

+ Healthcare-Associated Infections and the COVID-19 Pandemic

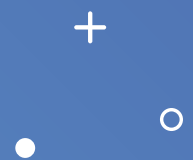
A Summary of Michigan Data Reported to the
National Healthcare Safety Network (NHSN)

Elli Stier, MPH

NHSN Epidemiologist

Surveillance of Healthcare-Associated and Resistant Pathogens (SHARP) Unit

Michigan Department of Health and Human Services





About the Data

- Data was gathered from the NHSN SHARP Unit group. Data is voluntarily shared and may differ from CDC reported data.
- These tables represent a comparison between quarterly 2019 and 2020 SIRs for each HAI type.
- 2020 quarterly SIRs were compared to 2019 quarterly SIRs to describe the percent change in SIR during 2020.
- Percent change was calculated as:
$$\frac{[(2020 \text{ SIR} - 2019 \text{ SIR}) / 2019 \text{ SIR}] \times 100}{}$$
- Due to CMS reporting exemptions, the number of facilities reporting in each quarter may differ.

Daily Cases by Status

The number of daily confirmed cases represent the total number of people who had a positive NAAT/RT-PCR test for COVID-19. Cases are shown by the date of onset of symptoms.

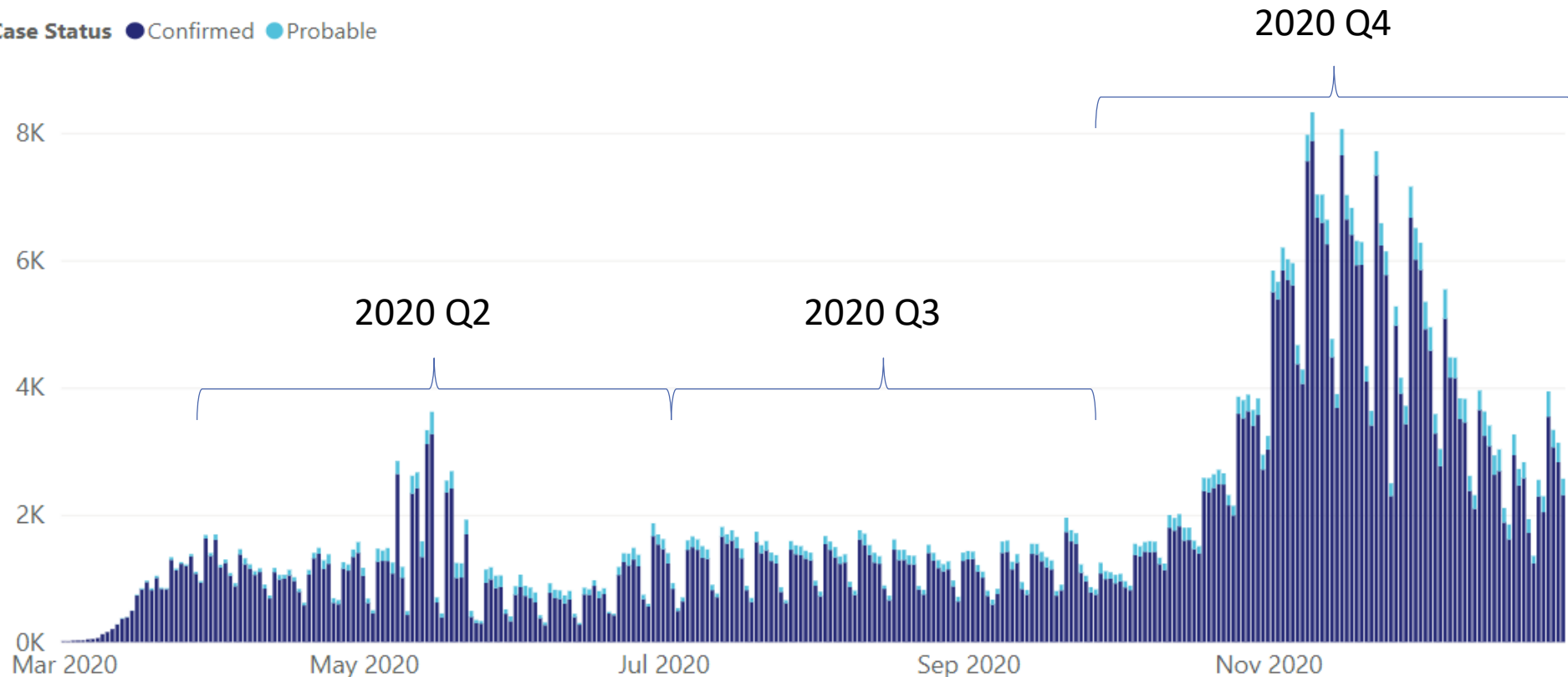
Filter by Date:

1/1/2020

12/31/2020

Cases by Date of Onset

Case Status ● Confirmed ● Probable



CAUTI

Quarter	Year	All Locations		ICU Locations		WARD+ Locations	
		SIR	Percent Change	SIR	Percent Change	SIR	Percent Change
Q1	2019	0.661	-18.9%	0.648	-24.7%	0.675	-12.6%
	2020	0.536		0.488		0.59	
Q2	2019	0.628	-10.2%	0.627	-20.7%	0.629	3.5%
	2020	0.564		0.497		0.651	
Q3	2019	0.64	27.2%	0.664	15.8%	0.615	40.0%
	2020	0.814		0.769		0.861	
Q4	2019	0.608	39.8%	0.537	60.7%	0.682	22.4%
	2020	0.85		0.863		0.835	

Includes Acute Care Facilities ONLY

CLABSI

Quarter	Year	All Locations		ICU Locations		WARD+ Locations	
		SIR	Percent Change	SIR	Percent Change	SIR	Percent Change
Q1	2019	0.701	-14.8%	0.723	-11.8%	0.645	-8.5%
	2020	0.597		0.638		0.59	
Q2	2019	0.716	58.9%	0.871	81.2%	0.625	14.4%
	2020	1.138		1.578		0.715	
Q3	2019	0.611	43.0%	0.718	14.9%	0.558	68.1%
	2020	0.874		0.825		0.938	
Q4	2019	0.572	49.8%	0.825	68.9%	0.938	33.6%
	2020	0.857		1.083		0.716	

Includes Acute Care Facilities ONLY

Total VAE

Quarter	Year	All Locations		ICU Locations		WARD+ Locations	
		SIR	Percent Change	SIR	Percent Change	SIR	Percent Change
Q1	2019	1.167	3.8%	1.163	3.5%	1.255	5.5%
	2020	1.211		1.204		1.324	
Q2	2019	1.181	22.8%	1.183	23.5%	1.136	21.5%
	2020	1.45		1.461		1.38	
Q3	2019	1.254	9.7%	1.263	8.9%	1.061	29.6%
	2020	1.376		1.376		1.375	
Q4	2019	0.893	53.9%	0.882	62.1%	1.141	-19.4%
	2020	1.374		1.43		0.92	

Includes Acute Care Facilities ONLY

CDI LabID

FacWideIN	Year	SIR	Percent Change
Q1	2019	0.698	-19.1%
	2020	0.565	
Q2	2019	0.64	-34.2%
	2020	0.421	
Q3	2019	0.687	-13.4%
	2020	0.595	
Q4	2019	0.604	-1.5%
	2020	0.595	

Includes Acute Care Facilities ONLY

MRSA Bacteremia LabID

FacWideIN	Year	SIR	Percent Change
Q1	2019	0.828	11.7%
	2020	0.925	
Q2	2019	0.887	41.5%
	2020	1.255	
Q3	2019	0.601	32.4%
	2020	0.796	
Q4	2019	0.796	7.0%
	2020	0.851	

Includes Acute Care Facilities ONLY

SSI

		COLO		HYST		KRPO		HPRO	
Quarter	Year	SIR	Percent Change	SIR	Percent Change	SIR	Percent Change	SIR	Percent Change
Q1	2019	1.122	-10.9%	1.524	-12.7%	1.266	-8.6%	0.872	54.6%
	2020	1.000		1.330		1.157		1.348	
Q2	2019	1.045	29.4%	1.506	-22.0%	0.879	-47.7%	1.569	25.0%
	2020	1.352		1.175		0.460		1.961	
Q3	2019	0.928	14.3%	1.278	29.1%	0.928	67.2%	1.280	3.2%
	2020	1.061		1.65		1.552		1.321	
Q4	2019	0.919	16.8%	1.189	-23.1%	0.794	-9.7%	0.879	44.6%
	2020	1.073		0.914		0.717		1.271	

Includes Acute Care and Critical Access Facilities

Device Utilization Ratios

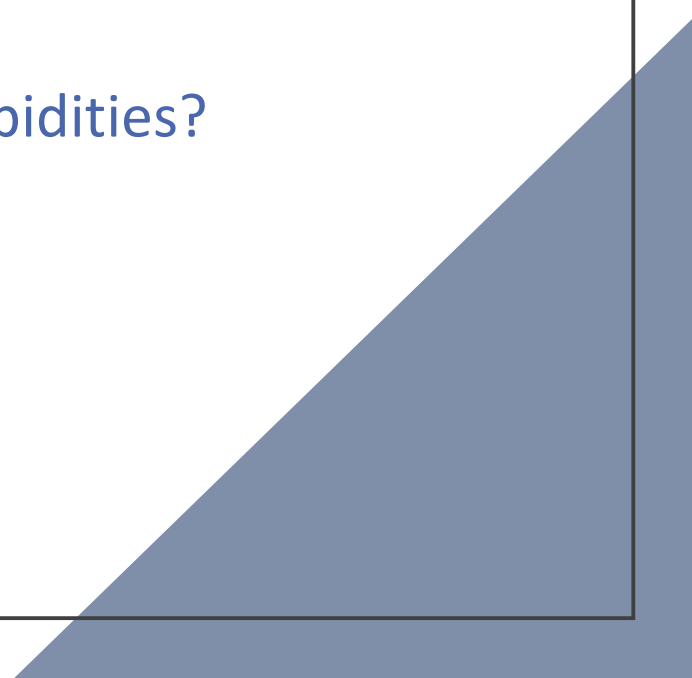
Quarter	Year	Urinary Catheters		Central Lines		Ventilators	
		SUR	Percent Change	SUR	Percent Change	SUR	Percent Change
Q1	2019	0.787	-0.1%	0.875	-12.0%	0.919	3.7%
	2020	0.786		0.77		0.953	
Q2	2019	0.764	16.2%	0.748	12.8%	0.837	47.3%
	2020	0.888		0.844		1.233	
Q3	2019	0.766	6.7%	0.744	4.8%	0.803	-0.1%
	2020	0.817		0.78		0.802	
Q4	2019	0.768	2.5%	0.736	18.9%	0.79	16.3%
	2020	0.787		0.875		0.919	

Includes Acute Care Facilities ONLY

Insights from our hospital partners

Overall, increases in SIRs and SURs between 2019 and 2020

What do you think contributed to these increases?

- a) Increased patient populations and/or patient co-morbidities?
 - b) Changes in infection control practices?
 - c) Low PPE stock, staff shortages, staff turnover?
 - d) Other?
- 

“Lack of access and visibility to sites and additional pressure”

“[Prone position] patients on ventilators, potential challenges with ease of managing devices properly”

“Shortages in hand sanitizer and disinfection products”

“Complexity of patient load”

“Long term care patient care”

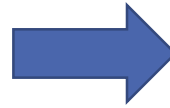
“Opened extra units not normally for inpatients”

“Changes in process and re-education”

Increased Sweating
Delay in care changed the patient population
Changes in Device Use
Low or Modified PPE Use
Patient population changes
Staffing Shortages and Turnover
Training
Modified Beds and Hospital Locations
Changes in infection Control Practices
Patients hesitation to seek care for fear of acquiring COVID
Increase in Staph infection in patients with COVID-19

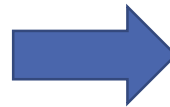
A Recent Article

- 2020-Q3 and 2020-Q4 saw large and significant increases in the CLABSI, CAUTI, VAE, and MRSA bacteremia SIRs
- The CLABSI SIR experienced the greatest increase among all HAI types
- CAUTIs and VAEs were also reported more frequently in 2020 than 2019



- impacts of hospital COVID-19 prevention activities on central line insertion and maintenance practices
- increase in the number of hospitalized patients in 2020 that required ventilation
- increase in patients' average duration of ventilation

- Decreases in the CDI SIRs during 2020 compared to 2019



- The increased focus on hand hygiene, environmental cleaning, patient isolation, and use of PPE
- continued inpatient antimicrobial stewardship programs
- marked decline in outpatient antibiotic prescribing