

## CHAPTER 19

# Healthcare-Associated Infections (HAI)

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### Lead Agencies

Agency for Healthcare Research and Quality

Centers for Disease Control and Prevention

Office of Disease Prevention and Health Promotion, Office of the Assistant Secretary for Health, Office of the Secretary

### Contents

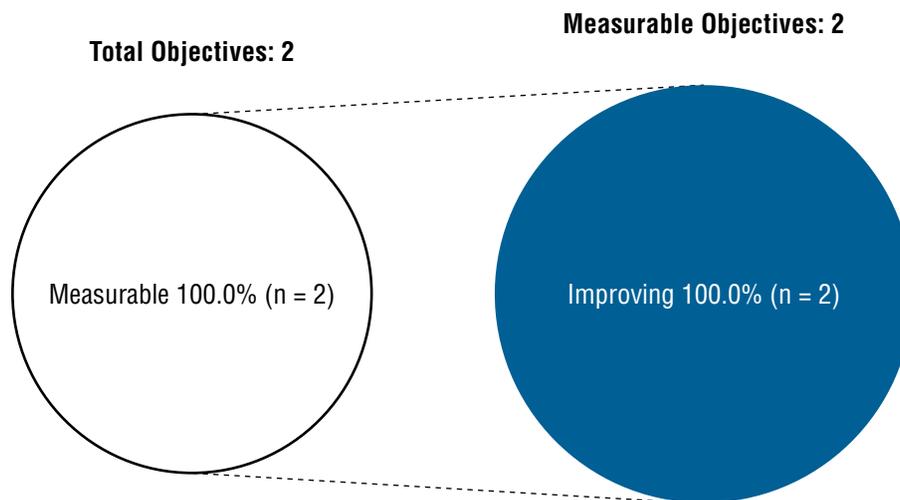
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## Goal: Prevent, reduce, and ultimately eliminate healthcare-associated infections (HAIs).

This chapter includes objectives that monitor selected healthcare-associated infections. The [Reader's Guide](#) provides a step-by-step explanation of the content of this chapter, including criteria for highlighting objectives in the Selected Findings.<sup>1</sup>

### Status of Objectives

**Figure 19–1. Midcourse Status of the Healthcare-Associated Infections Objectives**



Both of the objectives in the Healthcare-Associated Infections Topic Area were measurable<sup>2</sup> (Figure 19–1, Table 19–1). At midcourse, these two objectives were improving<sup>3</sup> (Table 19–2).

### Selected Findings

- The standardized infection ratio for **central line-associated bloodstream infections** (HAI-1) declined from 1.00 in 2006–2008 to 0.54 in 2013, moving toward the 2020 target (Table 19–2).
  - » Central line-associated bloodstream infections (HAI-1) varied by state. Two states, Hawaii and South Dakota, had achieved the national target in 2013 (Map 19–1).
- The rate of **invasive healthcare-associated methicillin-resistant *Staphylococcus aureus* infections** (HAI-2) decreased from 27.08 infections per 100,000 population in 2007–2008 to 18.28 in 2013, moving toward the 2020 target (Table 19–2).

### More Information

Readers interested in more detailed information about the objectives in this topic area are invited to visit the [HealthyPeople.gov](http://www.healthypeople.gov) website, where extensive substantive and technical information is available:

- For the background and importance of the topic area, see: <http://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections>
- For data details for each objective, including definitions, numerators, denominators, calculations, and data limitations, see: <http://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections/objectives>  
*Select an objective, then click on the “Data Details” icon.*
- For objective data, including rates, percentages, or counts for multiple years, see: <http://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections/objectives>  
*Select an objective, then click on the “Data2020” icon.*

Data for the measurable objectives in this chapter were from the following data sources:

- National Healthcare Safety Network:  
<http://www.cdc.gov/nhsn/>
- Active Bacterial Core Surveillance System:  
<http://www.cdc.gov/abcs/index.html>

## Footnotes

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<sup>1</sup>The **Technical Notes** provide more information on Healthy People 2020 statistical methods and issues.

<sup>2</sup>**Measurable** objectives had a national baseline value.

<sup>3</sup>**Improving**—One of the following, as specified in the Midcourse Progress Table:

- » Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was statistically significant.
- » Movement was toward the target, standard errors were not available, and the objective had achieved 10% or more of the targeted change.

## Suggested Citation

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National Center for Health Statistics. Chapter 19: Healthcare-Associated Infections. Healthy People 2020 Midcourse Review. Hyattsville, MD. 2016.

**Table 19–1. Healthcare-Associated Infections Objectives**

## LEGEND

	Data for this objective are available in this chapter's Midcourse Progress Table.		Disparities data for this objective are available, and this chapter includes a Midcourse Health Disparities Table.		A state or county level map for this objective is available at the end of the chapter.
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Not Applicable

Midcourse data availability is not applicable for developmental and archived objectives. **Developmental** objectives did not have a national baseline value. **Archived** objectives are no longer being monitored due to lack of data source, changes in science, or replacement with other objectives.

Objective Number	Objective Statement	Data Sources	Midcourse Data Availability	
HAI-1	Reduce central line-associated bloodstream infections (CLABSIs)	National Healthcare Safety Network (NHSN), CDC/NCEZID		
HAI-2	Reduce invasive healthcare-associated methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) infections	Active Bacterial Core Surveillance (ABCS), CDC/NCIRD		

**Table 19–2. Midcourse Progress for Measurable<sup>1</sup> Healthcare-Associated Infections Objectives**

LEGEND

 Target met or exceeded<sup>2,3</sup>
 Improving<sup>4,5</sup>
 Little or no detectable change<sup>6-10</sup>
 Getting worse<sup>11,12</sup>
 Baseline only<sup>13</sup>
 Informational<sup>14</sup>

Objective Description	Baseline Value (Year)	Midcourse Value (Year)	Target	Movement Toward Target <sup>15</sup>	Movement Away From Baseline <sup>16</sup>	Movement Statistically Significant <sup>17</sup>
 <sup>5</sup> <b>HAI-1</b> Central line-associated bloodstream infections (standardized infection ratio)	1.00 (2006–2008)	0.54 (2013)	0.25	61.3%		
 <sup>5</sup> <b>HAI-2</b> Invasive healthcare-associated methicillin-resistant <i>Staphylococcus aureus</i> infections (per 100,000 population)	27.08 (2007–2008)	18.28 (2013)	6.56	42.9%		

NOTES

See HealthyPeople.gov for all Healthy People 2020 data. The **Technical Notes** provide more information on the measures of progress.

FOOTNOTES

<sup>1</sup>**Measurable** objectives had a national baseline value.

**Target met or exceeded:**

<sup>2</sup>At baseline the target was not met or exceeded and the midcourse value was equal to or exceeded the target. (The percentage of targeted change achieved was equal to or greater than 100%.)

<sup>3</sup>The baseline and midcourse values were equal to or exceeded the target. (The percentage of targeted change achieved was not assessed.)

**Improving:**

<sup>4</sup>Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was statistically significant.

<sup>5</sup>Movement was toward the target, standard errors were not available, and the objective had achieved 10% or more of the targeted change.

**Little or no detectable change:**

<sup>6</sup>Movement was toward the target, standard errors were available, and the percentage of targeted change achieved was not statistically significant.

<sup>7</sup>Movement was toward the target, standard errors were not available, and the objective had achieved less than 10% of the targeted change.

<sup>8</sup>Movement was away from the baseline and target, standard errors were available, and the percentage change relative to the baseline was not statistically significant.

<sup>9</sup>Movement was away from the baseline and target, standard errors were not available, and the objective had moved less than 10% relative to the baseline.

<sup>10</sup>There was no change between the baseline and the midcourse data point.

**Getting worse:**

<sup>11</sup>Movement was away from the baseline and target, standard errors were available, and the percentage change relative to the baseline was statistically significant.

<sup>12</sup>Movement was away from the baseline and target, standard errors were not available, and the objective had moved 10% or more relative to the baseline.

FOOTNOTES—Continued

<sup>13</sup>**Baseline only:** The objective only had one data point, so progress toward target attainment could not be assessed.

<sup>14</sup>**Informational:** A target was not set for this objective, so progress toward target attainment could not be assessed.

<sup>15</sup>For objectives that **moved toward** their targets, movement toward the target was measured as the percentage of targeted change achieved (unless the target was already met or exceeded at baseline):

$$\text{Percentage of targeted change achieved} = \frac{\text{Midcourse value} - \text{Baseline value}}{\text{HP2020 target} - \text{Baseline value}} \times 100$$

<sup>16</sup>For objectives that **moved away** from their baselines and targets, movement away from the baseline was measured as the magnitude of the percentage change from baseline:

$$\text{Magnitude of percentage change from baseline} = \frac{|\text{Midcourse value} - \text{Baseline value}|}{\text{Baseline value}} \times 100$$

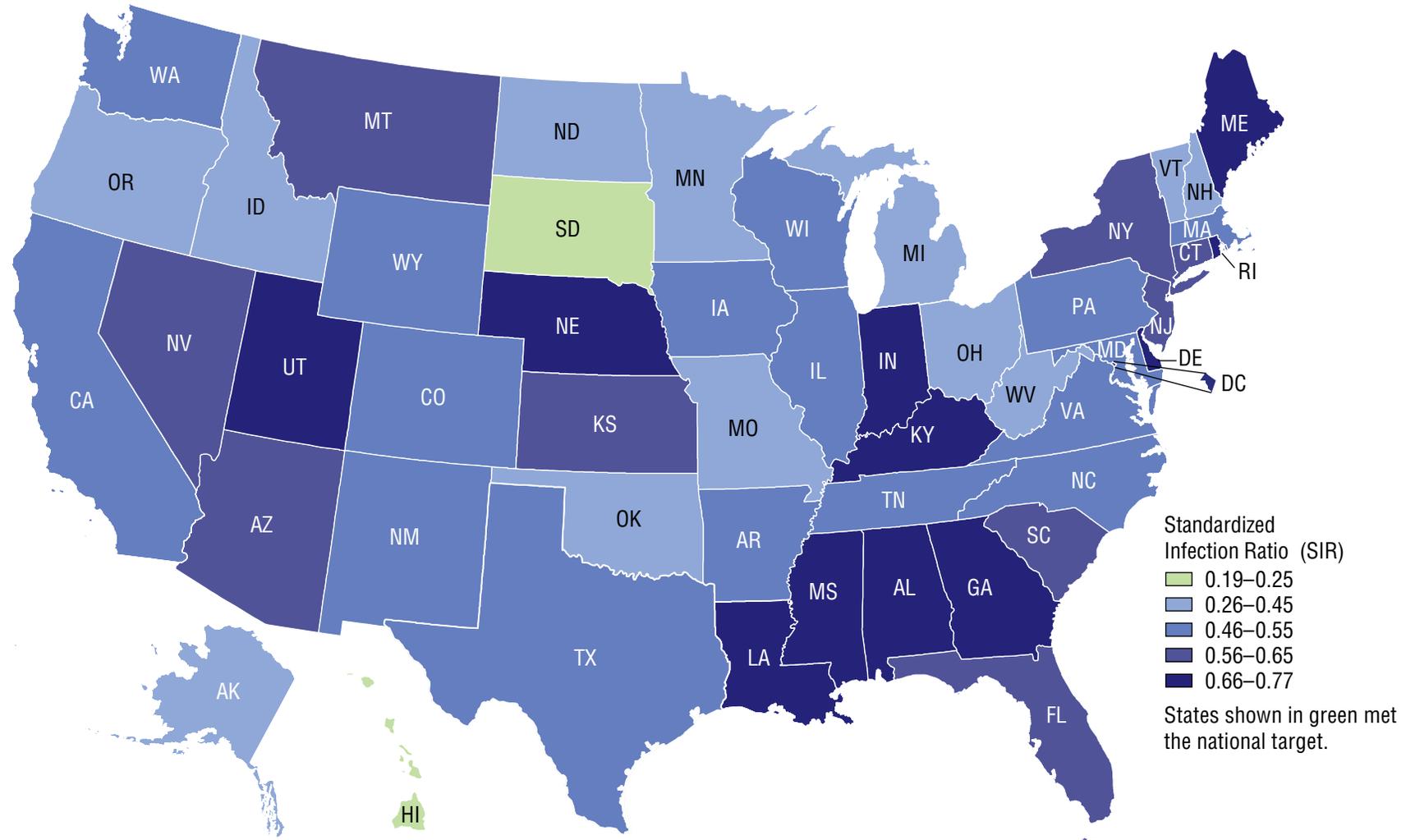
<sup>17</sup>Statistical significance was tested when the objective had a target and at least two data points, standard errors of the data were available, and a normal distribution could be assumed. Statistical significance of the percentage of targeted change achieved or the magnitude of the percentage change from baseline was assessed at the 0.05 level using a normal one-sided test.

DATA SOURCES

HAI-1 National Healthcare Safety Network (NHSN), CDC/NCEZID  
 HAI-2 Active Bacterial Core Surveillance (ABCS), CDC/NCIRD

## Map 19–1. Central Line-Associated Bloodstream Infections, by State: 2013

Healthy People 2020 Objective HAI-1 • National Target = 0.25 standardized infection ratio (SIR) • National Rate = 0.54 standardized infection ratio (SIR)



NOTES: Data are for central line-associated bloodstream infections observed in 2013. Data are displayed by a modified Jenks classification for U.S. states which creates categories that minimize within-group variation and maximize between-group variation. More recent data are available at: <http://www.cdc.gov/HAI/pdfs/progress-report/hai-progress-report.pdf> and at: <http://www.healthypeople.gov/2020/topics-objectives/topic/healthcare-associated-infections/objectives>. The **Technical Notes** provide more information on the data and methods.

DATA SOURCE: National Healthcare Safety Network (NHSN), CDC/NCEZID