Is Your Dialysis Unit Safe?

Network 9/10 Annual Meeting
March 10, 2009
Multistakeholder Meeting 2000
Collaborative Leadership for ESRD Patient Safety

Action Items

• Develop a common language for patient safety - taxonomy

• Educate ESRD community about safety – toolkit: 2 national programs

• Identify primary safety issues from patient and professional perspectives

• Identify best practices and make available to ESRD community
Dialysis Chains: Top Patient Safety Issues

- Patient Falls
- Medication Errors
- Access-Related Events
- Dialyzer Errors
- Excess blood loss and prolonged bleeding
Risk of Hip Fracture Among Dialysis and Renal Transplant Patients

• Incidence of hip fracture in dialysis patients: 2.9/1,000 patients/year
• Extrapolation to national incidence: 800 hip fractures each year in dialysis patients.
Medication Errors: Major Safety Issue in Hospitals

Pharmacists on Rounding Teams Reduce Preventable Adverse Drug Events in Hospital General Medicine Units

Kucukarslan SN, Peters M, Mlynarek M, Nafziger DA

Arch Intern Med. 2003 (Sept); 163:2014-2018
Table 3: Errors in dialysis treatments

<table>
<thead>
<tr>
<th></th>
<th>Unit A</th>
<th>Unit B</th>
<th>Unit C</th>
<th>Unit D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrong dialyzer</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Wrong bath</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Wrong DFR</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Lines reversed</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>8</td>
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<tr>
<td>Procedure error</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Treatment time error</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>UF/weight error</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Laboratory specimen</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Total events</td>
<td>0</td>
<td>16</td>
<td>32</td>
<td>9</td>
<td>57</td>
</tr>
<tr>
<td>Total treatments</td>
<td>9,464</td>
<td>11,549</td>
<td>19,537</td>
<td>23,991</td>
<td>64,541</td>
</tr>
<tr>
<td>Events/treatment</td>
<td>0</td>
<td>0.0014</td>
<td>0.0016</td>
<td>0.00038</td>
<td>0.00088</td>
</tr>
</tbody>
</table>

DFR = dialysate flow rate
UF = ultrafiltration
Total events/treatment = 57/64,541 = 1 event every 1,132 treatments
## Table 4: Medication errors and patient falls

<table>
<thead>
<tr>
<th></th>
<th>Unit A</th>
<th>Unit B</th>
<th>Unit C</th>
<th>Unit D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heparin errors</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Medication errors</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Medication omission</td>
<td>2</td>
<td>2</td>
<td>13</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Patient falls</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>
Health & Safety Survey Project: Patients & Professionals

Sponsors

Renal Physicians Association

KIDNEY & UROLOGY

Partners

American Association of Kidney Patients

ANNA

National Renal Administrators Association

Funding by Abbott Laboratories & CMS Special Project
Invitations to participate in an anonymous survey sent to 3,587 patients drawn from a representative national patient sample

Network #1 implemented the patient selection and coordinated survey mailing and responses

Surveys completed by 1,762 patients
Patient Survey

Sample Characteristics
Mean Age 64 yrs.
Gender: 54% males
Race: 67% Caucasian, 28% African Amer.
Dialysis Type: all in-center hemodialysis
Vascular access: 21% catheter
Professional Survey

- Invitations to participate in an anonymous web-based survey widely distributed by RPA, Networks, Professional Meetings
- Web-based Surveys completed by 649 professionals
Percent ESRD Patients & Survey Respondents by Network

Figure 1: Percent ESRD Patients and Survey Respondents by Network
Patient Falls: Patients’ View

Patient Survey last 3 months:

• 95% patients had never fallen at the dialysis unit
  – 5% fell: extrapolated nationwide – 15,240 falls
• 55 patients (3.1%) reported falls in the unit
  – Some had several falls – mean # falls 1.3
  – Reason for falls:
    • Feeling dizzy or weak: 60%
Patient Falls: Staff View

Professional Survey: Past 3 months:

• Mean # falls 0.65 =
  – If presume 100 pts/nurse/yr, falls rate: 26/1,000 pts/yr
  – 2002: Hip fractures 2.9/1,000 pts/yr

• Reasons for falls
  – Feeling dizzy or weak: 40%
Needle Insertion

Patient Survey: Past 3 months:

• 46% patients report staff sometimes, usually or always has problems inserting needles
  – 6% say the last time there were problems, staff tried to insert the needle more than 3 times before getting help
  – Additional 24% say staff tried 3 times before getting help
Medication Safety: Patients’ View

Patient Survey: Past 3 months:

• Physician review of medications with patients
  – 40% patients report that they discuss their meds with their doctor only “sometimes.”
Medication Safety: Patients’ View

Patient Report of Number of Different Daily Medications

Percent Patient Respondents

Number Different Daily Medications

1 to 5
6 to 10
11 to 15
16 to 20
21 or more

0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%
Medication Safety: Staff View

Professional Survey: Past 3 months

- 43% professionals report 1 or more instances of patient given the wrong medicine or medicine at wrong time
- 63% report patients fail to receive 1 of their meds at times
- 37% report that a patient is given wrong dose of a medication at least once
- Overall 77% staff indicate a patient had a medication omission or error in past 3 months
Handwashing: Patients’ View

Patient Survey: Past 3 months:

- 11% of patients report seeing nurses or technicians who do not wash their hands or change gloves before touching their access site.
Handwashing: Staff View

Professional Survey: Past 3 months:

- 27% professionals reported observing staff fail to wash hands or change gloves before touching a patient’s access.
Set-up Predialysis: Patients’ View

Wrong Dialyzer Set-ups

- 17% patients reported problems with settings on their dialysis machine
- 3% wrong dialyzer set up for treatment
- 2% wrong dialyzing solution set up

3% patients report a treatment when weight not recorded
6% patients report a treatment when BP not obtained prior to treatment
86% Staff report a patient blood sample was not taken when ordered in past 3 months
Stopped Treatments: Patients’ View

Patient Survey: Past 3 months:
• 20% patients report stopped treatments because of clotting
• 15% patients report stopped treatments because of a problem with the machine
• 5% patients report needle dislodgement during treatment
Stopped Treatments: Staff View

Professional Survey: Past 3 months:
• 29% professionals report stopped treatments
Overall Assessment of Safety

Patients:

- 27% patients have seen at least 1 medical mistake in past 3 months
- 16% patients say they sometimes feel unsafe at the dialysis center
- 49% patients sometimes, usually or always worry that someone will make a mistake
Overall Assessment of Safety

Professionals

• 30% professionals said mistakes occur more than rarely
• 30% professionals said the last observed mistake was not trivial
• Medical mistakes are connected to failure to adhere to procedures (59% of staff reporting medical mistakes)
• Most believe their dialysis facility has a positive patient safety environment
Percent Professionals Indicating Each Reason for Medical Mistakes

- Not enough staff
- Staff not disciplined
- Equipment breaks down
- Staff work too many hours
- Patients are difficult to work with
- Staff not given needed training
- No continuous quality improvement program
- Other, please specify:

- Staff do not follow procedures
- Staff do not handle workload
- Equipment breaks down
- Staff work too many hours
- Patients are difficult to work with
- Staff not given needed training
- No continuous quality improvement program

Reasons for Medical Mistakes
Conclusions

• Patients worry about medical mistakes more than they experience them (49%)
• Most staff (87%) are aware that medical mistakes have occurred in past 3 months
Conclusions

- Medication errors recognized frequently by patients and staff
- Patient Falls remain frequent source of adverse events
- Handwashing is recognized as patient safety issue in dialysis units
- Correct dialysis set-up and predialysis procedures are safety issues
- Adherence to procedures is a major source of medical mistakes
Action Steps

What can we do?
Epidemiology of Falls

- Common in the elderly
  - 35-45% of people >65 fall each year
- Increased risk in nursing home residents
  - >50% residents fall annually
- Injury rate increased in institutionalized patients
  - Up to 25% result in need for hospital care

Risk Factors for Falls

- **Intrinsic**
  - History of falls
  - Mobility impairment
  - Muscle weakness
  - Visual deficits
  - Cognitive impairment
  - Postural hypotension
  - Agitation
  - Urinary frequency
  - Depression
  - Arthritis
  - Age > 80
Risk Factors for Falls (cont.)

- Extrinsic/Environmental
  - Medications
  - Poor lighting
  - Loose carpets
  - Agitation
  - Urinary frequency
Strategies for Fall Prevention

- Multifactorial interventions
  - Education of staff
  - Review and modification of medications
  - Exercise and balance training
  - Modification of environmental hazards
Strategies for Fall Prevention (cont.)

- **Specific interventions**
  - Bed alarms
  - Moving patient to room near RN station
  - Sitter for agitated patient
  - Placing patient’s mattress on the floor
  - Chemical restraints
  - Physical restraints

webmm.ahrq.gov
Use of Physical Restraints

- Substantial evidence indicates that restraint use can harm patients
- Use of physical restraints does not stop injury
- Use of restraints may increase injury
- Bed rails may be hazardous
System Improvements

- Enhance communication
  - Bracelets to identify patients at high fall risk
  - Checklist—risk factors reviewed on sign out
- Maintain mobility
  - Balance risk of falling with benefits of activity
  - Avoid cascade of functional decline
- Seek financially feasible alternatives
  - Sitters—solicit family members
  - Reserve beds closest to nursing station for at-risk patients

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Take-Home Points

- Falls are common in hospitalized patients
- Patients should be screened by assessing intrinsic and extrinsic fall-related risk factors
- Communication of patient’s fall risk between care providers is critical to prevent falls
- Medication Review

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Take-Home Points (cont.)

- Other first-line fall prevention strategies include:
  - Medication review
  - Relocation of patient
  - Sitters
  - Bed alarms
  - Mobility preservation
- Bed rails should be used with caution
- Physical restraints should be a last resort

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What Can We Do To Improve Safety?

Patient Falls
Best Practices: Patient Falls

From Nephrology Associates, Central Maine

• Root Cause Analysis
  – Irregular curb contours at the ambulance entrance
  – Difficult-to-see curb
  – Patients’ orthostatic dizziness
  – Floor care within the unit
Best Practices: Patient Falls

Policies Implemented

• Changed configuration of curb – gradual incline
• Painted curb iridescent
• Changed floor waxing
• Created wheelchair parking area, to prevent anyone tripping on them
• Renewed staff focus to ask about dizziness
• Relocated high risk patients near to nursing station
• No release of dizzy patients until criteria met
• Dedicated one ambulance-only entrance
Best Practices: Patient Falls

From AltaVista Dialysis (University VA)
Completed 5-Diamond Safety Program

Policies Implemented

- Monthly foot exams (ulcers, decreased sensation)
- Patients are asked how steady they feel
- Staff assesses assist devices for stability & fit
- Exercise physiologist – to improve strength & balance
- Social Worker – Environmental survey of facility
- Monthly newsletter
What Can We Do to Improve Safety?

Patient Falls
Medications
Best Practices: Medication Continuity

From Nephrophiles, Santa Fe

• Policy to address gaps in communication between hospital and dialysis facility
  – Discharge Instructions Template Tool
  – Following hospital D/C, facility HD cannot begin until Template Tool or telephone order is received
What Can We Do to Improve Safety?

Patient Falls
Medications
Vascular Access Safety
Best Practices: Access Policy

From Centers for Dialysis Care
Shaker Heights OH

• Policy to assure access is uncovered
  – Receptionist announcement each shift
  – Staff go around and check on compliance
  – Observe and record state of access visibility
Patient Safety Improvement Award
2009

Peter B. DeOreo, MD, FACP
Centers for Dialysis Care,
Shaker Heights OH
Next Steps

• 5 Diamond Program (Networks 1 & 5)
• Keeping Kidney Patients Safe Website
• Post and Spread Best Practices
  – Medication Safety
  – Falls
  – Hand Hygiene
  – Needle Insertion
  – Pre-dialysis Setup