

HAI Data Updates

December 9, 2022

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Overview



- Review and discuss current National Healthcare Safety Network(NHSN) Healthcare Associated Infections (HAI) metrics
- Discuss state vs. national SIR comparison among different hospital types
- Review 2021 and 2022H1 (half year 1) HAI data for different hospital types



Calculating a Standardized Infection Ratio (SIR)

$$\text{SIR} = \frac{\text{Observed (O) HAIs}}{\text{Predicted (P) HAIs}}$$

SIR Interpretation

If the SIR...	It means...
Equals 1	The facility had infections at the <u>same</u> rate as would be predicted from national rates
Is higher than 1	The facility had <u>more infections</u> than predicted from national rates
Is less than 1	The facility had <u>fewer infections</u> than predicted from national rates

Calculating a Standardized Utilization Ratio (SUR)



$$\text{SUR} = \frac{\text{Observed Device Days}}{\text{Predicted Device Days}}$$

SUR Interpretation

If the SUR...	It means...
Equals 1	The facility had device utilization at the <u>same</u> rates as would be predicted from national rates
Is higher than 1	The facility had <u>more device days</u> than predicted from national rates
Is less than 1	The facility had <u>fewer device days</u> than predicted from national rates

2020 HHS Prevention Targets



HAI Metric	Reduction target	SIR value as compared to the national baseline
CLABSI - Central line-associated bloodstream infections	50%	0.50
CAUTI - Catheter-associated urinary tract infections	25%	0.75
SSI COLO - Surgical site infections for colon surgeries	30%	0.70
SSI HYST - Surgical site infections for abdominal hysterectomies	30%	0.70
MRSA - Methicillin-resistant Staphylococcus aureus bacteremia	50%	0.50
CDI - Clostridium difficile	30%	0.70

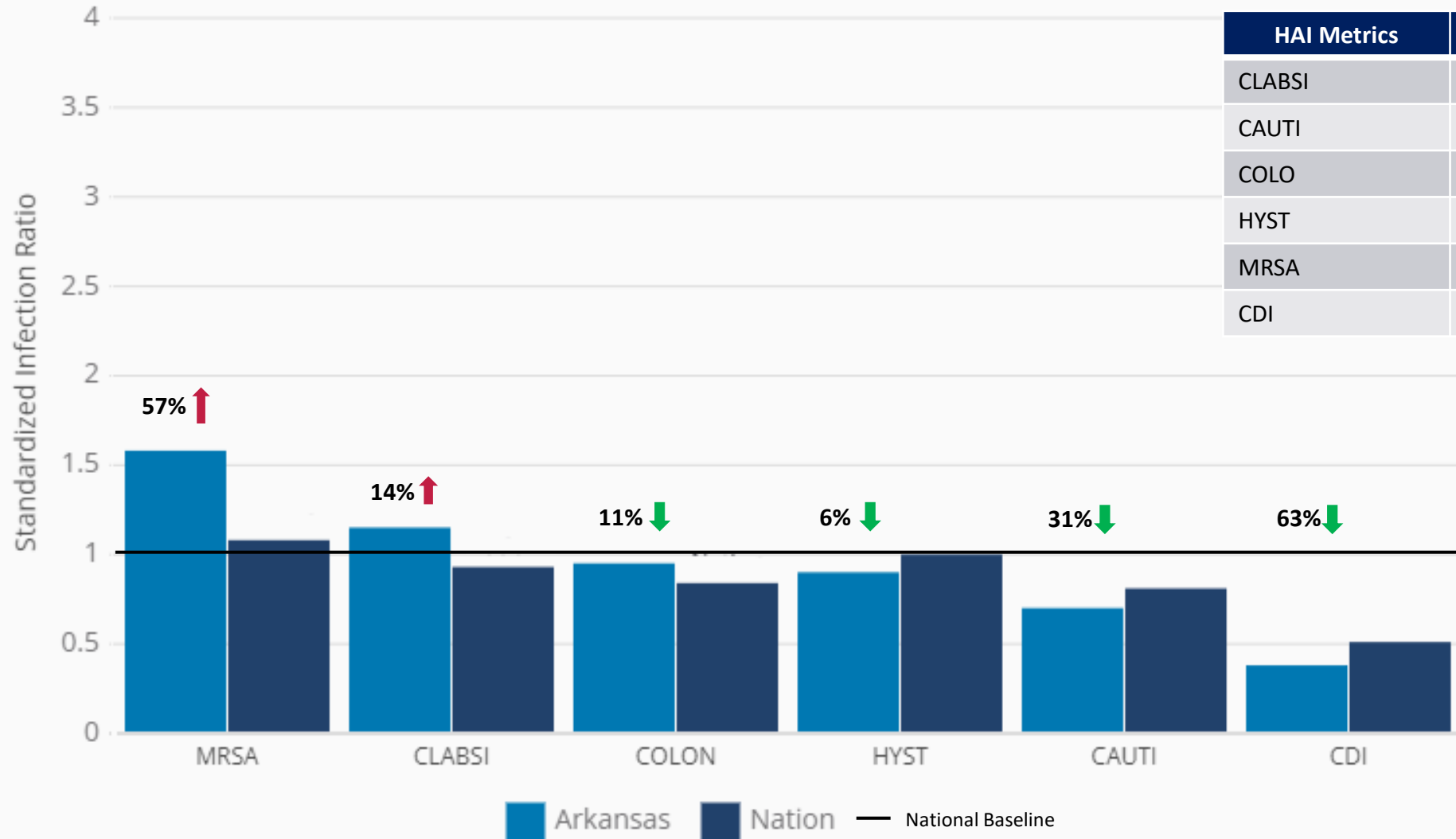
NHSN Reporting Deadlines



Quarter	Months	Due Date
1	January - March	August 15 th
2	April - June	November 15 th
3	July - September	February 15 th
4	October - December	May 15 th

- ❖ Facilities' quarter data are reviewed by the HAI program prior to the deadline for completeness.
- ❖ NHSN technical assistance is available through HAI program.

Standardized Infection Ratio State vs. National Comparison for Acute Care Hospitals for 2021



HAI Metrics	SIR State	SIR National
CLABSI	1.14	0.92
CAUTI	0.69	0.80
COLO	0.94	0.83
HYST	0.89	0.99
MRSA	1.57	1.07
CDI	0.37	0.50

LEGEND

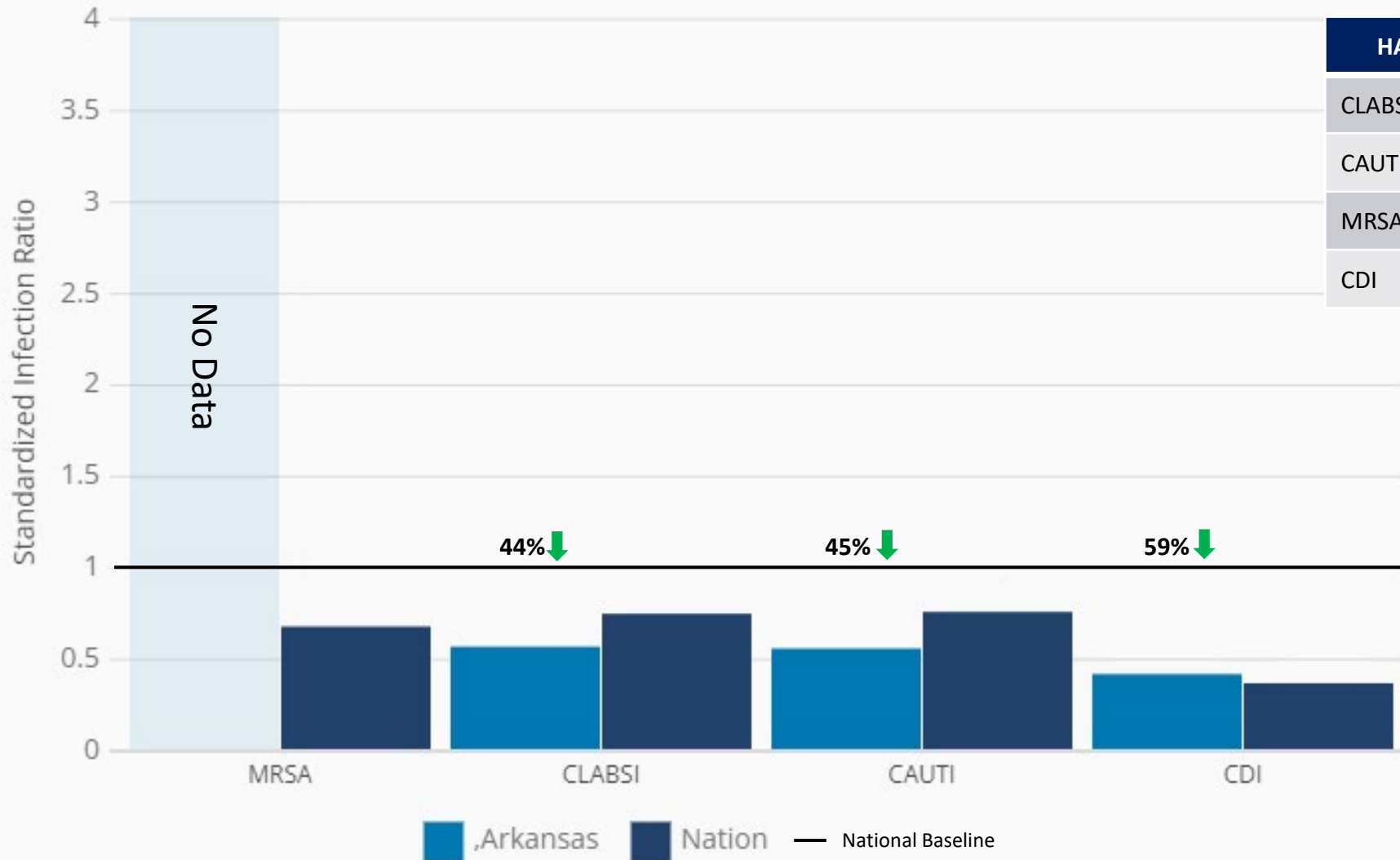
↑ % Above National Baseline

↓ % Below National Baseline

*Percentage above and below depictions are based on percent difference

Centers for Disease Control and Prevention. (n.d.). Antibiotic Resistance & Patient Safety Portal. Retrieved December 1, 2022, from <https://arpsp.cdc.gov/profile/geography/arkansas>

Standardized Infection Ratio State vs. National Comparison for Long Term Acute Care Hospitals for 2021



HAI Metrics	SIR State	SIR National
CLABSI	0.56	0.74
CAUTI	0.55	0.75
MRSA	-	0.67
CDI	0.41	0.36

LEGEND

- % Above National Baseline
- % Below National Baseline

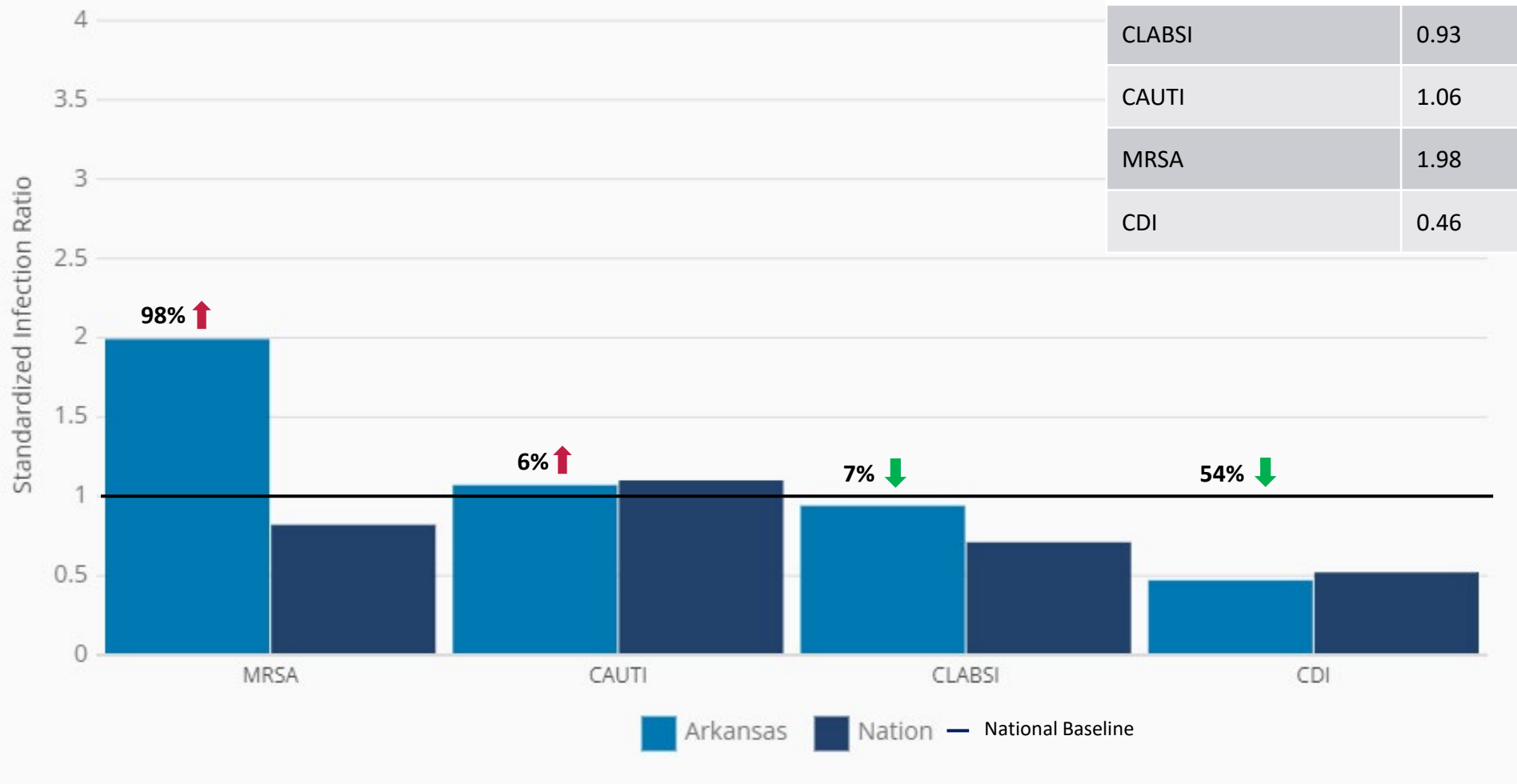
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Centers for Disease Control and Prevention. (n.d.). Antibiotic Resistance & Patient Safety Portal. Retrieved December 1, 2022, from <https://arpsp.cdc.gov/profile/geography/arkansas>

Standardized Infection Ratio State vs. National Comparison for Inpatient Rehabilitation Facilities for 2021



HAI Metrics	SIR State	SIR National
CLABSI	0.93	0.70
CAUTI	1.06	1.09
MRSA	1.98	0.81
CDI	0.46	0.51



LEGEND

↑ % Above National Baseline

↓ % Below National Baseline

*Percentage above and below depictions are based on percent difference

Centers for Disease Control and Prevention. (n.d.). Antibiotic Resistance & Patient Safety Portal. Retrieved December 1, 2022, from <https://arpsp.cdc.gov/profile/geography/arkansas>

Acute Care Hospitals

48 Reporting into NHSN



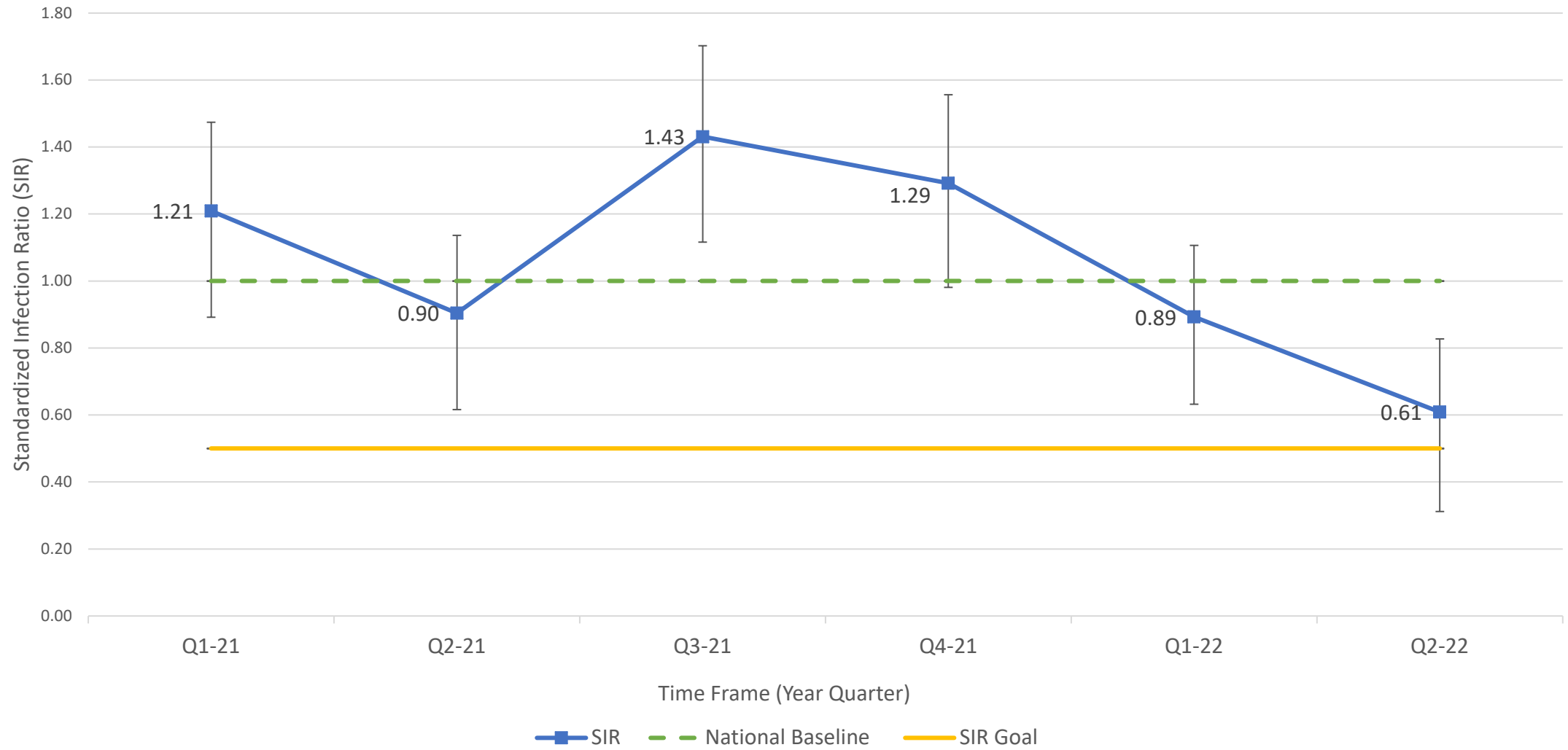
Central Line-Associated Bloodstream Infections (CLABSI) SIRs for Arkansas Hospitals



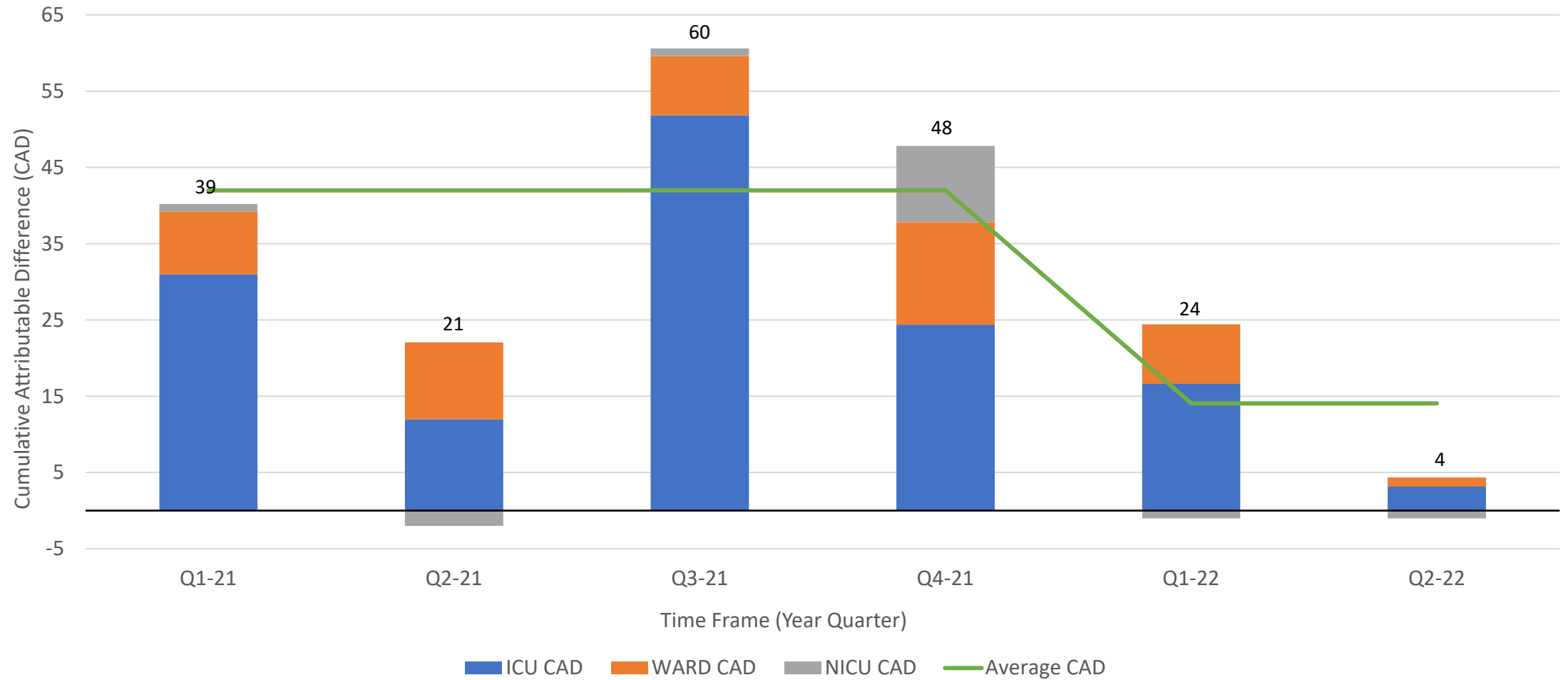
Time Frame	Location Type	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Device Days	SUR	SUR 95% Confidence Interval	CAD
2021	ICU	181	124	1.47	1.26, 1.69	113,363	0.91	0.91, 0.92	120
	NICU	23	28	0.84	0.54, 1.23	21,543	1.04	1.02, 1.05	10
	Ward	80	81	0.99	0.79, 1.22	91,304	0.83	0.82, 0.83	40
	TOTAL	284	232	1.22	1.09, 1.37	226,210	0.87	0.87, 0.88	170
2022H1	ICU	45	50	0.89	0.66, 1.18	45,827	0.93	0.92, 0.93	20
	NICU	5	11	0.45	0.16, 0.99	8,257	0.99	0.97, 1.01	-1
	Ward	27	36	0.75	0.50, 1.08	40,728	0.85	0.84, 0.86	9
	TOTAL	77	97	0.70	0.63, 0.98	94,812	0.88	0.87, 0.88	28

Data extracted from NHSN on November 17, 2022

Central Line-Associated Bloodstream Infection (CLABSI) Standardized Infection Ratio (SIR) for Arkansas CMS Required Locations



Central Line-Associated Bloodstream Infection (CLABSI) Cumulative Attributable Difference by Location Type for CMS Required Locations

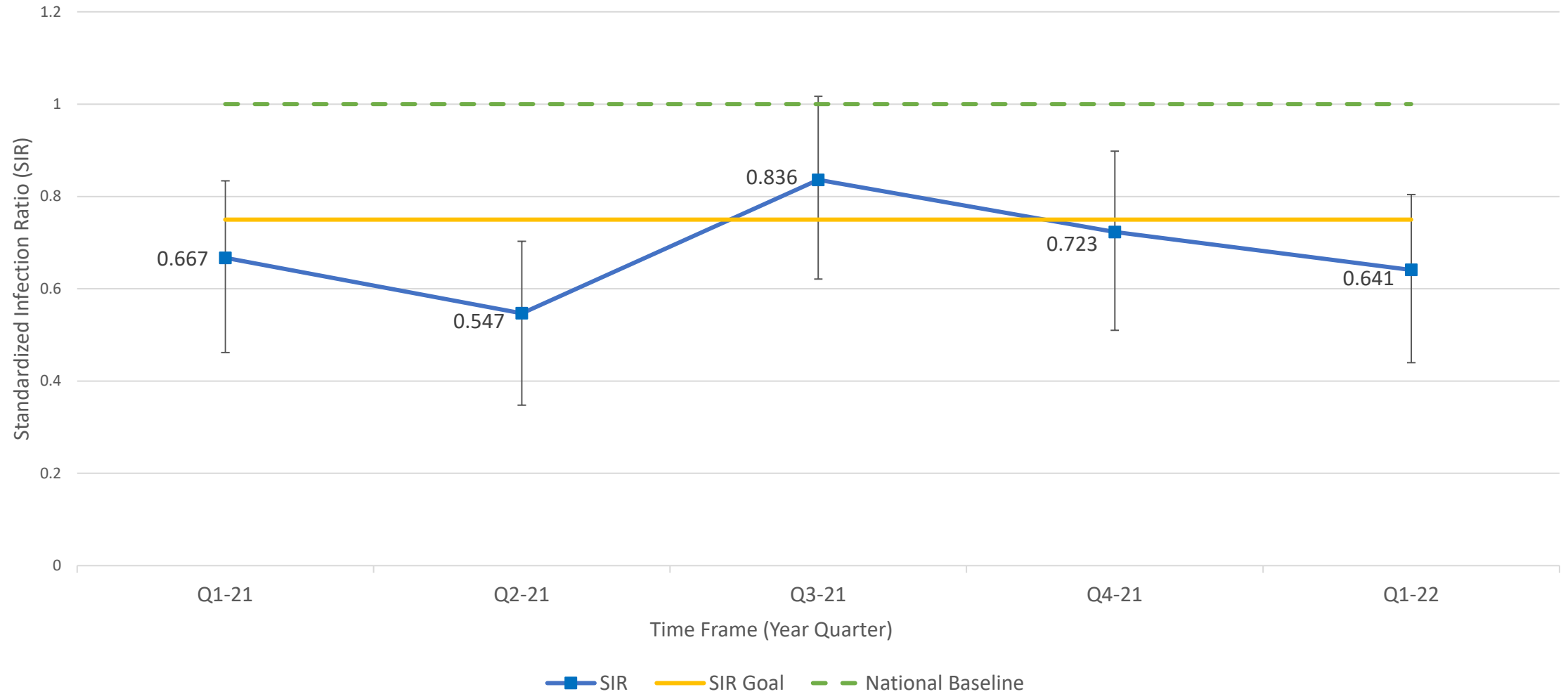


Catheter Associated Urinary Tract Infections (CAUTI) SIRs for Arkansas Hospitals

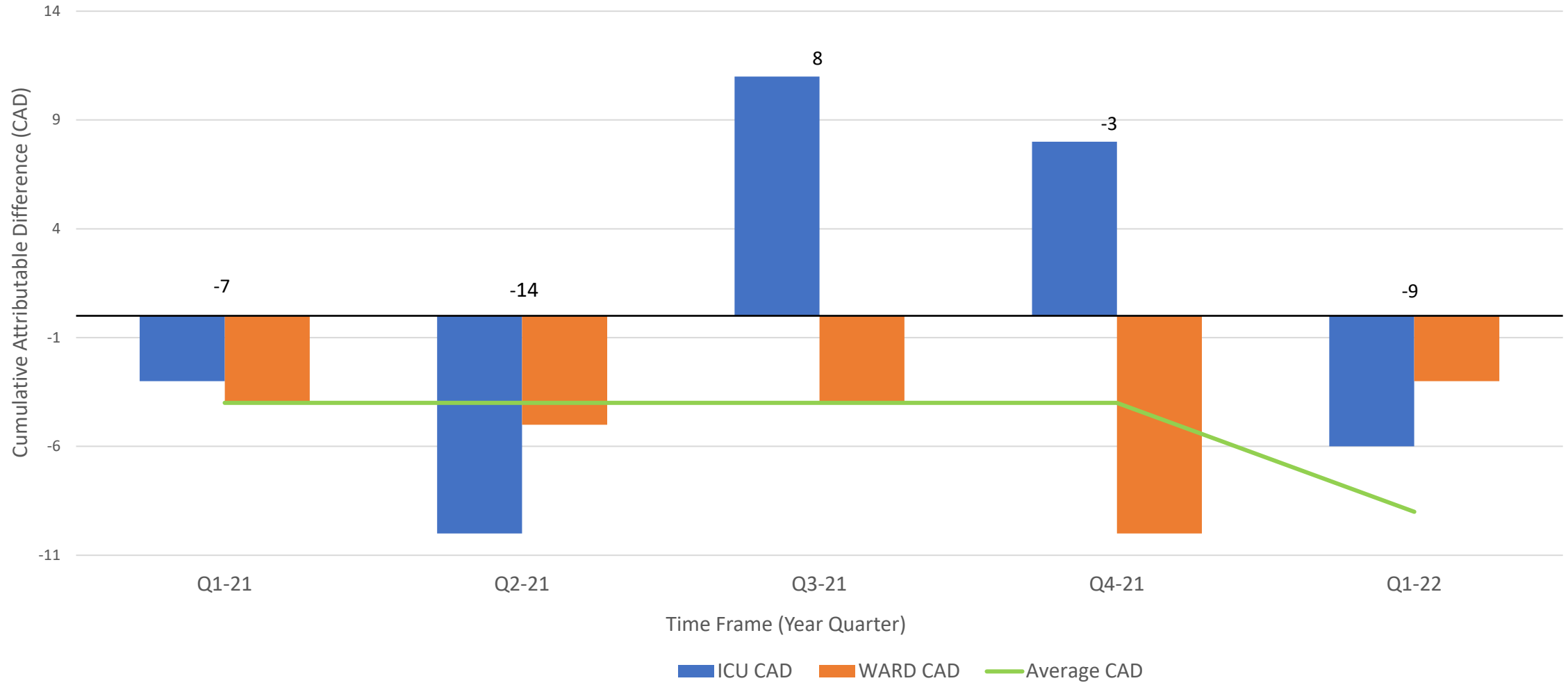


Time Frame	Location Type	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Device Days	SUR	SUR 95% Confidence Interval	CAD
2021	ICU	149	191	0.78	0.66, 0.92	150,325	1.06	1.05, 1.07	7
	Ward	61	110	0.56	0.43, 0.71	114,682	1.01	1.01, 1.02	-22
	TOTAL	210	301	0.70	0.61, 0.80	265,007	1.04	1.04, 1.05	-15
2022H1	ICU	38	70	0.54	0.39, 0.74	47,987	0.97	0.97, 0.98	-23
	Ward	26	46	0.57	0.38, 0.82	55,164	0.96	0.95, 0.97	-15
	TOTAL	64	116	0.55	0.43, 0.70	103,151	0.97	0.97, 0.98	-38

Catheter-Associated Urinary Tract Infection (CAUTI) Standardized Infection Ratio (SIR) for Arkansas CMS Required Locations



Catheter-Associated Urinary Tract Infection (CAUTI) Cumulative Attributable Difference (CAD) by Location Type for Acute Care Hospitals



Colon Surgical Site Infection Standardized Infection Ratio (SIR) for Arkansas Hospitals

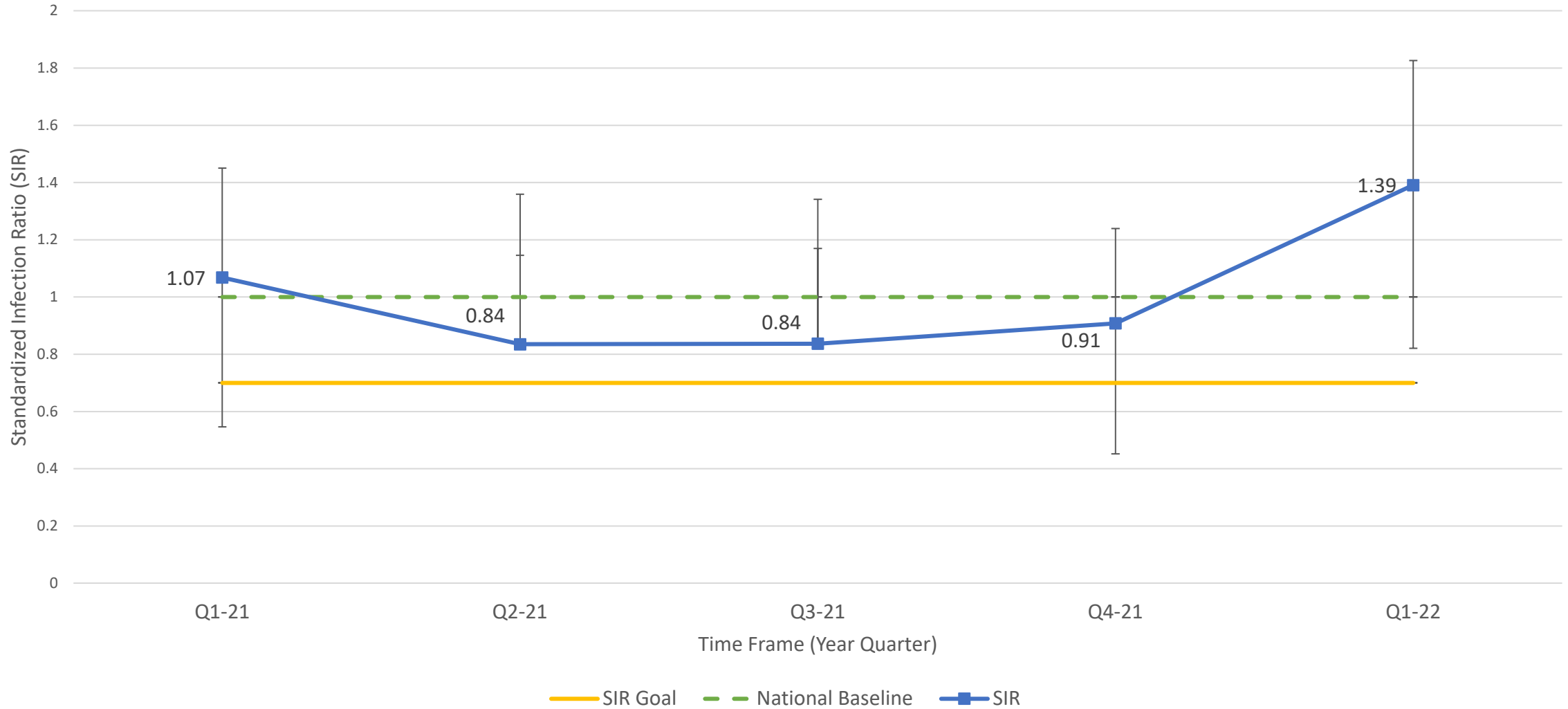
Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Procedures	CAD
2021	80	88	0.91	0.73, 1.13	3,148	19
2022H1	42	36	1.17	0.85, 1.56	1,290	17

Abdominal Hysterectomy Surgical Site Infection Standardized Infection Ratio (SIR) for Arkansas Hospitals

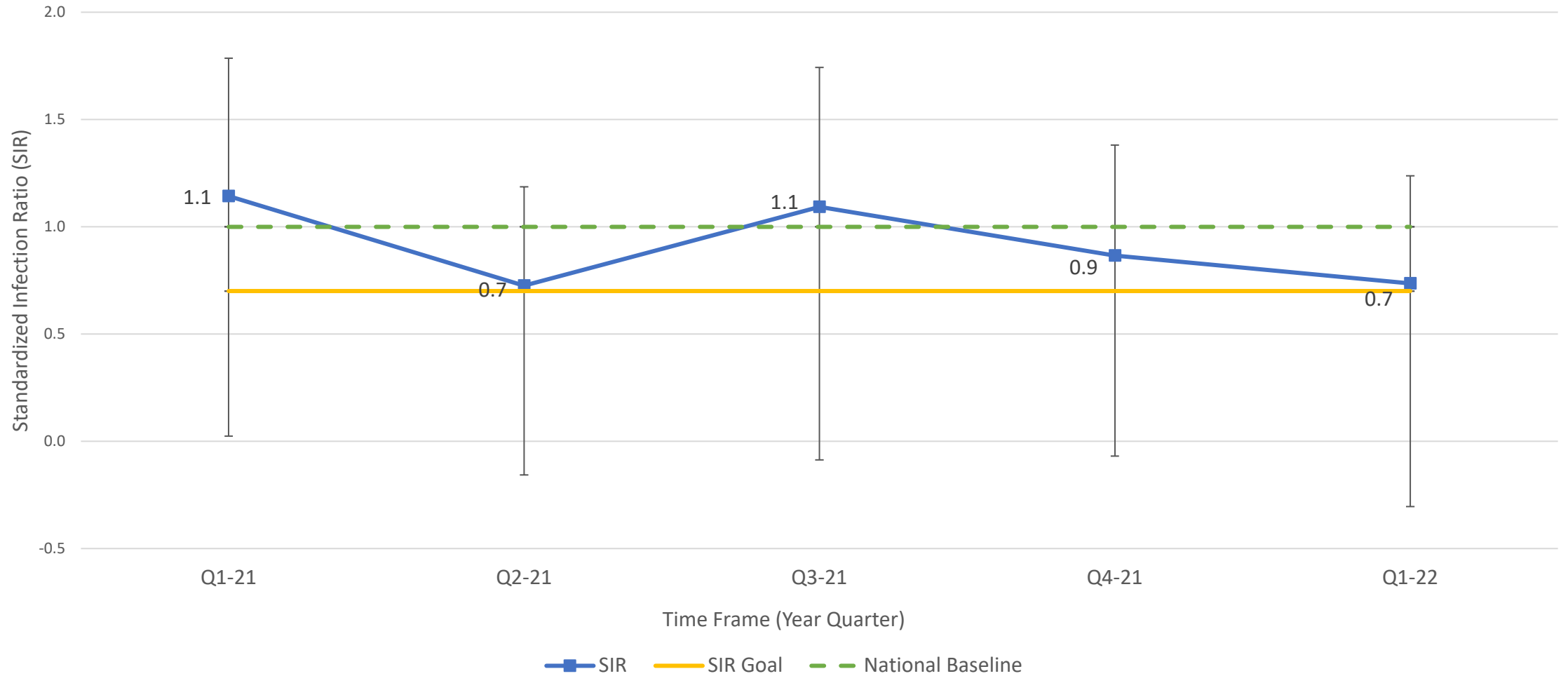
Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Procedures	CAD
2021	24	25	0.96	0.62, 1.38	2,969	7
2022H1	8	10	0.84	0.39, 1.59	1,104	2



Surgical Site Infection (SSI) Standardized Infection Ratio (SIR) for Colon Surgeries in Acute Care Hospitals



Surgical Site Infection (SSI) Standardized Infection Ratio (SIR) for Abdominal Hysterectomy Surgeries in Acute Care Hospitals



Laboratory-Identified MRSA Bacteremia Standardized Infection Ratio (SIR) for Arkansas Hospitals

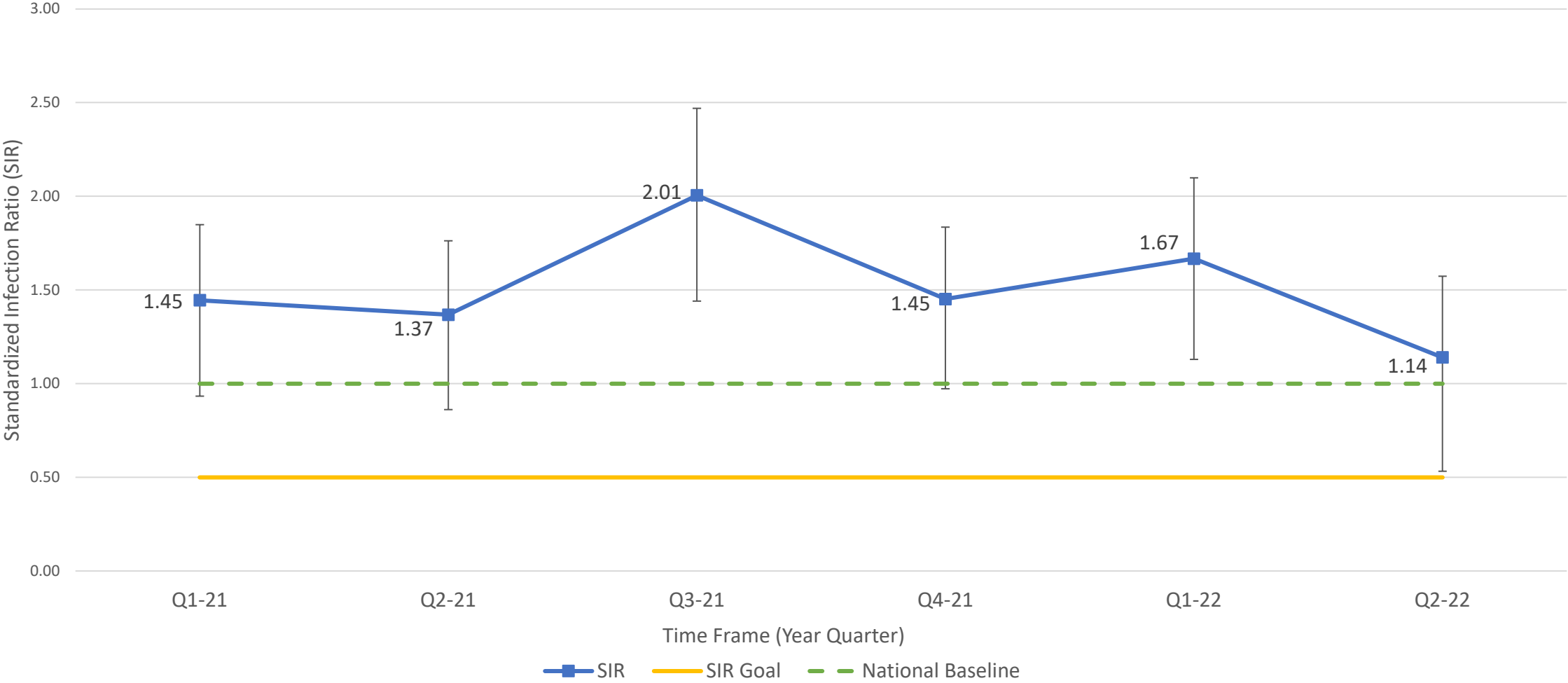
Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Patient Days	CAD
2021	178	113	1.58	1.36, 1.82	1,631,248	122
2022H1	65	44	1.47	1.14, 1.86	661,473	43

Laboratory-Identified C. difficile Standardized Infection Ratio (SIR) for Arkansas Hospitals

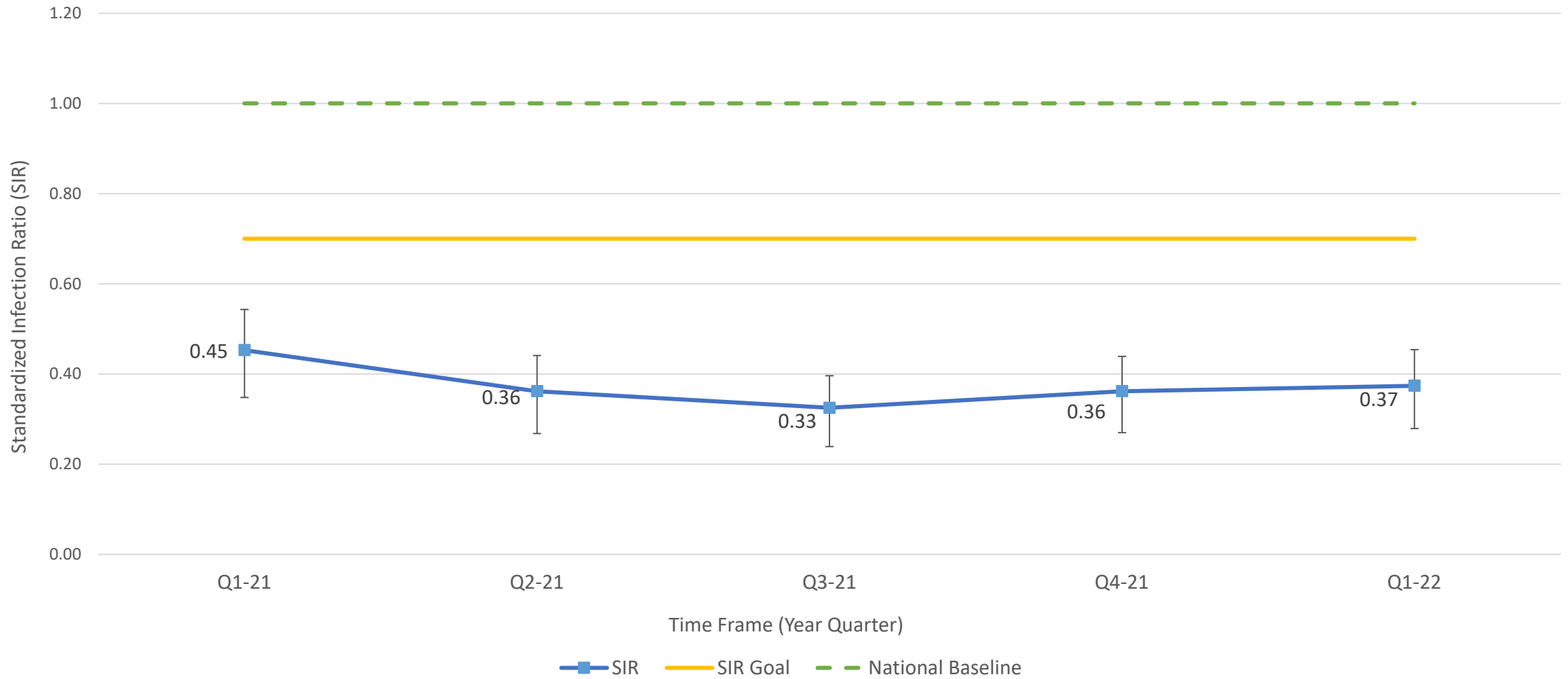
Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Patient Days	CAD
2021	287	768	0.37	0.33, 0.42	1,483,910	-251
2022H1	71	190	0.37	0.29, 0.47	374,106	-62



Laboratory-Identified Healthcare Onset MRSA Bloodstream Infection Standardized Infection Ratio (SIR) for Arkansas Hospitals



Laboratory-Identified Onset C. difficile Infection Standardized Infection Ratio (SIR) for Arkansas Hospitals



Inpatient Rehabilitation Facilities

18 Reporting into NHSN



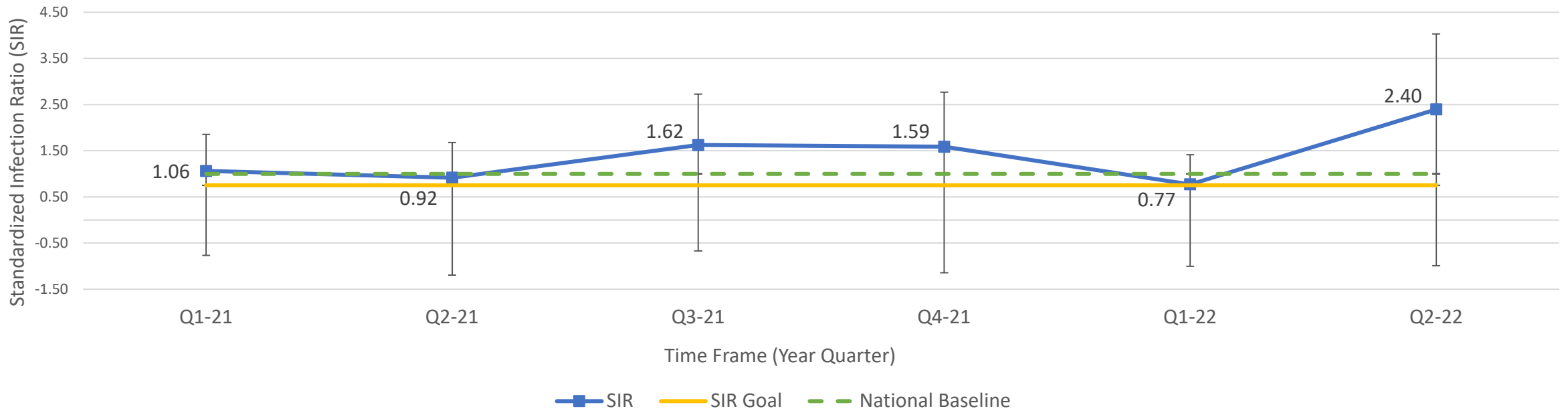
Inpatient Rehabilitation Facilities Reporting Requirements



CMS Reporting Program	HAI Event	Reporting Specifications	Reporting Start Date
Inpatient Rehabilitation Facility Quality Reporting Program	Catheter-Associated Urinary Tract Infection (CAUTI)	Inpatient Rehabilitation Facilities: Adult and Pediatric IRF Wards	October 2012
Inpatient Rehabilitation Facility Quality Reporting Program	Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel	October 2014
Inpatient Rehabilitation Facility Quality Reporting Program	MRSA Bacteremia LabID Event	FacWideIN	January 2015 (stopped October 2018)
Inpatient Rehabilitation Facility Quality Reporting Program	C. Difficile LabID Event	FacWideIN	January 2015

Catheter-Associated Urinary Tract Infection (CAUTI) Standardized Infection Ratio (SIR) for Arkansas Inpatient Rehab Hospitals and Wards

Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Device Days	SUR	SUR 95% Confidence Interval	CAD
2021	12	9	1.33	0.69, 2.18	6,173	0.94	0.92, 0.97	5
2022H1	6	5	1.20	0.57, 2.93	2,858	1.14	1.10, 1.18	3



Laboratory-Identified *C. diff* Bacteremia Standardized Infection Ratio (SIR) Arkansas Rehab Hospitals and Wards

Time Frame	Observed Infections	Predicted Infections	SIR	SIR 95% Confidence Interval	Patient Days	CAD
2021	2	10	0.20	0.04, 0.69	22,605	-5
2022H1	1	2	0.50	0.03, 2.42	5,363	-1

