CMS 2024 Quality Conference
Resilient and Ready Together

Creating an Optimal Environment for Quality Healthcare for Individuals, Families, and Communities

The True Cost of Patient Safety Events and Pursuing the Goal of Zero Harm

April 2024

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Learning Objectives

- Illustrate the prevalence of patient safety events among Medicare beneficiaries.
- Estimate additional hospital length of stay (LOS) and financial costs of PSEs to Medicare at the national level.
- Provide insight to support CMS' aim to promote the highest quality outcomes and safest possible care for all.

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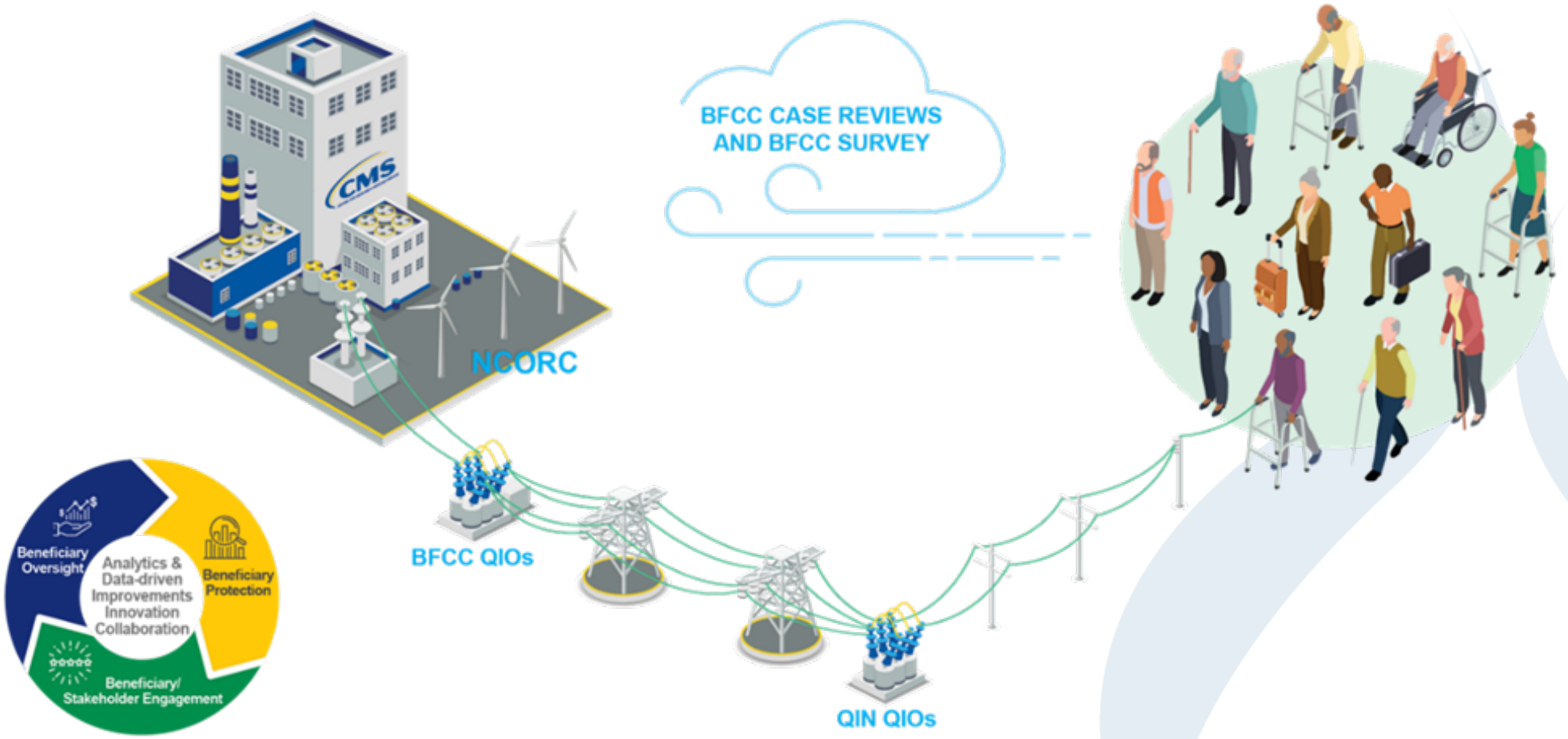
Core Functions of the QIO

Beneficiary and Family Support through the QIO Program



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Background

Background

- Patient safety events (PSEs) and medical errors remain a persistent challenge in our healthcare system.
- The Centers for Medicare & Medicaid Services (CMS) has adopted the goal to achieve zero preventable harm as part of its National Quality Strategy (NQS).

Patient Safety MUST be a Priority

- Patient safety events (PSEs) and medical errors remain a persistent challenge in our healthcare system.
- High rates of harm persist in US hospitals.
  - 2010 OIG reports patient harm rate in 2008 at 27%
  - 2022 OIG reports patient harm rate in 2018 at 25%

Adverse Events in Hospitals: A Quarter of Medicare Patients Experienced Harm in October 2018

Patient Safety IS a Priority

- Improving patient safety and advancing health equity are:
  - Biden-Harris Administration priorities
  - Core goals of the CMS National Quality Strategy

Patient Safety Research is Ongoing

OIG 2018

Sample: Medicare Beneficiaries, National

- 25% of patients experienced harm
  - 12% permanent harm
  - 13% temporary harm
- 43% of harms were preventable

Bates et al. 2023

Sample: All Admissions, MA

- 24% of admissions has at least 1 adverse event
- 23% of harms were preventable
- 32% were serious adverse events

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Methods

BFCC NCORC Medical Record Reviews

Stage 1: Screen Records using Institute for Healthcare Improvement Global Trigger Tool

Objective: Identify patients with likely adverse events.

- **Screen medical records** to identify positive triggers for harm.
- **Send flagged charts** to physician for secondary review.

Stage 2: Physician Review of Flagged Records

Objective: Confirm presence, severity, and preventability of harm.

- **Describe** harm source, nature, event.
- **Determine** if patient was sent to higher level care and if the event could have been prevented.
- **Reach consensus** through physician collaboration and expert consultation.

Categorizing Severity*

Category	Level	Event Description
No PSE: No harm	A	Circumstances or events that have the capacity to cause error
PSE: Near miss	B	An error occurred, but did not reach the patient
PSE: Near miss	C	An error reached the patient but did not cause patient harm
PSE: Near miss	D	An error resulted in the need for increased patient monitoring but no patient harm
PSE: Temporary harm	E	An error resulted in the need for treatment or intervention and caused temporary patient harm
PSE: Temporary harm	F	An error resulted in initial or prolonged hospitalization and caused temporary patient harm
PSE: Permanent harm	G	An error resulted in permanent patient harm
PSE: Permanent harm	H	An error resulted in a near-death event (e.g., anaphylaxis, cardiac arrest)
PSE: Permanent harm	I	An error resulted in patient death

***National Coordinating Council for Medication Error Reporting and Prevention Index (NCC MERP)**

Categorizing Preventability and Harm Type

Preventability Category	Description
Not preventable	The event was definitely not preventable
Possibly preventable	There is some chance the AE could have been prevented
Preventable	The AE was definitely preventable
Unable to determine	The review physician was unable to determine if the AE was preventable

Harm Type	Examples
Patient Care	Intravenous volume overload; aspiration; venous thrombosis or pulmonary embolism
Infection	Urinary tract infection; vascular catheter-associated infection; bloodstream infection; respiratory infection
Medication	Excessive bleeding; delirium or changes in mental status; hypoglycemic event; acute renal insufficiency
Procedure	Excessive bleeding; severe hypotension; respiratory complication; iatrogenic pneumothorax; postoperative ileus

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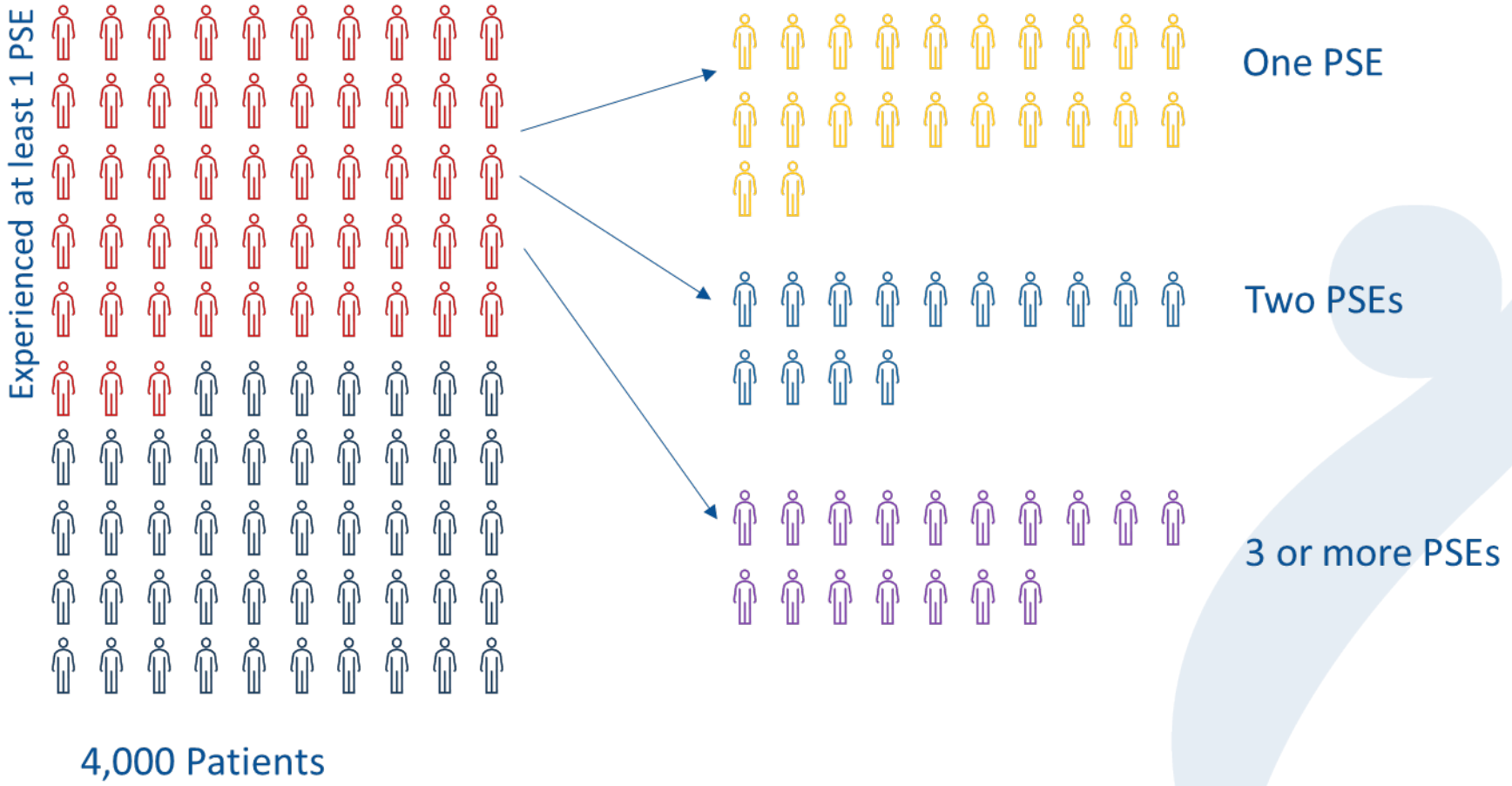
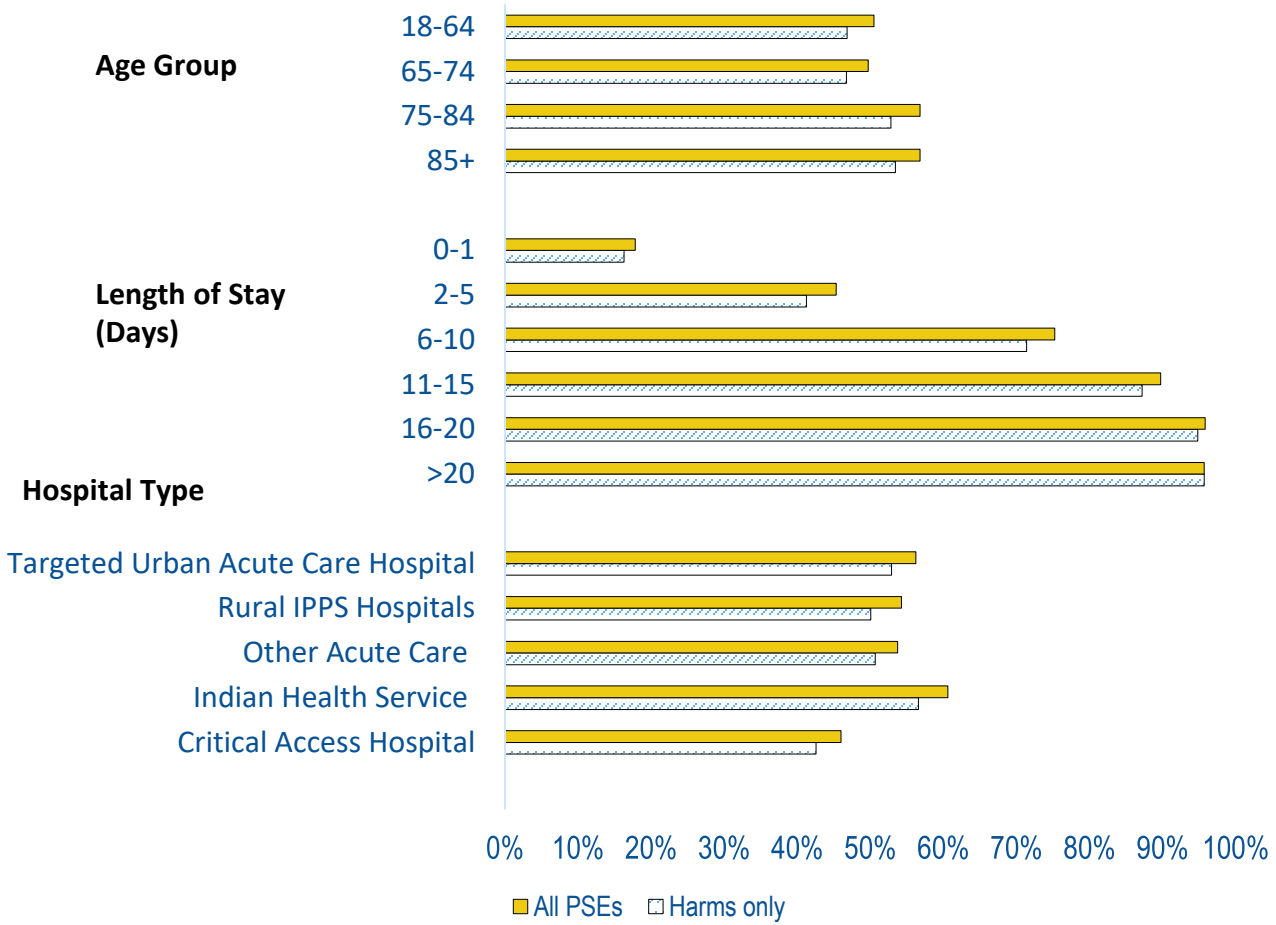
Results

Landscape of PSEs



General Characteristics of PSEs

Incidence of PSEs and Harms by Patient Characteristics



Commonalities Among PSEs and Harms

PSEs and harms were more common among patients who:

- were over 75 years of age
- spent 20 or more days in the hospital
- received care at an Indian Health Services Hospital
- had a primary diagnosis of septicemia

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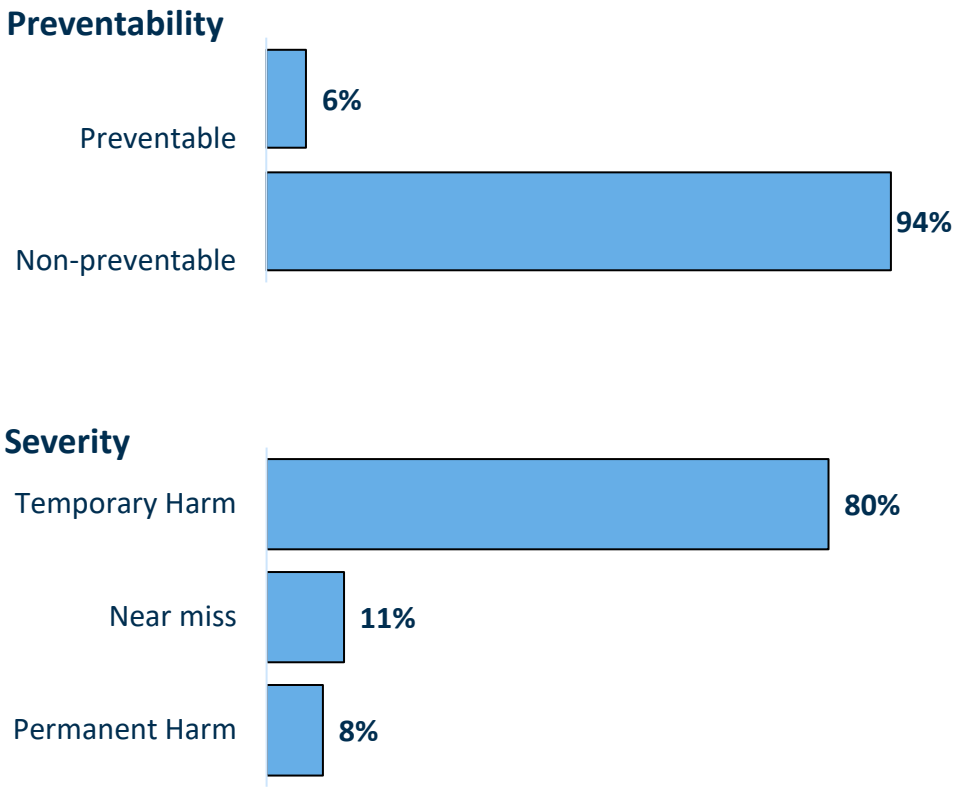
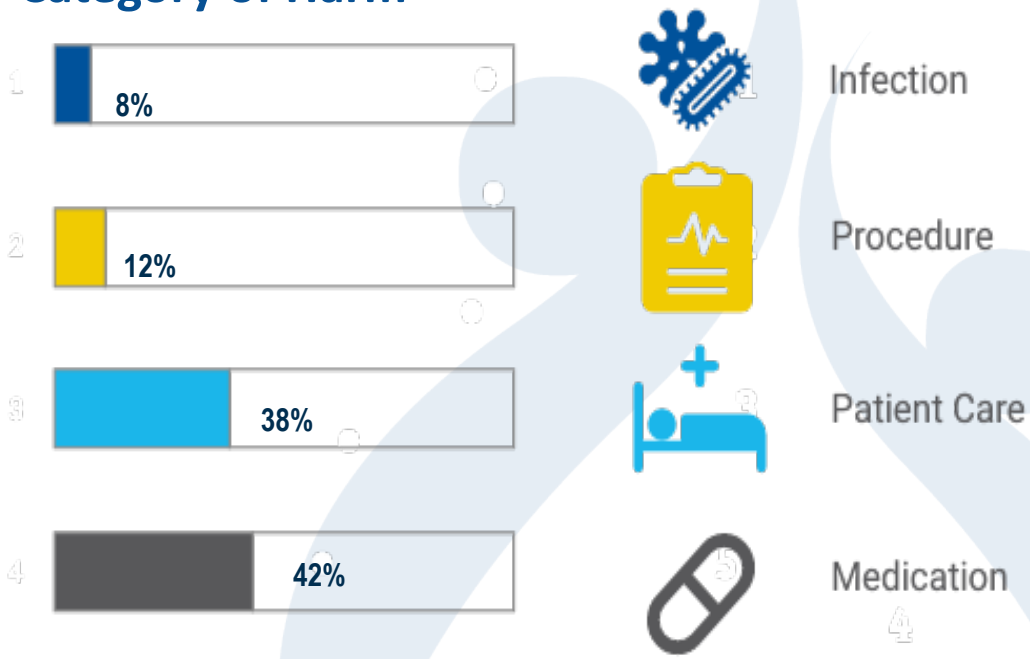
General Characteristics of Patient Safety Events

Characteristics of Patient Safety Events



Category of Harm



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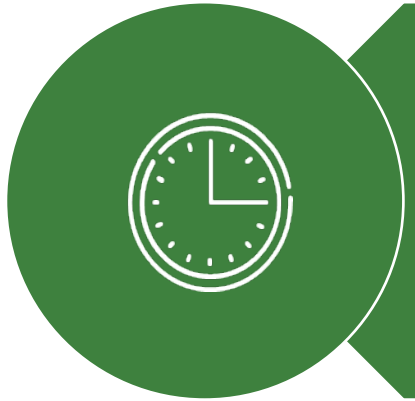
Extended Analysis

Extending the Analysis

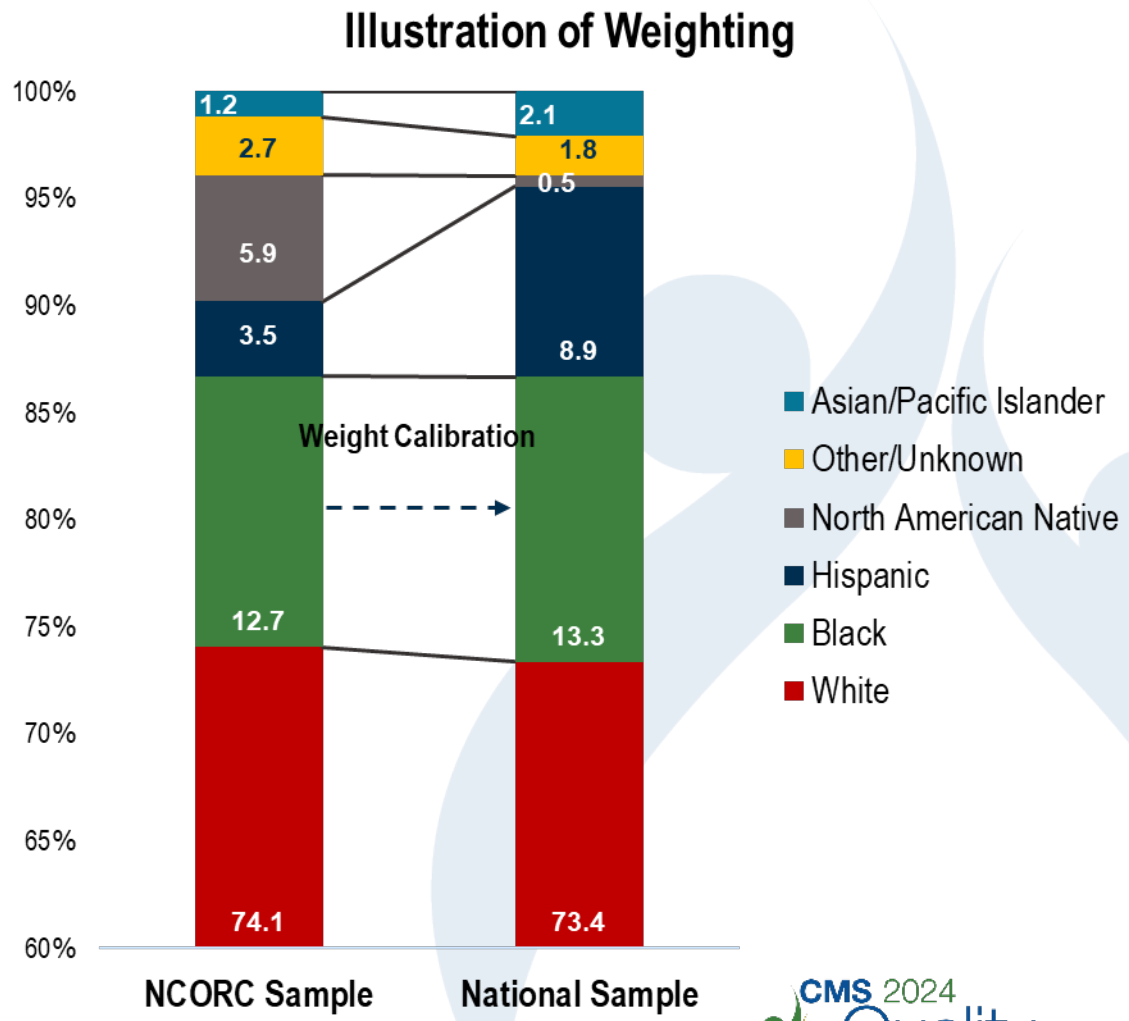
Is there a relationship between PSE and Length of Stay?



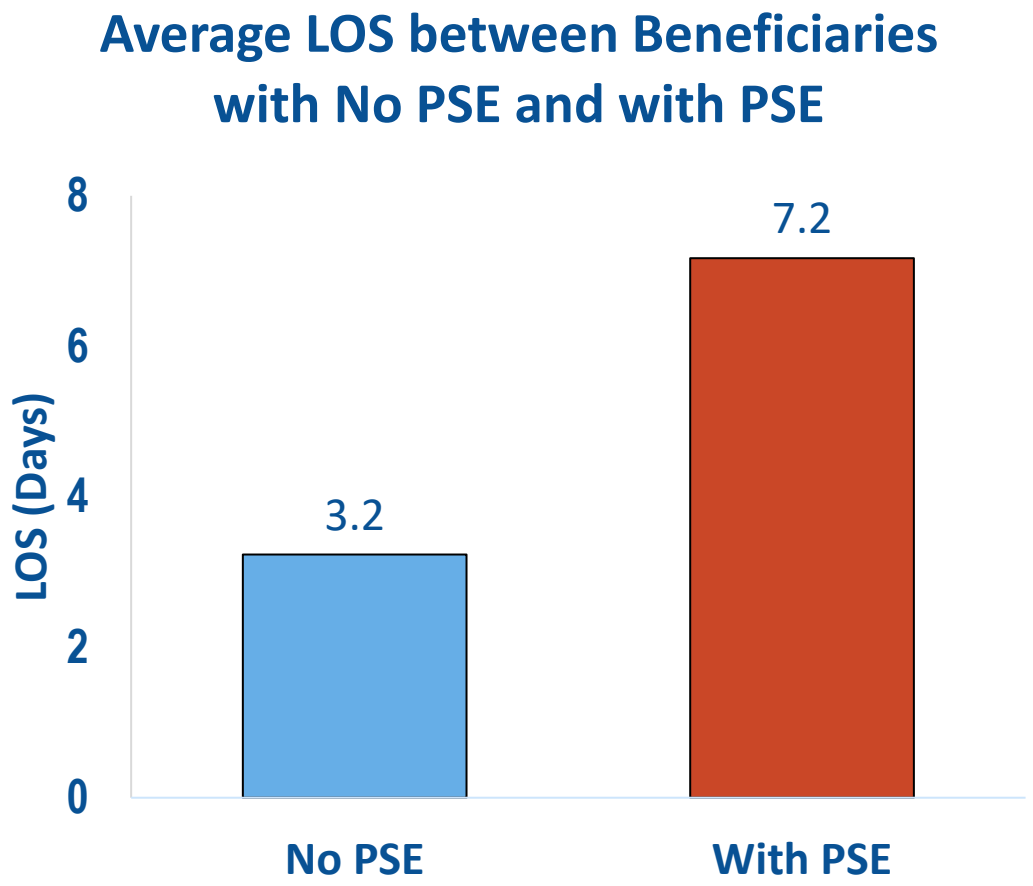
If so, how much do PSEs cost to the Medicare Trust Fund?

Weight Calibration, Additional Hospital Days, and Cost

- Compared to the national sample - national Medicare Part A and Part C hospitalizations in 2021, the BFCC NCORC sample had:
  - Larger proportions of American Indian/Alaska Native patients
  - Smaller proportions of Asian and Hispanics patients
  - Shorter LOS
- Calculating extra hospital days and cost
- Calculating payment

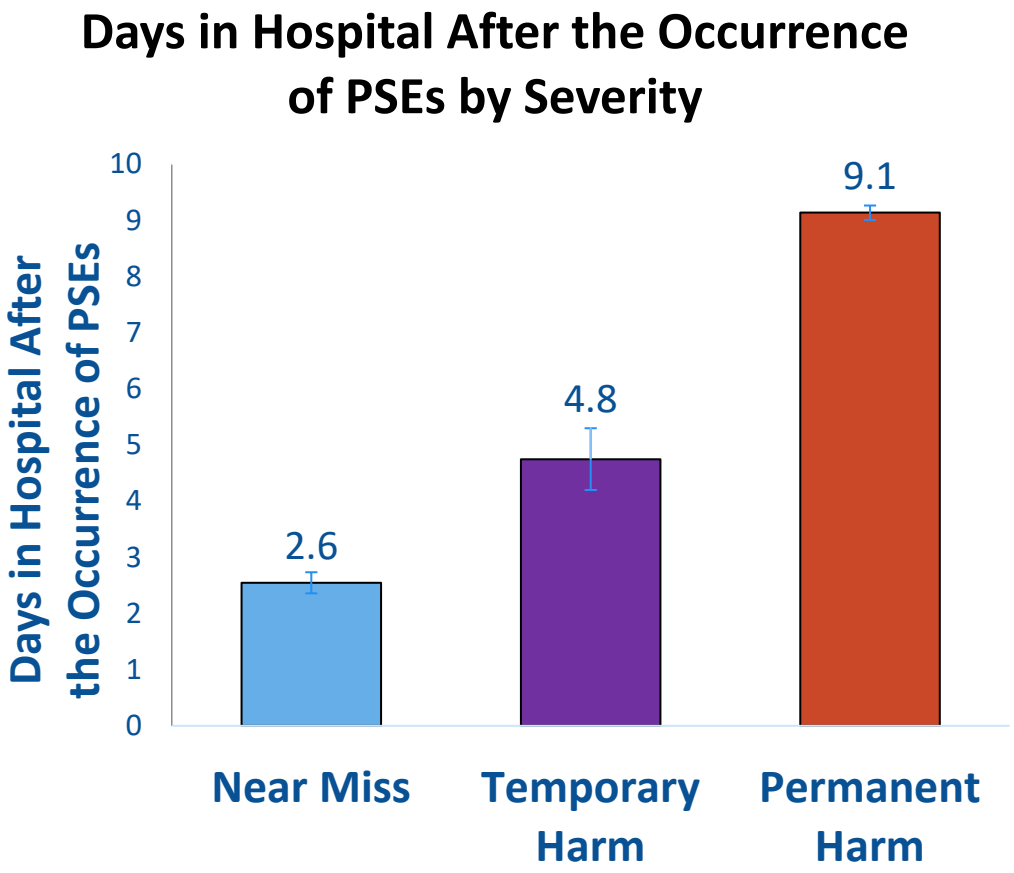


PSEs Led to Longer Length of Stay



- On average, the beneficiaries who experienced PSE(s) spent about four more days in hospitals compared to those without any PSE.

More Severe PSEs Cause Longer Length of Stay



- The average length of stay after a PSE was 2.6 days for near miss, 4.8 days for temporary harm, and 9.1 days for permanent harm.

Economic Burden of PSEs

PSE-associated additional days of hospitalization and additional payment for national Medicare in 2021

PSE Preventability	Additional Days per PSE Case	Number of Beneficiaries (Million Persons)	Additional Days of Hospitalization (Million Days)	Additional Payments (Billion Dollars)	Percentage of Total Medicare Program (%)
Not Preventable	3.6	7.5	26.8	$71.1	7.9%
Preventable	6.2	0.9	5.7	$15.1	1.7%
Total	3.9	8.4	32.5	$86.2	9.6%

Medicare payment per day in 2021: $2,654

Medicare spending in 2021: $900.8 billion

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Discussion and Implications

Discussion, Implications and Future Research

- Patient safety is the cornerstone of high-quality healthcare, yet in our analysis, PSEs happened in more than half of Medicare beneficiary hospitalizations, accounting for nearly 10% of Medicare spending.
- Findings reinforce the urgent need for CMS' National Quality Strategy and the goal of achieving zero preventable harm.
- Future research could extend the economic analysis on PSEs by accounting for other direct or indirect costs, and accounting for the loss of quality of life and life years associated with PSEs.

References

1. CMS Program Statistics - Medicare Inpatient Hospital. Centers for Medicare & Medicaid Services Data. (2021). https://data.cms.gov/summary-statistics-on-use-and-payments/medicare-service-type-reports/cms-program-statistics-medicare-inpatient-hospital
2. CMS National Quality Strategy. (2023). https://www.cms.gov/medicare/quality/meaningful-measures-initiative/cms-quality-strategy
3. Hoogervorst-Schilp, J., Langelaan, M., Spreeuwenberg, P., de Bruijne, M. C., & Wagner, C. (2015). Excess length of stay and economic consequences of adverse events in Dutch hospital patients. BMC health services research, 15, 1-7.
4. Kronman, M. P., Hall, M., Slonim, A. D., & Shah, S. S. (2008). Charges and lengths of stay attributable to adverse patient-care events using pediatric-specific quality indicators: a multicenter study of freestanding children's hospitals. Pediatrics, 121(6), e1653-e1659.
5. Paradis, A. R., Stewart, V. T., Bayley, K. B., Brown, A., & Bennett, A. J. (2009). Excess cost and length of stay associated with voluntary patient safety event reports in hospitals. American Journal of Medical Quality, 24(1), 53-60.
6. Sousa, P., Uva, A. S., Serranheira, F., Nunes, C., & Leite, E. S. (2014). Estimating the incidence of adverse events in Portuguese hospitals: a contribution to improving quality and patient safety. BMC health services research, 14(1), 1-6.

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Questions?

Thank You!

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