A FINE BALANCE

Cindy W. Christian, M.D.

Disclosure

Dr. Christian provides medical-legal expert work in child abuse cases

Acknowledgement
OBJECTIVES

- To provide a physician’s perspective on issues of balance in child protection work.
- To challenge us to find the balance needed to improve the lives of vulnerable children and families.

STRUCTURE

- Classic Scientific Paper
  - Epidemiology
  - Pathophysiology
  - Clinical Presentation
  - Treatment
  - Future work
**Epidemiology: Risk v. Bias**

**Racial Disparities in Child Health**

<table>
<thead>
<tr>
<th>Access</th>
<th>Primary Care</th>
<th>Asthma</th>
<th>Teens</th>
<th>Mental Health</th>
<th>Heart</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower access to primary care, higher rates of being uninsured</td>
<td>Lower rates of immunization delays</td>
<td>Higher prevalence of diabetes</td>
<td>Higher rates of developmental delay</td>
<td>Lower rates of diagnosis for depression</td>
<td>Higher rates of stroke</td>
<td>Higher smoking rates</td>
</tr>
<tr>
<td>No usual source of care</td>
<td>Lower rates of immunization delays</td>
<td>Higher incidence of ED visits</td>
<td>Higher pregnancy rates</td>
<td>Lower rates of diagnosis for ADHD</td>
<td>Higher rates of cardiovascular disease</td>
<td>Higher mortality from heart disease</td>
</tr>
<tr>
<td>Less referral to specialists</td>
<td>Lower incidence of ED visits</td>
<td>Lower incidence of hospitalization rates</td>
<td>Lower incidence of expression of pregnancy and sexual identity</td>
<td>Lower incidence of diagnosis for ADHD and autism</td>
<td>Lower rates of diagnosis of cancer and brain</td>
<td>Higher mortality from cancer and brain</td>
</tr>
<tr>
<td>Higher odds of emergency admission</td>
<td>Lower rates of immunization delays</td>
<td>Lower incidence of hospitalization rates</td>
<td>Lower incidence of development of disability</td>
<td>Lower rates of diagnosis of cancer and brain</td>
<td>Lower rates of diagnosis of cancer and brain</td>
<td>Higher mortality from acute lymphoblastic leukemia</td>
</tr>
<tr>
<td>Higher use of emergency services</td>
<td>Lower rates of diagnosis of eye conditions, poorer dental health</td>
<td>Lower rates of diagnosis of mental health conditions</td>
<td>Lower use of mental health services</td>
<td>Lower rates of diagnosis of mental health conditions</td>
<td>Lower use of mental health services</td>
<td>Higher mortality from violence</td>
</tr>
</tbody>
</table>

Flores G. First Focus, 2009
Poverty Rates for Seniors and Children


The Risk of Child Maltreatment and Poverty

Differences Related to Family Socioeconomic Status In Incidence Rates per 1,000 Children Harms Standard Maltreatment in the NIS-4 (2005-2006)

Poverty is Not Color Blind
Disproportionality:
How much of this is risk?
How much is racial bias?

Racial Bias in Child Protection? A Comparison of Competing Explanations Using National Data

Plaintext representation of the content is not possible due to the presence of images and diagrams. The text is not readable in its current form.
Disproportionality Ratio (DR)

Disproportionality Ratio (DR) is a measure that compares the rate of an event in a minority population to the rate in the white population. It is calculated as the ratio of the event rate in the minority population to the event rate in the white population. For example:

- Rate of an event in the black population: 30/1,000
- Rate of the event in the white population: 20/1,000

The DR is calculated as 30/20 or 1.5.

**Infant Mortality**

- Infant mortality rate per 1,000 live births
- Infant death rate per 1,000 live births
- Infant death rate per 1,000 live births

**Child Maltreatment**

- Child maltreatment rate per 1,000 children
- Child maltreatment rate per 1,000 children
- Child maltreatment rate per 1,000 children

**Poverty**

- Poverty rate


**Analysis of Missed Cases of Abusive Head Trauma**

A retrospective chart review was conducted to identify missed cases of abusive head trauma in a group of children who were admitted to the hospital for head injuries. The study included 300 children who were admitted to the hospital for head injuries in a 6-month period. The diagnosis of abusive head trauma was based on clinical and radiological evidence of inflicted head injuries.

**Outcomes:**

- 10 cases (3.3%) of missed cases of abusive head trauma were identified.
- The mean age of the missed cases was 3 years.
- The most common presenting complaint was vomiting.
- The diagnosis of abusive head trauma was confirmed in all cases through radiological evidence.

**References:**

Pathophysiology: Nurture vs. Nature
What are the biological mechanisms that explain these associations?

Adversity in Childhood → Adult Poor Health

TOXIC STRESS

Frequent or continual stress on young children who lack adequate protection and support from adults
STRESS HORMONES:
Cortisol, Epinephrine, Norepinephrine

FIGHT or FLIGHT

NEUROENDOCRINE-IMMUNE NETWORK:
Relationship between the HPA axis, immune systems, and other body systems

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Healthy Brain

An-illness Brain
EPIGENETICS
How molecular biological mechanisms affect gene expression without altering DNA sequence

How Do ACEs Lead to Poor Health?

Adversity $\rightarrow$ Toxic Stress $\rightarrow$ Poor Health
It’s Not Nurture Vs. Nature
NURTURE AFFECTS NATURE

Clinical Presentation:
Rules vs. Exceptions
Skepticism vs. Denialism

The Gross Clinic, @ Jefferson Medical College, Thomas Eakins 1875
Do short falls kill?

Can short falls kill?

- Short falls are common
- Short falls are commonly used as an explanation in cases of child abuse
- Literature shows that:
  - Short falls are harmless
  - Short falls kill young children
- How should you reconcile these data?
Wang, 12 Fatal Pediatric Falls

Review of 729 children treated for falls in LA
Classified as low (<15 ft) or high (>15 ft)
12 total deaths: 4 in children who fell < 15 ft

Steinbok P, et al. CT finding of early hypodensity of the brain in 5 children with fatal, accidental head injury

<table>
<thead>
<tr>
<th>TABLE 1. Patient information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient no.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

CT: Computed tomographic, Hypo: hypodensity, Norm: normal


Do Short Falls Kill?

- Short falls RARELY fatal or severe
- But RARE is not never
- The question for clinicians should be:
  - Did this particular child sustain this particular head injury from a fall?
    - Age and development
    - History
    - Associated injuries
    - Results of the investigation

Clinical Presentation:

- Rules
- Exceptions
**Skepticism vs. Denialism**

**Controversies**

Denialism
- The use of rhetorical arguments to give the appearance of legitimate and unresolved debate about matters generally considered to be settled
Characteristics of Denialism

- Misrepresentation and logical fallacies
  - Straw Men: The TRIAD
- Manufacture of Doubt
  - Any scientific disagreement is evidence that the entire topic is contested
- Creation of impossible expectations of research
  - Evidence based medicine vs. single case reports
- Use of anecdotal evidence
  - Sometimes inaccurate or incomplete
- Use of fake experts
  - Those with no clinical experience or expertise

Skepticism is Good
Denialism: Validity of SBS

Contrary to Byard’s suggestion, the SBS/AHT controversy is not about whether infants can be damaged or killed by violent shaking or abuse; OF COURSE THEY CAN.

Skepticism vs. Denialism

Treatment:
Safety vs. Well-Being
Organ transplantation
- Complete investigation of medical condition
- Meticulous matching of donor and recipient
- Large team with many experts
- Careful follow-up to ensure graft and recipient are compatible
- Longitudinal perspective with ongoing research to improve practice

Social transplantation
- Variable completeness of investigation
- Emergency search for available foster home
- Assessment by junior workers in many municipalities
- Sparse follow-up with inadequate services for children and families
- Failure to consider the long-term perspective

With thanks to Dr. Kjellner, Gothenburg, Sweden, 2014
The Northwest Alumni Study

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Foster Care Alumni</th>
<th>General Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Diagnosis</td>
<td>54</td>
<td>42</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>Post-Traumatic Stress</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>Depression</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

There is no good medical evidence that we have improved the physical health and well-being of our population of maltreated children.

But we have started.

Safety Well-Being
To Summarize...

- Risk vs. Bias
- Nurture affects Nature
- Rules vs. Exceptions
- Skepticism vs. Denialism
- Safety and Well-Being

Poverty Rates for Seniors and Children

"...you have to use your failures as stepping stones to success.

You have to maintain a fine balance between hope and despair.

In the end it's all a question of balance."

— Rohinton Mistry, *A Fine Balance*