

Long-Term Care Healthcare-Associated Infections in 2022:

An Analysis of 20,216 Reports

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Abstract

Background: The Pennsylvania Patient Safety Reporting System (PA-PSRS) is the largest database of patient safety event reports in the United States. In addition to over 4.5 million acute care reports, the PA-PSRS database contains more than 396,000 long-term care (LTC) healthcare-associated infection (HAI) reports.

Methods: LTC HAI data from PA-PSRS were extracted on March 1, 2023. Reports submitted by LTC facilities and specific care areas were included for infection rates each month if resident and device days were also entered in PA-PSRS for the facility and care area.

Results: A total of 20,216 infections were reported in 2022, representing a 12.5% increase from 2021. Overall, the reporting rate from LTC facilities increased from 0.77 in 2021 to 0.87 in 2022. Over half (56%) of the increase in overall rate is due to an increase in the respiratory tract infection rate, with another 27% due to an increase in the gastrointestinal infection rate. All six regions of the state had an increase in overall infection rate from 2021 to 2022. The North Central region of the state had the highest overall rate, as well as the largest increase in rate, with 1.14 reports per 1,000 resident days in 2022, which is an increase of 21.3% over the 2021 rate of 0.94. The Southeast region had the lowest overall rate, at 0.67, which is an 8.1% increase from 2021. The number of reports increased for all five infection types from 2021 to 2022, with gastrointestinal infections increasing the most percentage-wise, by 67.7%. Of the 14 infection subtypes, 11 had an increase in number of reports from 2021 to 2022, with influenza showing the largest increase of 857 reports. Norovirus had a larger percentage increase of 942.9%, going from 70 reported infections in 2021 to 730 in 2022. The three subtypes that decreased in number had relatively smaller changes than the increases, with the largest of the decreases occurring with *C. diff*, which dropped by 29 reports from 2021 to 2022.

Conclusions: There was an increase in the total number and rate of infections reported to PA-PSRS in 2022. Patient Safety Authority infection preventionists continue to note operational challenges in LTC facilities and are providing ongoing education and guidance to enhance infection prevention and surveillance strategies and improve reporting of HAIs.

Keywords: *long-term care, nursing homes, annual report, healthcare-associated infections, HAI, infection rates, resident days*

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Introduction

The Pennsylvania Patient Safety Reporting System (PA-PSRS)¹ is the largest repository of patient safety data in the United States. In addition to over 4.5 million acute care records, PA-PSRS has collected more than 396,000 long-term care (LTC) healthcare-associated infection (HAI) reports since 2009. In 2022, 20,216 HAIs were reported by 636 of Pennsylvania’s LTC facilities.

Methods

The LTC data from PA-PSRS were extracted on March 1, 2023, to allow additional time for rate calculations based on resident and device utilization days. Reports submitted by LTC facilities and specific care areas were included for infection rates each month if resident and device days were also entered in PA-PSRS for the facility and care area.

Infection counts reflect the year when infection reports were submitted in PA-PSRS. Overall rates are based on infection confirmation dates and resident days. Specific infection rates related to urinary catheters and central lines are based on urinary catheter and central line days, respectively. In addition, rates are expressed as infections per 1,000 resident, catheter, or central line days. Infection rates from prior years may differ from information in

previous publications, as facilities may have since submitted or made changes to reports and/or entered utilization data in PA-PSRS.

Results

The number of reports increased by 12.5% from 2021, with 20,216 reported infections in 2022 (see **Figure 1**). This is the first annual increase in reports since the 1.9% increase in 2018. The number of resident days increased by 1.7% from 2021, with 23.4 million resident days reported in 2022 (see **Figure 1**). This is the first annual increase in resident days since the 1.5% increase in 2019. Even with this increase in resident days from 2021 to 2022, the number of resident days was 3.8 million below the number in 2019, the year prior to the COVID-19 pandemic.

In 2022, the overall infection rate was 0.87 infections per 1,000 resident days, which is a 13.0% increase from the 2021 rate of 0.77. Over half (56%) of the increase in the overall rate is due to an increase in the respiratory tract infection rate, with another 27% due to an increase in the gastrointestinal infection rate. As shown in **Figure 2**, the North Central region had the highest rate of reported infections in 2022, with 1.14 reports per 1,000 resident days. The Southeast region had the lowest rate, at 0.67. The distribution of LTC infection reports submitted in 2022 by region is shown in **Table 1**.

Figure 1. LTC Infection Reports Submitted to PA-PSRS by Year With Resident Days and Overall Infection Rates (per 1,000 Resident Days)



Note: Numbers and rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

¹PA-PSRS is a secure, web-based system through which Pennsylvania long-term care facilities submit reports of healthcare-associated infections in accordance with mandatory reporting laws outlined in the Medical Care Availability and Reduction of Error (MCARE) Act (Act 52 of 2007).¹ All reports submitted through PA-PSRS are confidential and no information about individual facilities or providers is made public.

Figure 2. PA-PSRS LTC Infection Rates per 1,000 Resident Days by Region—2021 Versus 2022



Table 1. LTC Infection Reports Submitted to PA-PSRS and Infection Rates per 1,000 Resident Days by Region

Region	2021 Infection Reports	2021 Rate per 1,000 Resident Days	2022 Infection Reports	2022 Rate per 1,000 Resident Days
North Central	1,289	0.94	1,561	1.14
Northeast	2,689	0.91	3,260	1.08
Northwest	1,722	0.84	1,948	0.94
South Central	2,841	0.90	3,079	1.01
Southeast	5,643	0.62	6,158	0.67
Southwest	3,787	0.83	4,210	0.94
Total	17,971	0.77	20,216	0.87

Note: Numbers and rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

LTC Healthcare-Associated Infections

Reports submitted by LTC facilities to PA-PSRS are classified into five main infection types (see **Figure 3**). In 2019 and 2020, respiratory tract infections were the most frequently reported infection type. In 2021 and 2022, respiratory tract infections were the third most frequently reported, behind skin and soft tissue and urinary tract infections. The number of reports for all infection types increased from 2021 to 2022, with the largest percentage increases occurring with gastrointestinal infection (+67.7%) and device-related bloodstream infection (+48.1%).

LTC Healthcare-Associated Infection Subtypes

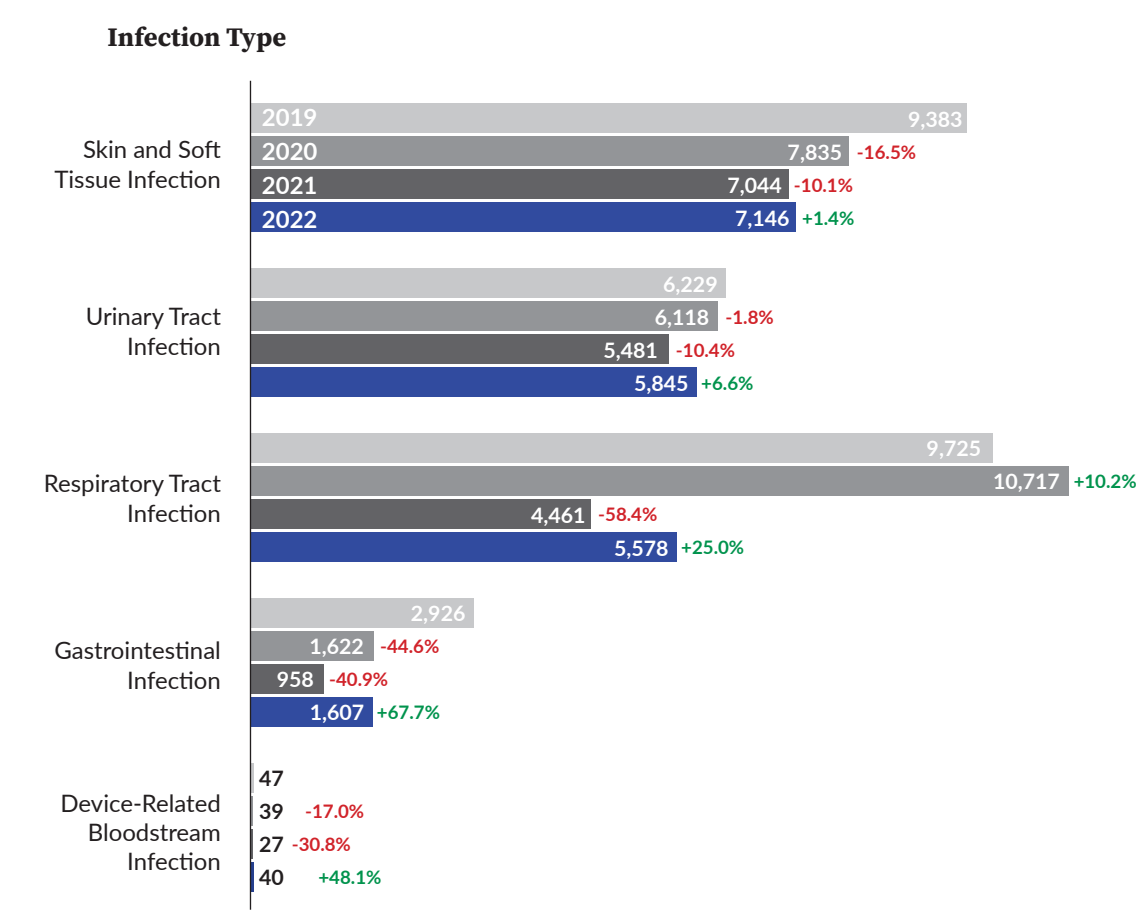
Table 2 shows the number of reports for all infection subtypes. The most frequently reported subtype in 2022 was cellulitis, soft tissue, or wound infection, followed by symptomatic urinary tract infection (SUTI) and pneumonia, which is the same top-three subtype ordering as the prior year. Of the 14 infection subtypes, 11 had an increase in number of reports from 2021 to 2022, with

influenza showing the largest increase of 857 reports. Norovirus had the largest percentage increase of 942.9%, going from 70 reported infections in 2021 to 730 in 2022. The three subtypes that decreased in number had relatively smaller changes than the increases, with the largest of the decreases occurring with *C. diff*, which dropped by 29 reports from 2021 to 2022.

Care Area

Table 3 shows the distribution of 2022 reports by infection type and care area. Skilled nursing/short-term rehabilitation units accounted for the largest proportion of infections (7,178 of 20,216; 35.5%). In 2022, skin and soft tissue infections were reported more than any other infection type in all care areas except ventilator-dependent units, in which respiratory tract infections were most frequently reported. **Table 4** shows the 2022 distribution of infection reports by infection subtype and care area. The largest concentration of reports in 2022 is found with SUTI in skilled nursing/short-term rehabilitation units.

Figure 3. LTC Infection Reports Submitted to PA-PSRS by Infection Type and Year



Note: Numbers shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Table 2. LTC Infection Reports Submitted to PA-PSRS and Percentage Distribution by Infection Subtype and Year

Infection Type	Infection Subtype	Number of Reports				% of Total				Change in Reports 2021 to 2022	
		2019	2020	2021	2022	2019	2020	2021	2022	Number	Percent
Skin and Soft Tissue Infection	Cellulitis/Soft Tissue/Wound Infection	6,039	5,180	4,951	5,081	21.3%	19.7%	27.5%	25.1%	130	2.6%
	Conjunctivitis	3,157	2,528	1,957	1,937	11.2%	9.6%	10.9%	9.6%	-20	-1.0%
	Scabies	187	127	136	128	0.7%	0.5%	0.8%	0.6%	-8	-5.9%
Urinary Tract Infection	SUTI	4,939	4,715	4,288	4,589	17.4%	17.9%	23.9%	22.7%	301	7.0%
	CAUTI	1,136	1,251	1,052	1,087	4.0%	4.8%	5.9%	5.4%	35	3.3%
	ABUTI	154	152	141	169	0.5%	0.6%	0.8%	0.8%	28	19.9%
Respiratory Tract Infection	Pneumonia	5,282	4,862	3,004	3,005	18.7%	18.5%	16.7%	14.9%	1	0.0%
	LRTI	2,874	3,769	1,216	1,451	10.2%	14.3%	6.8%	7.2%	235	19.3%
	Influenza	1,409	1,432	201	1,058	5.0%	5.4%	1.1%	5.2%	857	426.4%
	Influenza-Like Illness	160	654	40	64	0.6%	2.5%	0.2%	0.3%	24	60.0%
Gastro-intestinal Infection	<i>C. diff</i>	1,358	961	883	854	4.8%	3.6%	4.9%	4.2%	-29	-3.3%
	Norovirus	1,550	647	70	730	5.5%	2.5%	0.4%	3.6%	660	942.9%
	Bacteriologic Gastroenteritis	18	14	5	23	0.1%	0.1%	0.0%	0.1%	18	360.0%
Device-Related Bloodstream Infection	CLABSI	47	39	27	40	0.2%	0.1%	0.2%	0.2%	13	48.1%
Totals		28,310	26,331	17,971	20,216	100.0%	100.0%	100.0%	100.0%	2,245	12.5%

Note: Numbers shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

LRTI = Lower Respiratory Tract Infection
 SUTI = Symptomatic Urinary Tract Infection
 CAUTI = Catheter-Associated Urinary Tract Infection
 ABUTI = Asymptomatic Bacteremic Urinary Tract Infection
 CLABSI = Central Line-Associated Blood Stream Infection

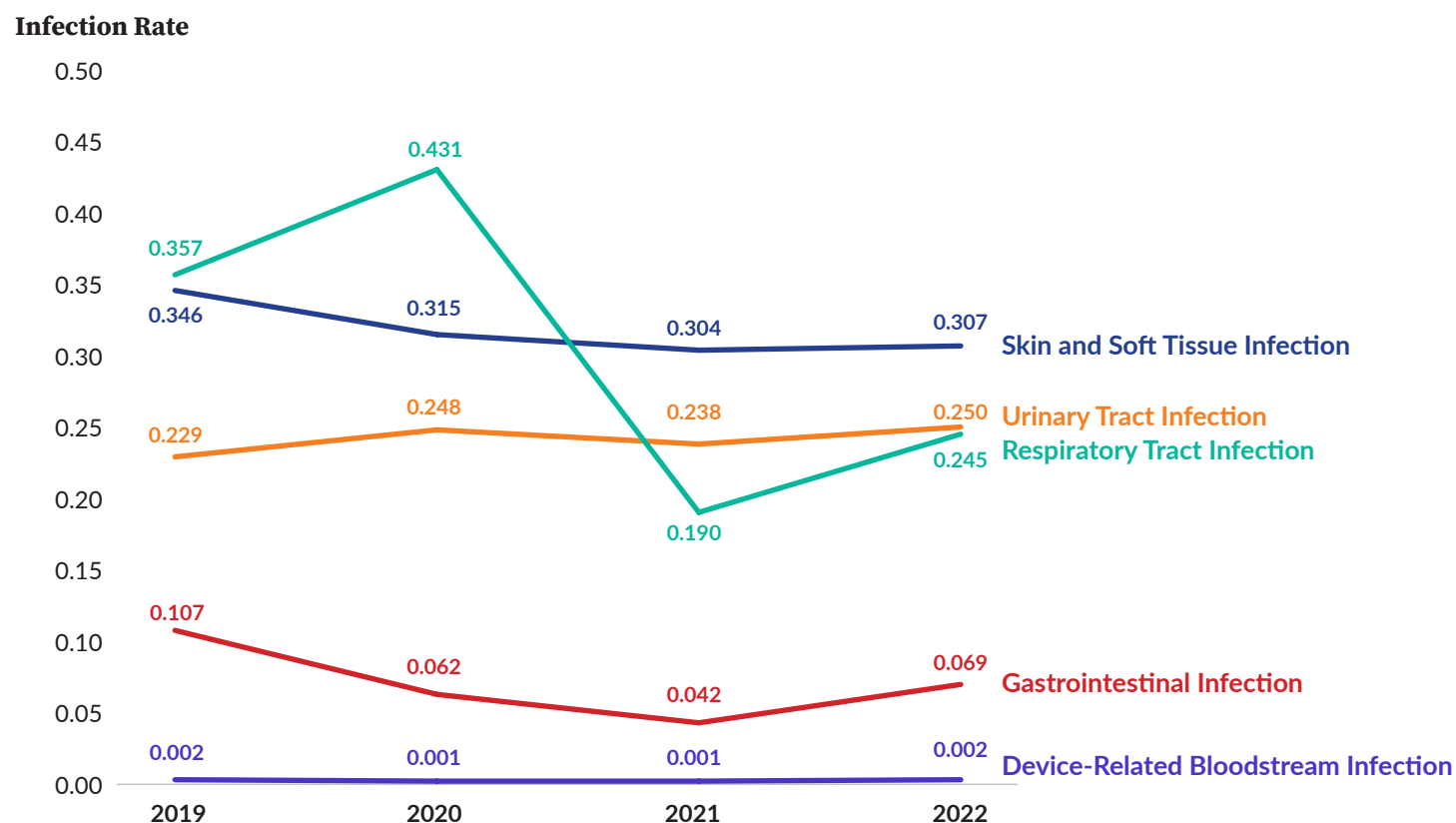
Table 3. LTC Infection Reports Submitted to PA-PSRS in 2022 by Infection Type and Care Area

Infection Type	Skilled Nursing/ Short-Term Rehab. Unit	Nursing Unit	Mixed Unit	Dementia Unit	Ventilator- Dependent Unit	Total
Skin and Soft Tissue Infection	2,373	2,125	2,068	460	120	7,146
Urinary Tract Infection	2,154	1,664	1,693	285	49	5,845
Respiratory Tract Infection	2,019	1,511	1,503	308	237	5,578
Gastrointestinal Infection	610	454	375	146	22	1,607
Device-Related Bloodstream Infection	22	7	10	0	1	40
Total	7,178	5,761	5,649	1,199	429	20,216

Table 4. LTC Infection Reports Submitted to PA-PSRS in 2022 by Infection Subtype and Care Area

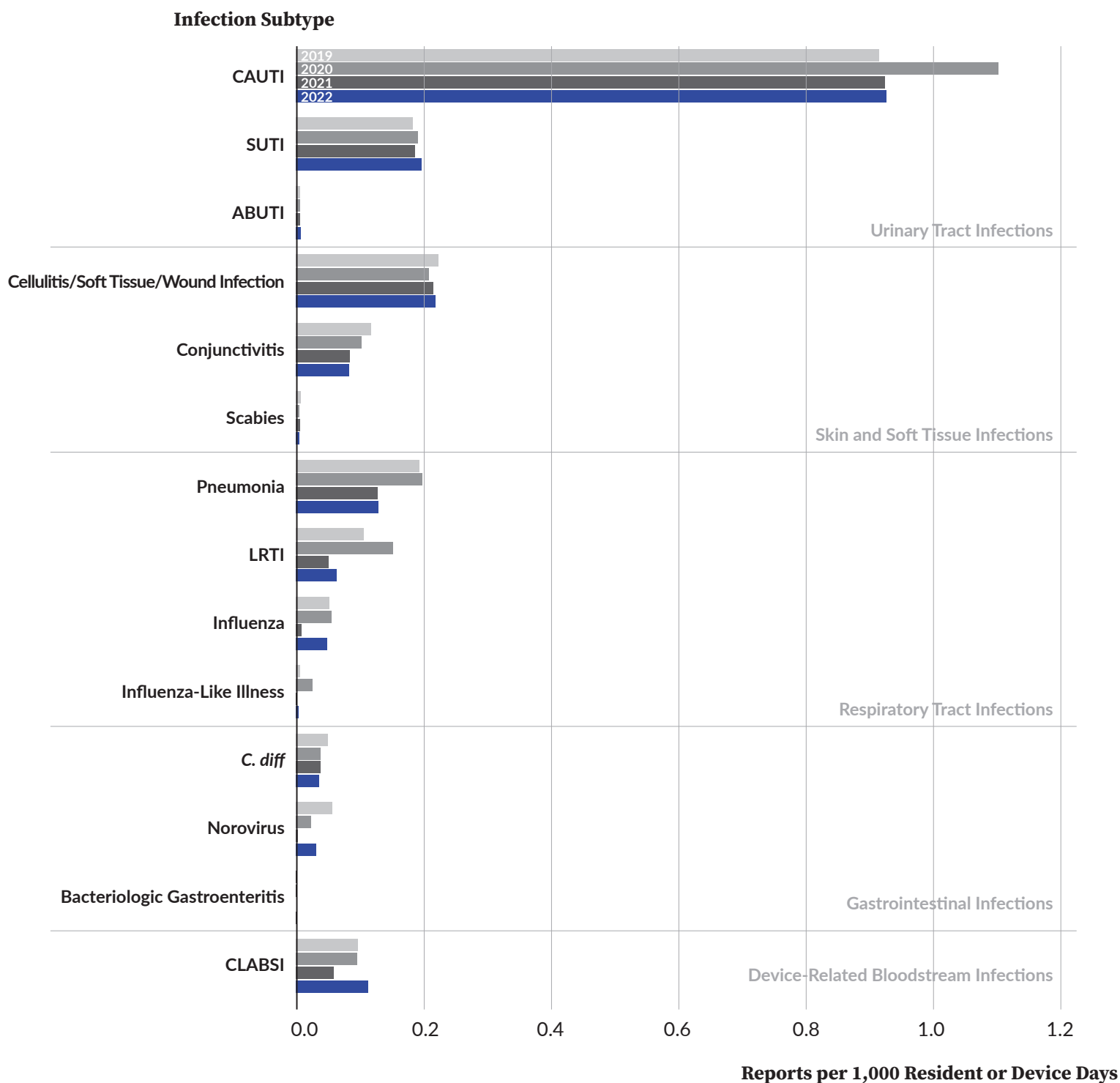
Infection Subtype	Skilled Nursing/ Short-Term Rehab. Unit	Nursing Unit	Mixed Unit	Dementia Unit	Ventilator- Dependent Unit	Total
Cellulitis/Soft Tissue/Wound Infection	1,679	1,566	1,488	293	55	5,081
SUTI	1,698	1,295	1,330	243	23	4,589
Pneumonia	1,083	742	857	164	159	3,005
Conjunctivitis	619	532	563	158	65	1,937
LRTI	560	388	318	108	77	1,451
CAUTI	393	315	314	39	26	1,087
Influenza	340	365	318	34	1	1,058
<i>C. diff</i>	347	183	280	22	22	854
Norovirus	252	266	88	124	0	730
ABUTI	63	54	49	3	0	169
Scabies	75	27	17	9	0	128
Influenza-Like Illness	36	16	10	2	0	64
CLABSI	22	7	10	0	1	40
Bacteriologic Gastroenteritis	11	5	7	0	0	23
Total	7,178	5,761	5,649	1,199	429	20,216

Figure 4. LTC Infection Rates per 1,000 Resident Days by Infection Type



Note: Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Figure 5. LTC Infection Rates per 1,000 Resident or Device Days by Infection Subtype and Year



Note: Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

LTC Healthcare-Associated Infection Rates

Figure 4 shows infection rates per 1,000 resident days for the five infection types for 2019 through 2022. All rates decreased from 2020 to 2021 and increased from 2021 to 2022.

In **Figure 5** and **Table 5**, rates are shown for each infection subtype for 2019 through 2022. Similar to percentage increases in the number of reports, the subtypes with the largest percentage increases in rate from 2021 to 2022 are norovirus (+873.6%) and influenza (+423.8%).

In **Table 6**, the infection rates are displayed by year based on care area and infection subtype. The largest percentage increases in rate from 2021 to 2022 occurred with norovirus in skilled nursing/

short-term rehabilitation units (+1,683.2%), influenza in dementia units (+993.1%), influenza in nursing units (+824.6%), and influenza-like illness in mixed units (+778.6%).

Figure 6 and **Table 7** display infection rates for influenza, influenza-like illness, pneumonia, lower respiratory tract infection (LRTI), and norovirus by quarter for 2019 through 2022. These rates are calculated as the number of infections, using the infection confirmation date, by quarter, per 1,000 resident days. As seen in **Figure 6**, over the past four years, norovirus infections hit a peak rate in Q1 2019 with 0.164 infections per 1,000 resident days. Rates for all four respiratory tract infection subtypes increased from Q3 2022 to Q4 2022: influenza (+1,355.6%), influenza-like illness (+700.0%), LRTI (+42.3%), and pneumonia (+30.7%).

Table 5. LTC Infection Rates per 1,000 Resident or Device Days by Infection Subtype and Year in Descending Order by 2022 Rates

Infection Subtype	Rates			
	2019	2020	2021	2022
CAUTI	0.911	1.098	0.920	0.923
Cellulitis/Soft Tissue/Wound Infection	0.222	0.208	0.215	0.218
SUTI	0.182	0.191	0.186	0.196
Pneumonia	0.193	0.197	0.128	0.129
CLABSI	0.097	0.095	0.059	0.113
Conjunctivitis	0.117	0.102	0.084	0.083
LRTI	0.106	0.152	0.051	0.064
Influenza	0.052	0.055	0.009	0.049
<i>C. diff</i>	0.050	0.038	0.038	0.036
Norovirus	0.057	0.023	0.003	0.031
ABUTI	0.006	0.006	0.006	0.007
Scabies	0.007	0.005	0.006	0.005
Influenza-Like Illness	0.006	0.026	0.002	0.004
Bacteriologic Gastroenteritis	0.001	0.001	0.000	0.001

Note: Rates shown as 0.000 are not zero; they are less than 0.001 when rounding. Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Table 6. LTC Infection Rates per 1,000 Resident or Device Days by Care Area, Infection Subtype, and Year in Descending Order by Percentage Increase From 2021 to 2022 Within Each Care Area

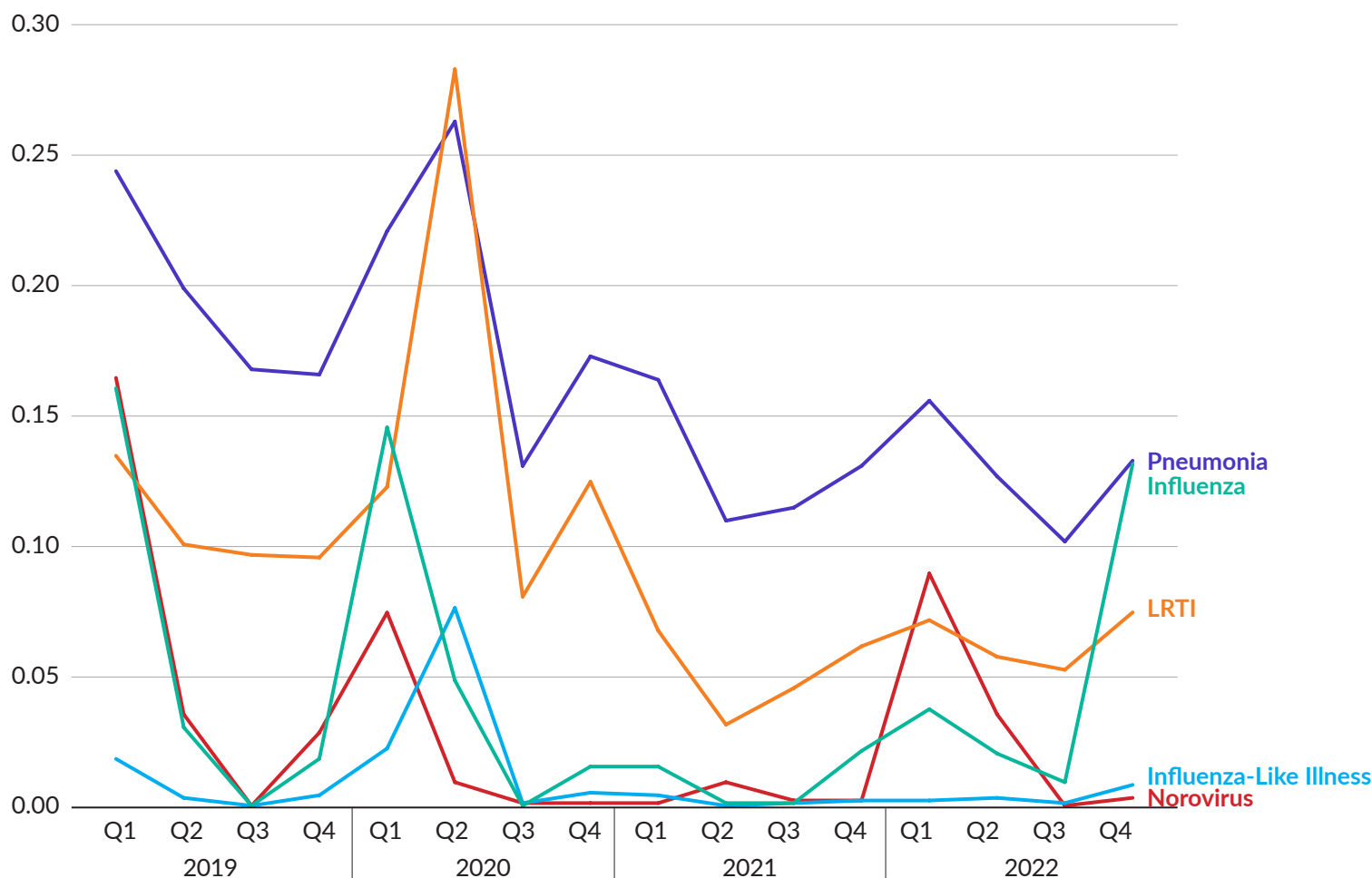
Care Area	Infection Type	2019	2020	2021	2022	2019 to 2020	2020 to 2021	2021 to 2022
Dementia Unit	Influenza	0.040	0.044	0.002	0.023	12.1%	-95.2%	993.1%
	LRTI	0.102	0.136	0.027	0.061	33.9%	-80.0%	124.1%
	CAUTI	1.133	1.105	0.451	0.980	-2.4%	-59.2%	117.1%
	Influenza-Like Illness	0.006	0.032	0.001	0.002	441.8%	-96.7%	98.7%
	SUTI	0.127	0.122	0.107	0.131	-4.5%	-11.7%	21.6%
	Pneumonia	0.146	0.147	0.085	0.088	0.5%	-42.3%	3.7%
	Cellulitis/Soft Tissue/Wound Infection	0.165	0.149	0.151	0.156	-9.5%	1.4%	3.2%
	<i>C. diff</i>	0.016	0.015	0.012	0.012	-1.2%	-20.5%	-0.6%
	Conjunctivitis	0.127	0.107	0.090	0.085	-15.6%	-15.8%	-5.9%
	ABUTI	0.004	0.005	0.004	0.002	20.4%	-14.3%	-50.3%
	Scabies	0.012	0.005	0.014	0.005	-54.2%	153.2%	-65.6%
	Bacteriologic Gastroenteritis	-	<0.001	-	-	-	-100.0%	-
	CLABSI	-	-	-	-	-	-	-
	Norovirus	0.098	0.045	-	0.066	-53.5%	-100.0%	-
Mixed Unit	Influenza-Like Illness	0.007	0.022	<0.001	0.003	217.4%	-98.6%	778.6%
	Bacteriologic Gastroenteritis	<0.001	<0.001	<0.001	0.001	-12.0%	-73.0%	583.3%
	Norovirus	0.065	0.016	0.003	0.014	-76.0%	-82.8%	405.3%
	Influenza	0.055	0.041	0.011	0.053	-24.8%	-73.3%	376.9%
	CLABSI	0.039	0.062	0.051	0.100	60.2%	-17.4%	93.6%
	ABUTI	0.006	0.007	0.006	0.008	7.6%	-13.6%	35.6%
	LRTI	0.110	0.143	0.040	0.052	30.8%	-72.2%	31.3%
	Pneumonia	0.201	0.200	0.123	0.133	-0.7%	-38.4%	8.4%
	<i>C. diff</i>	0.042	0.043	0.040	0.042	3.0%	-8.8%	7.4%
	Cellulitis/Soft Tissue/Wound Infection	0.226	0.215	0.228	0.232	-5.2%	6.0%	2.0%
	CAUTI	0.841	1.256	0.954	0.948	49.3%	-24.0%	-0.6%
	Conjunctivitis	0.126	0.108	0.088	0.087	-14.0%	-18.7%	-1.3%
	SUTI	0.183	0.204	0.209	0.203	11.2%	2.5%	-2.8%
	Scabies	0.006	0.002	0.006	0.003	-70.0%	259.8%	-58.5%
Nursing Unit	Influenza	0.047	0.057	0.005	0.050	19.7%	-90.4%	824.6%
	Norovirus	0.049	0.033	0.006	0.036	-33.5%	-82.1%	508.9%
	CLABSI	0.130	0.151	0.014	0.083	16.3%	-90.9%	506.3%
	Influenza-Like Illness	0.005	0.023	0.002	0.004	398.2%	-89.5%	46.0%
	LRTI	0.098	0.139	0.042	0.055	42.1%	-70.0%	32.2%
	SUTI	0.150	0.164	0.162	0.179	9.2%	-1.5%	10.9%
	Cellulitis/Soft Tissue/Wound Infection	0.200	0.183	0.198	0.213	-8.5%	8.2%	7.6%
	CAUTI	0.751	0.943	0.852	0.914	25.5%	-9.7%	7.3%
	Conjunctivitis	0.103	0.093	0.071	0.072	-9.7%	-22.9%	0.3%
	ABUTI	0.005	0.005	0.007	0.007	1.0%	43.6%	-0.8%
	Pneumonia	0.157	0.164	0.109	0.102	4.6%	-33.8%	-5.7%
	<i>C. diff</i>	0.042	0.025	0.028	0.024	-39.2%	9.6%	-12.6%
	Scabies	0.006	0.005	0.005	0.004	-6.4%	-13.2%	-24.9%
	Bacteriologic Gastroenteritis	<0.001	<0.001	-	<0.001	-22.0%	-100.0%	-

Table 6 (continued).

Care Area	Infection Type	2019	2020	2021	2022	2019 to 2020	2020 to 2021	2021 to 2022
Skilled Nursing/ Short-Term Rehabilitation Unit	Norovirus	0.047	0.014	0.002	0.034	-69.9%	-86.5%	1683.2%
	Influenza	0.056	0.070	0.014	0.052	25.6%	-80.0%	274.5%
	Bacteriologic Gastroenteritis	<0.001	<0.001	<0.001	0.001	-25.5%	9.8%	173.5%
	Scabies	0.007	0.008	0.005	0.010	6.6%	-40.8%	119.4%
	Influenza-Like Illness	0.007	0.030	0.002	0.005	345.0%	-92.3%	104.8%
	CLABSI	0.101	0.095	0.091	0.137	-5.8%	-4.2%	50.8%
	ABUTI	0.007	0.007	0.006	0.008	4.1%	-16.2%	44.5%
	LRTI	0.109	0.169	0.060	0.074	56.1%	-64.3%	22.1%
	SUTI	0.225	0.225	0.214	0.224	0.2%	-5.3%	5.1%
	Conjunctivitis	0.119	0.100	0.083	0.084	-16.5%	-16.3%	0.4%
	Pneumonia	0.223	0.226	0.145	0.143	1.6%	-36.0%	-1.3%
	Cellulitis/Soft Tissue/Wound Infection	0.252	0.239	0.233	0.224	-5.0%	-2.5%	-3.9%
	CAUTI	1.009	1.054	0.950	0.912	4.4%	-9.9%	-3.9%
	C. diff	0.071	0.050	0.052	0.047	-29.3%	3.0%	-8.9%
Ventilator- Dependent Unit	SUTI	0.043	0.109	0.105	0.166	152.3%	-3.7%	57.6%
	Conjunctivitis	0.231	0.289	0.407	0.455	25.2%	40.9%	11.9%
	Pneumonia	0.720	0.892	1.037	1.069	23.8%	16.3%	3.1%
	Cellulitis/Soft Tissue/Wound Infection	0.259	0.340	0.361	0.366	31.1%	6.2%	1.3%
	C. diff	0.122	0.141	0.190	0.152	15.2%	34.8%	-20.3%
	LRTI	0.339	0.449	0.774	0.510	32.6%	72.4%	-34.1%
	CAUTI	1.730	1.785	1.440	0.833	3.2%	-19.3%	-42.2%
	ABUTI	0.007	0.006	0.026	-	-11.0%	309.2%	-100.0%
	Bacteriologic Gastroenteritis	-	-	-	-	-	-	-
	CLABSI	0.724	-	-	0.167	-100.0%	-	-
	Influenza	0.058	0.019	-	0.007	-66.6%	-100.0%	-
	Influenza-Like Illness	-	0.006	-	-	-	-100.0%	-
	Norovirus	-	-	-	-	-	-	-
	Scabies	-	-	-	-	-	-	-

Note: When a dash “-” appears in a cell within the table, it means that the rate is exactly zero. If “< 0.001” appears in a cell, it means that the rate is greater than zero but less than 0.001 when rounding. Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Figure 6. LTC Infection Rates per 1,000 Resident Days Trending for Seasonal Infection Subtypes by Infection Confirmation Quarter



Note: Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Discussion

Pennsylvania's LTC facilities reported 20,216 infections and 23.4 million resident days in PA-PSRS in 2022, resulting in a rate of 0.87 infections per 1,000 resident days. This represents a 12.5% increase in the total number of infection reports and a 13.0% increase in the rate of reported infections when compared to 2021. Over half of the increase in overall rate is due to an increase in the rate of reported respiratory tract infections, with another quarter due to an increase in the rate of reported gastrointestinal infections. The number of reports for all five main infection types also increased from 2021 to 2022. The infection subtype with the greatest increase in number of reports in 2022 was influenza, which is consistent with the high prevalence of influenza across the United States during the fourth quarter of 2022.² In terms of percentage, the largest increase was seen with norovirus. The increases noted with influenza and norovirus may be related to changes in state guidance³ and less-restrictive requirements for personal protective equipment to prevent transmission of COVID-19 in LTC facilities.

The years since COVID-19 have been especially hard on LTC facilities as emergency priority changes and staffing issues have impacted operations. Through outreach activities, the Patient Safety Authority's (PSA) infection preventionists (IPs) continue to note high turnover and the assignment of additional responsibilities to LTC IPs, which has likely impacted reporting. For example, some LTC IPs have erroneously presumed that reports of COVID-19 suspected or confirmed infections reported to the Centers for Medicare & Medicaid Services (CMS) through the National Healthcare Safety Network (NHSN) fully met all reporting requirements for these events. As a result, it is likely that some influenza-like illnesses and LRTIs have gone unreported to PA-PSRS. PSA IPs continue to work with LTC facilities to provide guidance and education, including purposeful outreach to LTC facilities that have reported a low volume of infections or incomplete information in PA-PSRS, formal and informal education, access to toolkits and surveillance materials, one-on-one training, and collaborative activities with facility administrative teams.

Table 7. Overall LTC Seasonal Infection Rates per 1,000 Resident Days by Quarter

	Influenza	Influenza-Like Illness	LRTI	Norovirus	Pneumonia
2019 Q1	0.160	0.018	0.134	0.164	0.243
Q2	0.030	0.003	0.100	0.035	0.198
Q3	0.000	0.000	0.096	0.000	0.167
Q4	0.018	0.004	0.095	0.028	0.165
2020 Q1	0.145	0.022	0.122	0.074	0.220
Q2	0.048	0.076	0.282	0.009	0.262
Q3	0.000	0.001	0.080	0.001	0.130
Q4	0.015	0.005	0.124	0.001	0.172
2021 Q1	0.015	0.004	0.067	0.001	0.163
Q2	0.001	0.000	0.031	0.009	0.109
Q3	0.001	0.001	0.045	0.002	0.114
Q4	0.021	0.002	0.061	0.002	0.130
2022 Q1	0.037	0.002	0.071	0.089	0.155
Q2	0.020	0.003	0.057	0.035	0.126
Q3	0.009	0.001	0.052	0.000	0.101
Q4	0.131	0.008	0.074	0.003	0.132

Note: Rates shown as 0.000 are not zero; they are less than 0.001 when rounding. Rates shown for prior years may differ from previously published information due to receipt of data or changes to reports made by reporting facilities after the data cutoff date for prior publications.

Conclusion

In 2022, there was an increase in the total number and rate of infections reported to PA-PSRS by Pennsylvania's LTC facilities. There were also increases in the number of reports submitted for all five main infection types. Reports of respiratory tract infections and gastrointestinal infections accounted for more than three-quarters of the rate increase, with influenza and norovirus infection subtypes showing the most significant increases in number and percentage of reports between 2021 and 2022. PSA IPs continue to note operational challenges in LTC facilities and are providing ongoing education and guidance to enhance infection prevention and surveillance strategies and improve reporting of HAIs.

Note

This analysis was exempted from review by the Advarra Institutional Review Board.

References

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3. Pennsylvania Department of Health. UPDATE: Interim Infection Prevention and Control Recommendations for Healthcare Settings During the COVID-19 Pandemic (2022 – PAHAN – 663 – 10-04-UPD). DOH website. <https://www.health.pa.gov/topics/Documents/HAN/2022-663-10-4-UPD-IPC%20for%20Healthcare.pdf>. Published October 4, 2022. Accessed April 13, 2023.

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