Neuropsychiatry and the Law

When Two Worlds Collide

Lancashire Care NHS
NHS Foundation Trust

Specialist Services
Secure Services
Mental Health
Community Services
Children and Families

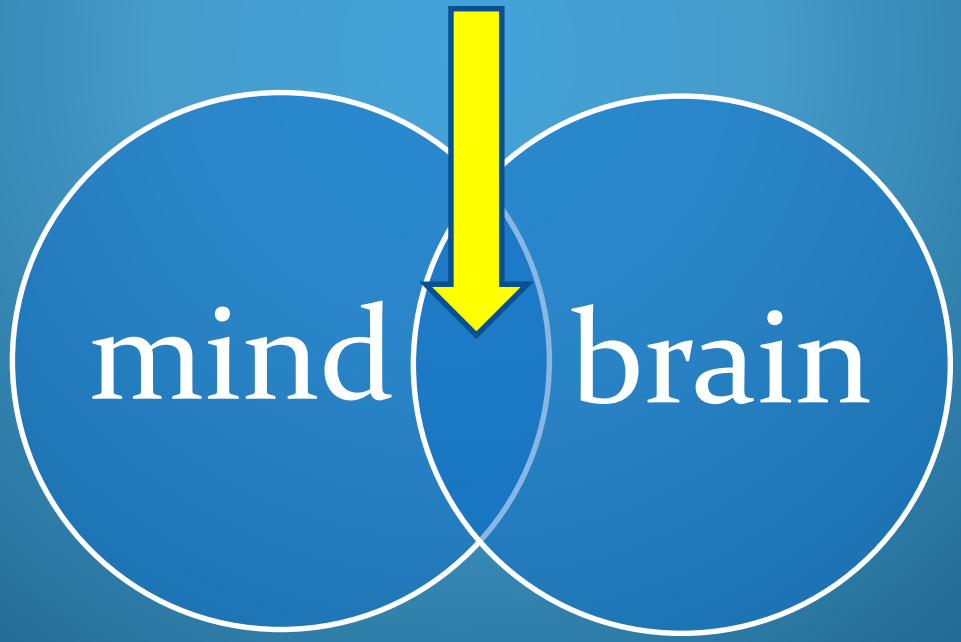
Dr Czarina Kirk
Consultant Neuropsychiatrist

Secure Services
Lancashire Care NHS Trust

Supporting Health and Wellbeing
Network Name

Neuropsychiatry ? Huh??

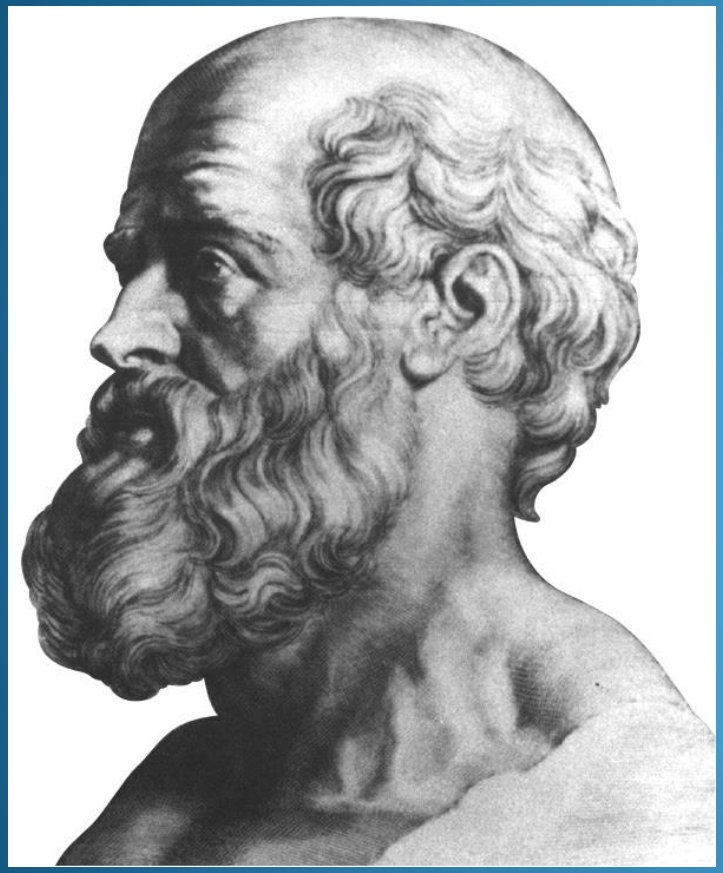
- interface between neurology and psychiatry



Neuropsychiatric conditions :

- Any neurological condition that presents with psychiatric symptoms
- Epilepsy, Parkinsons Disease, MS, Huntingtons Chorea, ABI etc etc

- Any psychiatric condition that presents with neurological symptoms
- Movement disorders, functional neurological disorders, epilepsy, cognitive impairment



HIPPOCRATES

400 BC

THE SACRED DISEASE

“I am about to discuss the disease called 'sacred.' It is not, in my opinion, any more divine or more sacred than other diseases, but has a natural cause, and its supposed divine origin is due to men's inexperience and to their wonder at its peculiar character.“ REFERRING TO EPILEPSY.

Henry Maudsley

Henry Maudsley, doyen of 19th century British psychiatry, believed that people with epilepsy were particularly prone to violence and criminality.

“Between crime and insanity there is a neutral zone; at one side of that zone one finds some craziness (folie) and a lot of perversity, whereas at the other side, perversity is less and craziness dominates”.

Epilepsy and crime…

- Greeks – "The Herculean Disease" – Hercules murdered his wife and children in a manic rage aka epilepsy
- Shakespeare – Othello – raging , jealous murderer with epilepsy
- Dickens – "Oliver Twist". Monks "advanced towards Oliver, as if with the intention of aiming a blow at him, but fell violently to the ground writhing and foaming, in a fit." in whom all evil passions vent…hideous disease …made your face an index even to your mind" -his lips discoloured and disfigured from being bitten.
- Morel 1860– "epileptic character" – irritable, anger, aggression
- Lambroso 1899 – Crime, it's causes and remedies. "We must not forget that criminal tendencies is always of an epileptic nature"
- Dostoevsky: Crime and punishment. Dementiev falsely confesses to the crime committed by Raskolnikov ,for religious reasons) "I am the murderer of Alyona Ivanova and her sister Lizaveta Ivanovna, I killed them with an axe. Darkness came over me"

Epilepsy and Crime

Los Angeles Times

Seizure is used as defense in killing
Epileptic defendant says he can't recall strangling girlfriend.
April 16, 2008|Jack Leonard | Times Staff Writer

BIRMINGHAM MAIL

Epileptic killer fails to get sentence murder sentence overturned

•11:50, 28 FEB 2015
•**UPDATED** 12:09, 28 FEB 2015
•**BY** FIONNUALA BOURKE

Richard Kelly battered cancer victim to death with a baseball bat

Man who stabbed wife five times ruled insane
AN Oldham man who stabbed his wife five times then tried to take his own life, has been found innocent of attempted murder by reason of insanity. Consultant neuropsychiatrist Dr Czarina Kirk said: “At the time of the attack Miah suffered a cluster of epileptic seizures. He wasn’t aware of his surroundings and actions.”

Epilepsy and behaviour

- Aura / prodrome - irritability, aggression, tension, depression, restlessness, insomnia

- **Ictal (during the seizure)**
  Automatic behaviours, mood changes, confusion, wandering
  Hallucinations, paranoid ideation, déjà vu / jamais vu. Usually rapid onset and resolution.
  Amnesia for event.
  Non-convulsive status (may last days to weeks)

Training in Neuropsychiatry

- No CCT in Neuropsychiatry BUT an accreditation is in development (likely to be post CCT)
- CT training – posts are sporadic – list available on website – might help you chose a rotation
- ST training – variety of approaches – GAP, LD, OA, Liaison Psychiatry with a year in a neuropsychiatry post.
- Special interest sessions; taster sessions; research
- Bursaries and prizes ££££££ up for grabs!

Inter-ictal (in-between seizures)

- Aggression / ‘Episodic dyscontrol’ (sudden, senseless, unprovoked
- Affective disorder / depression / suicide
- Personality and behaviour changes
- Schizophrenia-like psychosis (warmer affect)
- Cognitive impairment (head injuries / hypoxia / specific brain lesion)

Post –ictal psychosis

Logsdale and Toone Criteria:

1. Episode of psychosis developing within 1 week of a seizure or more usually a cluster
2. Psychosis lasting at least 15 hours and less than 2 months
3. Characterised by delusions- paranoid,religious/ grandiose, misidentification; hallucinations- all modalities. Clear consciousness.
4. No past history of treatment with antipsychotics in 3 months previous or anti-epileptic toxicity; not in status at the time of psychosis or recent history of head trauma

Risk factors for pip

- Family history of psychosis
- Young age onset of epilepsy
- Epileptic focus – temporal lobe / frontal lobe / ? Left sided
- Intellectual Disability
- Small tumours

Treatment?

- Do nothing – self limiting? RISKS - suicide, violence

- Better epilepsy control
- Better epilepsy control
- Better epilepsy control !!!!!!!!!!

- And if you must – low dose anti-psychotic used intermittently if possible eg haloperidol, risperidone, quetiapine

Epilepsy and crime….

Are people with epilepsy more violent? NO!!

Risk of Violent Crime in Individuals with Epilepsy and Traumatic Brain Injury: A 35-Year Swedish Population Study. Seena Fazel 2011. "In this longitudinal population-based study, we found that, after adjustment for familial confounding, epilepsy was not associated with increased risk of violent crime, questioning expert opinion that has suggested a causal relationship"

Epilepsy and crime

Epilepsy and violence: medical and legal issues. Epilepsia. 1986;27 Suppl 2:S77-104. Treiman DM.

- There is no greater prevalence of epilepsy in persons convicted of violent crimes than in other prisoners matched as controls.
- There is no evidence that violence is more common among epileptics than among non-epileptics, and no evidence that violence is more common in patients with temporal lobe epilepsy than in those with other types of epilepsy.
- Ictal violence is rare, and when it does occur usually takes the form of "resistive violence" as the result of physical restraint at the end of a seizure, while the patient is still confused. Violence early in a seizure is extremely rare, stereotyped, and never supported by consecutive series of purposeful movements.

Epilepsy and crime

Is epilepsy more common in prisons?

- **EPILEPSY, AUTOMATISM, AND CRIME** John Gunn,George Fenton. “excess prevalence of epilepsy discovered in the prison population” . 2-4 times general population.

- **Prevalence of epilepsy in prisoners: systematic review**. Seena Fazel. “In contrast with claims widely published in standard texts and other sources, this synthesis of seven surveys involving more than 3000 participants in general prison populations indicates that only about 1% reported a history of chronic epilepsy. The prevalence rate in general populations is also approximately 1% for men aged 25-35 years”.

Why the drama?

- Heterogeneity of symptoms – seemingly a seizure to fit all crimes
- Sexy – equivalent of porphyria as a cause for psychosis
- Legal framework which offers a special verdict ie automatism
- Justice – if proven – accessing treatment/ diversion/ prevention/ support

Presenting the evidence

Five criteria should be used to determine if a specific violent act was the result of an epileptic seizure:

1. The diagnosis of epilepsy should be established by a neurologist with special competence in epilepsy;
2. The presence of epileptic automatisms should be documented by the case history and video EEG;
3. Aggression during epileptic automatisms should be documented on video EEG
4. The aggressive act should be characteristic of the patient's habitual seizures
5. A clinical judgment should be made by the neurologist as to the possibility that the violent act was part of a seizure. (Expert opinion)

Brain injury is significantly associated with violent crime.

First case of insanity…

- James Hadfield (1771-1841) struck 8 times on the head with a sabre – wounds prominent for all of his life. Described as a "brain damaged and deluded former soldier"
- Attempted to assassinate King George III.
- Found Not Guilty by Reason of Insanity – led to the Criminal lunatics Act 1800

A few stats!

- 1 million people each year attend A &E dept with a brain injury
- Admissions- increase by 23% in last decade
- 160,000 admissions due to TBI per year
- 85-90% mild
- 100,000 severe
- 1.3 million people in UK living with consequences of Traumatic Brain Injury
- Costs £15bn per year (0.8%GDP) 10% NHS budget

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Demographics

- Peaks at below 5 years, 15-24 yrs, +70 yrs

- Males are two times more likely than females to sustain a brain injury.

- In past decade TBI in women and >65s doubled (men increased by 10%)

- The highest rate of injury is for males age 15-24.

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Demographics

- 40% of all admitted are dead 13 years later. Death rate for 15-54 year olds X8 population average in years 2-13 postTBI. Homeless and TBI x17 death rate (Fazel 2014)

- Previous TBI
  - After 1st TBI, risk of second injury is 3 times greater
  - After 2nd, risk of third injury is 8 times greater*

Gaultier & Cox 1991

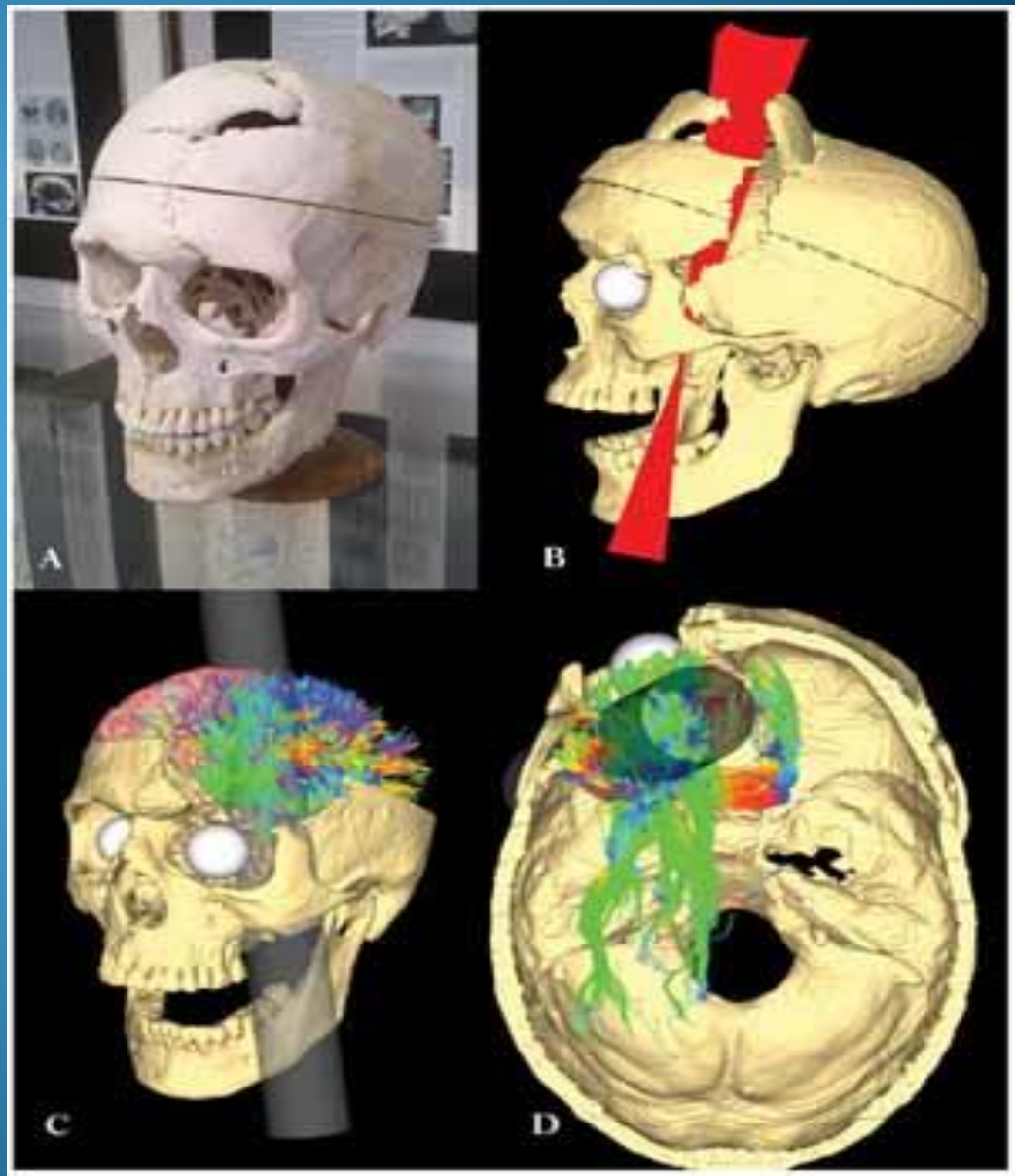
Causes of Acquired Brain Injury

- Vascular events – stroke /haemorrhage
- Brain tumour
- Encephalitis or other infection
- Toxic – including drug / alcohol
- Hypoxic/anoxic injury
- Traumatic Brain Injury – most common

Traumatic Brain Injury

Open – skull is penetrated – leads to focal brain damage

- Phineas Gage

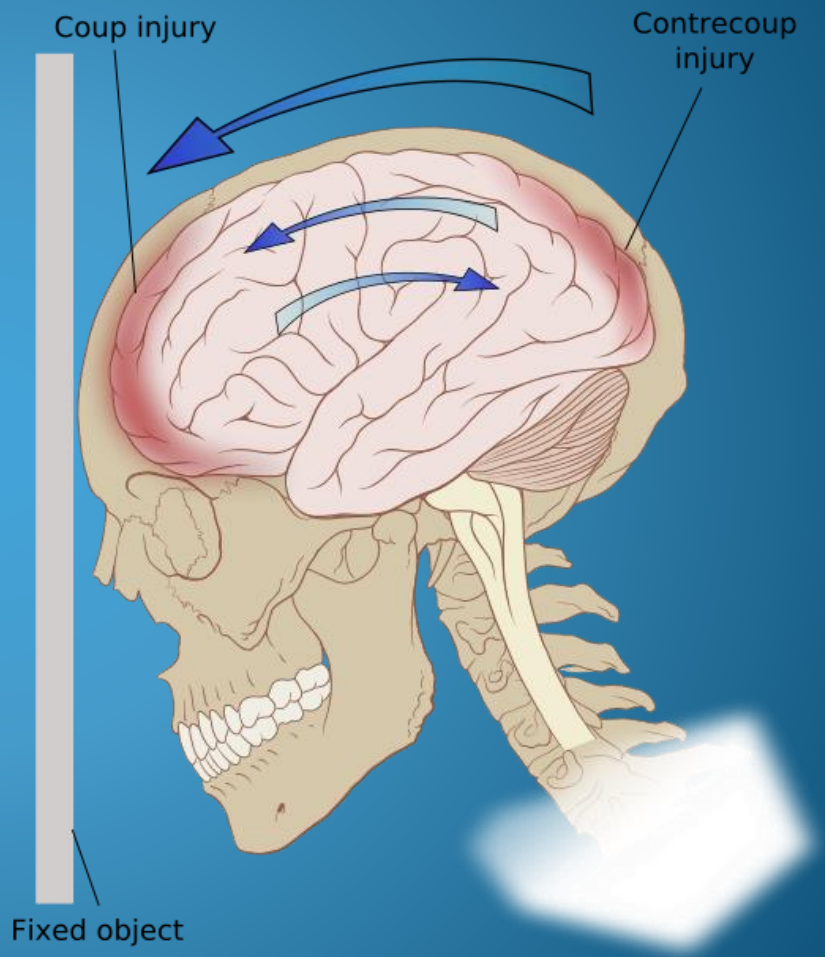


Closed Head Injury

More common. Examples- RTAs, assaults , sporting injuries

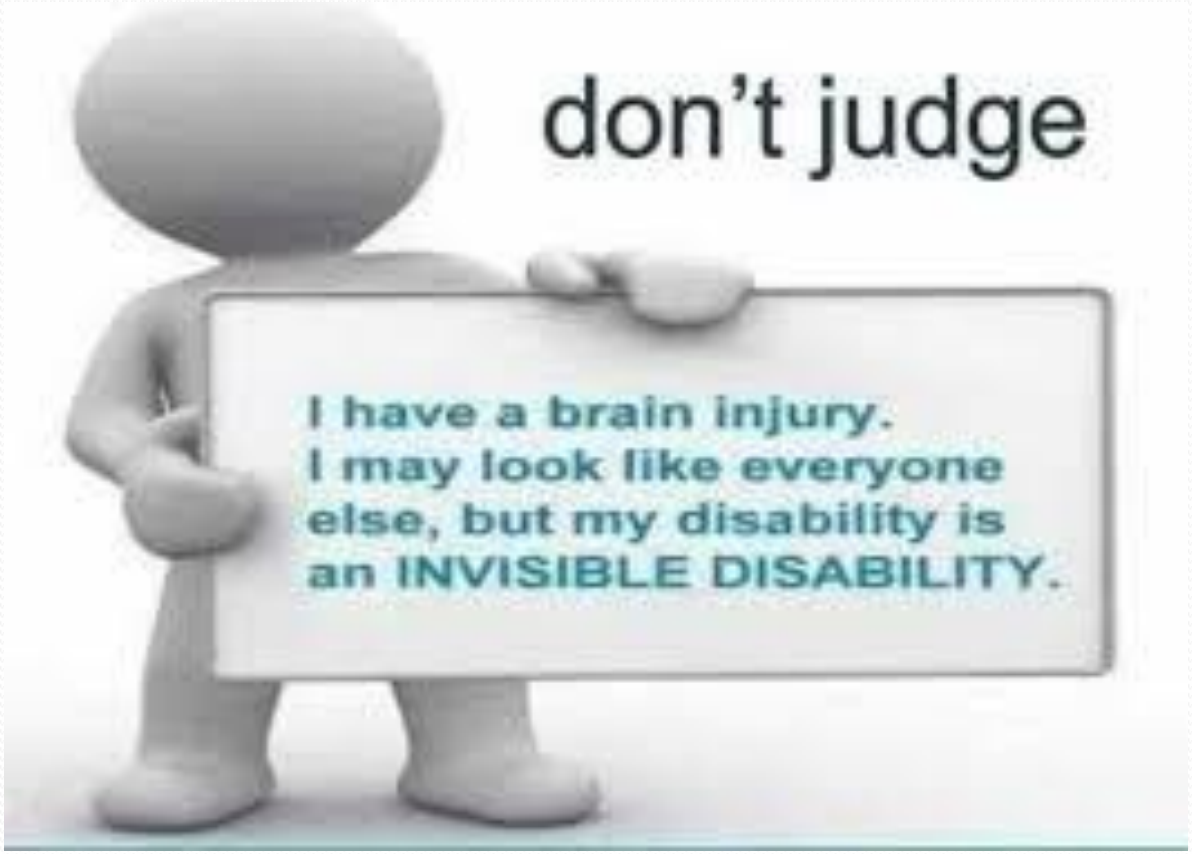
External mechanical force. Lacerations, bruises, bleeding -> swelling (oedema) , loss of oxygen flow -> more diffuse brain injury.

Frontal and Temporal lobes are most vulnerable



Severity of Traumatic Brain Injury[8]			
	GCS	PTA	LOC
Mild	13-15	<1 day	0-30 mins
Moderate	9-12	>1 to < 7 days	>30 mins to < 24 hrs
Severe	< 9	> 7 days	> 24 hrs

Common, Costly, Hidden



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Brain Injured Offenders

Some facts:

- Acquired brain injury (ABI) and cognitive deficits are very common in offender populations, in UK & other countries (25-87%).
- UK study of 200 prisoners – 60% self report brain injury
- Offend at an earlier age (by approx. 5 years)
- Significantly more recidivism

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Brain Injured Offenders

Some facts:

- Longer sentences / supervision failures
- More violent crimes
- More likely to have comorbid substance misuse
- Comorbid mental illness (x7)
- Often present intractable management problems over many years

Ivan Pittman – BIRT - Leeds 2013

Interviews with 139 of the 289 male offenders who had sustained a TBI.

- *92% had experienced a mild or moderate TBI and 8% a severe TBI*
- *30% had experienced more than 5 TBIs*
- *The mean age at which the first TBI was sustained was 18*
- *Almost three quarters (73%) had sustained their first injury before committing their first offence*
- *43% had been in prison on 5 or more occasions*

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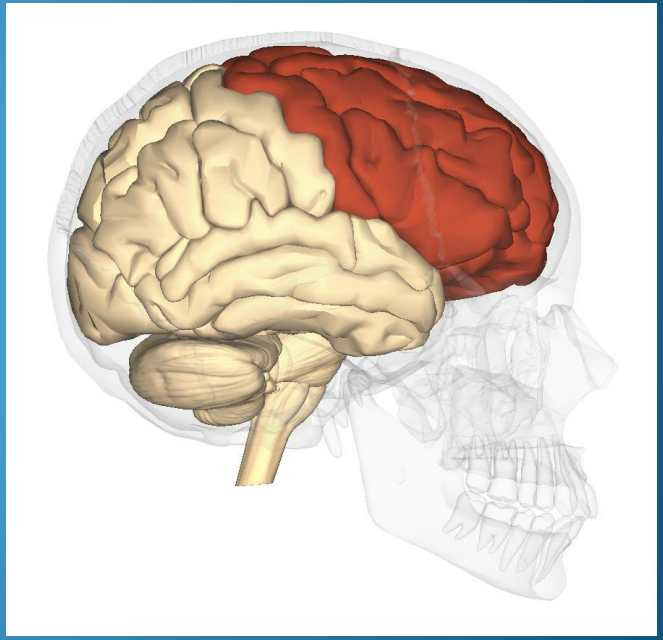
Frontal lobes

- Continues to develop through adolescence
- High level conscious and unconscious processing – executive functioning. Crucial pathway connections to emotion centres.
- Decision making/ problem solving
- Holding information and setting up searches
- Impulse control
- Empathy
- Consideration of consequences; inhibition



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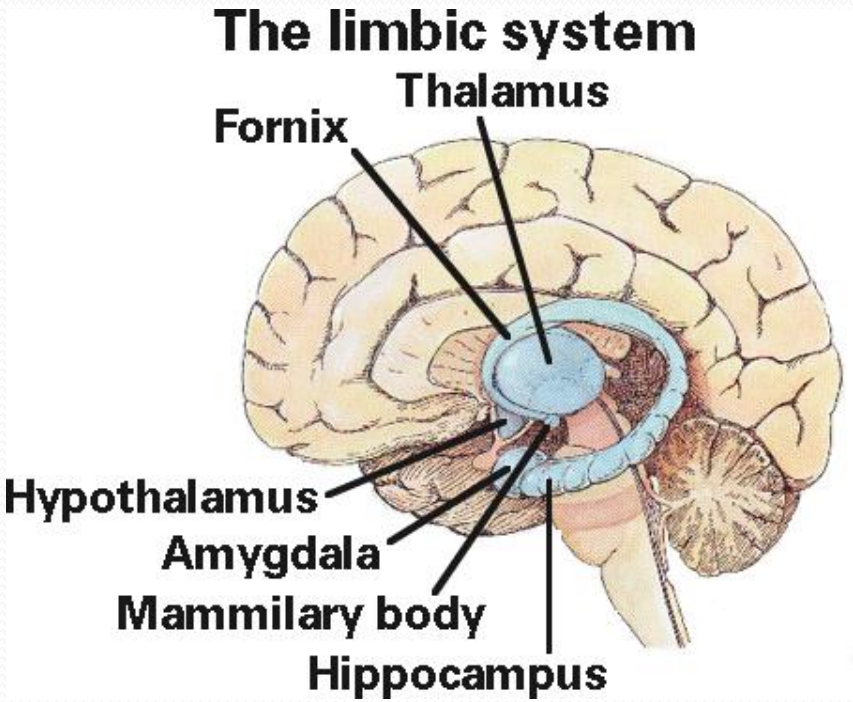
Limbic system



- Involved with **emotional processing and drives**.
- It includes: **hypothalamus (regulation if internal states)**
- Amygdala (**emotions anger and fear / gambling**)
- Hippocampus (**memory**)

Consequences of ABI

- Memory – short term memory
- Concentration
- Reduced ability to attend to different streams of information
- Decreased awareness of emotional state (uncoupling of cognition and emotion)
- Poor impulse control - disinhibition
- Poor social judgements
- Behavioural problems - conduct disorder; aggression
- Mental illness; substance misuse;
- Social decline; unemployment; divorce;homelessness

Perfect storm…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Why should you screen for brain injury?

Brain Injured Offenders

Some facts:

- Often unidentified within Criminal Justice System and mental health system, or, even if recognised as mentally disordered may be perceived as personality disordered or mentally ill only.
- Significance of cognitive impairments in challenging behaviour, offending & risk may be missed
- May engender negative attitudes in staff due to long term challenging behaviour & poor response to treatment & therapy

Why should you screen for brain injury?

- Association with violent offending
- Reduced engagement and efficacy of rehabilitation
- increase risk of revolving door recidivism
- May lack capacity; VULNERABLE
- Association with mental illness
- Effects of withdrawal / detox may be more severe ; epilepsy
- Risk of self injurious behaviour / suicide
- Sensory impairment

Screening and Assessment

- ASK ABOUT ABI ! Brain injury checklist
- Cognitive screen e.g. ACE-III.
- Functional assessment: – walking, Talking,Interactions, Orientation, Corroborative history
- Reports – fitness to plead; impact of cuts to legal aid
- BISI

BISI– Brain Injury Screening Index

- ❑11 question screening tool
- ❑? As part of First Reception Health Screen

Date:____/___/_____ **Age:** _____ **Gender:** ☐ Male ☐ Female ☐ Prefer not to say

Education (years of full-time education and/or highest qualification obtained): _____

BISI
BRAIN INJURY SCREENING INDEX

	1st Injury		2nd Injury		3rd Injury		4th Injury		5th Injury	
Q 1. Have you ever had a serious blow to the head?	**YES [1]**	NO [0] Ask Q 8.								
Q 2. When and how did it happen? Record here ➡										
Q 3. Did it leave you feeling dizzy, unsteady or dazed?	**YES [1]**	NO [0]	**YES** ☐	NO ☐	**YES** ☐	NO ☐	**YES** ☐	NO ☐	**YES** ☐	NO ☐
Q 4. Were you able to remember what happened to you in the hours after the injury?	YES [0]	**NO [4]**	YES ☐	**NO** ☐	YES ☐	**NO** ☐	YES ☐	**NO** ☐	YES ☐	**NO** ☐
Q 5. Were you told you were unconscious at the time? For how long? Record here (in minutes) ➡	**YES [4]** _____	NO [0]	**YES** ☐ _____	NO ☐	**YES** ☐ _____	NO ☐	**YES** ☐ _____	NO ☐	**YES** ☐ _____	NO ☐ Ask Q 8.
Q 6. Following the injury, did you (tick all that apply)										
Go to hospital	☐		☐		☐		☐		☐	
See a paramedic	☐		☐		☐		☐		☐	
Do nothing	☐		☐		☐		☐		☐	
Don't know	☐		☐		☐		☐		☐	
Other (please specify)	☐		☐		☐		☐		☐	

Q 7. Have you had any other blows to your head? How many? Record here ➡	**YES [1]** _____ Repeat Q 2-6 for 2nd to 5th injuries	NO ☐ Ask Q 8.	

Q 8. Have you ever had an illness affecting your brain?	**YES [10]**	NO [0]	
What was it (give as many details as possible)?	Record here ➡		_____ _____
Q 9. Have you suffered from epilepsy, fits or blackouts?	YES ☐	NO ☐	
Q 10. Do you have any significant problems with your (tick all that apply)...	**Memory [1]** **Concentration [1]**	**Speech [1]** **Other [1]**	Please specify _____
Q 11. Have you ever seen a doctor for, or been diagnosed with...	Tick all that apply below		
Attention Deficit Hyperactivity Disorder (ADHD)	☐		
Learning difficulties or learning disabilities	☐		
Serious mental health problems	☐		

What can you do ?

Immediate Management

- Consider if / how difficulties (sensory / physical / cognitive) may be impacting on their engagement / presentation.
- Consider communication styles. Avoid lengthy sentences – short simple high frequency language
- Allow much greater time to process information before expecting a response. Don't over talk or ask additional questions.
- Use concrete language – avoid sarcasm or abstract speech- it may be misunderstood

What can you do?

- Signpost to services / charities
- Headway ID card
- Referral to health professionals / health services

Referral for Mental Health Assessment
Relevant Diagnoses

- Organic personality Disorder (ICD 10 F07.0)
- Organic affective disorder (F06.3)
- Organic delusional disorder (F06.2)
- Cognitive disorder (F06.7)
- Other mental illness eg schizophrenia + ABI

ABI and mental health

Lifetime prevalence following ABI:

- Depression 2.4
- OCD 2.1
- Panic disorder / PTSD 2.8
- Schizophrenia 1.8
- Bipolar disorder 1.4
- Alcohol abuse 2.2
- Drug abuse 1.8

Personality and behavioural changes following ABI – Organic PD

a) Consistently reduced ability to persevere with goal-directed activities
b) Altered emotional behaviour
c) Expression of needs and impulses without consideration of consequences or social convention
d) Cognitive disturbances,
e) Marked alteration of the rate and flow of language production
f) Altered sexual behaviour

Psychosis

- Immediate (?delirium) or latent onset

- Risk of developing schizophrenic-like psychosis over 15-20 years is 0.7-9.8%

- Association with epilepsy

Organic delusional disorder

- The onset is often gradual, with a subacute or chronic course (Zhang & Sachdev, 2003).
- Variable data - ~1.5 % with ABI develop psychosis. Increases over time (up to 10%) – relatively rare
- Prodrome – bizarre behaviour (50%) depression and affective instability(39%) antisocial and inappropriate social behaviour (36%), social withdrawal (31%) and deterioration at work (33%)
- Time of onset - Sachdev and colleagues (2001) reported a mean latency of 54.7 months between head injury and onset of psychosis, Other studies have shown bimodal distribution< 1 year and 4-5 years post ABI. Reported cases up to 20 years latency.

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Clinical features

- Persecutory delusions
- Auditory hallucinations
- Hallucinations associated with neurological deficits
- Misidentification/ misinterpretation of normal stimuli– Capgras, Fregoli
- Uncommon thought disorder, loosening of associations
- May have retained insight
- Fewer negative symptoms
- Cognitive impairment – memory , executive function impairment (94%)
- MRI/EEG findings
- Epilepsy - ~30%

Schizophrenia and ABI - B

- Significant association between Schizophrenia and ABI (odds ratio 1.65%) Molloy, Conroy et al Schiz bull 2011;37 (6) 1104-1110
- Early onset psychosis more likely to have had a ABI Abdel Malik et al 2003
- Largest effect is if genetic predisposition and ABI
- Diagnosis of schizophrenia x 2 gen pop to have an ABI

Referrals to Services – Possible Pathways

- Secure services – specialist ABI and non-specilaist
- Locked brain injury rehabilitation – BIRT, TRU, St Andrews, St Mary's , Cygnet
- Community disposals – need engagement of offender and community team
- ABI Prison in-reach – limited availability – link workers (Disabilities Trust)

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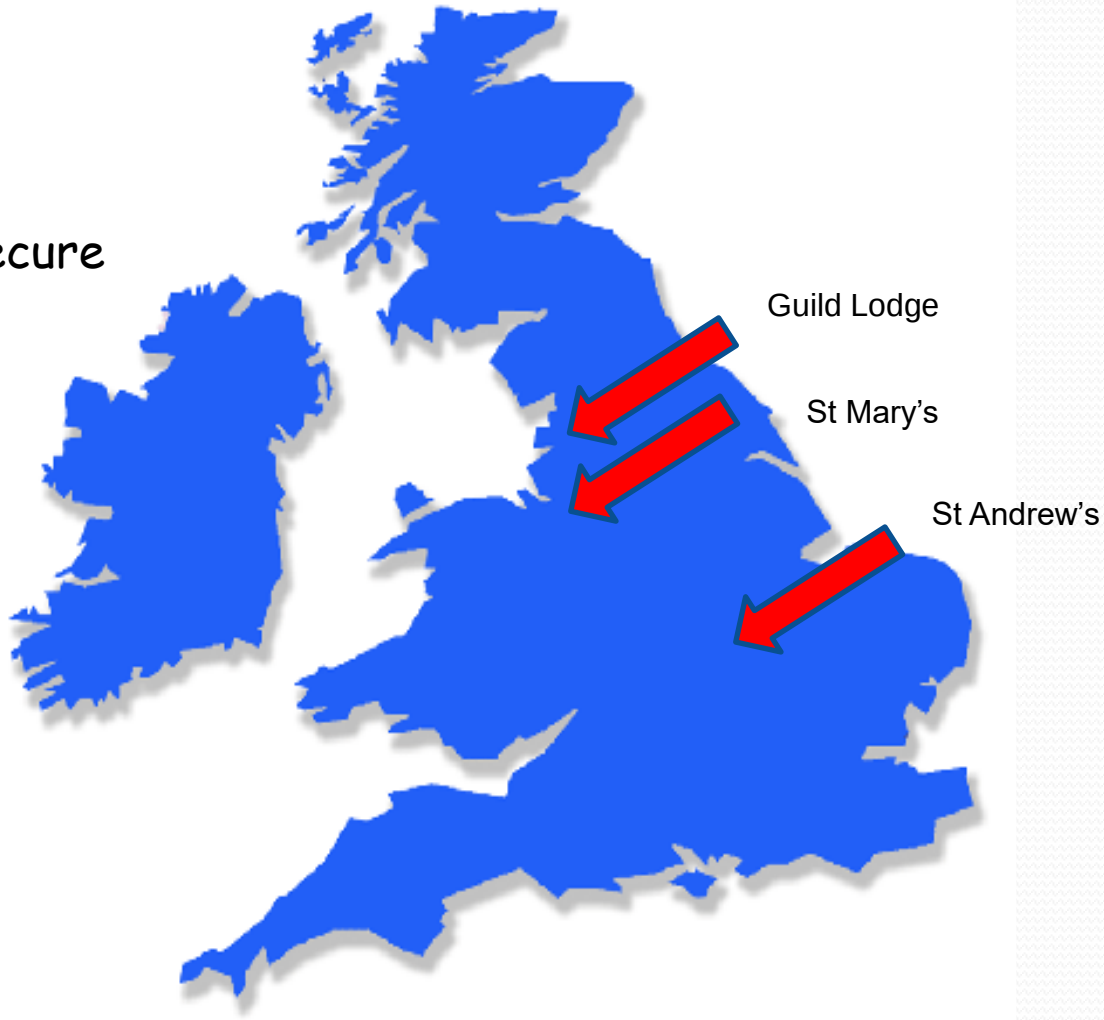
Medium secure
ABI beds



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Low secure
ABI beds

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Guild Lodge
is **only** NHS England
commissioned provider of
Secure ABI services

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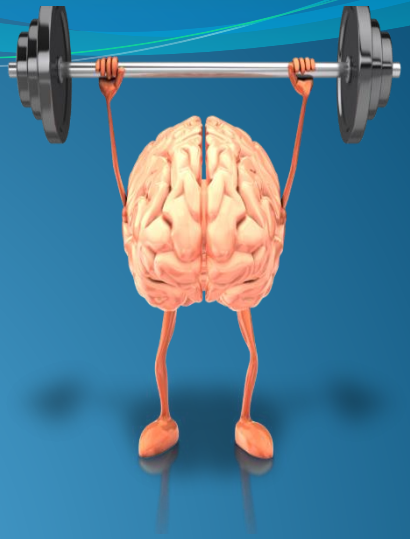
Secure ABI Service
Guild Lodge Hospital

- Male
- Aged 18 and above
- Personality, behavioural or emotional changes from ABI and/or have mental illness as result of(ICD10 F07.0; F06.2; F06.3)
- Detained / detainable under Mental Health Act
- Risk of harm to self/others or have forensic of significant risk
- Primary diagnosis is NOT developmental disorder, LD or degenerative neurological disorder
- Injury 3 months earlier – this allows for natural recovery from Post-Traumatic Amnesia

Treatment



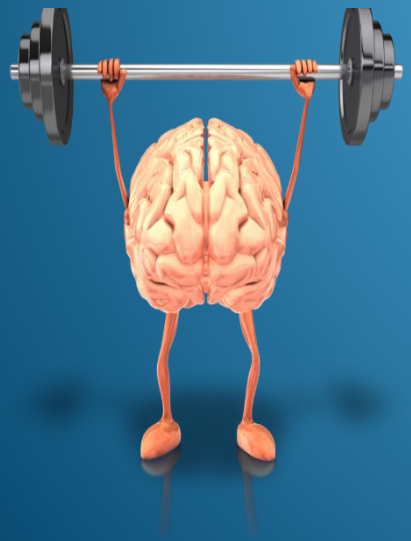
Diagnosis

Environment

Healthy Brain

Healthy Mind

Ready for Rehab



Treatment Strategies

- Neurocognitive rehabilitation
  - *"……the process of relearning cognitive skills that have been lost or altered as a result of damage to brain cells/chemistry. If skills cannot be relearned, then new ones have to be taught to enable the person to compensate for their lost cognitive functions."* – www.societyforcognitiverehab.org

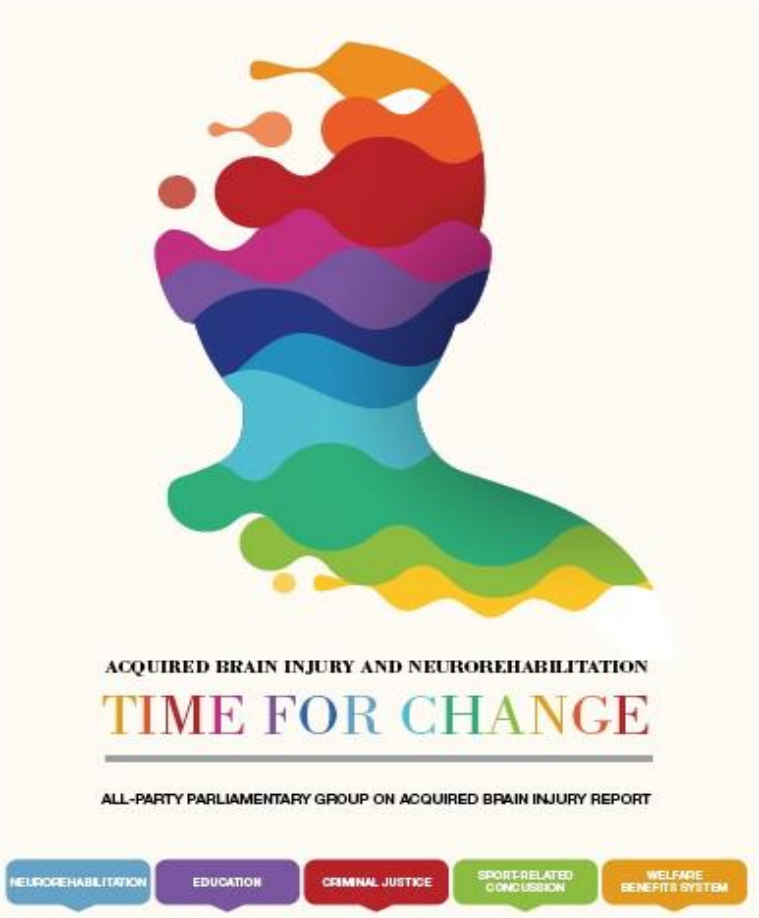
- Neurobehavioral rehabilitation
  - *"…..identifying a patient's challenging behaviors, any environmental and internal factors that might be contributing to the occurrence of the behaviors and responses to the behaviors that make it more likely to continue"* – www.neuroskills.com

Neuro-Cognitive rehabilitation….

- Cognitive rehabilitation model
  - Maximise internal strategies
    - Education – brain injury awareness; social skills
    - Targeted psychology – emotional coping; LMV adapted
    - Medication
    - Treat co-morbidity – epilepsy, DM, pain, mental illness
  - Optimise environment
    - Compensatory aids
    - Support – rehabilitation coaching
    - Structure, routine, predictability, low stimulus, moderate temperature

Neuro-Behaviour rehabilitation….

All Party Parliamentary Group



Chaired Chris Bryant MP

5 areas covered:

- Neurorehabilitation
- Education
- Offending
- Sports injury/ concussion
- Welfare/ benefits

APPG ABI in CJS recommendations

- CJS procedures, processes and practices need to be reformed to take ABI in to account
- Training is required across all services including police, court, probation and prison
- Brain injury screening is required on entry to CJA and if necessary an assessment of the effects, deficits, impact and severity is required with appropriate interventions planned and implemented by a trained team.
- All agencies working with young people in CJS – schools, GP, psychology, CAMHS, YOT need to work together

Screening

Prevention

Training

Youth justice

Assessment

Link-worker

Government
Health
MoJ
Probation
Education

Sentencing

References

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