Living in the community with a brain injury

Elissa Morriss
Clinical Neuropsychologist
Acquired Brain Injury Outreach Service

Queensland Government Queensland Health
Acquired brain injury (ABI) refers to any damage to the brain that occurred after birth.
The ABI Population

ABI is a broad category encompassing:

- Traumatic Brain Injury (TBI)
- Stroke
- Tumours
- Hypoxic brain injury
Epidemiology

- 1 in 45 Australians (432,700) with brain injury
- Trauma causes more than 50%
- Falls are the second leading cause of TBI (20-30%)
- 70% under age of 65
- Highest frequency between 15-25 years
- The very old (>75 years) and young (<5) commonly sustain TBI
- Prevalence higher for males
- Sporting accidents and falls account for a far greater % of mild TBI.
- Alcohol is associated with up to 50% of all cases of TBI.

(ABS 2003 Survey of Disability)
Causes of traumatic injuries

- MVA: 50%
- FALLS: 30%
- Assaults: 10%
- Other: 10%
Aboriginal and Torres Strait Islanders

- Poor health and disability indicators
- Reduced life expectancy
- Higher injury rates (3-6 times)
- TBI incidence 2.3% compared to 0.7%
Primary Injury - Focal

Skull Fractures
- Skull fractures can be vault fractures or basilar fractures.
- Described as crushing, closed, or open fractures.

Intracranial hemorrhages
- **Epidural** - laceration of the dural arteries or veins
- **Subdural** - injuries in severe TBI
- **Subarachnoid** – usually secondary to ruptured aneurysms
- **Intracerebral** - extensive cortical contusion
- **Intraventricular** - severe TBI, generally poorer prognosis.
Primary Injury - Diffuse

Coup and Contrecoup Contusions

- Vascular and tissue damage leads to cerebral contusion.
- Coup - direct impact to the skull
- Contrecoup - located opposite the site of direct impact.
Diffuse axonal injury

- Extensive generalized damage to the white matter of the brain, where axons are subjected to maximal stretching.
- Severe sudden twisting of the brain, e.g. whiplash accident, can stretch, twist, and damage these axonal fibers.
- Under the microscope the axonal damage is called Diffuse Axonal Injury (DAI).
- Cannot be visualized on CT or MRI scans.
Predicting Severity

- The Glasgow Coma Scale (GCS) gives a prognosis for initial survival.

- Post-Traumatic Amnesia (PTA) is the best indicator of the cognitive and functional deficits after TBI.

<table>
<thead>
<tr>
<th>Severity</th>
<th>GCS</th>
<th>PTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>12–15</td>
<td>&lt; 24 hours</td>
</tr>
<tr>
<td>Mod</td>
<td>9–11</td>
<td>1–7 days</td>
</tr>
<tr>
<td>Severe</td>
<td>3–8</td>
<td>1–4 weeks</td>
</tr>
<tr>
<td>Very severe</td>
<td>—</td>
<td>&gt; 4 weeks</td>
</tr>
</tbody>
</table>
Common Consequences

- Cognitive Impairment:
  - Changes in ability to learn and remember
  - Attention, concentration impairments
  - Language problems
  - Impaired reading and writing
  - Impaired judgement and reasoning
  - Impaired problem solving
  - Impaired decision making
- Physical Impairment:
  - Sensory and motor (fine & gross) changes
  - Changes in gait, coordination, balance
  - Epilepsy, pain
  - Sleep disturbance, fatigue, headache
Behavioural and Personality Changes

- Altered emotional control
- Agitation and aggression
- Lack of self-awareness
- Impaired social and coping skills
- Disinhibition
- Impulsive behaviours
- Apathy and low motivation
‘Hidden’ Disability

- Only 25% of people with severe TBI are left with any obvious physical disability.

- Lack of obvious physical disability does not mean the injury was mild, or that recovery is complete.
Prevalence rates for comorbid psychiatric disorders in ABI may be as high as 44% (Hibbard et al)

Significant data supporting high rates of psychiatric comorbidity in this population.
Psychiatric disorders

- Depression: 27% - 1.5 times higher lifetime chance of depression
- Dysthymia: 2-17%
- Bipolar disorder: 3-28%
- Schizophrenia
- Anxiety disorders
  - GAD 4-17%
  - Panic 1%-10%
  - Phobia 2-15%
- Obsessive compulsive disorder 3-27%
- PTSD: 5-28%

(Koponen et al, 2002)
Suicide

- Response to devastating changes and loss
- Inability to regulate and manage emotional responses and mood states
- Incidence in people with ABI is 2.7-4 times higher than general community

(Teasdale & Engberg 2001; Simpson & Tate, 2002)
Alcohol and substance use

- Substance use pre-injury – 21-37% (Corrigan, 1995)
- One third to half are intoxicated at time of injury – higher in moderate TBI group
- Preinjury history of alcohol abuse 44%-79%
- Post-injury more than 50% return to pre-injury use
- Assessment, prevention and treatment skills necessary
Risk factors for substance and alcohol use post-injury

- Pre-injury history of alcohol or substance use
- Intoxication at time of injury
- History of legal problems associated with use
- Substance or alcohol use in family members or friends
- Age less than 25 years
- Physically healthy with access to community (transport, money)
Criminal Justice System

- Victorian Prisoner Health Study (2002) reported 66% males and 41% females had experienced a head injury causing unconsciousness
- NSW Inmate Health Survey (2001) - 45% males and 39% females had at least one head injury
- No dedicated services for people with brain injury in the correctional system
- People with ABI more likely to experience poverty and transient accommodation or homelessness, therefore more likely to come to attention of forensic system
Typical person with abi...

- Young – ages 18-28 years
- Male
- Injury as the result of trauma
- Wide range of physical, cognitive, & behavioural impairments
- Long term disability - (impact on work, study, living situation, relationships, finances)
- Subtle - severe impairments
- Awareness of disability varies but often impaired
- Lower socio-economic group
- Personality characteristics
- Premorbid substance and alcohol use
“What to do about Harry”

- Severe traumatic brain injury 2005
- Impairments in language, memory, concentration, information processing, problem solving and planning, judgement, abstract thinking, reasoning
- Behaviour – impulsivity, inflexibility in thinking, egocentricity, poor emotional control, anger and aggression
- Lacks insight and awareness
- Marihuana and alcohol use
- Cannot live on his own, cannot live with family
- Guardian and Administrators appointed
- Accommodation – nine changes in less than twelve months
- Legal issues - multiple charges – property damage, theft, urinating in public, possession of drug implements
Consequences

- Unemployment (financial hardship)
- Complex needs
- Homelessness and inappropriate accommodation
- Social, recreational, community participation reduced
- Social isolation
- Likely incarceration
Brain Injury

Cognitive impairments; social skills deficits; behaviour impairments

Alcohol and drug use

Mental health issues

Social isolation and disengagement

Difficulty participating in community

Loss of occupation, roles, accommodation, finances, transport

Loss of friendships, relationships, social supports
Capacity for decision making

- Competency not a unitary construct
- Domains of competency
- Levels of competency
- Competency may be variable
- Competency may change over time
- Individual abilities are influenced by the environment or context
For people with brain injury

- Understanding the nature and consequences of decisions
  - Memory and learning – knowing all the information
  - Problem solving – weighing up options
  - Reasoning and judgment
  - Ability to make good decisions
  - Ability to plan, organise and follow through with decisions
- Freely and voluntarily making decisions
  - Awareness and insight
  - Impulsivity – impulses are not choices
  - Emotional regulation
  - Executive function

- Communicate the decision in some way
  - Language impairments – receptive and expressive
  - Strong views
[Introduction to ABIOS: Acquired Brain Injury Outreach Service]

- Specialist community rehab service for individuals with ABI, carers and service providers.
- Builds formal and informal networks of support around people with ABI to respond to individual needs.
Target Population

- People who have acquired a brain injury in adulthood through motor vehicle accidents, work, sporting accidents, stroke or disease.
- Families and carers of people with ABI
- Community service providers who work with people with brain injury and require professional advice and assistance.
People with ABI are referred to ABIOS in a variety of circumstances . . .

Some have a very small network of personal supports and formal services.
Some have a large network of personal supports and formal services.
Irrespective of their initial level of support, it appears that the support and resource base of people with ABI . . .
gradually diminishes......
over time.
The Goal of the ABIOS Model of Service Delivery

- Training & Consultancy on ABI Issues
- Building Service & Social Support Networks
- Professional Service Delivery
- Coordination of Existing Service & Personal Supports
ABIOS Strategies

- Case management – goal directed
- Discipline specific services
- Interdisciplinary approach
- Training and consultancy
- Community development
- Research and development
ABIOS Model

Recognises the importance of:

- client focus
- professional roles
- economic realities
- assessed needs

but which differs from other models by emphasising the client’s CONTEXT

... what does this mean in practical terms?
Community integration is the ultimate outcome in brain injury rehabilitation

Four key elements

- Being able to fit in with other people (assimilation)
- Social supports and networks
- Having things to do
- Independence in everyday tasks and life choices