

## Children Are Different - And Need a Unique Approach to Safety and Quality

Charles Homer MD, MPH  
 October 13, 2009  
 Dublin, IE



## Paediatric Patient Safety - Challenges and Solutions

Children are different	Charlie Homer
Challenges and Solutions Related to Medications	Paul Sharek
Measuring for safety How to develop a programme for children	Peter Lachman
The community perspective	N Lynn Eckhart

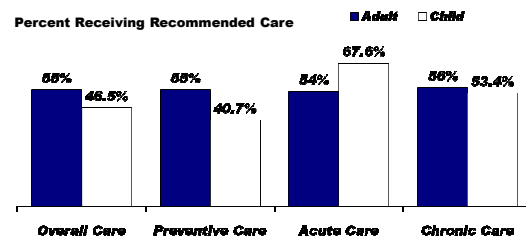


## Paediatric Patient Safety - Challenges and Solutions

- Objectives
  - Grasp scope, common and unique elements of safety challenges in child health
  - Learn the distinct approaches to measuring harm and safety in child health in acute care settings
  - Identify strategies to reducing harm to children—especially related to medication systems—in acute care settings
  - Understand conceptual framework for promoting safety in community based care



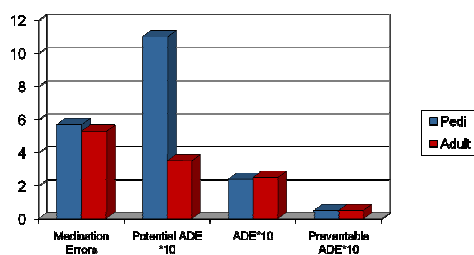
## Quality of Adult and Children's Health Care



Source: McGlynn et al, NEJM 2003, 348;26:2635-45, and Mangione-Smith, et al, NEJM, 2007.



## Safety: Comparing Paediatric and Adult Inpatient Care



\*p value <0.05  
 \*\*Study performed at Brigham and Women's Hospital in 1992 using similar methods



## Commonalities and Differences

- Commonalities
  - Safety as a system property
- Differences: 4 D's
  - Dependency
  - Development
  - Disadvantage
  - Different Epidemiology



## Dependency

- Triad: Parent, Child, Provider
- Potential advantage: Motivated, healthy observer (vs. ill or unconscious patient)
- Challenge: Inclusion, respect, time, lack of self advocacy
- Example: Parental Notification for Engaging Rapid Response/Medical Response Team



## Condition H/Rapid Response Teams

Condition Help  
(Condition H)



The Josie King  
Call Line

A safety initiative for PATIENTS

Dial # 3-3131  
From Any Hospital Telephone

- Hospital phone line for families
- "Condition H should be called in an emergency situation if a patient, family member, or friend:
  - has concerns over what is happening;
  - is not receiving the attention they feel is necessary; or
  - when there is confusion over what needs to be done in a critical situation."
- 69% of situations could have resulted in significant harm if Condition H had not been called.

Source: Josie King Foundation, 2007

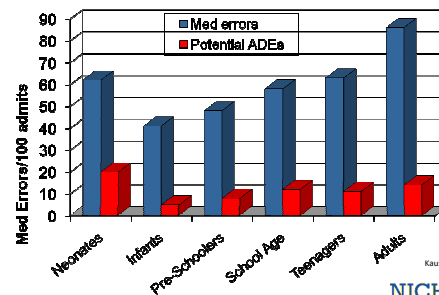


## Development

- Technical:
  - Rapid and substantial variation in size
  - Ten fold Dosage Errors
  - Highest risk units in hospital: NICU
  - Insufficiently customized technology
    - Medications (off label, formulations)
    - Devices
  - Insufficient training
    - Heparin errors in mixed adult-paediatric settings



## Impact of Age on Medication Error Rates



Kaushal et al, JAMA, 2001



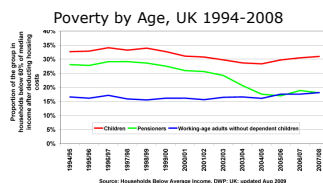
## Development

- Psychological/Developmental
  - Age appropriate materials and environment
    - Lowering anxiety
  - Emotional support: child and family
  - Increasing level of engagement and decision making
    - Prevention and mitigation of errors
  - Planned transition to adult care for children with chronic conditions
    - Increasing responsibility
    - Different perspectives on autonomy

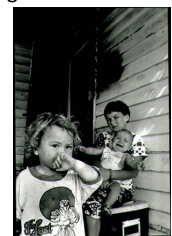


## Disadvantage

- Children most economically disadvantaged



Source: Households Below Average Income, DWP, UK, updated Aug 2008



### Impact of Disadvantage on Safety in Paediatrics

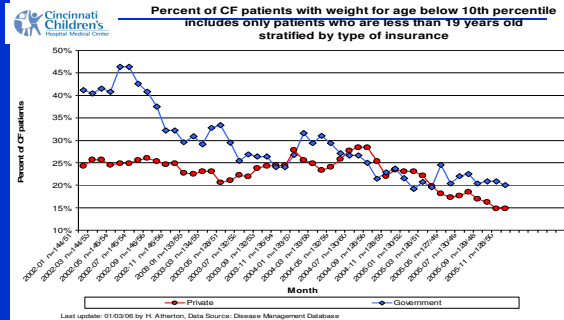
- Increased prevalence and severity of disease
  - Increased exposure to high intensity health services
- Generally comparable rates of error and harm
- Increased rates adverse events with language discordance (patients requesting interpreter)

Flores et al. Pediatr Clin N Am, 2006



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### Critical Importance of Stratifying Data by Indicators of Disadvantage



Last update: 01-03-09 by H. Atherton. Data Source: Disease Management Database



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### Different Epidemiology

- Common, low severity acute illness
  - Health impact depends on socioeconomic context
- Trauma
  - Intentional, unintentional
  - Emergency Preparedness
- Chronic conditions
  - Few, common: asthma, obesity, ADHD, Depression, Caries: Primary, Secondary Care Competency
  - Many rare: CF, Epilepsy, Metabolic and genetic, etc.: Generic concerns plus access to specialized knowledge



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### Implications

- Importance of:
  - Safety in ambulatory care settings (clinics, schools, home)
  - Design for high reliability in all settings
  - Use of specialized systems for children with rare conditions, training and reliability



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### Reliability of Paediatric Emergency Care in General Hospital Settings

MEASURE	AVAILABILITY (%)	FAILURE RATE (%)	RELIABILITY
Cardio respiratory monitor	95.7	4.3	10 <sup>-2</sup>
Defibrillator	97.5	2.5	10 <sup>-2</sup>
Infant oxygen mask	95.3	4.7	10 <sup>-2</sup>
Infant non-rebreather	75.9	24.1	Below 10 <sup>-1</sup>
Child non-rebreather	86.3	13.7	10 <sup>-1</sup>
Medication chart, tape, or dose estimation	95.8	4.2	10 <sup>-2</sup>
Resuscitation Meds	95.8	4.2	10 <sup>-2</sup>
Vascular Access	12.4	87.6	Below 10 <sup>-1</sup>
Monitoring	65.3	34.7	Below 10 <sup>-1</sup>



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### Conclusion

- Safety is a system property
  - Much in common with safety in adult health systems
- Children and families have special system characteristics, merit specific focus
  - Physical (size)
  - Psychological (family, emotional, development)
  - Socioeconomic (poverty)
  - Epidemiologic



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