

Data Pulse

September 2019

Severe Sepsis: Hospital Characteristics

Sepsis is the body's extreme immune response to an uncontrolled infection. Affecting approximately 1.7 million people in the United States annually, sepsis is a preventable, life-threatening illness that can cause tissue damage, organ failure and even death if not properly treated [Centers for Disease Control and Prevention (CDC): Basic Sepsis Information, updated September 2016]. Sepsis can be classified as hospital-acquired and non-hospital-acquired depending on the setting where the disease develops and can be denoted as "severe sepsis" if the patient experiences sepsis-related organ failure.

This report presents the rate of hospital-acquired severe sepsis cases per 1,000 hospitalizations in California hospitals from 2010 through 2017 by different characteristics, including hospital size, location, ownership, and designation as a teaching facility.

Key Findings:

- ◆ The smallest hospitals (1-99 beds) had the highest rates of hospital-acquired severe sepsis compared to the other facility sizes from 2010 through 2017, with a notable increase from 2010 through 2012 (Figure 1).
- ◆ From 2010 through 2017, urban hospitals had approximately double the rates of hospital-acquired severe sepsis compared to rural hospitals (Figure 2).
- ◆ Government-owned hospitals had the lowest rates of hospital-acquired severe sepsis in 2010. By 2017, these rates had steadily grown to match that seen in investor-owned hospitals, the ownership type with the highest rates (Figure 3).
- ◆ Teaching hospitals had higher rates of hospital-acquired severe sepsis compared to non-teaching hospitals. The rates in teaching hospitals increased steadily from 2010 through 2017 (Figure 4).

From 2010 through 2017, the smallest hospitals (1-99 beds) had the highest rates of hospital-acquired severe sepsis. These hospitals also experienced the largest rate increase over time; from 2010 to 2012 the rate increased by 40 percent. From then until 2017, the rate of hospital-acquired severe sepsis was almost double that of medium-sized hospitals (100-199, 200-299, and 300-399 beds), which had similar rates from 2010 through 2017 (Figure 1).



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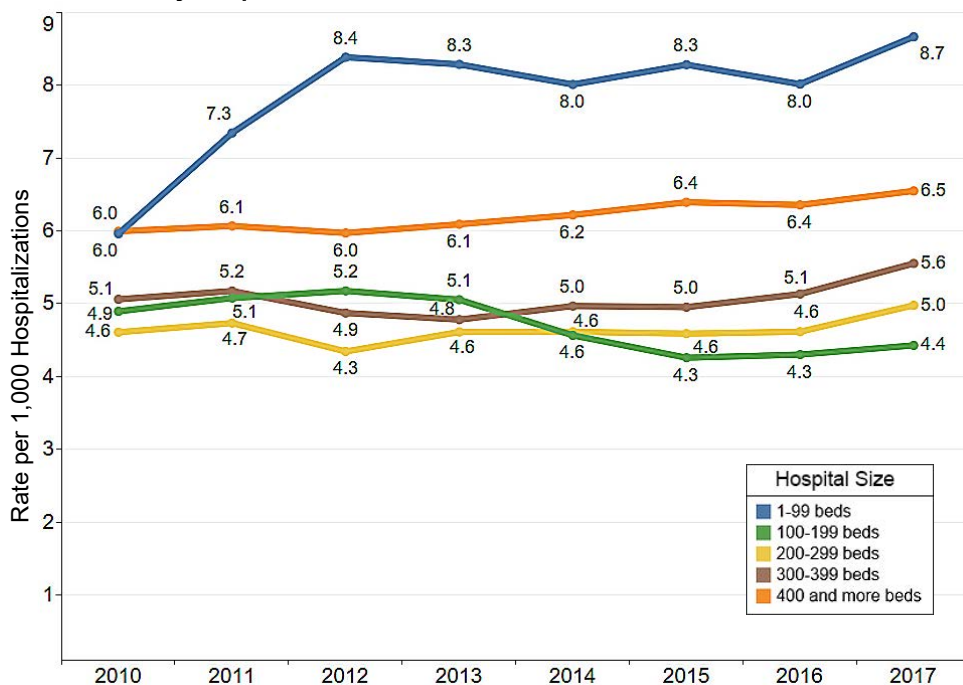
[CHHS Open Data](#)

Information About Sepsis

Sepsis symptoms can include a high heart rate, chills, fever, extreme pain or discomfort, confusion, shortness of breath or clammy/sweaty skin (CDC: Sepsis Signs and Symptoms, updated June 2018).

Although any infection can lead to developing sepsis, adults aged 65 or older, children younger than 1, people with weakened immune systems or those with chronic medical conditions such as cancer, diabetes, and lung or kidney disease are at a higher level of risk (CDC: Basic Sepsis Information, updated September 2016).

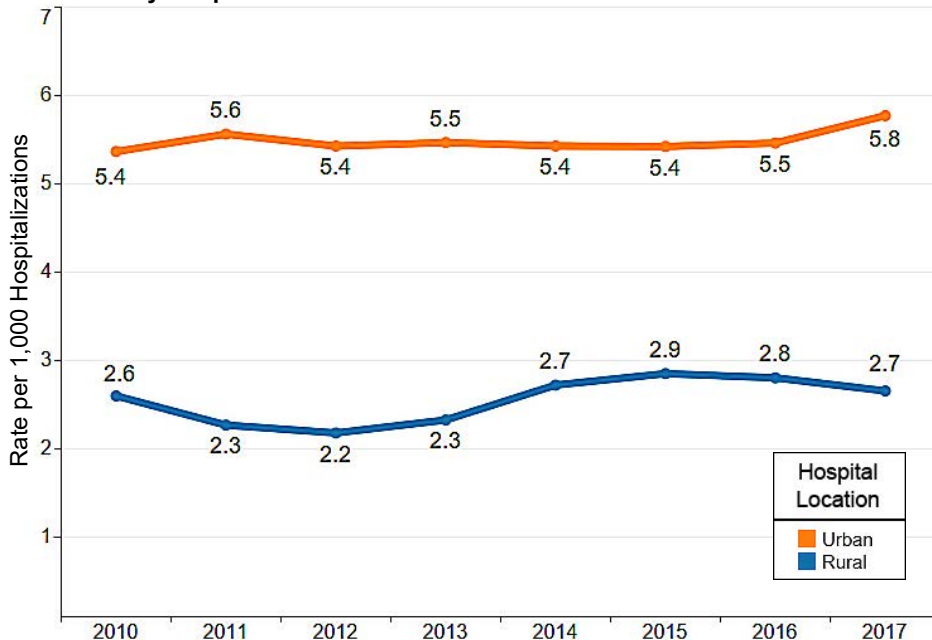
Figure 1. Rate of Hospital-Acquired Severe Sepsis per 1,000 Hospitalizations by Hospital Size



SOURCE: California Patient Discharge Data 2010-2017, OSHPD

From 2010 through 2017, urban hospitals exhibited double the rates of hospital-acquired severe sepsis compared to rural facilities. The infection rates in both types of facilities remained consistent over time with no notable shifts (Figure 2).

Figure 2. Rate of Hospital-Acquired Severe Sepsis per 1,000 Hospitalizations by Hospital Location



SOURCE: California Patient Discharge Data 2010-2017, OSHPD

When comparing hospitals by type of ownership* from 2010 through 2017, investor-owned hospitals experienced the highest rates of hospital-acquired severe sepsis, while nonprofit facilities experienced the lowest. The sepsis rates seen in the nonprofit hospitals remained consistent over time.

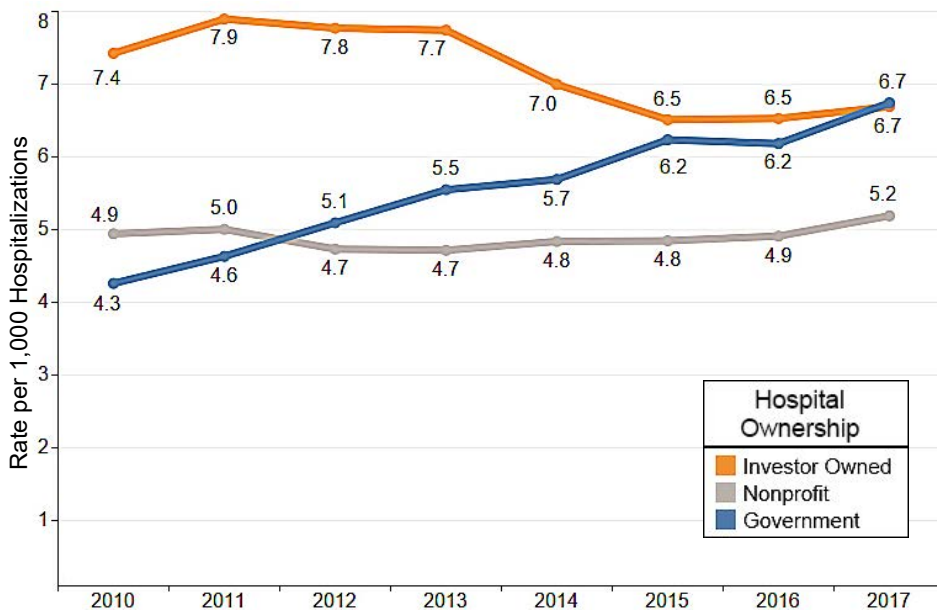
*NOTE: Investor-owned hospitals are for-profit. Non-profit hospitals are operated by nonprofit organizations such as churches. Government hospitals include district, city/county and state facilities that receive government funding.

This report addresses rates of hospital-acquired sepsis. Hospital-acquired sepsis occurs when the condition develops in a patient who is hospitalized for another condition or procedure.

The hospital-acquired severe sepsis rates presented in this report are not risk-adjusted. Thus, comparisons do not account for differences in patients' severity of illness. Additionally, overall awareness and improved detection of severe sepsis over time may contribute to higher numbers of reported cases and increased rates.

To reduce the number of hospital-acquired sepsis infections, the CDC recommends educating healthcare providers further on recognizing the signs and symptoms of severe sepsis.

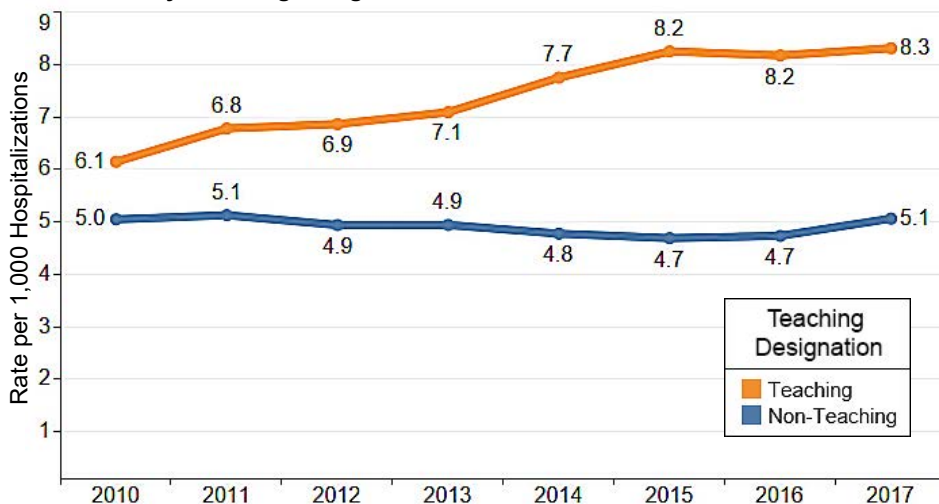
Figure 3: Rate of Hospital-Acquired Severe Sepsis per 1,000 Hospitalizations by Hospital Ownership



SOURCE: California Patient Discharge Data 2010-2017, OSHPD

Conversely, investor-owned and government hospitals saw notable shifts in sepsis rates. Investor-owned hospitals experienced a 10 percent decrease in sepsis rates from 2010 to 2017, while those in government hospitals increased by a total of 56 percent from 2010 to 2017. The rates for investor-owned and government hospitals was the same in 2017 (Figure 3).

Figure 4: Rate of Hospital-Acquired Severe Sepsis per 1,000 Hospitalizations by Teaching Designation



SOURCE: California Patient Discharge Data 2010-2017, OSHPD

From 2010 through 2017, teaching hospitals experienced higher rates of hospital-acquired severe sepsis than non-teaching hospitals. The rates for non-teaching hospitals remained relatively constant, while the rates for teaching hospitals increased by 36 percent (Figure 4).

Data source

California Patient Discharge Data 2010-2017,
Office of Statewide Health Planning and Development (OSHPD)

California’s Office of Statewide Health Planning and Development (OSHPD) is the leader in collecting data and disseminating information about California’s healthcare infrastructure.

OSHPD promotes an equitably distributed healthcare workforce, and publishes valuable information about healthcare outcomes.

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Contact Information:

Andrew DiLuccia,
Public Information Officer
Andrew.DiLuccia@oshpd.ca.gov
(916) 326-3606

www.oshpd.ca.gov



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