

Paediatric patient safety

Where are the children?

N. Lynn Eckhert, M.D., Dr PH
Partners Harvard Medical International

Kerr White's Etiology of health care –a 1960s classic

Figure 1. Monthly Prevalence Estimates of Illness in the Community and the Roles of Physicians, Hospitals, and University Medical Centers in the Provision of Medical Care. Data are for persons 16 years of age and older. Reprinted from the 1961 report by White et al.¹

Ecology of paediatric health care

1000 children per month

167 visited physician

3 hospitalized
2 home care

Dovey S. Peds 2003;111:1024.

Slone Epidemiology Center Survey 2004 Patterns of medication use in the US

- Every week 56% of children and adolescents take at least 1 medication
- 19% take at least 1 prescription drug outside of the hospital setting

Sites for medication administration implications for patient safety

hospital

home

school


day care

ER/ambulatory

Potential medication dosing errors in outpatient paediatrics

- Prevalence:** study for 22 common medications
- Method:** random selection of 1933 with new Rx in 3 HMOs, 2 with electronic prescribing
- Results:** 15% with potential dosing error
 - 8% overdose 7% under dose
 - Children < 35 kg only 67% in recommended range
 - 1% more than 2X the recommended range
- Conclusion:** Potential med dosing error common

Risk factors in preventable adverse drug events (ADE) in pediatric ambulatory settings




Boston 6 settings 2002-2003

- 2155 Rx/1689 patients
 - Prescriptions, chart review, telephone survey, 3 month chart review for ADE
- Results: 242 14% with ADE
 - 23% preventable- associated with a medical error
 - 70% given by parent
 - 26% at ordering
 - 77% non preventable- not associated with error


Risk factors

- Multiple prescription
- Language
- Less continuity of care

Recommendation
improving physician-patient communications



6% of US children receive medications in school




Survey of National Association of School Nurse

- 1000 nurses response 65%
- 59% of meds are for ADHD
- Administration 66.2% by unlicensed professionals
- Errors reported by nearly half of nurses
- 80% are missed doses

Iowa survey of 850 school principals

- 97% of schools with written guidelines
- Main reason for medication errors -poor communication among school family and healthcare providers and self medication

McCarthy AM of School Health 2000;70: 371. Farris KB, McCarthy AM et al of School Health 2003;73: 331.




School Health


Boston School nurse study

721,291 encounters

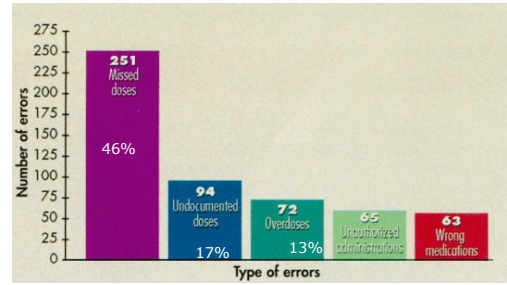
- Medication administration 31%
 - Psychotropic drugs 71.1%
 - Asthma medications 15.6%
- Procedures 11%
 - Blood glucose 24.9%
 - NG or gastric tube 12.7%
 - Nebulizer Rx 7.8%



Schanker, E. Arch Pediatr Adolesc Med 2005;159: 83.



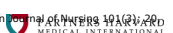
Medical Errors the other drug problem in schools



Type of errors	Number of errors	Percentage
Missed doses	251	46%
Undocumented doses	94	17%
Overdoses	72	13%
Unauthorized administrations	65	
Wrong medications	63	


March 2001

American Journal of Nursing 101(2):20



Medications In the Home

Results of Victorian Poisons Information Centre




Follow up 450 parents 48 hours post call

- Whom** 68% under age 3
- Who** 83% family member
- What** 52% analgesic and cold meds
- What**
 - Incorrect dosage 57%
 - Double dosage 26%
- Why** rushing, careless, communication

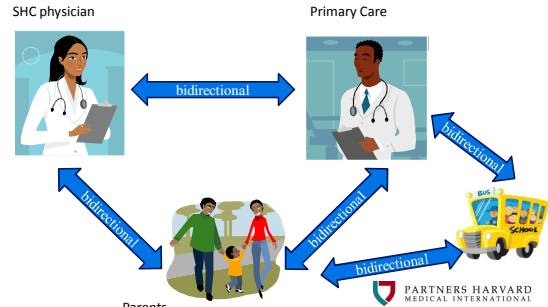
Prevention

- Labeling/packaging
- Medication storage
- Administration-how, when,why
- Communication with health care provider
 - Medication reconciliation
 - Hand offs to parents
 - Hand off to primary care

McD Taylor J of paediatrics and child health 2009; 45: 304.



Shriners Hospitals (SHC) for Children 22 hospitals in North America- best practice for communication between the SHCs and PCPs




SHC physician ↔ Primary Care

SHC physician ↔ Parents

Primary Care ↔ Parents

Parents ↔ School



Solutions and Next Steps

- Research- beyond the hospital, including performance measurement
- **Communication**
- Medication Reconciliation
- Electronic ordering
- Training- staff who give meds
- Guidelines American Academy of Pediatrics
- Format for schools, day care centers

