harm	3 (3.9%)	15 (31.3%)	11.21 (3.04-41.48)
Self harmed	1 (1.3%)	7 (14.3%)	12.67 (1.51-106.47)
Thought about suicide	3 (3.9%)	13 (27.1%)	9.16 (2.24-34.23)
Attempted Suicide	0	3 (6.1%)	0.38 (0.30-0.47)
Life Time attempted suicide	10 (13%)	29 (59.2%)	9.71 (4.05-23.31)

Current Mental Illness in Prisoners with ND

Mental Disorder	No ND (N=77)	1 ND (N=48)	OR (95%CI) no ND vs. 1 ND
Psychosis	3 (3.9%)	2 (4.1%)	1.05 (0.17-6.52)
Depression	5 (6.5%)	7 (14.3%)	2.40 (0.712-8.04)
Manic	4 (5.2%)	9 (18.4%)	4.11 (1.19-14.18)
Anxiety	16 (20.8%)	23 (46.9%)	3.37 (2.13-9.47)
PTSD	4 (5.2%)	4 (8.2%)	1.62 (0.387-6.81)

Other comorbidities in Prisoners with ND

Mental Disorder	No ND (N=77)	1 ND (N=48)	OR (95%CI) for ND vs. 1 ND
Antisocial PD	21 (27.3%)	33 (67.3%)	5.50 (2.52-11.99)
Substance Use Disorder	24 (31.2%)	21 (42.9%)	1.66 (0.79-3.48)

What does this tell on how to support Offenders with ND

- Not identified early in the criminal justice system
- Prisoners with ND are social excluded group
- Very vulnerable in terms of health & well-being in prison

Court Liaison & Diversion Service Study: London, UK

- Early identification & assessment
- Assistance, support and advice to a number of court stakeholders
- Facilitating continuity of care by assisting engagement in community based services
- Short-term intervention

Prevalence of ND in London & Surrounding Courts

	Outer London Courts (N= 8636)		South London Court (N = 452)	
ADHD	1.2%	100	2.2%	10
ID	3.8%	324	5.5%	25
ASD	0.9%	79	4.6%	21

Practice Implications

- Early Recognition of Young offenders with ND
- Early Screening & Assessment of Adult Offenders for ND
- Responsive Criminal Justice System
 - Should prisoners with ND be diverted to more appropriate therapeutic options or provide therapeutic option in prison

Practice Implications

- Improved services to young offenders through health, education & family support
- Improved engagement for Adults with Health, Employment & reduced Social isolation
- Specific Treatment – for ADHD
- Specific Interventions – in the Community

Evidence for Treatment of Offender Groups

Lichtenstien et al NEJM 2012

- Medication for Attention Deficit Hyperactivity Disorder and Criminality.
- Observational study using Swedish National Registers
- 25,656 patients with a diagnosis of ADHD
- **32% reduction in criminality for men, 41% for women when on medication**
- Stimulant and non stimulants both reduced criminality.

A Pilot study of Concerta XL In Adult Offenders with ADHD: CIAO project

Professor Philip Asherson. Institute of Psychiatry Psychology and Neuroscience, London

- A 12-week open label pilot study of Concerta XL with 72 participants aged 18-30 years
- To evaluate the effectiveness of Concerta XL
 - reducing levels of aggression using MOAS
 - increasing engagement with educational activities
 - **reduced symptoms of ADHD**
- Not conclusive so undertaking a larger study of 200+ (CIAO-II)

Intellectual Disability Compulsory Care and Rehabilitation (IDCCR) Act 2003 – New Zealand

- Provisions of compulsory care and rehabilitation to individuals with an ID who had been charged with, or convicted of an imprisonable offence.
- Two categories of care:
 - A Special care recipient must receive care and rehabilitation in a secure facility so effectively a hospital
 - A Care recipient who can receive care in a secure facility or in a supervised setting
- Regional Community Forensic ID teams of nursing, OT, psychology and psychiatry input were set up
- Seamless care from secure hospital care to supported independent living

Implications for Research

- Which are the best screening tools for NDs & how do work in different settings
- Does early identification effect outcomes & which outcomes:
 - Health
 - Offender
 - Quality of Life
- What are the Treatments/Interventions that work
- What Legislation & Policy is effective for:
 - the Person
 - Society

Research Team

- Professor Eddie Chaplin, London South Bank University, UK
- Dr Lisa Underwood & Hannah Hayward, Research workers, FANS Department, King's College London, UK
- Dr Andrew Forrester, Consultant Forensic Psychiatrist & South London & Maudsley NHS Foundation Trust, UK
- Professor Philip Asherson King's College London, UK
- Professor Susan Young, Imperial College London, UK
- Dr Richard Mills, R & D Director, National Autistic Society, UK
- Professor Declan Murphy, Forensic & Neurodevelopmental Sciences Department, King's College London, UK

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THANKS FOR LISTENING



ANY QUESTIONS?