AUSTRALASIAN INSTITUTE OF JUDICIAL ADMINISTRATION - 
CHILD PROTECTION IN AUSTRALIA AND NEW ZEALAND

Inflicted Traumatic Brain Injury in Children – Challenges to Detection and Prosecution

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Brain Injury Australia
“...peak of peaks”
abusive head trauma
non-accidental head injury
shaken baby syndrome
[shaken impact syndrome]
inflicted head injury
inflicted traumatic brain injury
“inflicted”? = to cause to bear, to feel, to suffer

**mens rea** - “guilty mind"

“...the decision to bring about a prohibited consequence.”

“I find nothing good about the whole matter of intent: a bit like culpable driving - there is no need to assess intent to drive like an idiot, just the result.”
inflicted traumatic brain injury – “type 1”

Queensland Police Service - review of 52 X fatal ITBI

“victims were shaken, thrown, punched, head-butted, and attacked with objects such as lumps of wood”
inflicted traumatic brain injury – “type 2”

“a significant amount of [ITBI] is not necessarily deliberately inflicted, that is; premeditated...
A lot of it occurs in the heat of the moment, in the middle of the night.”
inflicted traumatic brain injury – “type 2”
crying = “the only child-specific variable consistently identified as important in the cycle of escalation to shaking”

“PURPLE Crying”
“…defendants have been proven guilty of shaking babies to death based on the presence of retinal hemorrhages [bleeding in the eye], subdural hematomas [bleeding on the brain] and cerebral edemases [swelling], then the presence of these symptoms must mean that someone is guilty of shaking a baby to death. All that remains is to identify the last person with the conscious child. That person becomes the suspect, who can then be confidently pursued.”
“...SBS comes as close as one could imagine to a medical diagnosis of murder: prosecutors use it to prove the mechanism of death, the intent to harm, and the identity of the killer.”
“coup contrecoup injury”
milk junkie
incidence - hospitalisations

International Statistical Classification of Diseases and Related Health Problems (10th edition)

US version (9th edition): “shaken infant syndrome”

ICD-10-AM (Australian Modification): “T74.1 Maltreatment syndrome, physical abuse. Battered: baby or child syndrome…”
“…Diagnostic criteria for child maltreatment are...ambiguous. Clinicians report they are inadequately trained to make that decision…”

“…the documentation is often incomplete...clinical coders may not have adequate information to assign codes for abuse…”

“…may result in an under-representation of child maltreatment in both morbidity and mortality data…”
“...A significant limitation to the use of ICD codes alone in child abuse research is that child maltreatment has been found to be underestimated...”

“...inclusion of a ‘possible abuse’ ICD code...may be a worthwhile inclusion in future iterations...”

“...A code suggesting that the case is still ‘under review’ where there remains a question over the intent would also serve to diminish some of the misclassification issues surrounding abuse...”
“...I had a look at our hospital admission data for the last 5 financial years and can find only 1 case of brain injury with a child abuse-related diagnosis in the record...I am sure there will be some cases unidentified...and the rates are likely to be underestimated due to the nature of the event. It is very difficult to obtain a complete picture of the TBI by using the hospital data alone and proper study is recommended to achieve an accurate incidence estimate.”
incidence - hospitalisations

<table>
<thead>
<tr>
<th>hospital</th>
<th>period</th>
<th>#</th>
<th>average age (mnths)</th>
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<tbody>
<tr>
<td>The Children's Hospital at Westmead</td>
<td>2001-2008</td>
<td>25</td>
<td>10</td>
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<tr>
<td>Sydney Children’s Hospital</td>
<td>2004-2008</td>
<td>34</td>
<td>10</td>
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<tr>
<td>John Hunter Hospital, Newcastle</td>
<td>2007-2009</td>
<td>16</td>
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- hospitalisations ("missed cases")

The Children's Hospital in Denver, Colorado; 1990-1995

- 54 (31.2%) of 173 "abused children with head injuries had been seen by physicians after [ITBI] and the diagnosis was not recognised"
- 15 (27.8%) "reinjured"
- 4/5 "deaths in the group with unrecognised [ITBI] might have been prevented by earlier recognition of abuse"
- ("...Infants with recognized [ITBI] were more likely to be minority children or children whose mothers and fathers were not living together...")
### Incidence - Hospitalisations ("missed cases")

- irritability
- vomiting
- poor appetite
- lethargy

"The fact that 60% of children present to hospital with symptoms that would be consistent with many childhood illnesses seen in this age group suggests that [ITBI] may never be considered in many cases."
“the short-term outcome in infants with [ITBI] is poor and the associated mortality ranges from 11% to 36%; in surviving children, long-term morbidity is usual and ranges from mild learning difficulties to severe physical and cognitive impairment.”

**Childrens’ Hospital at Westmead (1995 and 2002, n=65)**

- 4 died
- 7 vegetative state
- 17 discharged with “severe disability”
- 12 “moderate disability”
- 25 “good” outcome

(follow up @ 1-73 months - n=56)

- 17 “severe disability”
- 12 “moderate disability”
- 19 “good” outcome
incidence – “community”

2002; 1435 households @ North and South Carolinas (US)

- telephone survey (mothers) of "potentially abusive behaviours used by either themselves or their husbands or partners"

- 'v' incidence of hospitalised ITBI in North Carolina over 2 years

“...for every 1 child less than 2 years of age who sustains a serious or life-threatening injury, another 152 children may be shaken by their caregivers and sustain sub-clinical brain trauma that goes undetected.”
incidence – “community”

*(NSW Community Services, 2005 - 2009)*
- 514 “Child Protection Reports relating to shaking of children aged 0-2 years”
- 236 “secondary assessments determined actual harm or risk of harm relating to shaking of children”

*(Families and Communities South Australia, 2004 -2009)*
- of 7973 “children in Notifications” of child abuse less than 2 years of age, there were 2089 “children in Substantiations”
- 23 “Substantiations involving Shaking”
- 7 “Substantiations involving Skull Fracture”
“habitual, prolonged, casual whiplash shakings may produce an insidious progressive clinical picture...which is often inapparent to both parents and physicians. It usually first becomes evident at school age when minor cerebral motor defects are first detected along with mild mental retardation...The actual number of such cases is incalculable from current evidence but it appears to be substantial.”

- John Caffey
incidence – “community”; outcomes?

(samples; 400 - 1,000 mothers from India, Chile, the Philippines, Egypt, and Brazil)

“the frequency of shaking…of children aged less than 3 years ranged from 6.6% of mothers in the Manila, Philippines, neighbourhood of Paco to 42% of mothers in the urban slums of India.”

TBI: “may be an occult but leading cause of infant mortality and mental retardation in the developing world…”
Australian Early Development Index (AEDI)
(261,203 five yr-olds surveyed = 97.5 per cent of the estimated population)
- 21,800 “developmentally vulnerable”, 34,300 “developmentally at risk, in the “language and cognitive (school-based) domain”
- 21,700 “vulnerable” 37,900 “at risk” in the “emotional maturity” domain
- 23,200 “vulnerable” and 37,300 “at risk” in the “social competence” domain
- 22,600 “vulnerable” and 38,800 “at risk” in the “communications skills and general knowledge” domain
incidence – “community”; outcomes?

10-18% of cerebral palsy in Australia acquired post-neonatally (n = 60-100 p.a.)

1/10 the result of ITBI

“the non-accidental group is slightly rising”
Attention Deficit Hyperactivity Disorder (ADHD)

1998: 355,600 children/adolescents estimated to have ADHD (11.2% aged @ 4 - 17)

ADHD: occurs in 20%-50% of children following ABI

RACP “guidelines” on ADHD: “a thorough medical history and examination are required to identify any ABI or other neurological condition that may contribute to the presenting symptoms.”
“lucid interval”?

“short fall”?

...congenital malformations, metabolic disorders, haematological diseases, infectious diseases, autoimmune conditions etc.?
“the severity of the shaking force required to produce injury is such that it cannot occur in any normal activity such as play, the motions of daily living or a resuscitation attempt. The act of shaking that results in injury to the child is so violent that untrained observers would immediately recognize it as dangerous.”
the "triad"

subdural haemorrhage

retinal haemorrhage

encephalopathy
“...the presence of these injuries is considered indicative of the child having been unlawfully mistreated by violent and obviously excessive (and therefore unlawful) shaking, sometimes accompanied by impact injuries as well.”
the “next innocence project”? 

US (since 1990); 800 appeals/1,500 convictions

appeal “rate”?;
1990-1995 = 74
2005 – 2008 = 259
<table>
<thead>
<tr>
<th>Country</th>
<th>Prosecuted</th>
<th>Convicted</th>
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</thead>
<tbody>
<tr>
<td>United States</td>
<td>72%</td>
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<td>26%</td>
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<tr>
<td>New Zealand</td>
<td>46%</td>
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</tr>
<tr>
<td>Australia</td>
<td>40%</td>
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