



# **The Impact of Communication Barriers on Adverse Events in Hospitalized Patients**

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**&**

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- **Richard Hurtig** is a Professor Emeritus in the Department of Communication Sciences and Disorders at The University of Iowa and the President and CSO of Voxello, a biomedical device company developing technology to address the needs of patients facing communication barriers.
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# Learner Outcomes

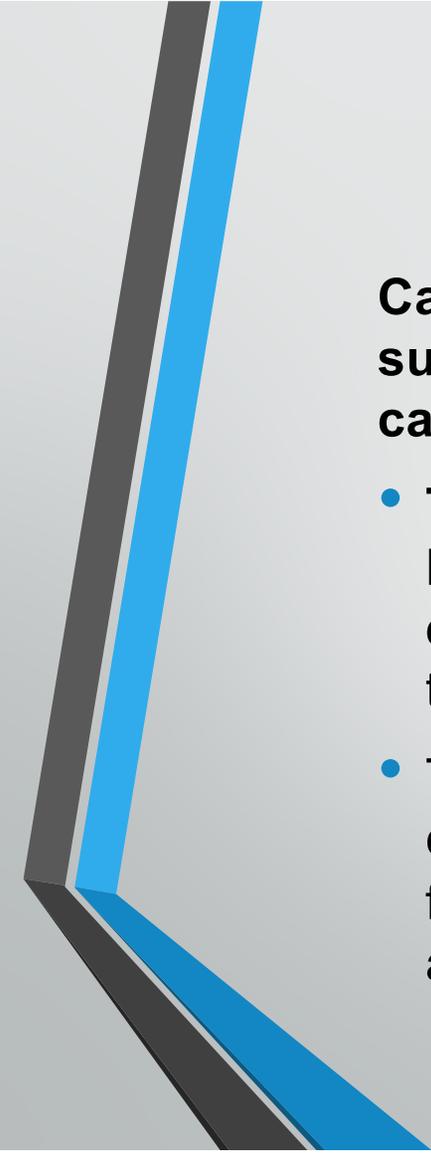
1. Identify common adverse events
2. Describe communication barriers faced by hospitalized patients
3. Explain the impact of adverse events on the US healthcare system

# 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

# Background: Patient-Provider Communication

**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)**

# Adverse Events-1

- 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-2

- 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).



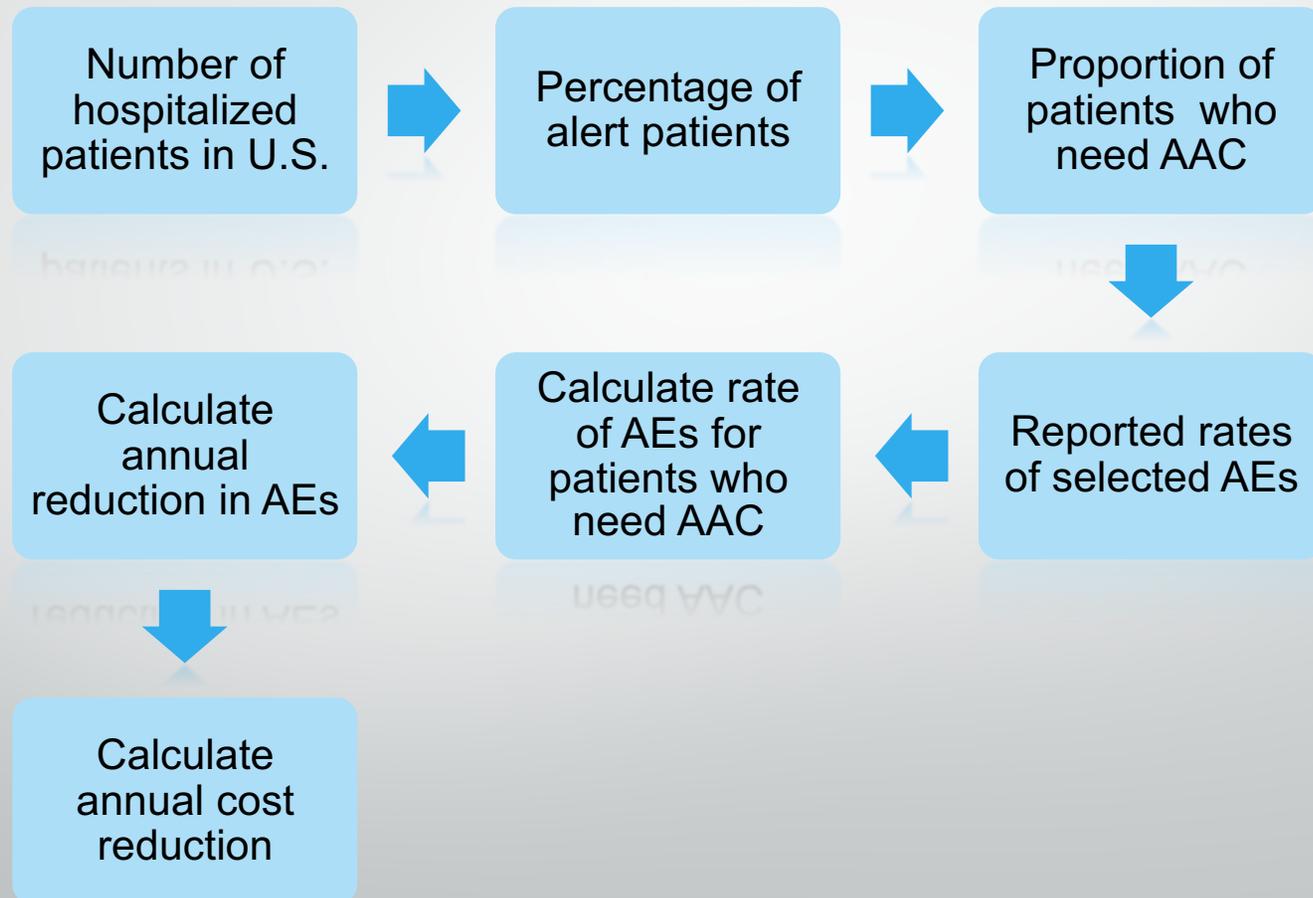
# Impact of Communication Barriers on Adverse Events

- Use AHA and HHS/AHRQ national data to
  - Obtain up to date incidence of AEs
  - Obtain current costs associated with treating preventable AEs
- 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

## Adverse Events & Associated Costs

Adverse Event	Annual Number of Cases	Average Cost Per Case
Pressure Ulcers	1,151,021	\$17,000
Ventilator-Associated Pneumonia	38,958	\$21,000
Patient Falls	254,995	\$7,234
Adverse Drug Reactions	1,427,266	\$5,000

# Calculating Risk and Cost Reduction



## Annual AE Occurrence and Cost Reductions

<b>Adverse Event</b>	<b>Annual Reduction in Number of Cases</b>	<b>Annual Cost Savings (\$ Millions)</b>
<b>Pressure Ulcers</b>	221,820	4,000
<b>Ventilator-Associated Pneumonia</b>	1,888	40
<b>Falls</b>	49,141	355
<b>Adverse Drug Reactions</b>	275,057	1,400
<b>Total</b>	<b>547,906</b>	<b>5,795</b>

# Next Steps: Eliminate Barriers



Voxello noddle<sup>tm</sup> Clinical Trial (ongoing)

- Provide access to nurse call and speech generating device
- Study Groups
  - Traditional Access and Communication (Control1)
  - No Access and Impaired Communication (Control2)
  - Novel AT/AAC system (noddle<sup>tm</sup> & noddle-chat<sup>tm</sup>)
- Outcomes Measures
  - Patient exit surveys

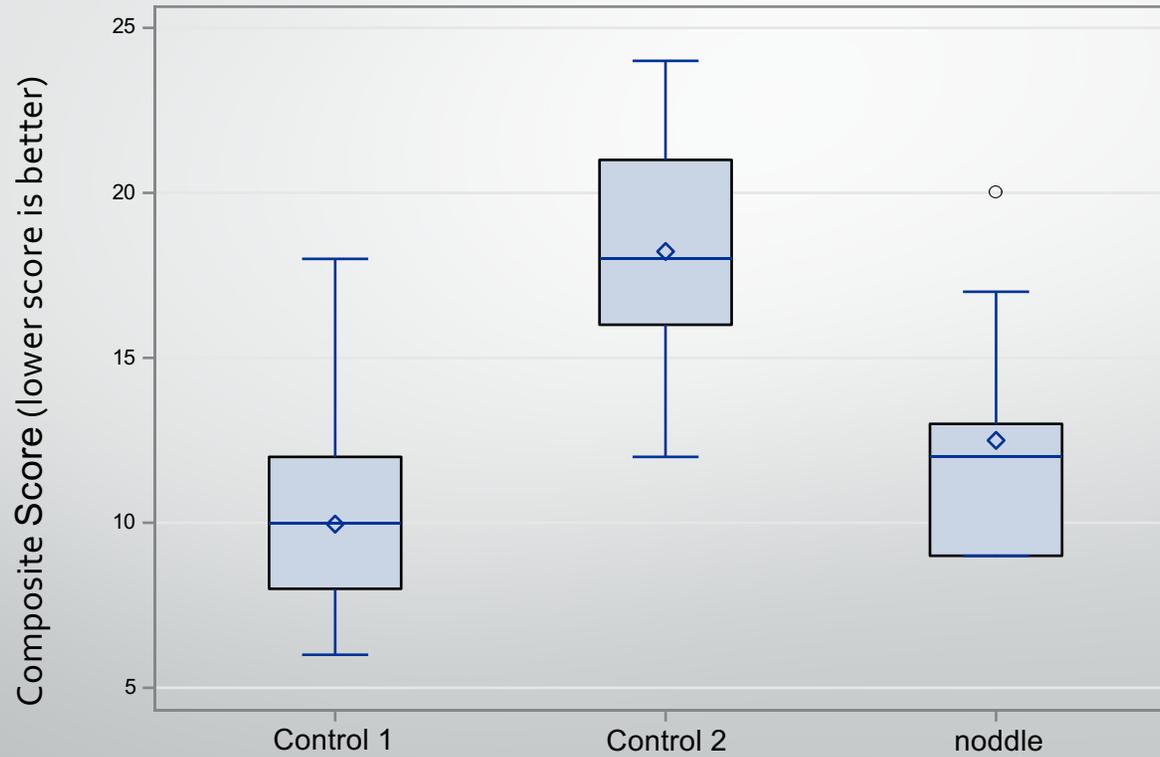
# Patient Survey

- 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=10

$F(2,107) = 95.37$   $p < .0001$



# Tukey's Studentized Range (HSD) Test

GROUP Comparison	Difference Between Means	
Control1 – Control 2	-8.2637	***
Control1 - noddle	-2.5392	***
Control 2 - noddle	5.7245	***

Comparisons significant at the 0.05 level are indicated by \*\*\*

# Summary

- Reducing risk for patients experiencing communication barrier
  - **547,906** fewer AEs annually
  - **\$5.8 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



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