

## Pediatric Falls Events -**A Brief Review**

**1990s** (very limited)

• Some pediatric falls may be the result of improper use of cot (crib) side rails either partially raised or incorrectly secured (Levene and Bonfield, 1991)

#### **2000**s

### **Pediatric Scale Development**

- The Humpty Dumpty Falls Prevention Scale and Program was developed by an interdisciplinary team after literature review and fall event review. The scale is composed of seven parameters that were identified as placing a patient at high risk. The parameters include age, gender, diagnosis, cognitive impairments, environmental factors, response to anesthesia/sedation, and medication usage. (Hill-Rodriguez, et.al., 2009)
- GRAF-PIF was developed after chart reviews of actual patients who fell and a control group. Graf (2005) concluded that pediatric falls were associated with Anticipated physical/physiologic factors (61%), Accidental factors (33%) Unanticipated physiologic falls (6%); Accidental falls occurred more often in children less than 10 and physiologic falls in adolescents; Parents were present 57% of the time; Diagnosis most associated with falls Neurologic (seizures) and
- CHAMPS Falls Risk Assessment Tool has four risk factors: Change in mental status, history of falls, age less than 36 months and mobility impairment. One hundred (100) Fall Events demonstrating a caregiver present 82.8% of the time. Activity involved in fall Going to the bathroom- 22%, Getting in/out of bed- 20%. (Razmus, et al, 2006)

### Fall Incidents

- Less than one year tended to fall out of gurneys while adolescents tended to fall while ambulating to or performing activities in the bathroom. Other factors included slipping on a wet surface or tripping over an object. Parents were in attendance most of the time. Pediatric fall rates tend to range from 2.5-3.0 per 1000 patient days. Patients less than one year tended to fall out of gurneys while adolescents tended to fall while ambulating to or performing activities in the bathroom. Other factors included slipping on a wet surface or tripping over an object. Parents were in attendance most of the time. (Copper and Nolt, 2007)
- The majority of falls in children younger than 10 are related to crib, rails, playrooms and well-intended parents who may forget and leave the child unattended with the side rail down (Hendrich 2003)
- A study of 29 Children's Hospital Corporation of America (CHCA) Hospitals concluded that- 69% of hospitals had no consistency in definitions, classification and measurement of falls rates. 72% used patient days/1000 to calculate fall rate, 27% (6) publically released rates; Only 6 hospitals used a validated tool: Further research and development of risk assessment tools and EBP interventions needed; Out of this 26 pediatric hospitals participated in a 6 month fall event data collection multisite center study (Jamerson, et al, 2009)

### 2010-current

### **Fall Incidents**

- A three (3) Hospital Collaborative demonstrated inpatient pediatric fall rates- approximately 1/1000 inpatient days. Categories that play a role in fall events include- family attentiveness, developmental, modesty and horseplay and severe injury is rare. (Kingston, Bryant, Speer, 2010). Kingston also categorized fall events based on factors such as Environmental (Anticipated)- resulting from contribution of environment (IV pole, tubing, gown, crib); Developmente (Anticipated)- fall common to toddlers (1 to 4 years) or exception is a child with developmental delay age = 6yrs but developmental age = 2yrs); Response to treatment (Anticipated)- As a result of surgery, meds or medical intervention; Physical/Psychological (Anticipated)- As a result of seizure, developmental delay, mental confusion, diagnosis of PT/OT, or unsteady gait; Family attentiveness (Anticipated)- Resulting from lack of attentiveness and Modesty (Unanticipated) - Related to disregard of instructions to assist.
- Schaffer (2012) utilized the Neuman Theoretical Framework to classify fall events. Events based on the internal environment of the patient, or those within the boundaries of the patient, are events that are based on age, gender, developmental status. level of consciousness, mental state and mobility. These events can be anticipated, unanticipated or developmental. Anticipated events can also be created by the medical process such as resulting from medications IVs and fall interventions for example. Lastly, accidental fall events are an external factor resulting from the environment

### **Pediatric Fall Prevention Scales**

- Harvey and colleagues (2010) compared five pediatric falls assessment scales in the ability to predict falls in pediatric patients. Of the scales only the GRAF-PIF and Humpty Dumpty Falls Prevention scale categorized every child who fell as high risk.
- Graf (2011) suggests that Magnet Children's Hospitals such as Miami Children's Hospital and six other designated Children's Hospitals have a better understanding of the pediatric falls arena. These hospitals outperform benchmarks because of forward thinking prevention strategies.
- Messmer (2013) states that fall prevention scales should be a standardized part of the electronic medical record to ensure proper identification of patients at risk and prompting for implementing of prevention interventions
- The 2009 published CHA (formally CHCA) study by Jamerson, et al., led to a CHA Study of 782 fall events with a Prevalence- 0.88/1000; the children who fell were evenly distributed among infants (20%), toddler/preschool (25%), school-aged (32%), and adolescents (23%). Sixty six (66.2)% sustained no injury, with 78.6% required no medical-surgical treatment, 76% no result in temporary loss of function, 100% no permanent loss of function or death, 95.8% no extended length of stay, and 27.5% mild injuries. Seventy Five (75) % were supervised by a parent and the most common diagnoses- 20.4% Neurologic/developmental delay followed by 13.4% Respiratory. (Jamerson, et al, 2014)

### International Studies

- Fujita (2013) surveyed 252 hospitals in Japan and found that the most effective method of reducing fall events was parental and novice nurse education regarding fall prevention techniques.
- Two studies in Korea (Cho, et. al, 2013 and Ju Shin, et. al. 2014) identified the most common predictors of fall events in the pediatric patient. Ju Shin suggests risk factors include less than three years of age, neurologic diagnosis, dependency with ADLs, physical developmental delays, and altering medications. Cho results demonstrates factors such as patients with a secondary diagnosis, children who are hyperactive, having an IV, and receiving medication such as anxiolytics, sedatives, hypnotics and general anesthesia.

### **Humpty Dumpty Implementation**

• Rouse (2014) discusses the implementation of the Humpty Dumpty Falls Prevention project as the prevention program of choice at for pediatrics across all areas at Palomar Medical Center, CA. After implementation of the scale and making the provided patient education specific to the hospital, at the time of the article the falls rate had been reduced to zero. The Humpty Dumpty Falls Prevention program brought awareness to the staff regarding pediatric falls.

## **Preventing Falls in the Pediatric Surgical Population** MAGNET RECOGNIZED 3577 Dorcas Torres, RN, BSN and Deborah Hill-Rodriguez, ARNP, MSN, PCNS-BC AMERICAN NURSES CREDENTIALING CENTER

## **Pediatric Falls Prevention Program Development**

## Humpty Dumpty Falls Prevention Program

- 2004- Executive leadership chartered a multidisciplinary team
- Thorough literature research
- Examined and trended previous known falls on most common elements
- Age- 19-24 months old
- Gender- (Male 2:1 ratio)
- Diagnosis Neurological #1, followed by Respiratory/Pulmonary/ENT
- Not within 24 hours post-op
- Had not received any medications that affect LOC
- Had not been NPO for more than 24 hours
- Fell on a Monday, followed by Thursday
- Highest in October
- Related to equipment
- Tripped over piece of equipment or furniture
- Fell out of crib
- Fell in liquid

### The Humpty Dumpty Falls Assessment Scale<sup>™</sup>

- Based on a retrospective review of pediatric falls
- Most common elements included in grading criteria of the tool
- Parameters
- Age
- Gender
- Diagnosis
- Cognitive impairments
- Environmental Factors
- Response to Surgery / Sedation / Anesthesia
- Medication usage
- Falls Assessment Tool score- At risk for falls if 12 or above
- Maximum Score 23
- Minimum Score 7

## Identification of Risk using a Validated Pediatric Fall **Prevention Assessment Scale**

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## Miami Children's Hospital Fall Event Definitions

Witnessed or reported unplanned descent to the floor or extension of the floor (e.g. environmental object) where the child is at a lower level from where they started, with or without assistance, and resulting or not resulting in injury and classified as accidental, unanticipated, anticipated or developmental

Fall occurring as a direct result of the child's developmental stage or walking capability. Usually associated with age except if the chronological age of the child is reflective of the developmental stage & walking capability of a younger age child.



Caused by environmental factors or errors in judgment. Examples include tripping on an object, slipping on wet floor, leaving a side rail down, placing a child under 3 years unattended in an adult chair or bed.







## **Developmental Fall Events**



## **Developmental Fall Events - Accidental**

Medication Usage Receives multiple dentified medico One of the identif medication

## Problem

- Increased incidence of Fall Events on the Inpatient Surgical Unit (2010)
- 6 out of 7 occurred in the restroom
- 5 Post-operative
- 4 Non-Developmental Anticipated Physiologic - Related to fainting or dizziness
- 1 Non-Developmental Accidental
- 1 Pre-operative
- Non-Developmental Accidental
- Slippery surface due to Chlorhexidine pre-wash shampoo
- Other event
- Non-Developmental Accidental

# **Action Plan**

- Nurse Manager and Clinical Specialist met with the **Nursing-wide Fall Prevention Team**
- Each event looked at in detail
- Identification of trends
- Staff meeting held to discuss scenarios with the Nursing-wide Fall Prevention Team lead
- Staff driven action plan developed

# **Action Plan Initiatives and Interventions**

- Unit Specific Action Plans Developed by direct care RNs
- Re-Education of all unit staff on Fall Prevention
- Order more bedside commodes
- Increase utilization of gait belts
- Implement only using 1/2 bottle of Chlorhexidine vs. full bottle Hand-off checklist developed
- Hospital-Wide Action Plans Developed by the Falls Prevention Team (In addition to protocols already implemented)
- Arm bands developed
- Environmental Assessment - Bathroom signs created- first implemented on the Surgical Unit
- Get Well Network Humpty Dumpty Education Pathway Developed- piloted on the Surgical Unit
- Humpty Dumpty Visuals developed for Unit Census Boards
- Standardization of non-skid footwear
- Hospital-wide implementation of hand-off checklist
- Fall Risk Plan of Care developed in EMR
- Fall event huddle at unit level immediately following fall event

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## Nursing Implications

- Nurses on inpatient pediatric surgical units need to be able to identify patients at risk for falling
- Accurately identify patients at risk for falling
- Physiologic falls are more common in post-operative patients therefore the Plan of Care should be specific to the patient
- Ensure a non-cluttered environment to prevent accidental fall events while ambulating post operatively
- Utilize a validated Falls Prevention Scale to potentially identify types of fall events
- Use patient specific interventions such as gait belts to prevent injury if the patient does fall
- Include direct care RNs in developing protocols











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