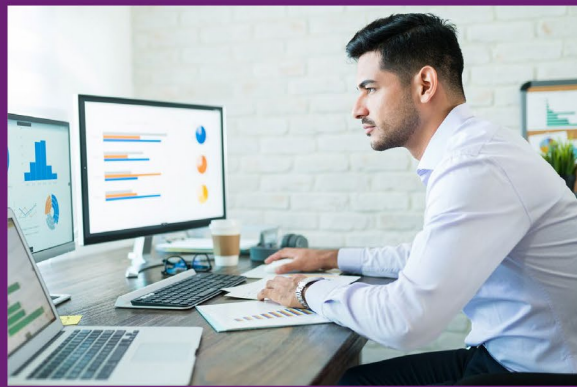




AGENCY FOR HEALTHCARE RESEARCH AND QUALITY



# Examining the Burden of Sepsis in the US

**Craig Umscheid, MD, MS**

**Pamela Owens, PhD**

Center for Quality Improvement and Patient Safety

Agency for Healthcare Research and Quality

**New York State Sepsis Summit**

June 25, 2025



**35<sup>TH</sup>**  
**AHRQ**  
**ANNIVERSARY**  
*Today's Research,  
Tomorrow's Healthcare*

- 
- A medical-themed background image featuring a stethoscope, various pills, a syringe, and a clipboard with the word 'Sepsis' written on it. The word 'Sepsis' is prominently displayed in a large, bold, black font on a white sheet of paper held by a silver clipboard. The background is a light gray surface with various medical supplies scattered around: a silver stethoscope on the left, several blue and orange pills, a red and white syringe, a red and white capsule, a red and white tube, and a silver and black pen. The overall composition is clean and professional, emphasizing the medical nature of the content.

# AHRQ Response: Facts and Figures on the Burden of Sepsis



- Congressional Report on Sepsis
- Four Data Briefs
  - ▶ Overview of Outcomes for Inpatient Stays Involving Sepsis
  - ▶ Rural and Urban Differences in Inpatient Stays Involving Sepsis
  - ▶ Racial and Ethnic Differences in Inpatient Stays Involving Sepsis
  - ▶ State Variation in Inpatient Stays Involving Sepsis
  - ▶ Updated with 2022 data
- Blog on Sepsis
- Interactive Data Visualization



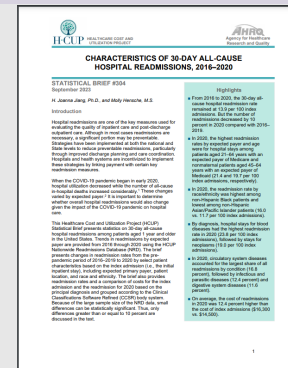
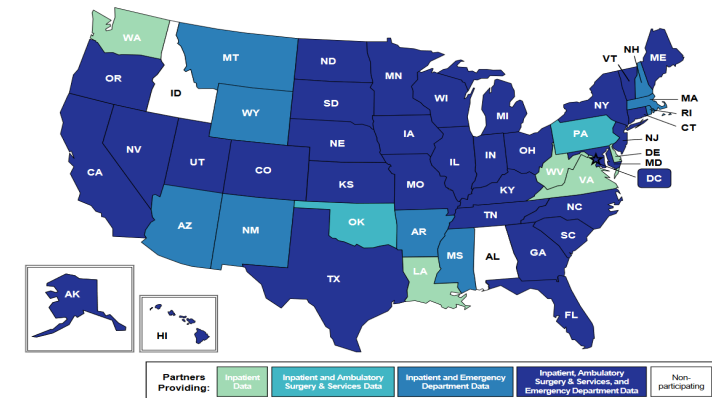
<https://www.ahrq.gov/topics/sepsis.html>

# Healthcare Cost and Utilization Project (HCUP)

[www.hcup-us.ahrq.gov](http://www.hcup-us.ahrq.gov)

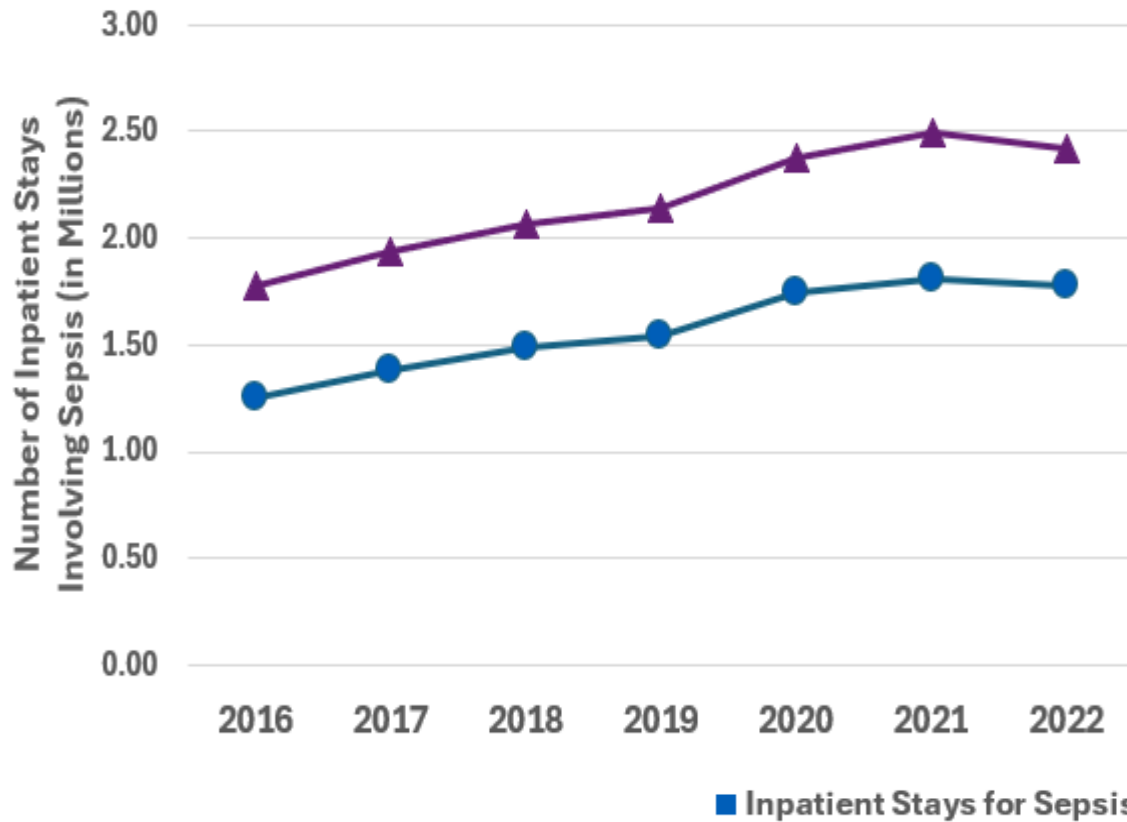


|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Voluntary Partners</b>     | <ul style="list-style-type: none"><li>• <u>Data from 49 states</u>, provided by state agencies, hospital associations and private data organizations</li><li>• Largest collection of longitudinal hospital care data in US</li></ul>                                                                                                                                                                                                               |
| <b>Data Types</b>             | Inpatient, emergency department, ambulatory surgery encounters                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Data Elements</b>          | <u>All-payer, encounter level billing data</u> including patient, clinical and hospital details                                                                                                                                                                                                                                                                                                                                                    |
| <b>Types of hospitals</b>     | <u>Non-Federal, non-rehabilitation, acute care hospitals</u> , including academic medical centers, public hospitals, multi-specialty general hospitals, children's hospitals, and other community hospitals                                                                                                                                                                                                                                        |
| <b>Analytics and Research</b> | <p>Data support wide variety of healthcare research:</p> <ul style="list-style-type: none"><li>• HCUP Statistical Briefs: <a href="https://hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp">https://hcup-us.ahrq.gov/reports/statbriefs/statbriefs.jsp</a></li><li>• HCUP peer-reviewed publications: <a href="https://hcup-us.ahrq.gov/reports/pubsearch/pubsearch.jsp">https://hcup-us.ahrq.gov/reports/pubsearch/pubsearch.jsp</a></li></ul> |

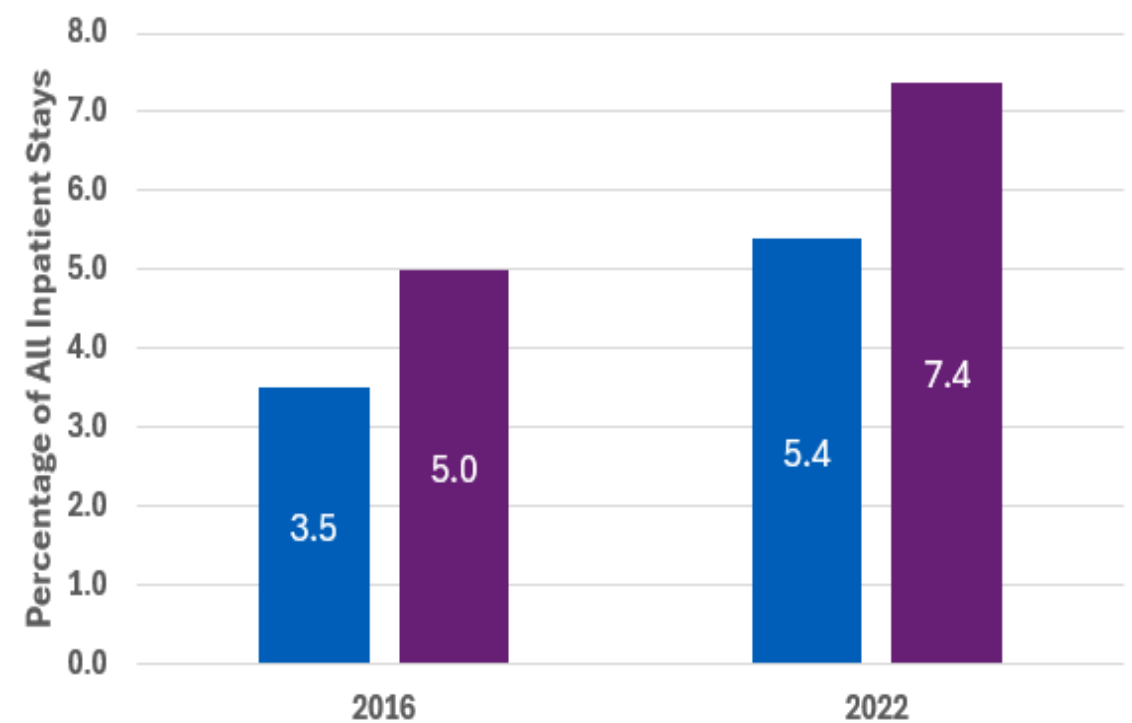


# Trends in Inpatient Stays Involving Sepsis, 2016-2022

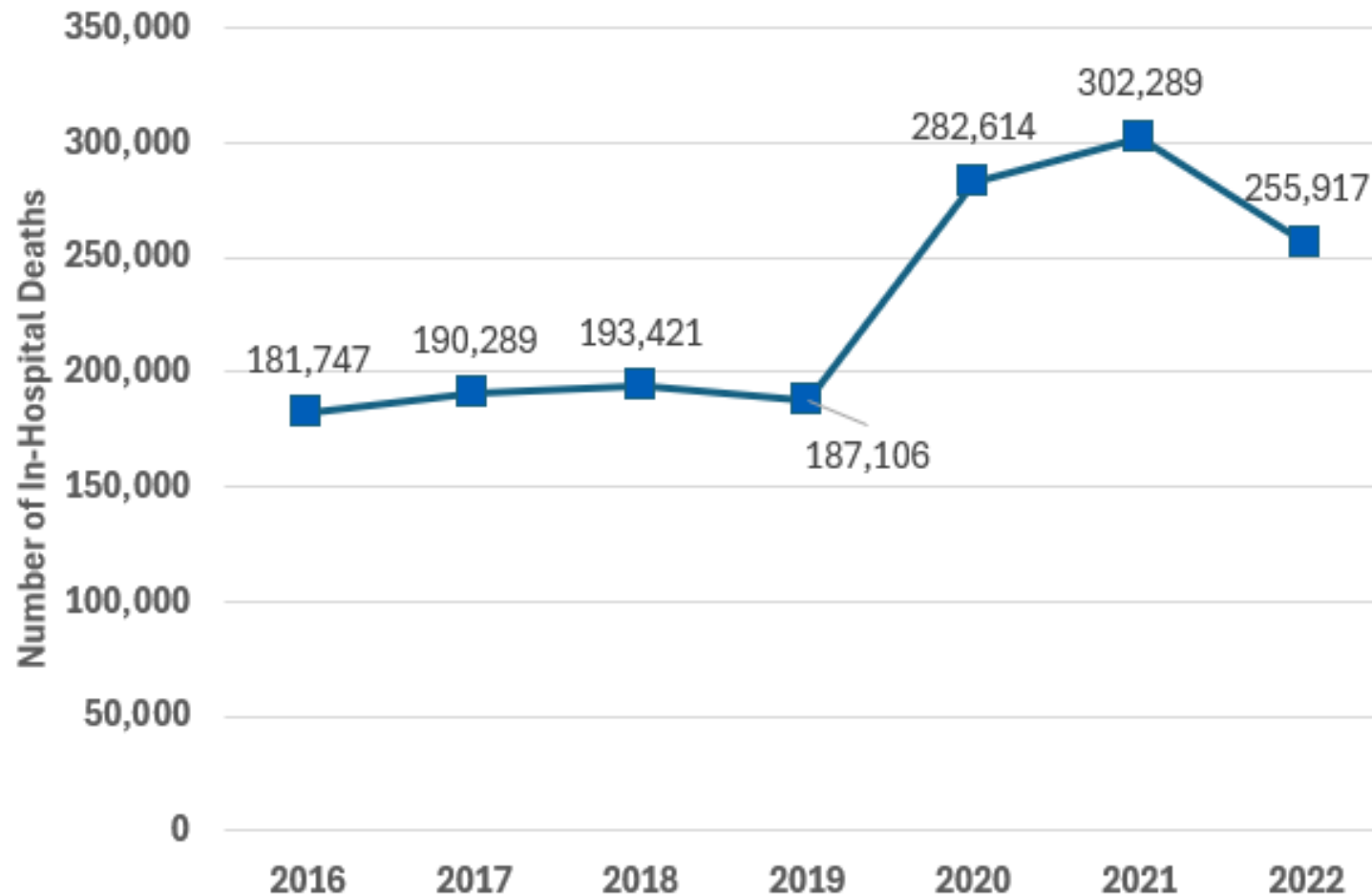
## Number of Inpatient Stays



## Percentage of All Inpatient Stays



# In-Hospital Mortality for Sepsis Encounters, 2016-2022



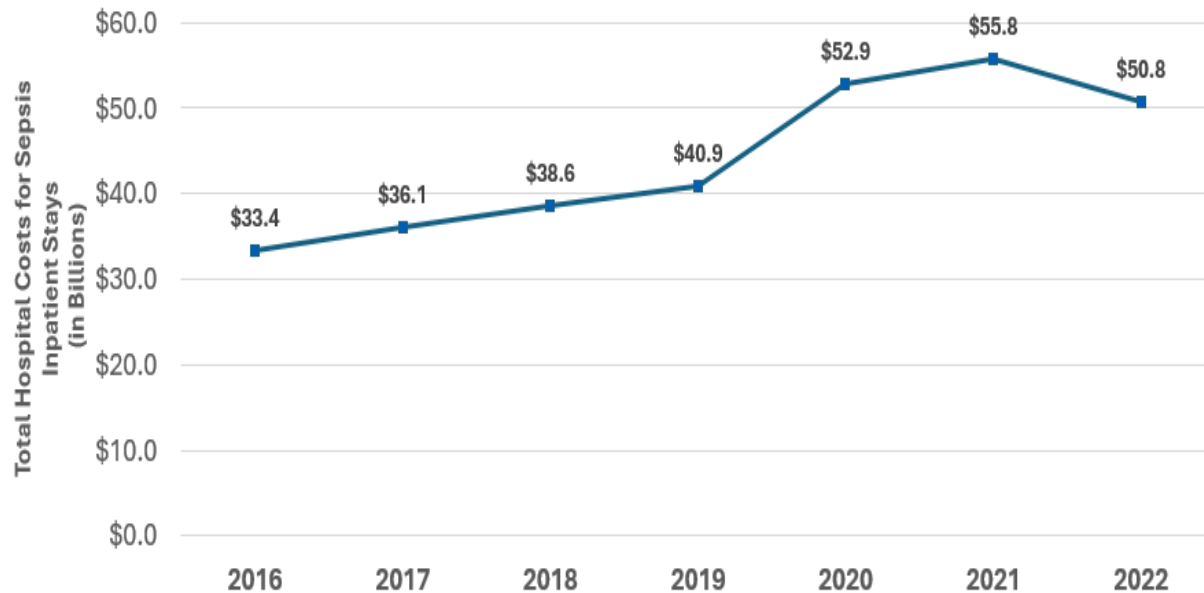
In 2022....

One in seven (14%)  
patients with sepsis in  
the ED or hospital died

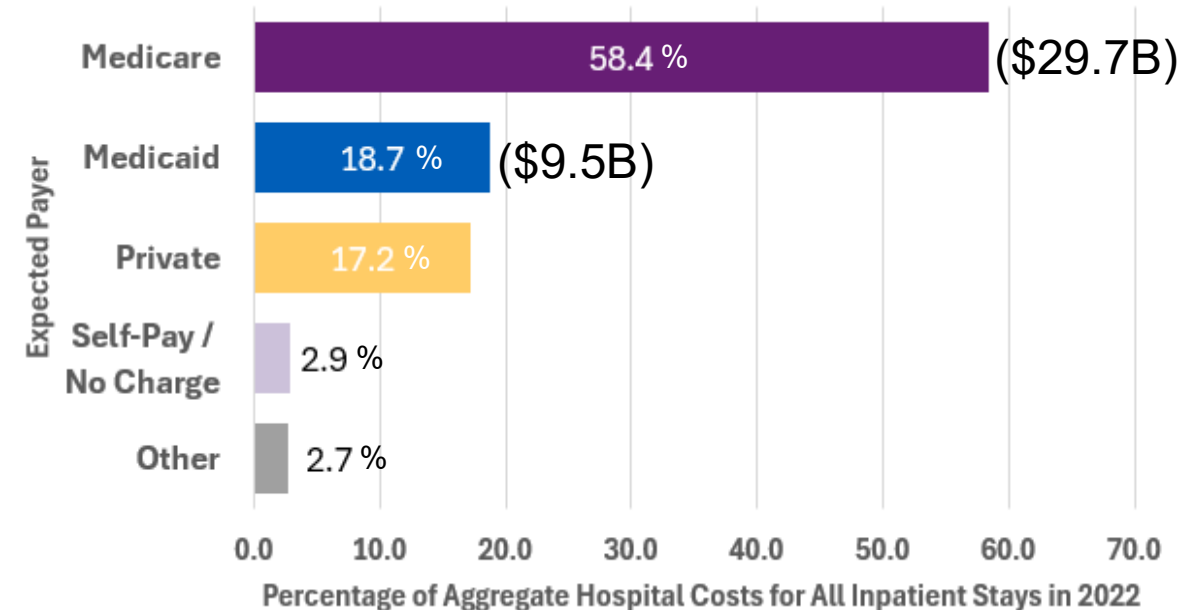
One in three patients  
with septic shock in the  
ED or hospital died

# Trends in Aggregate Costs for Sepsis Inpatient Stays, Overall and by Payer, 2016-2022

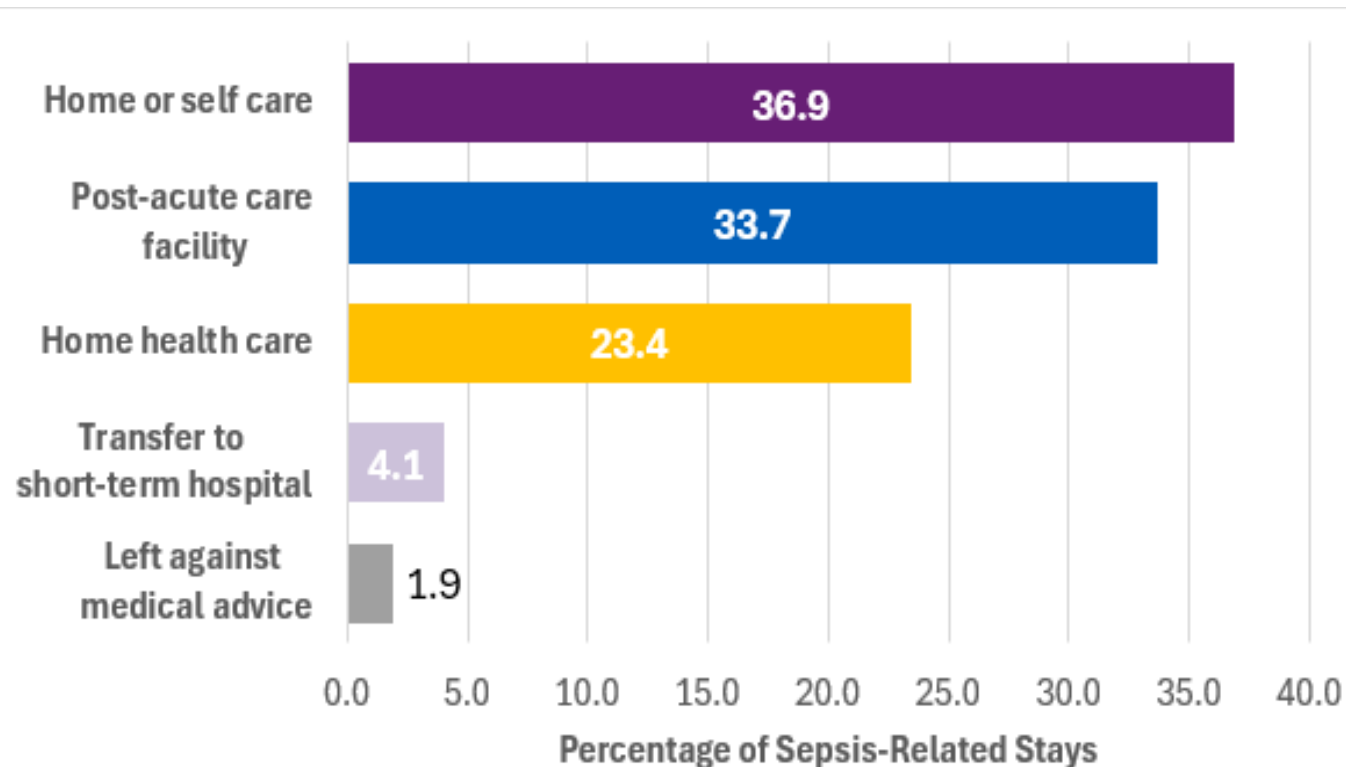
Between 2016 and 2022, aggregate hospital costs increased from \$33.4 to \$50.8 billion



In 2022, over \$39.2 billion was billed to public payers (Medicare and Medicaid) for sepsis stays



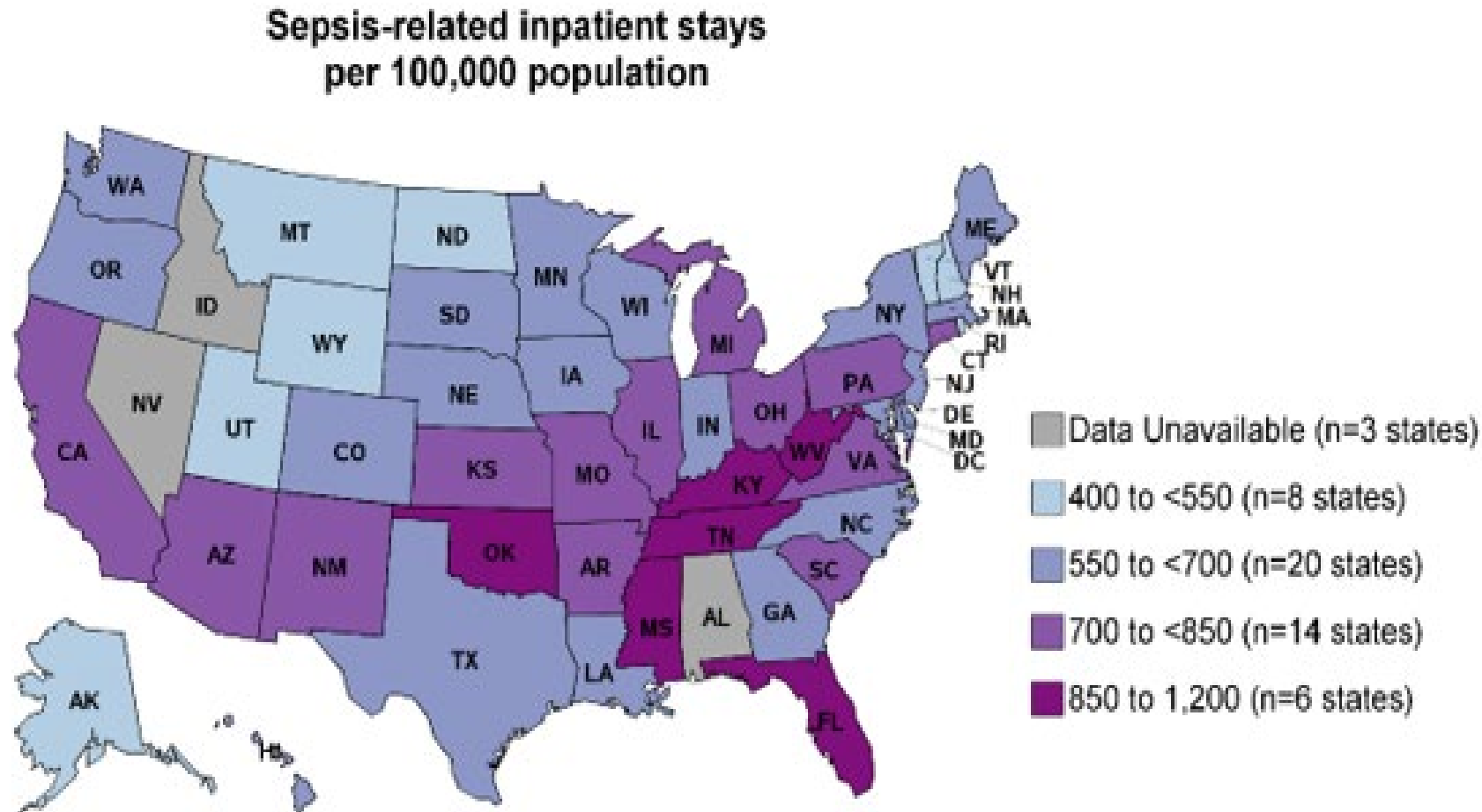
# Post-Acute Care Following a Sepsis-Related Inpatient Stay, 2022



Among those that survive, the majority of patients with sepsis (> 60 percent) need extended care after hospitalization

**Source:** Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization (HCUP) National Inpatient Sample, 2022.

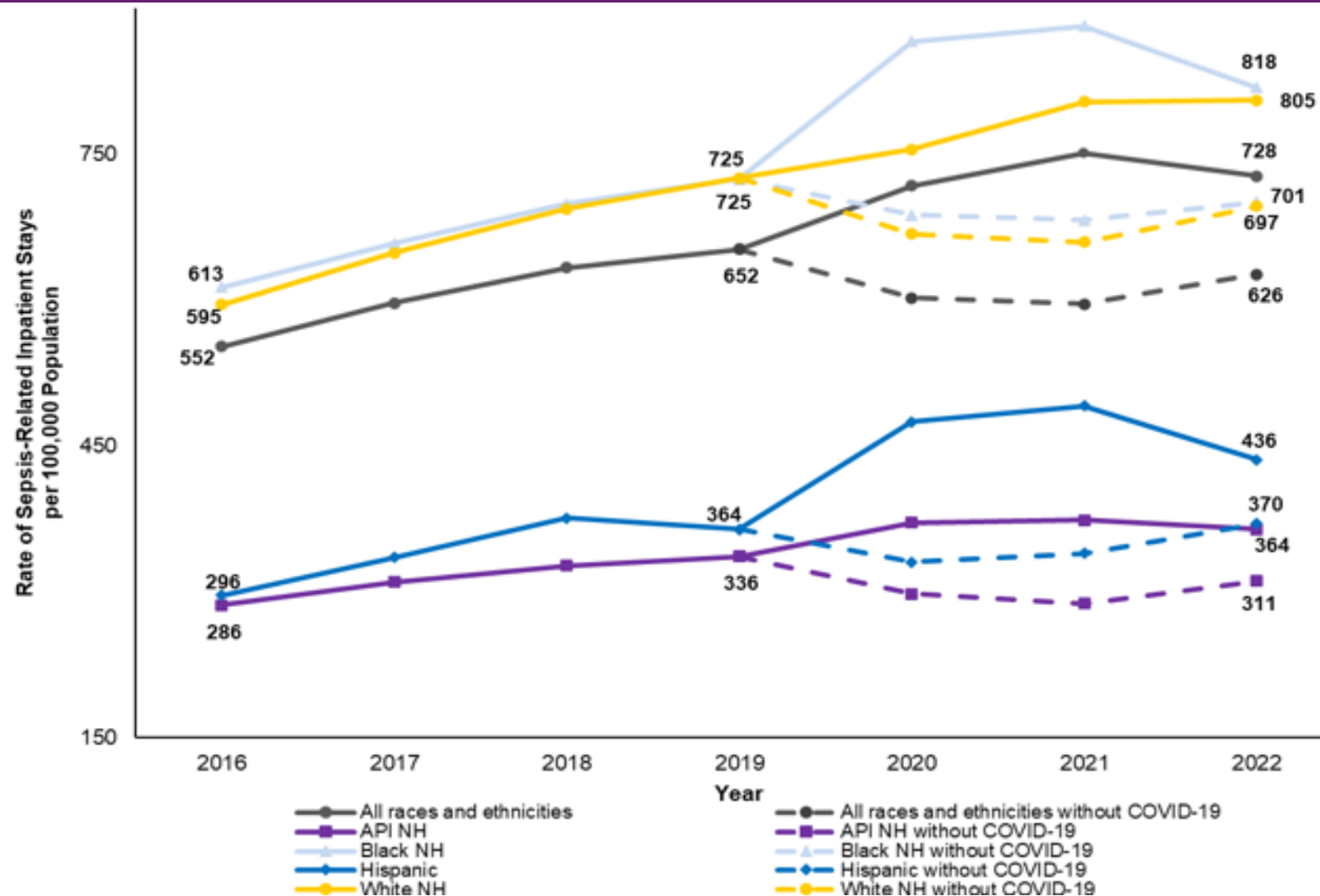
# State Variation in Hospitalizations Related to Sepsis, 2022



Note: The population rate of sepsis-related inpatient stays was based on any-listed diagnosis of sepsis.

Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization Project (HCUP), State Inpatient Databases (SID), 2022, 47 states and the District of Columbia.

# Trends in the Rate of Sepsis-Related Inpatient Stays per 100,000, by Patient Population, 2016-2022



Source: Agency for Healthcare Research and Quality (AHRQ), Healthcare Cost and Utilization (HCUP) National Inpatient Sample, 2016-2022.

# Takeaway: Sepsis Requires Additional Attention!

- Sepsis is the leading cause of hospitalizations (following live births)
  - ▶ More than 2 million people were hospitalized with sepsis in 2022
- Sepsis is the leading cause of in-hospital deaths
  - ▶ One in seven patients with sepsis die in the hospital
  - ▶ One in three patients with septic shock die in the hospital
- The aggregate hospital costs associated with sepsis soared from \$33.4 billion in 2016 to \$50.8 billion in 2022
- The majority of patients who survive sepsis in the hospital require extended care through skilled nursing facilities or home health care

# Now Enrolling: AHRQ Safety Program for HAI Prevention



Currently enrolling hospital units (ICUs and non-ICUs) in the first of three 9-month programs:

- ▶ CLABSI - enrolling now through June 2025
- ▶ CAUTI - recruitment begins August 2025
- ▶ VAP - recruitment begins March 2026

For information about the program, to sign-up for an informational webinar, or to enroll, visit the program website:

<https://safetyprogram4hai-prevention.ahrq.gov/page/home>



# New Opportunity to Improve Diagnostic Safety

The AHRQ-funded **Implementing Diagnostic Excellence Across Systems (IDEAS) Project** is recruiting healthcare organizations to use and evaluate one or more diagnostic safety resources

## Measure Dx:

Instructions for establishing diagnostic safety measurement strategies

## Calibrate Dx:

Helps clinicians self-assess diagnostic performance to help calibrate their performance

## Why participate?

- **Get personalized support** from RAND, IHI, and others to implement one or more resources at your organization
- **Receive training (with CEUs)** on the resources
- **Join a Learning Collaborative** to connect with other organizations
- **Gain experience** in measuring and improving diagnostic quality

## Interested?

IDEASproject@rand.org



**VISIT:** <https://www.ahrq.gov/ideas-project>



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## Agency for Healthcare Research and Quality

5600 Fishers Lane  
Rockville, MD 20857  
Telephone: (301) 427-1364

<https://www.ahrq.gov>

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- CQuIPS team
- HCUP partners

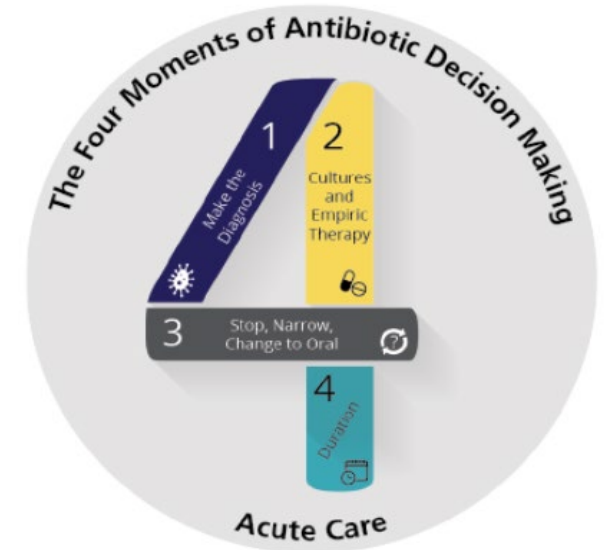


# Sepsis: Where to Start?

- Surviving Sepsis Campaign  
<https://www.sccm.org/SurvivingSepsisCampaign/Home>
- CDC's Hospital Sepsis Program Core Elements  
<https://www.cdc.gov/sepsis/hcp/core-elements/index.html>

# Additional AHRQ Resources for Healthcare Professionals

- **AHRQ Sepsis Website**
  - ▶ <https://www.ahrq.gov/topics/sepsis.html>
- **AHRQ's Four Moments of Antibiotic Decision Making**
  - ▶ Simplifies the complex process of antibiotic prescribing, including for sepsis.
  - ▶ [Best practices for sepsis treatment](#) are included in the [Toolkit To Improve Antibiotic Use in Acute Care Hospitals](#)
  - ▶ Recalibrating Our Approach to the Management of Sepsis. How the Four Moments of Antibiotic Decision-Making Can Help <https://pubmed.ncbi.nlm.nih.gov/33252987>
- **Toolkits for Measuring and Preventing the Occurrence of Patient Safety Indicator 13 (Postoperative Sepsis)**
  - ▶ <https://www.ahrq.gov/patient-safety/settings/hospital/resource/qitool/index.html>



# Implementing HAI Prevention Through the Comprehensive Unit-based Safety Program (CUSP)

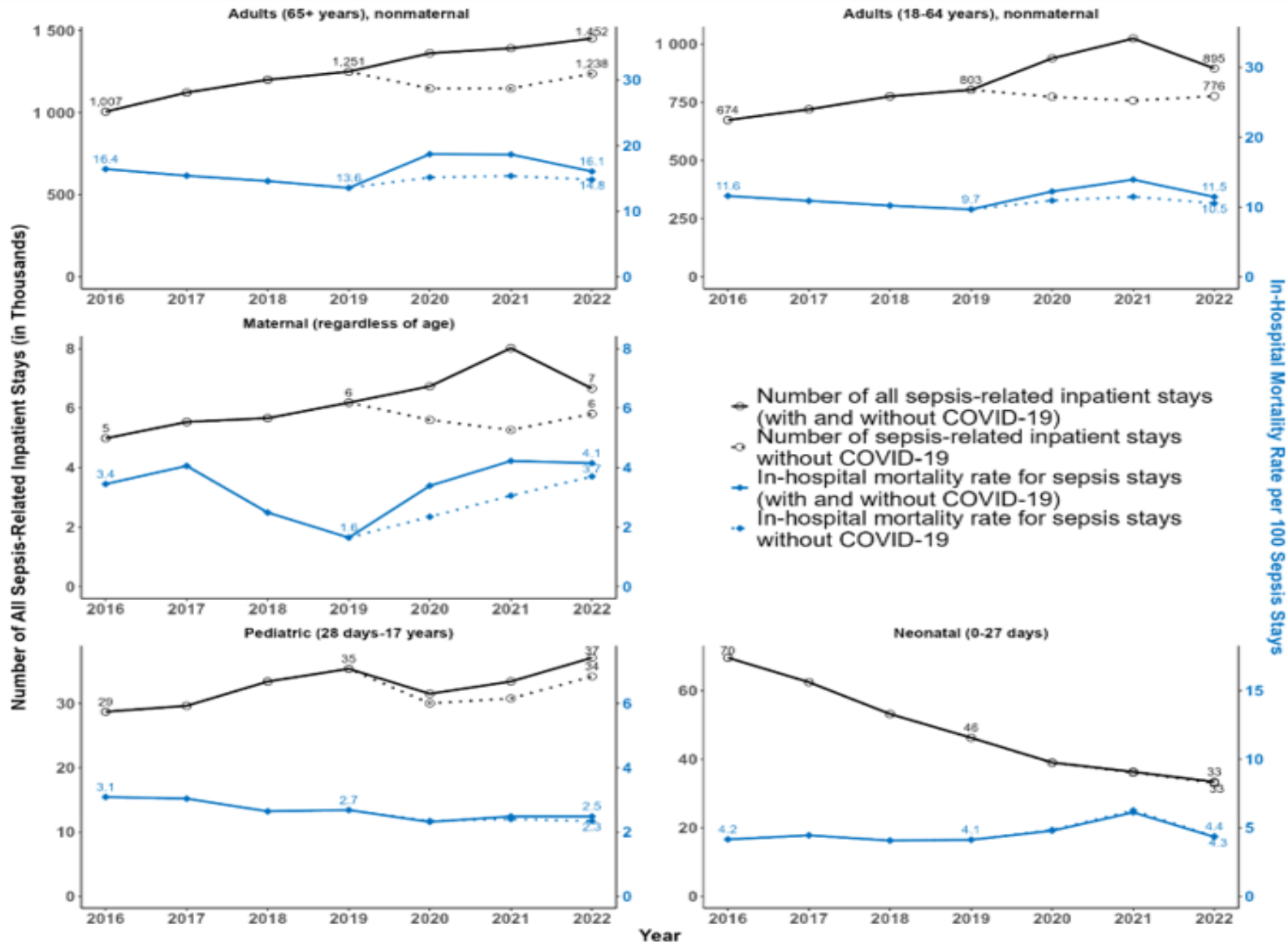
- CUSP combines:
  - ▶ Improvement in safety culture, teamwork, and communications
  - ▶ Checklist of evidence-based practices
- Has reduced a variety of HAIs in nationwide implementation projects:
  - ▶ 41% ↓ in CLABSI rate in >1000 ICUs
  - ▶ 30% ↓ in CAUTI rate in >700 non-ICUs
  - ▶ 54% ↓ in CAUTI rate in >400 nursing homes
  - ▶ 25-40% ↓ in SSI rate for inpatient surgery



# Select Toolkits to Address HAIs and Promote Antibiotic Stewardship

| TOPIC                                                    | TOOLKIT                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Central-line Associated Blood Stream Infections (CLABSI) | <ul style="list-style-type: none"> <li>• <a href="#">Toolkit for Preventing CLABSI and CAUTI in ICUs</a></li> <li>• <a href="#">Tools for Reducing CLABSI in Hospitals</a></li> </ul>                                                                                                 |
| Catheter-associated Urinary Tract Infections (CAUTI)     | <ul style="list-style-type: none"> <li>• <a href="#">Toolkit for Preventing CLABSI and CAUTI in ICUs</a></li> <li>• <a href="#">Toolkit for Reducing CAUTI in Hospitals</a></li> <li>• <a href="#">Toolkit To Reduce CAUTI and Other HAIs in Long-Term Care Facilities</a></li> </ul> |
| Surgical Site Infections (SSI)                           | <ul style="list-style-type: none"> <li>• <a href="#">Toolkit To Promote Safe Surgery</a></li> <li>• <a href="#">Toolkit for Improving Surgical Care and Recovery</a></li> </ul>                                                                                                       |
| Methicillin-resistant Staphylococcus aureus (MRSA)       | <ul style="list-style-type: none"> <li>• <a href="#">Toolkit for Decolonization of Non-ICU patients with Devices</a></li> <li>• <a href="#">Universal Decolonization: An Enhanced Protocol</a></li> </ul>                                                                             |
| Clostridioides difficile Infection (CDI)                 | <ul style="list-style-type: none"> <li>• <a href="#">Toolkit To Improve Antibiotic Use in Acute Care Hospitals</a></li> </ul>                                                                                                                                                         |
| Antimicrobial Stewardship                                | <ul style="list-style-type: none"> <li>• <a href="#">Toolkits To Improve Antibiotic Use</a> (in Hospitals, Long-Term Care, and Ambulatory Settings)</li> <li>• <a href="#">Nursing Home Antimicrobial Stewardship Guide</a></li> </ul>                                                |

# Trends in Inpatient Sepsis Stays and Sepsis Mortality Rates, by Patient Population, 2016-2022



Source: AHRQ, HCUP, NIS, 2016-2022