The Impact of Communication Barriers on Adverse Events in Hospitalized Patients

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1. Identify common adverse events

2. Describe communication barriers faced by hospitalized patients

3. Explain the impact of adverse events on the US healthcare system
Agenda

• Overview And Background On Barriers To Patient Provider Communication And Adverse Events
• Data On Incidence & Costs Associated With Adverse Events
• Data On Estimated Reduction Of Adverse Events And Cost Savings If Communication Barriers Are Addressed
• Impact Of Addressing Communication Barriers On Patient Perceptions
• Questions And Wrap-up
Background: Patient-Provider Communication

• **Effective patient-provider communication** plays a role in:
  – Medical Outcomes
  – Patient Satisfaction
  – Nurse/Caregiver Satisfaction

• **Barriers to effective patient-provider communication** include:
  – Physical Limitations (e.g. Access To Nurse Call)
  – Inability To Speak Or Write
  – Linguistic Barriers
Background: Patient-Provider Communication

Care Standards Mandate that patients must be able to summon help and effectively communicate with their caregivers.

- The National Joint Committee's Communication Bill of Rights (1992) identified communication as a basic right and declared that individuals with impaired communication have the right to functional assistive technology.

- The Joint Commission (2010) has deemed effective communication, cultural competence, and patient- and family-centered care vital components of safe, quality care and has made that part of their accreditation standards.
Ideally patients should be able to

- Summon help by accessing nurse call system.
- Communicate why they summoned help.

Unfortunately many patients can’t

- In intensive care units
  - 33% of conscious patients can’t access the nurse call
  - 33% of conscious patients can’t speak because of mechanical ventilation

- In non-intensive care units
  - 9% of conscious patients can’t access the nurse call

(Zubow & Hurtig 2013)
The Institute of Medicine report, *To Err Is Human: Building a Safer Health System*, highlighted the pervasive problem of adverse events (AEs) in health care (Kohn et al, 2000).

A key element of that report was the differentiation of preventable AEs from unavoidable AEs.

What was startling was that the preventable AEs may have contributed to somewhere between 44,000 and 98,000 deaths in US hospitals each year.

*Adverse Drug Reactions, Ventilator Associated Pneumonias, Pressure Ulcers and Patient Falls* are among the most prevalent preventable AEs.
Adverse Events

- The Department of Health and Human Services (HHS) report on the incidence of Medicare beneficiaries’ adverse events (Levinson, 2010) revealed that 13.5% of patients had experienced AEs.
- 1.5% percent of patients had experienced adverse events that contributed to their deaths.
- As a result of their inability to effectively communicate with medical providers, approximately 15,000 Medicare patients’ had died.
- Despite increased hospital awareness of patient safety, 18% of admitted patients were harmed by medical interventions with 63% of those injuries would have been preventable. (Landrigan et al., 2010)
Adverse Event Risk

- Patients with communication impairments 3x more likely to experience a preventable adverse event than patients without communication impairment (Bartlett et al., 2008).
  - Physical barriers
  - Linguistic barriers

- Communication /Language Barriers also impact adverse events in the hospitalized pediatric population. (Cohen 2005).
Determining the Rate & Cost of Preventable Adverse Events

• We used AHA and HHS/AHRQ national data to
  – Obtain data on incidence of AEs
  – Obtain current costs associated with treating preventable AEs
<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Annual Number of Cases</th>
<th>Average Cost Per Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Ulcers</td>
<td>1,151,021</td>
<td>$17,000</td>
</tr>
<tr>
<td>Ventilator-Associated Pneumonia</td>
<td>38,958</td>
<td>$21,000</td>
</tr>
<tr>
<td>Patient Falls</td>
<td>254,995</td>
<td>$7,234</td>
</tr>
<tr>
<td>Adverse Drug Reactions</td>
<td>1,427,266</td>
<td>$5,000</td>
</tr>
</tbody>
</table>
Determining the Impact of Communication Barriers on Adverse Events

- Estimate % of inpatient population facing a communication barrier
- Partition incidence rates for the increased risk populations
- Estimate the incidence and costs associated with the increased risk
- Estimate the potential reduction in AEs if hospitals address communication barriers
- Estimate the cost savings to hospitals from the reduction in AEs
Calculating Risk and Cost Reduction

Number of hospitalized patients in U.S.

Percentage of alert patients

Proportion of patients who need AAC

Calculate rate of AEs for patients who need AAC

Reported rates of selected AEs

Reported cost of selected AEs

Calculate annual reduction in AEs

Calculate annual cost reduction
## Annual Reductions in AE Occurrence and Cost
Patients with **either AT or AAC** Barrier

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Annual Reduction in Number of Cases</th>
<th>Annual Cost Savings ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Ulcers</td>
<td>221,820</td>
<td>4,000</td>
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<tr>
<td>Ventilator-Associated Pneumonia</td>
<td>1,888</td>
<td>40</td>
</tr>
<tr>
<td>Falls</td>
<td>49,141</td>
<td>355</td>
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<tr>
<td>Adverse Drug Reactions</td>
<td>275,057</td>
<td>1,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>547,906</strong></td>
<td><strong>5,795</strong></td>
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</table>
Annual Reductions in AE Occurrence and Cost
Patients with both AT and AAC Barrier

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Annual Reduction in Number of Cases</th>
<th>Annual Cost Savings ($ Millions)</th>
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</thead>
<tbody>
<tr>
<td>Pressure Ulcers</td>
<td>49,750</td>
<td>846</td>
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<tr>
<td>Ventilator-Associated Pneumonia</td>
<td>1,073</td>
<td>23</td>
</tr>
<tr>
<td>Falls</td>
<td>11,022</td>
<td>80</td>
</tr>
<tr>
<td>Adverse Drug Reactions</td>
<td>61,690</td>
<td>308</td>
</tr>
<tr>
<td>Total</td>
<td>123,535</td>
<td>1,257</td>
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</table>
Reducing Risk For All Patients Experiencing A Communication Barrier

671,440 Fewer AEs Annually
$6.8 billion Annual Cost Savings
Voxello noddle™ Clinical Trial (ongoing)

- **Provide access to nurse call and speech generating device**

- **Study Groups**
  - Traditional Access and Communication (*full-access controls*)
  - No Access and Impaired Communication (*no-access controls*)
  - Voxello AT/AAC system (*noodle group*)

- **Outcomes Measures**
  - Patient exit surveys
Patient Survey

• 5-Point Likert Scale (strongly agree-strongly disagree)

• Survey items
  – I was able to independently summon help when I needed it.
  – I had no way to let others know if I needed help or was in pain.
  – I was not able to independently get my nurse to assist me.
  – Having the ability to call my nurse made me feel more at ease.
  – Using my nurse call allowed me to help my nurse take better care of me.
  – Having access to my nurse call did not increase my independence.
Preliminary Results
control groups n=100, noddle=18
F= 99.88 p<.0001

Composite Score (lower score is better)
## Group Comparisons

<table>
<thead>
<tr>
<th>Group Comparison</th>
<th>Difference Between Means</th>
<th>Simultaneous 95% Confidence Limits</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Access-No Access</td>
<td>-8.2637</td>
<td>-9.6650</td>
<td>0.05</td>
</tr>
<tr>
<td>Noodle-No Access</td>
<td>-5.7578</td>
<td>-7.8250</td>
<td>0.05</td>
</tr>
<tr>
<td>Full Access-noodle</td>
<td>-2.5059</td>
<td>-4.5635</td>
<td>0.05</td>
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</tbody>
</table>
Summary

• Reducing risk for patients experiencing communication barrier
  – 671,440 fewer AEs annually
  – $6.8 billion annual cost savings
• Facilitating patient-provider communication is both an ethical imperative and an essential part of a multi-pronged approach for reducing the human and financial cost of preventable AEs.
Questions
References

• Centers for Disease Control and Prevention (2016). *FastStats - Hospital Utilization*;
References


References

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