

I'm Safe: Development of a Fall Prevention Program to Enhance Quality and Patient Safety

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The Children's Hospital Denver, Colorado

- Grand Opening: September 29, 2007
- Located on the Fitzsimons Medical Campus
- 1.44 million square feet
- 270 beds
- 13 locations in Colorado make up the Children's Hospital Network of Care



Objectives

- 1) Explain Study Design and Findings
- 2) Discuss Program Components
- 3) Share Program Outcomes

The Challenge

In 2005, the Joint Commission created a NPSG aimed to:

- “reduce the risk of patient harm resulting from falls”

- Requirements:

- implement a fall reduction program and evaluate its effectiveness



Building our team...

Jenae Neiman- Quality Performance

Mike Rannie- Clinical Informatics

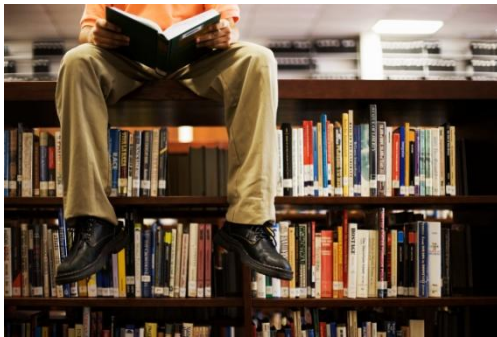
Karen Terry- Nursing Education/Quality

Jodi Thrasher- Advanced Practice RN



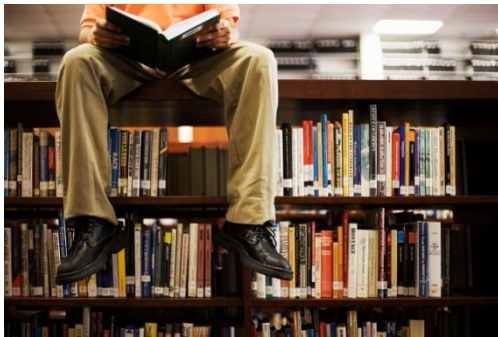
What we knew....

- Falls by hospitalized adults are the most commonly reported adverse events in American acute-care hospitals (Lancaster et al, 2007)
- Falls affect approximately 2%-17% of all adult patients during their hospital stays (Coussement et al, 2008)
- Approximately 30% to 42% of adult inpatient falls result in some form of injury (Hitcho et al, 2004)



What we knew....

- Injuries vary in severity from minor bruises and scrapes to severe outcomes such as head trauma, excessive bleeding, bone fractures and even death (Landro, 2005)
- Patients with serious fall-related injuries are reported to have had longer lengths of stay and total hospital charges that were over \$4,000 higher than for patients who did not fall (Krauss et al, 2007)
- On a national level, in 2000, direct medical costs totaled \$179 million for fatal falls and \$19 billion for nonfatal fall injuries (Lancaster et al, 2007)



What about pediatric falls?

- Lower incidence of falls than the adult population (In 2005, MMP reported the pediatric inpatient fall rate to be below 1 fall per 1,000 patient days)
- One evidenced-based pediatric tool available from Elaine Graf, Children's Memorial Hospital, Chicago, the Graf PIF Model



What about pediatric falls?



- Children's Hospital Central California (Cooper & Nolt, 2007)
 - Implemented a pediatric fall prevention program
 - Pediatric Fall Rate: 0.8 falls per 1000 patient days
 - 51% falls resulted in mild injury (abrasion, bruise)
 - Number of falls stayed consistent (pre-post fall prevention program)





Understanding our Patient Falls

- GRAF PIF Scale for Predicting Falls
(General Risk Assessment for Pediatric In-patient Falls)
- Adapting Graf's fall study at TCH
- Descriptive findings from Incident Reports (HOMER)
- Correlation & Regression Results



Graf's PIF Scale for Predicting Falls

Study Design:

- 1998 – 2003
- 2 children's hospitals
- Retrospective chart reviews
- Analysis of clinical risk factors that were positively associated with a patient fall



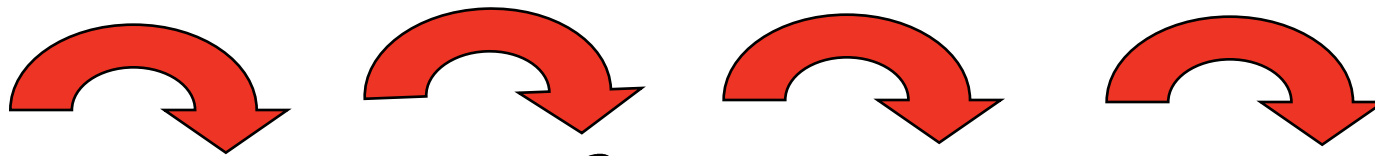
Graf's PIF Scale for Predicting Falls

5 Clinical Features that Predicted Falls:

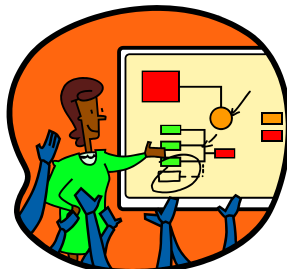
- Length of stay
- Being IV-free
- MD order for PT or OT
- Anti-convulsant medications
- Orthopedic diagnosis



Adapting Graf's fall study at TCH



**Study
Design**



**Study
Requirements**



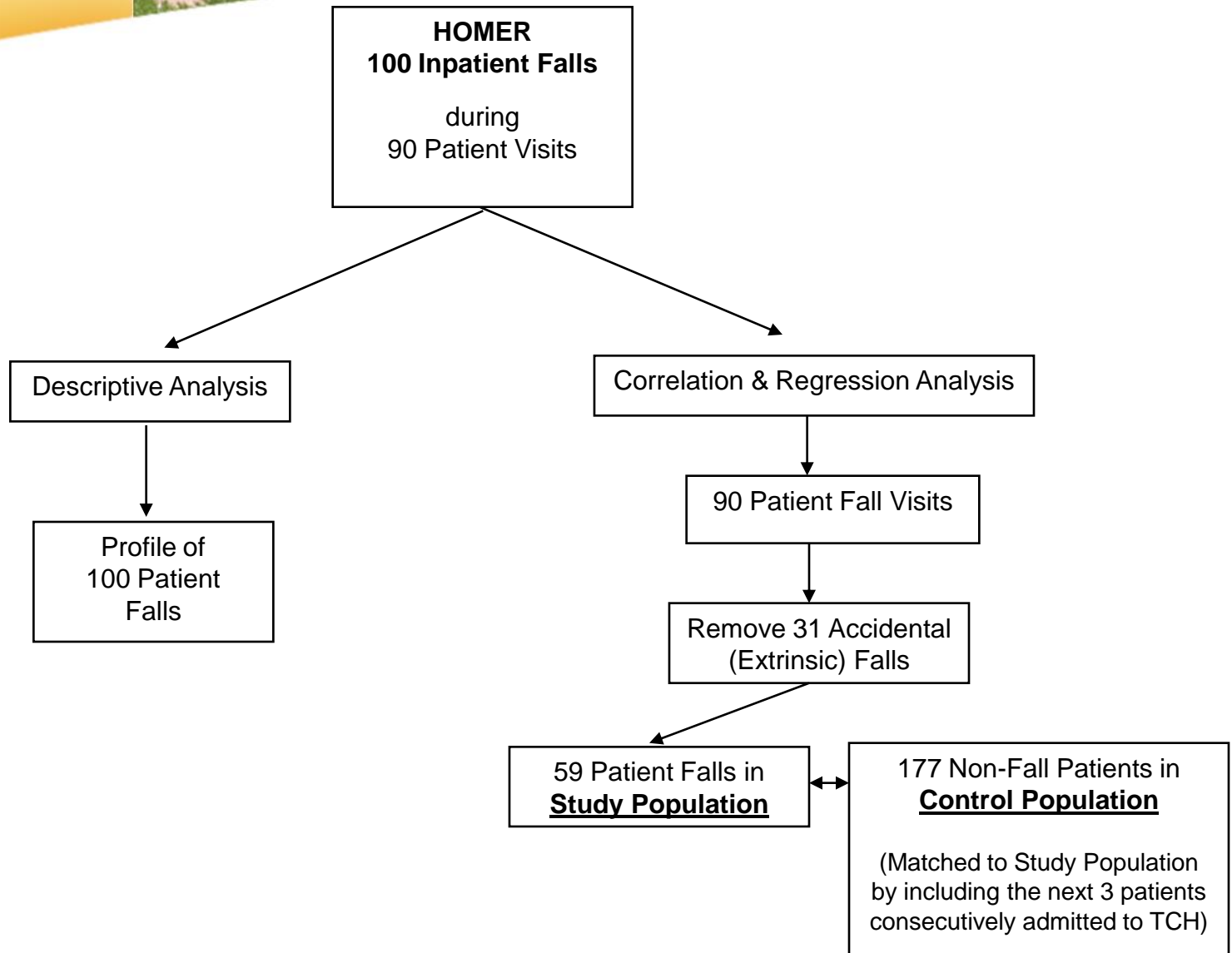
**Data
Collection**



**Statistical
Analysis**



**Sharing
Results**





Intrinsic vs. Extrinsic Falls

Intrinsic Fall

- due to patient's physical/physiological factors, such as dizziness, unsteady gait, medication or diagnosis

Extrinsic Fall

- due to environmental factors, such as patient left side rail down, slippery floor or all developmentally appropriate falls for patients under the age of 2



Descriptive findings from Incident Reports (HOMER)

Clinical Feature	Descriptive Statistics
Age	Infant – 6% Early Childhood – 22% Late Childhood – 30% ← Adolescence – 30% ← Adults – 12%
Sex	Male – 62% ← Female – 38%
Length of stay	0 – 5 days – 43% ← 6 – 10 days – 18% 11 – 15 days – 6% 16 – 20 days – 7% 21+ days – 26%



Clinical Feature	Descriptive Statistics
Time of day	12am – 4am – 15% 4am – 8am – 7% 8am – 12pm – 18% 12pm – 4pm – 23% ← 4pm – 8pm – 17% 8pm – 12am – 20%
Activity at time of fall	Ambulating – 42% ← From Bed/Crib – 31% Up to Commode/Restroom – 19% During Transfer – 5% Other – 3%
Fall witnessed by	Family Member – 39% ← Not Witnessed – 26% RN – 12% Unknown – 12% Other Staff / Volunteer – 8% Other – 3%



Analysis Variables

- Age
- Gender
- Length of Stay
- Presence of IV Tubing
- Ortho Diagnosis
- Neuro Diagnosis
- PT/OT Service
- Anticonvulsant Medication



Correlation Results:

Variables Positively Correlated with Patient Falls

- Age
- Length of Stay
- Ortho Diagnosis
- Neuro Diagnosis
- PT/OT Service
- Anticonvulsant Medication



Regression Results:

This combination of variables was predictive of patient falls:

- Age (older)
- Length of Stay (longer)
- Anticonvulsant Medication



Patient
Fall



Program Components

- Creation of Fall Risk Tool
- Interventions specific to level of risk
- Signage/Communication
- Patient/Parent Education
- Policy and Procedure
- Staff Education
- Ongoing Evaluation



Creation of Fall Risk Tool

- Acronym- “I’M SAFE”
- Risk Factors derived from:
 - Literature
 - Internal study findings
 - Local clinical expertise
- Assigned weight to each risk factor



Creation of Fall Risk Tool

Fall Risk Score Criteria (I'M SAFE)

Impairment
(OT/PT service involved, orthostatic/dizzy)

Medications
(seizure medications, narcotics, epidurals)

Sedation/anesthesia within the
previous 24 hours

Admitting diagnosis
(neuro or ortho diagnosis)

Fall History

Environment of care
(restraints, oxygen, IV tubing, foley
catheter, other per RN judgment)

Fall Risk Score (sum of the scores assigned for each criteria)



Creation of Fall Risk Tool

Fall Risk Score Criteria <i>(I'M SAFE)</i>	Score if Present	Score if not Present	Score Assigned to Patient
I mpairment (OT/PT service involved, orthostatic/dizzy)	1	0	
M edications (seizure medications, narcotics, epidurals)	2	0	
S edation/anesthesia within the previous 24 hours	2	0	
A dmitting diagnosis (neuro or ortho diagnosis)	1	0	
F all History	1	0	
E nvironment of care (restraints, oxygen, IV tubing, foley catheter, other per RN judgment)	1	0	
Fall Risk Score (sum of the scores assigned for each criteria)			



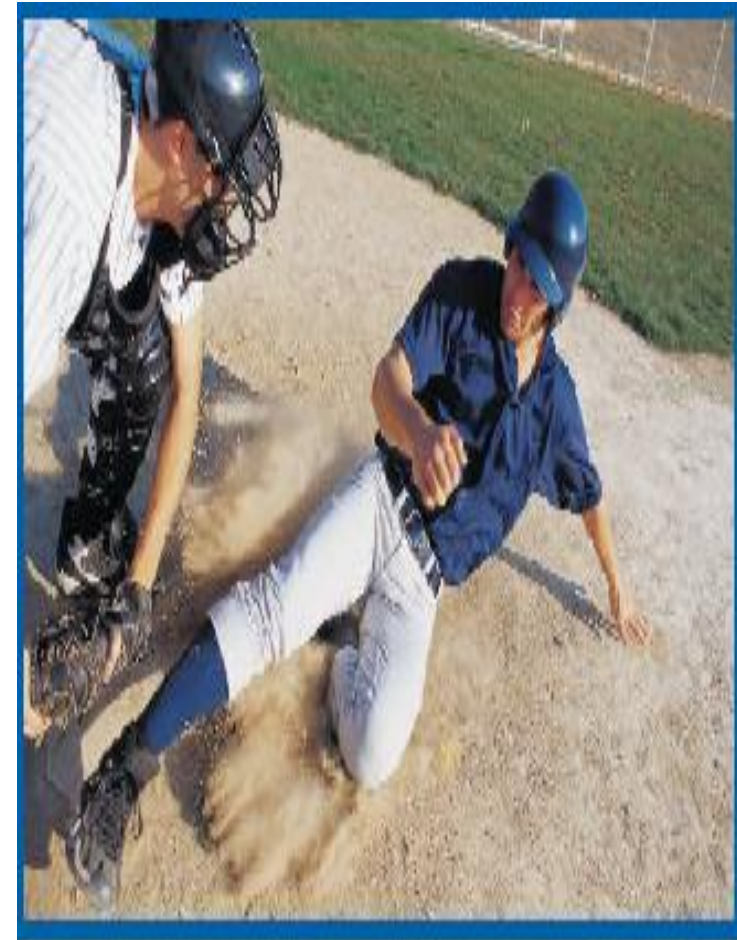
Interventions Specific to Level of Risk

<p>Low Risk (min score)</p>	<ol style="list-style-type: none"> 1. Patient/family education regarding fall prevention. 2. No activity/mobility restrictions. 3. Bed in low position.
<p>Moderate Risk</p>	<ol style="list-style-type: none"> 1. Some assisting with activity/mobility per the patient's individualized care plan. 2. Reinforcing patient/family education regarding fall prevention and individualized care plan. 3. Communication of fall risk status to the next provider of care. 4. Periodic assessing of elimination needs. 5. Periodic orientating to call light. 6. Orient patient/family to request help with ambulation.
<p>High Risk</p>	<ol style="list-style-type: none"> 1. Assistance with activity/mobility. 2. Placement in a bed designed to prevent falls (Posey Canopy Bed, Craig Bed, Bubble Top Crib). 3. Yellow High Risk for Fall arm band on patient. 4. Communication of fall risk status to the next provider of care. 5. Close observation particularly when in a wheel chair or out of bed. 6. Assessing need for 1:1 observation. 7. Accompanying patient with ambulation and transfers especially when related to elimination needs. 8. Educating on risk factors and the related care plan. 9. Restraints (refer to Restraints: Medical and Surgical Restraint procedure).



Signage/Communication

- Associated the program with a strong visual reminder
- The acronym, associated scores and visual reminder were printed on laminated cards that were distributed to staff and placed at computer screens
- Developed signage that used similar visual cues





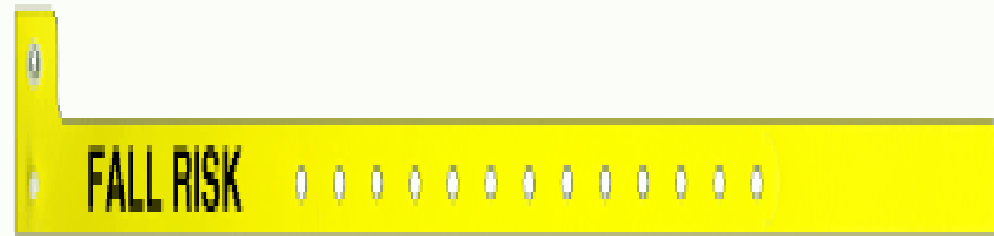
Signage/Communication

PATIENT AT HIGH RISK FOR A FALL



PLEASE KEEP ME SAFE!

- Notify my nurse before getting me out of bed.
- Keep my side rails up when unattended.
- Do not leave me unattended in a chair.



Bedside sign to an Armband

Preventing Falls

Is my child at risk for falls?

Increasing awareness of the risks will help us to prevent falls. Children who are at risk for falling are:

- Infants and toddlers
- Teenagers and school-age children who may not call staff for help when moving from the bed to a chair or when getting up to the bathroom.
- Those who have difficulty walking, using crutches, a walker or wheelchair.
- Those with a previous history of falling.

Equipment which must move with the child may increase the risk for falling:

- IV Poles
- Restraints
- Oxygen
- Monitors
- Foley catheters
- Casts or splints
- Wheelchairs or crutches

What can I do to help prevent my child from falling?

- Inform staff of your child's risk for falling.
- Keep side rails up on the bed or crib.
- When getting your child out of the bed or chair for the first few times, call your nurse for assistance
- Stay at the side of the exam table, gurney or stretcher. Use side rails on gurney or stretcher.
- Assist your child or request assistance from staff for transfers (to move to the bathroom or another area in the hospital)
- Be aware of extra cords from monitors
- Be aware of IV lines and pumps
- Have your child wear shoes or slip-proof slippers
- Keep the call light at the bedside
- Clarify activity and limitations with your nurse or care provider
- Stay with your child while in the hospital or have other family members do so
- Keep the bed in the lowest position
- Stay near your child after procedures (including cast removal), after sedations or in case of dizziness.

Please talk to your nurse if you have more questions or concerns.



Policy and Procedure

Standardized and clarified expectations regarding scoring and care of at risk patients, including:

- Patients scored once per shift
- RN determines level of risk
- Infant/Toddlers (< 2) do not require a score
- Fall program customized to each unique patient care area
 - Inpatient, ED, Peri-op, etc...



Staff Education

- The fall prevention program was introduced to staff at departmental meetings and clinical leadership meetings
- The Clinical Nurse Educator group utilized a standardized presentation to in-service staff
- Clinical Update (monthly publication used to communicate critical clinical information)
- Nursing chart audits and QI audits to help reinforce the new practice



Data to Reinforce Practice

- Quarterly summary reports
- QI data
- Chart Audit data



Ongoing Evaluation

Each inpatient fall is analyzed by the unit based APN or Clinical Educator

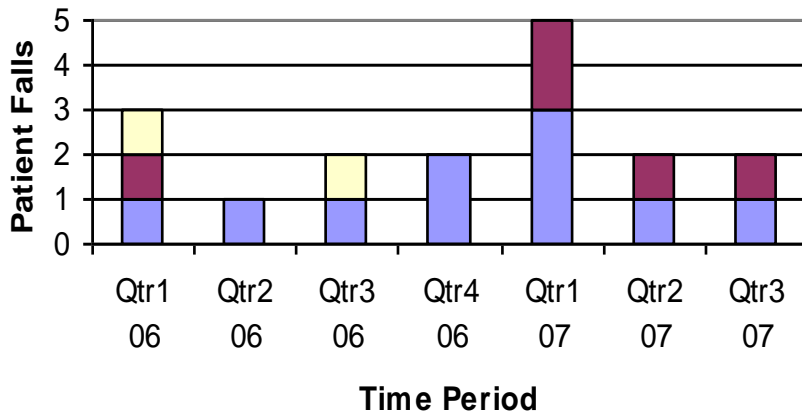
- Intrinsic vs. Extrinsic
- Score at time of fall
- Narrative of fall occurrence
- Interventions noted in chart
- Were interventions implemented at time of fall?



Quarterly Patient Fall Report: Sample Inpatient Unit

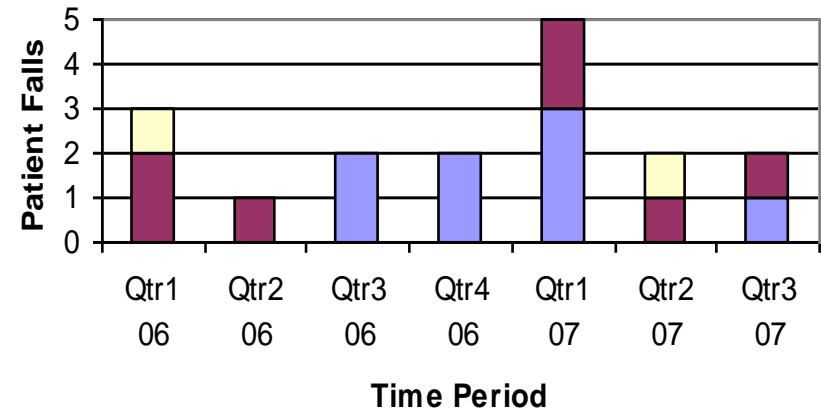
Activity During Fall?

■ Elimination ■ Out of Bed □ Transfer



Who Witnessed the Fall?

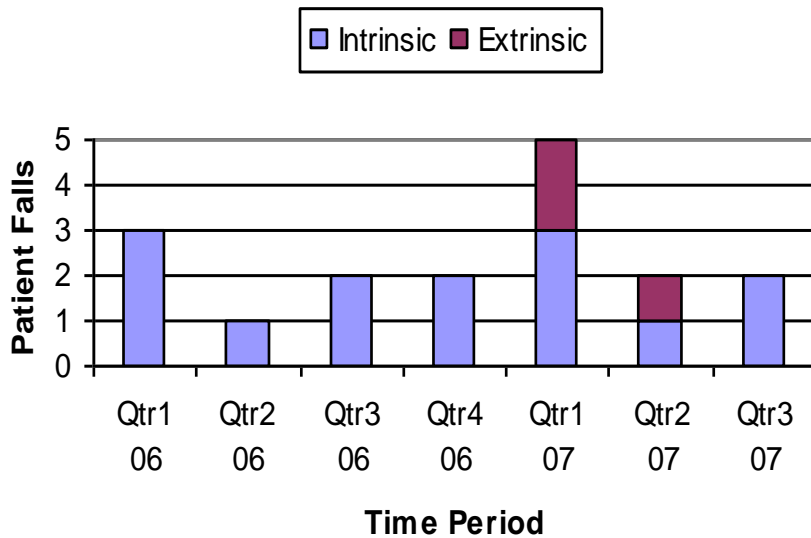
■ Family ■ No One □ RN



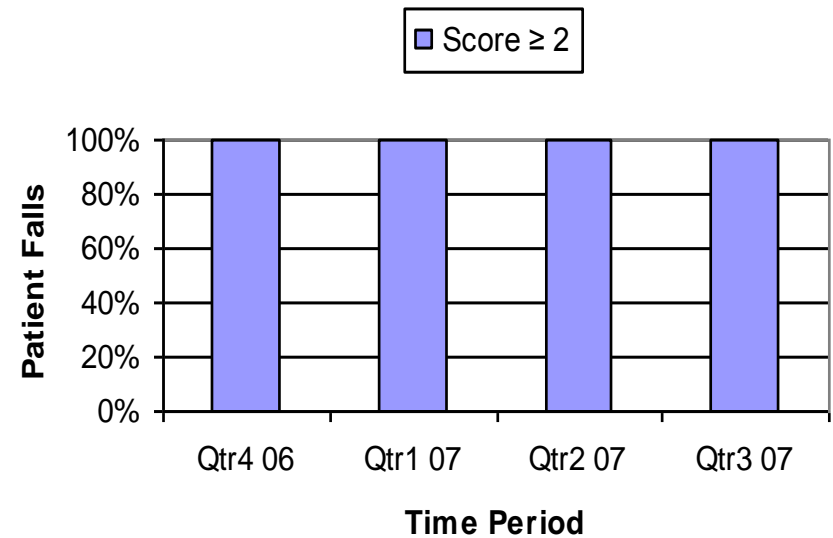


Quarterly Patient Fall Report: Sample Inpatient Unit

Intrinsic versus Extrinsic Falls

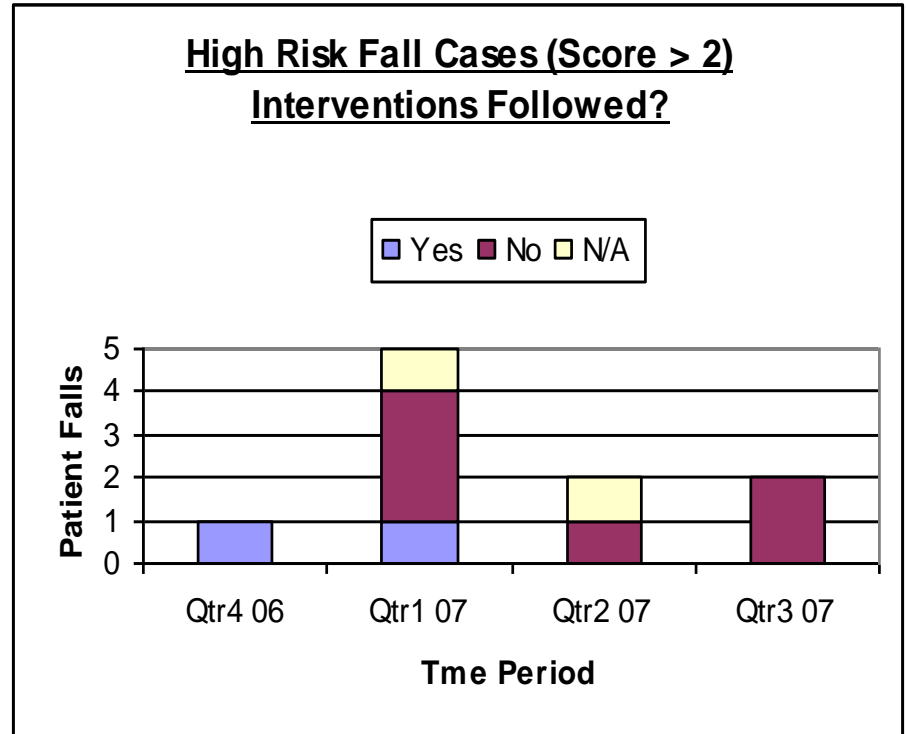
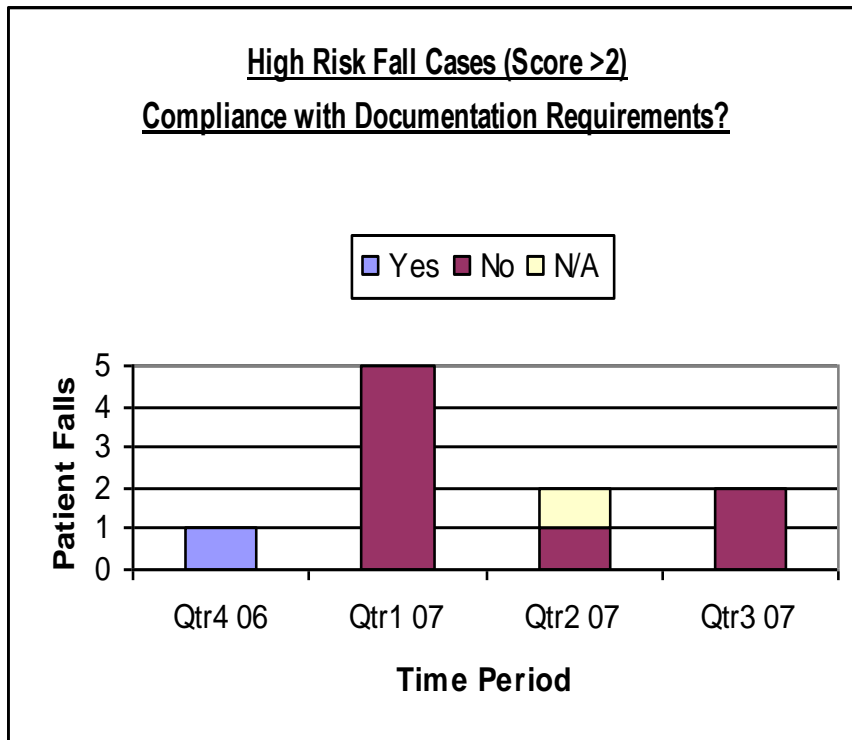


Intrinsic Falls - Fall Score Breakdown





Quarterly Patient Fall Report: Sample Inpatient Unit



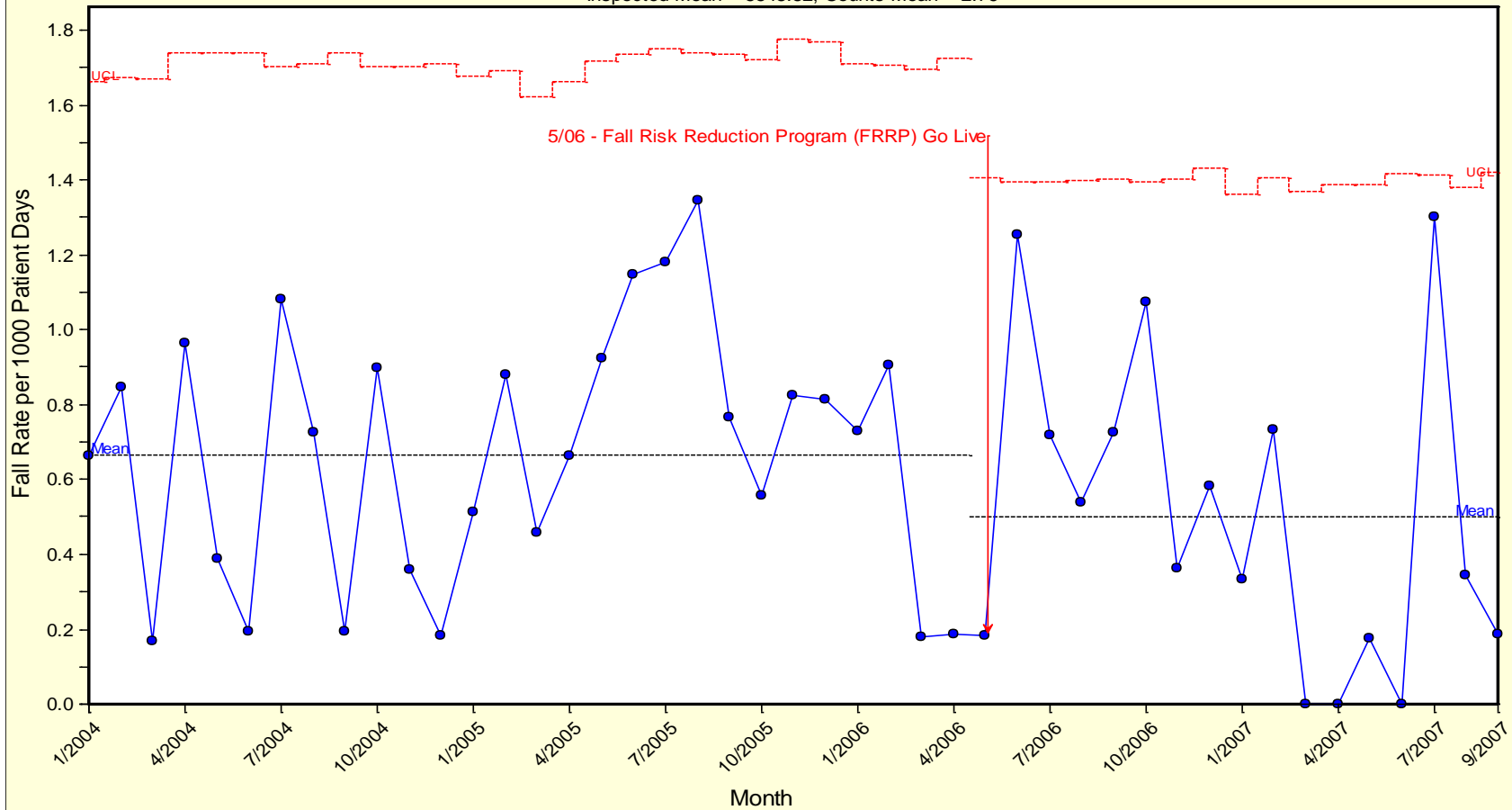


Program Outcomes



Falls Analysis - Intrinsic Inpatient Falls vs. Patient Days - with split
u chart (per 1000)

Pre-Fall Reduction Program: UCL = 1.71, Mean = 0.66, LCL = none (1 - 28)
 Inspected Mean = 5479.54, Counts Mean = 3.64
 Post-Fall Reduction Program: UCL = 1.40, Mean = 0.50, LCL = none (29 - 45)
 Inspected Mean = 5548.82, Counts Mean = 2.76





Inpatient Intrinsic Fall Rate per 1000 Patient Days

u chart (per 1000)

Pre-Fall Reduction Program: UCL = 1.71, Mean = 0.66, LCL = none (1 - 28)

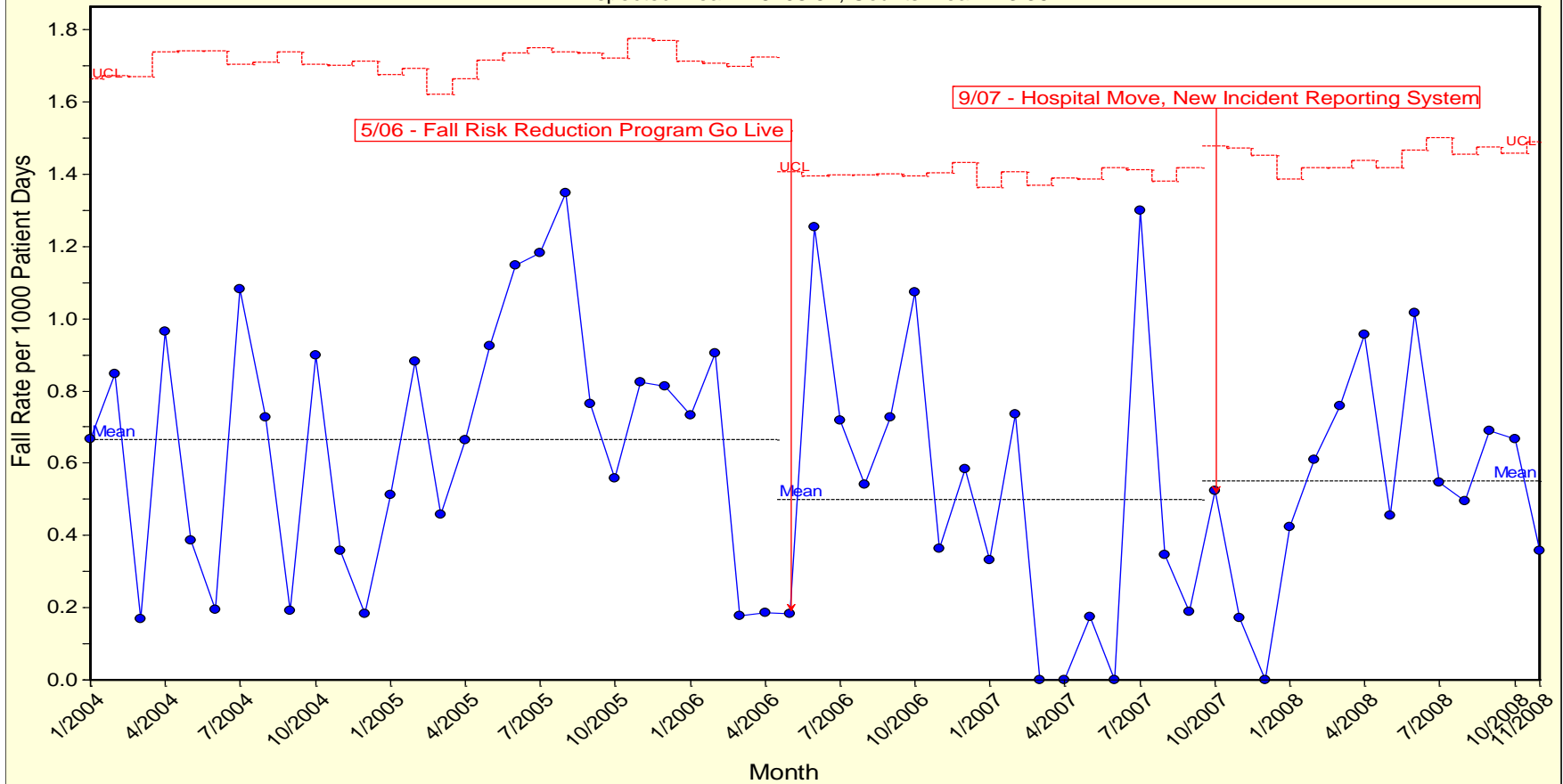
Inspected Mean = 5479.54, Counts Mean = 3.64

Post-Fall Reduction Program: UCL = 1.40, Mean = 0.50, LCL = none (29 - 45)

Inspected Mean = 5548.82, Counts Mean = 2.76

Hospital Move: UCL = 1.45, Mean = 0.55, LCL = none (46 - 59)

Inspected Mean = 6108.57, Counts Mean = 3.36





Inpatient Extrinsic Falls vs. Patient Days

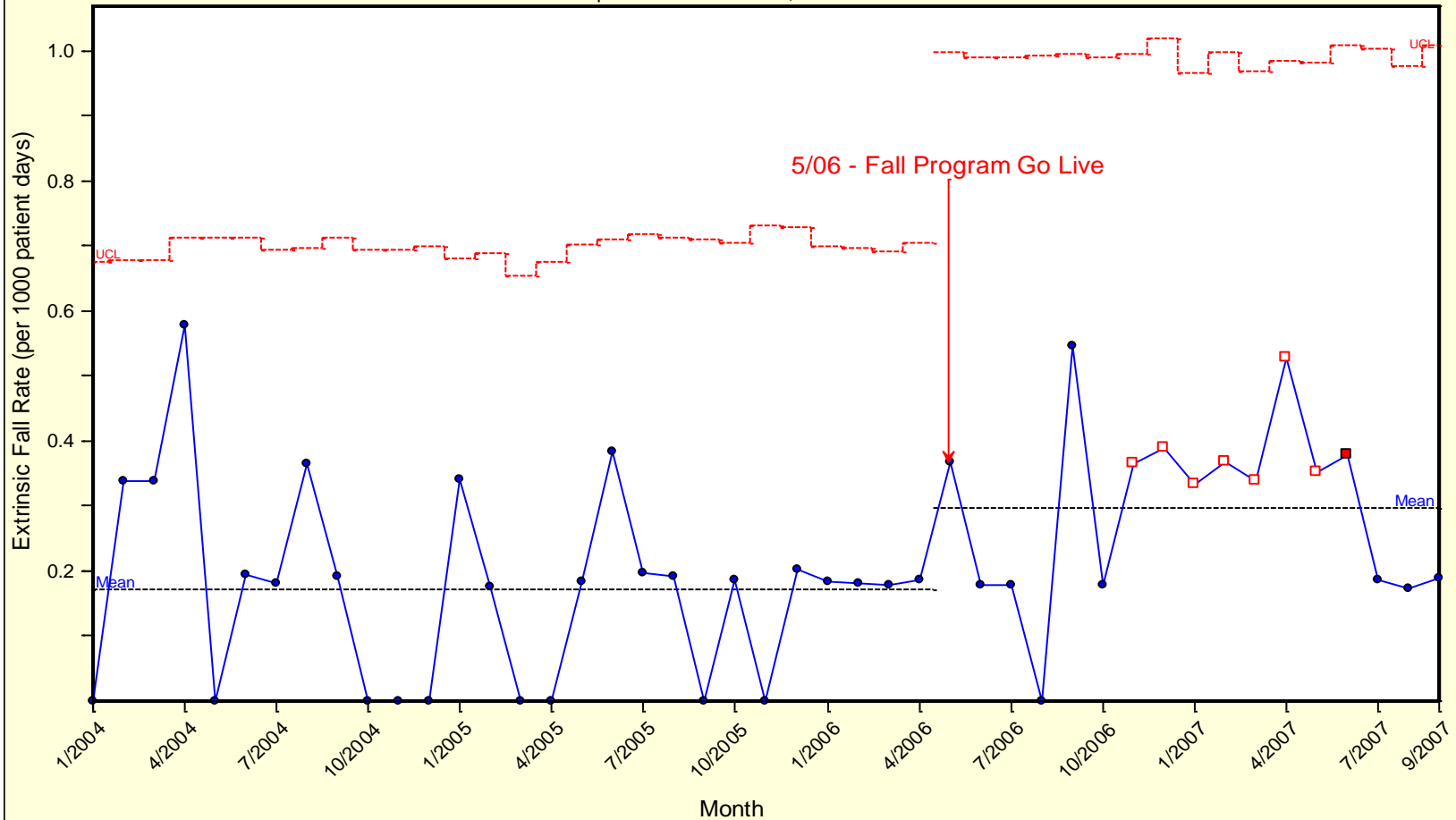
u chart (per 1000)

Pre-Fall Program Go Live: UCL = 0.7, Mean = 0.2, LCL = none (1 - 28)

Inspected Mean = 5479.5, Counts Mean = 0.9

Post-Fall Program Go Live: UCL = 1.0, Mean = 0.3, LCL = none (29 - 45)

Inspected Mean = 5548.8, Counts Mean = 1.6





Inpatient Extrinsic Falls per 1000 Patient Days

u chart (per 1000)

Pre-Fall Program Go Live: UCL = 0.7, Mean = 0.2, LCL = none (1 - 28)

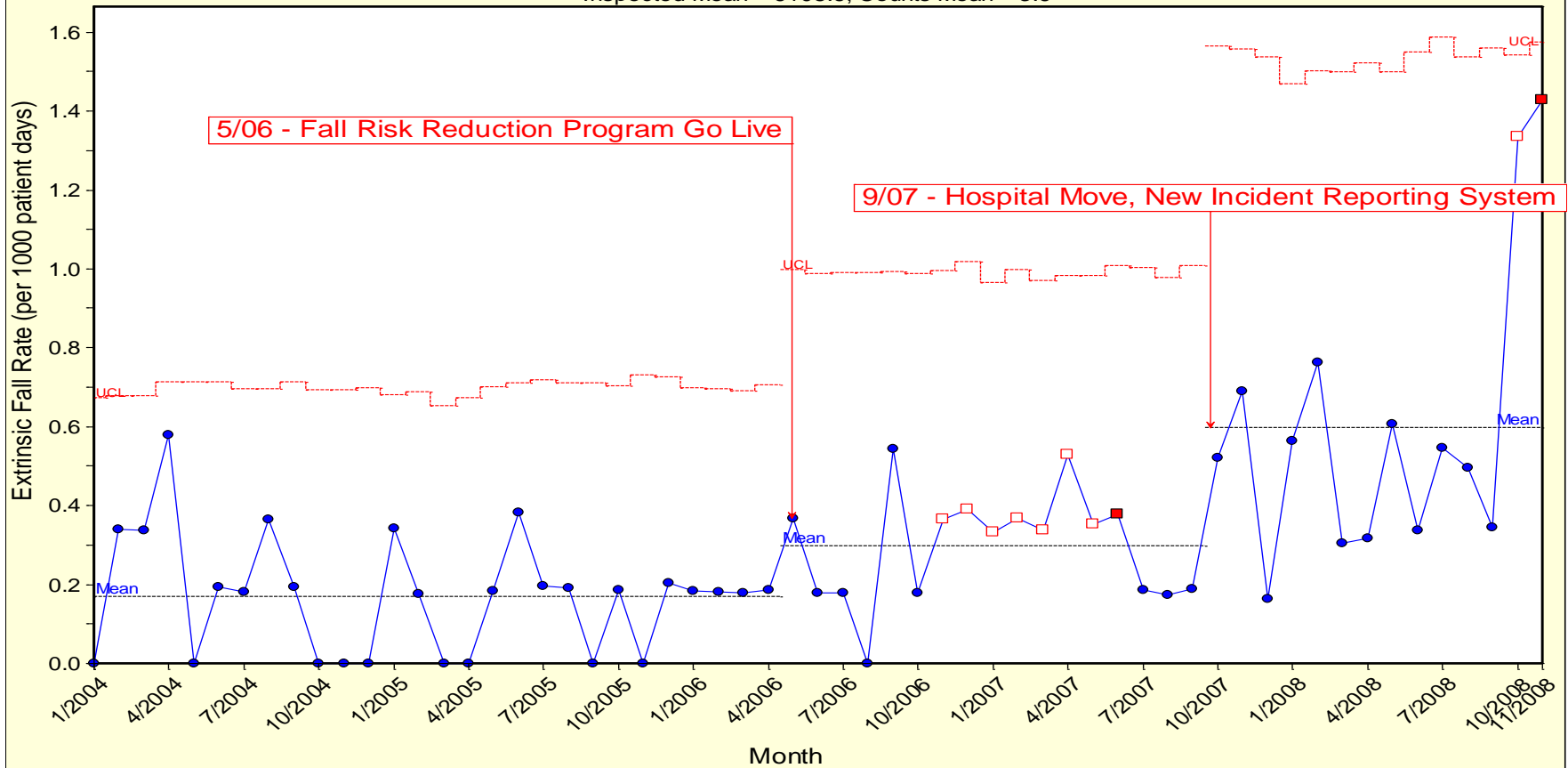
Inspected Mean = 5479.5, Counts Mean = 0.9

Post-Fall Program Go Live: UCL = 1.0, Mean = 0.3, LCL = none (29 - 45)

Inspected Mean = 5548.8, Counts Mean = 1.6

Hospital Move: UCL = 1.5, Mean = 0.6, LCL = none (46 - 59)

Inspected Mean = 6108.6, Counts Mean = 3.6

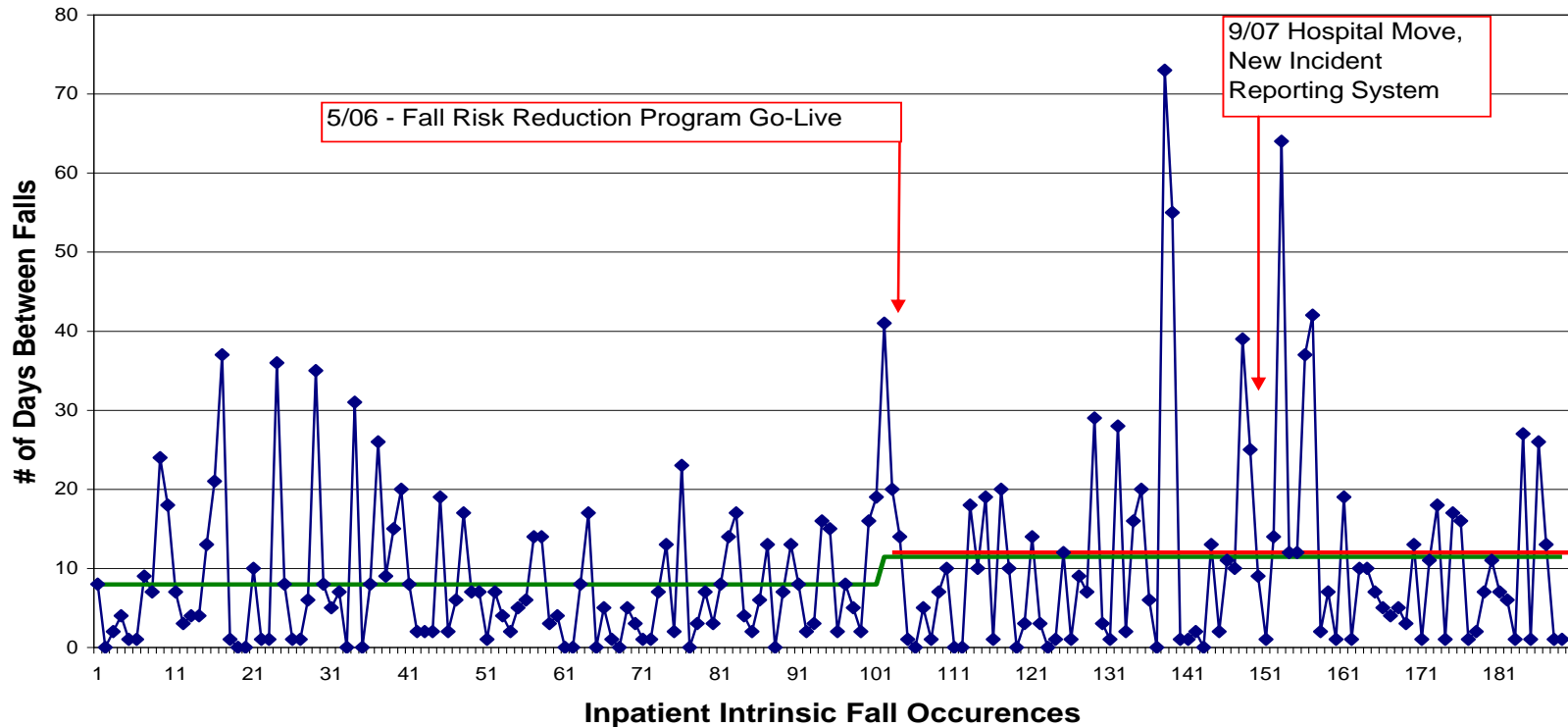




Days Between Inpatient Intrinsic Falls

Jan 2004 - Dec 2008

◆ Days between Intrinsic Falls — Target — Average





Successes

- House-wide implementation complete
 - Collaborated with departments who voluntarily participated in the program to define population specific requirements.
 - Ambulatory department participation/process is unique to TCH.
- Decrease in intrinsic fall rate
- Increase days between intrinsic fall rate.
- JC ready



Successes

- Reduction of ~12 intrinsic patient falls per year
- Decrease of ~\$48,000 / year in patient charges
- Intangible contribution to our overall safety culture



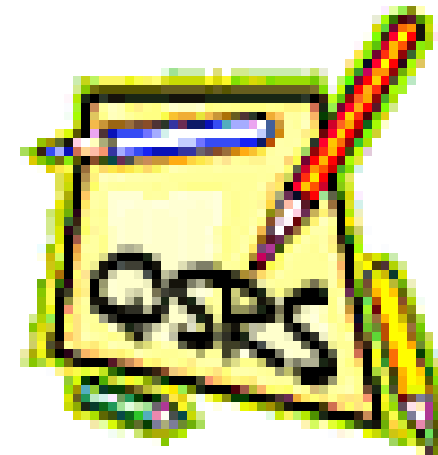
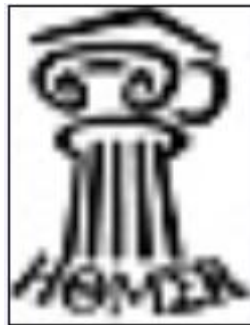
Challenges / Changes



Old Hospital to New Hospital



Challenges / Changes



**HOMER to QSRS
(Incident Reporting Systems)**



Challenges / Changes



**Paper to Link to EPIC
(Method of Nursing Documentation)**



Next steps:

- Fall risk tool validation study
- Publications to follow
- Continue quarterly evaluations
- Ongoing program assessment



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- Clinical Nurse Educator & Specialist Group
- Nursing Education
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Questions?



Thank you!

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