Rhode Island COVID-19 Tiers
Data Brief

Tiers: An Equity-Focused, Place-Based COVID-19 Strategy

Everyone has a story of how living through the COVID-19 pandemic changed their lives. Some groups experienced higher rates of illness, more severe disease, and greater overall impacts than others.

Where people live predicts different health outcomes

Geographic patterns show that some communities experience higher disease burdens. The U.S. Centers for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI) predicts the impact communities may face during emergencies.[1] This index uses socioeconomic status, race, and household resources data to measure community risk and helps communities prepare for public health emergencies.[1] The SVI also helps governments predict which areas will be most impacted by an emergency. Effective emergency preparation focuses on these communities.

Impacts of racism on communities

Historic policies have created segregation and limited access to resources by race, ethnicity, and immigration status. For example, in the 1930s, redlining meant that home values were affected by the racial makeup of communities.[2,3,4] Wealthy White people received better loans for homes, while Black people, immigrants, and White people with low incomes were pushed into neighborhoods with fewer resources. [2,3,4] Sometimes, the language in deeds specified that only White people could own a home or live in a neighborhood (racial covenants).[5] Later, highways were built through redlined areas, further isolating some neighborhoods and forcing out many Black, low-income White, and immigrant families.[2,3,4] In Rhode Island, this relocation included places like Lippitt Hill (now Mount Hope), Fox Point, and Woodlawn in Providence and Pawtucket. [3,4]

Structural racism refers to how historical and current policies, practices, rules, attitudes, and behaviors favor White people and unfairly disadvantage people who are Black, Indigenous, Hispanic or Latino, and other People of Color.[6]

Historical and current policies intersect, reinforcing segregation and limiting access to resources for some groups. This persistent structural racism leads to some communities experiencing less wealth, fewer resources, and worse living conditions.[7,8,9] These neighborhoods often have more pollution, higher poverty, and less access to healthy food.[10] They also see higher rates of illnesses like asthma, heart disease, and diabetes. In these ways, structural racism increases the burden of community-level factors that lead to poorer health outcomes.

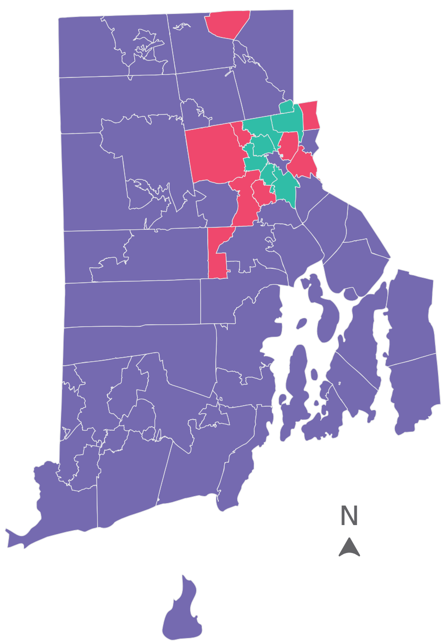
Unless otherwise specified, data throughout the brief is age-adjusted. Comparisons reflect what numbers would be if communities had the same proportion of older and younger people. Find data for each figure in Appendix 3.

Tiers: A place-based approach to addressing COVID-19 inequity

After seeing how COVID-19 was impacting some communities more than others and hearing from concerned community leaders, the Rhode Island Department of Health (RIDOH) and its Health Equity Institute (HEI) created a system for prioritizing geographies for intervention (Figure 1). Tiers were defined using COVID-19 data, the SVI, and social and economic factors like school lunch assistance and income (structural burdens).

- **Tier 1: Priority ZIP codes** faced the most concentrated structural burdens and initial disease. RIDOH prioritized these neighborhoods and ZIP codes for interventions like pop-up testing, vaccine sites, and in-person case investigations at testing sites.
- **Tier 2: Monitoring ZIP codes** faced some of the structural burdens of Tier 1 but had lower or inconsistent COVID-19 outcomes. RIDOH identified these communities as areas to monitor closely for when and if they needed more intervention.
- **Tier 3: Routine services and standard monitoring** were in place for ZIP codes that did not meet the criteria for Tier 1 or Tier 2.

The tiers informed resource allocation and provided a framework for tracking COVID-19 outcomes throughout the response.



Tier 1
02860 (Pawtucket)
02863 (Central Falls)
02904 (Providence/North Providence)
02905 (Providence/Cranston)
02907 (Providence)
02908 (Providence/North Providence)
02909 (Providence)

Tier 2
02861 (Pawtucket)
02893 (West Warwick)
02895 (Woonsocket)
02906 (Providence)
02910 (Cranston)
02911 (North Providence)
02914 (East Providence)
02919 (Johnston)
02920 (Cranston)

Tier 3
All other ZIP codes

Figure 1: *COVID-19 Tier ZIP Codes in Rhode Island*

Life in Tier 1 ZIP codes

Generally, Tier 1 and 2 communities overlap with areas redlined during the 1930s. As a result, Tiers 1 and 2 continue to face lasting structural barriers.[1,3,11] Data demonstrate that people in Tiers 1 and 2 experienced COVID-19 differently than those in Tier 3. The following community-level characteristics highlight how COVID-19 may have been more challenging for people in Tier 1. Compared to people living in Tier 3, people living in Tier 1 were more likely to:

- Experience a higher population density (9,518 versus 611 people per square mile)
- Live in housing with multiple building units (72.9% versus 30.0%)[12]
- Live in households with slightly more than half of the income than Tier 3 ($49,551 versus $90,522)
- Not have health insurance (7.5% versus 3.0%)
- Not have access to a car or vehicle (15.9% versus 5.8%)
- Live in households that identified themselves as speaking limited English (15.7% versus 1.8%)

Not everyone living in a tier had the same characteristics or experiences. Individual people and households may fit all, some, or none of the characteristics listed.

Facing more structural challenges leads to worse health outcomes. Household members in Tier 1 were also more likely Black, Indigenous, Hispanic or Latino, and other People of Color compared to Tier 3 (67.9% versus 12.3%), making it more likely for them to experience the impact of structural burdens associated with living in a Tier 1 community.

Despite structural challenges, Tier 1 communities were also rich with vital assets. For example, Tier 1 had more faith organizations per square mile than Tier 2 and Tier 3, which serve as key hubs of community life for many residents. Tier 1 ZIP codes were also more likely to include Health Equity Zones (HEZs), networks of local organizations and leaders that work to improve community conditions and the root causes of health inequities.[1] Both faith-based institutions and HEZs were critical in addressing COVID-19 in Tier 1 communities.[1]

Tier 2 characteristics fall between Tiers 1 and 3 (Appendix 3). In this brief, when COVID-19 data show only Tier 1 and Tier 3, Tier 2 data fall somewhere in between.

Tier 1 communities had the highest COVID-19 case rates

Case rates measure the burden of disease (infections) at the community level. To be counted as a case, a positive test result must have been reported to RIDOH. Not all cases were formally identified and reported. Barriers to testing may have caused underreporting in some communities, especially those most impacted by structural racism. Addressing these barriers was a key focus of early community-based efforts.

Rhode Island had its first reported COVID-19 case on March 1, 2020. From the beginning of the pandemic, there were profound differences in infection burden based on where people lived. Comparing rates for the first two years of the pandemic (March 1, 2020, to December 31, 2021), Tier 1 had the highest case rates (25,307.3 per 100,000 people) and Tier 3 had the lowest (18,222.4 per 100,000 people) (Figure 2). This means that for every 10 cases in Tier 3, there were 14 cases in Tier 1 (Figure 3).

Case rates were highest in Tier 1 and lowest in Tier 3

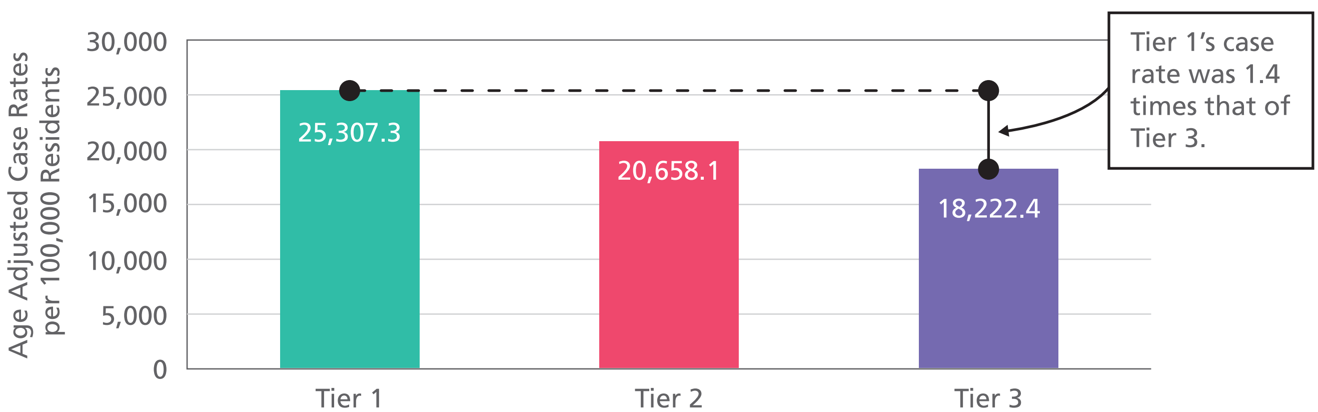


Figure 2: *Age-adjusted case rates by tier per 100,000 Rhode Island residents, March 1, 2020–December 31, 2021. Rhode Island COVID-19 Case Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 1.*

For every 10 cases in Tier 3, there were 14 cases in Tier 1

Figure 3: *Age-adjusted case rate ratio per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Case Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 1.*

Over time, case rates were consistently higher in Tier 1 compared to Tiers 2 and 3 (Figure 4). The difference was greatest between April and June of 2020, when Tier 1 had a case rate 3.3 times the rate of Tier 2 and 8.2 times the rate of Tier 3. In the next peak during Fall 2020, the differences in case rates between tiers narrowed, but Tier 1 still had a case rate 1.7 times higher than Tier 3.

Differences in case rates were greatest at the beginning of the pandemic

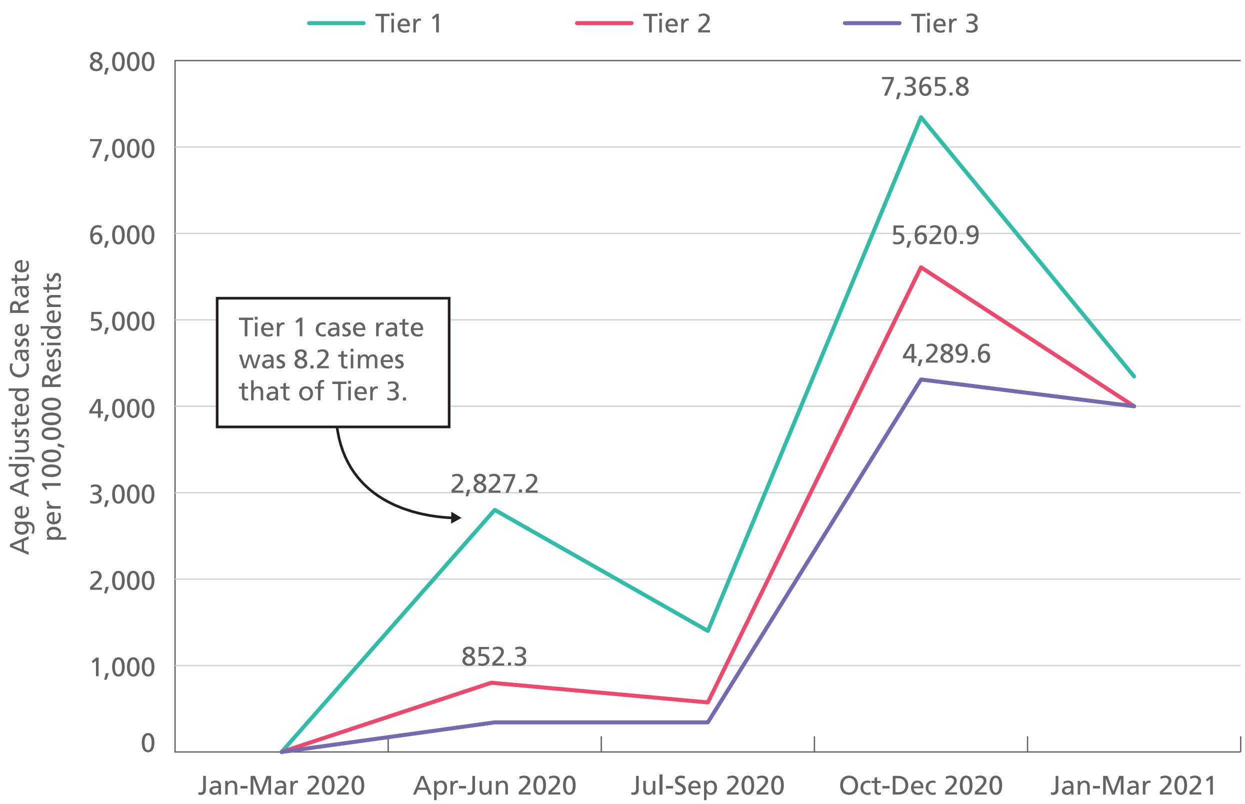


Figure 4: *Quarterly age-adjusted case rates by tier per 100,000 Rhode Island residents, March 1, 2020 – March 31, 2021. Rhode Island COVID-19 Case Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 2.*

In 2021, testing behavior began to change. In January, self-tests became available. Many people taking self-tests at home did not report their results to RIDOH, which meant those results were left out of case data. Later, some state-supported testing sites closed, making testing options less accessible. Around this time, testing burnout was also increasing. As a result, tracking positive tests (cases) became even more difficult. Throughout 2021, case data became increasingly incomplete and less reflective of the true number of COVID-19 cases in communities. For this reason, this brief includes limited case data past March 2021.

Tier 1 communities had the highest COVID-19 hospitalization rates

Hospital admission data reflect COVID-19 severity. People experiencing severe symptoms when sick may need to visit a hospital to get medical care and treatment they cannot get at home. Between March 2020 and December 2021, COVID-19 hospitalization rates for people living in Tier 1 were more than double that of those living in Tier 3 (1,574.4 per 100,000 people versus 537 per 100,000 people), with rates for people living in Tier 2 falling between (904.2 per 100,000 people) (Figure 5). This means that for every 10 people hospitalized in Tier 3, 29 people were hospitalized in Tier 1 (Figure 5).

Higher case rates naturally lead to more hospitalizations. Since Tier 1 had a higher case rate, a higher hospitalization rate would be expected to follow. Still, hospitalization rates in Tier 1 were higher than expected. In addition to more reported cases, a higher percentage of cases in Tier 1 were hospitalized, despite its younger population (6.2% of cases hospitalized in Tier 1 to 2.9% for Tier 3).

Tier 1 had almost 3 times the hospitalization rate of Tier 3

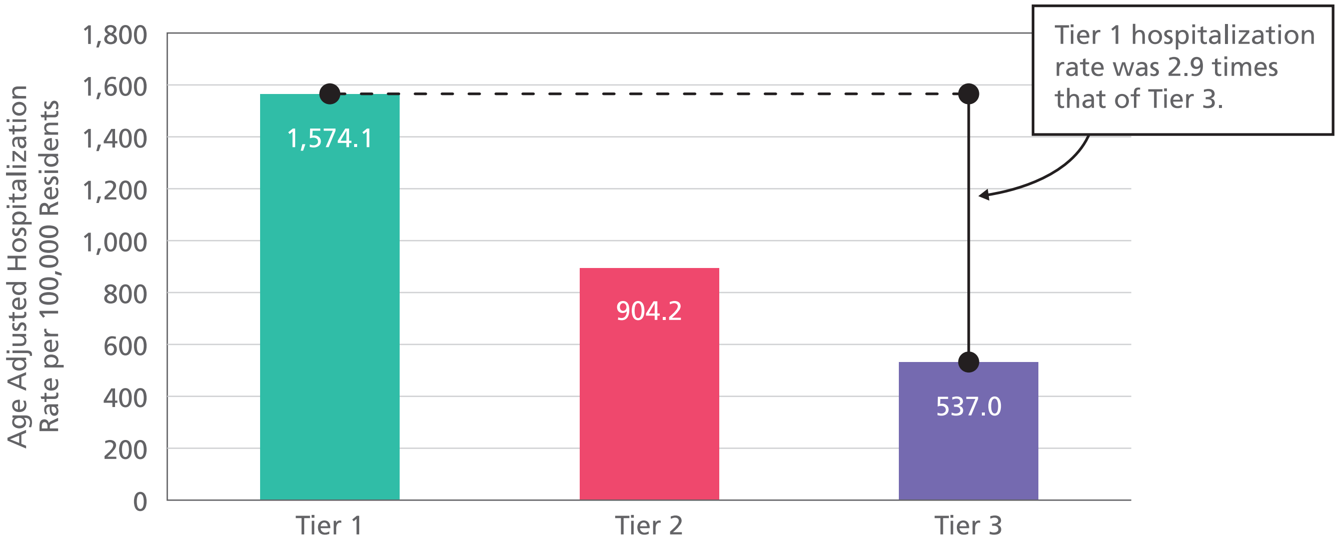


Figure 5: *Age-adjusted hospitalization rates by tier per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 3.*

For every 10 people hospitalized in Tier 3, 29 people were hospitalized in Tier 1

Figure 6: *Age-adjusted hospitalization rate ratios per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 3.*

Looking at hospitalization rates by age group, instead of comparing overall rates, helps compare communities that have different amounts of people in each age range (i.e., areas with more younger people versus those with more older people). Nationally, people aged 65 and older had the highest COVID-19 hospitalization rates compared to younger age groups.[6] People in Tier 1 were more likely to be hospitalized than those of the same age in Tiers 1 and 3 (Figure 7). Additionally, the hospitalization rate for younger age groups in Tier 1 was higher than that of older age groups in Tier 3. People ages 18 to 44 in Tier 1 were more likely to be hospitalized than those 55 to 64 in Tier 3. Those ages 45 to 54 in Tier 1 were hospitalized at a higher rate than those 65 to 74 in Tier 3.

Younger people in Tier 1 were hospitalized at higher rates than older people in Tier 3

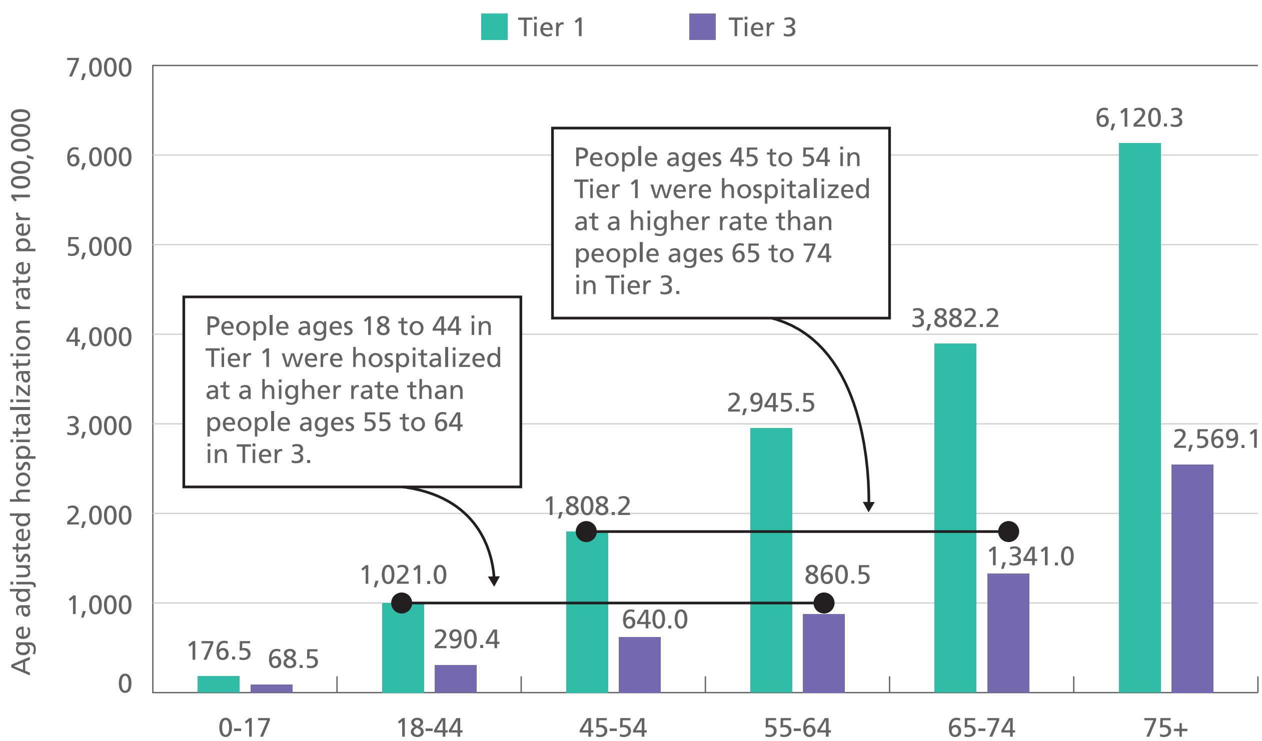


Figure 7: *Hospitalization rates by age and tier per 100,000 Rhode Island residents, March 1, 2020- December 31, 2021. Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 4.*

As with case data, Tiers 1 and 2 consistently showed higher hospitalization rates over time compared to Tier 3 (Figure 8). The largest difference in hospitalization rates between tiers happened early in the pandemic when Tier 1 hospitalization rates were 10.4 times higher than those in Tier 3. Hospitalization rates increased for all three tiers during the second peak of 2020. Still, Tier 1 had a hospitalization rate 3.1 times that of Tier 3. In 2020 and 2021:

- Tier 1 had higher hospitalization rates than Tier 2.
- Tier 2 had higher hospitalization rates than Tier 3.
- Hospitalization rate differences between tiers increased during every peak.
- Hospitalization rate differences between tiers narrowed between peaks.

Hospitalization rate differences were greatest at the beginning of the pandemic

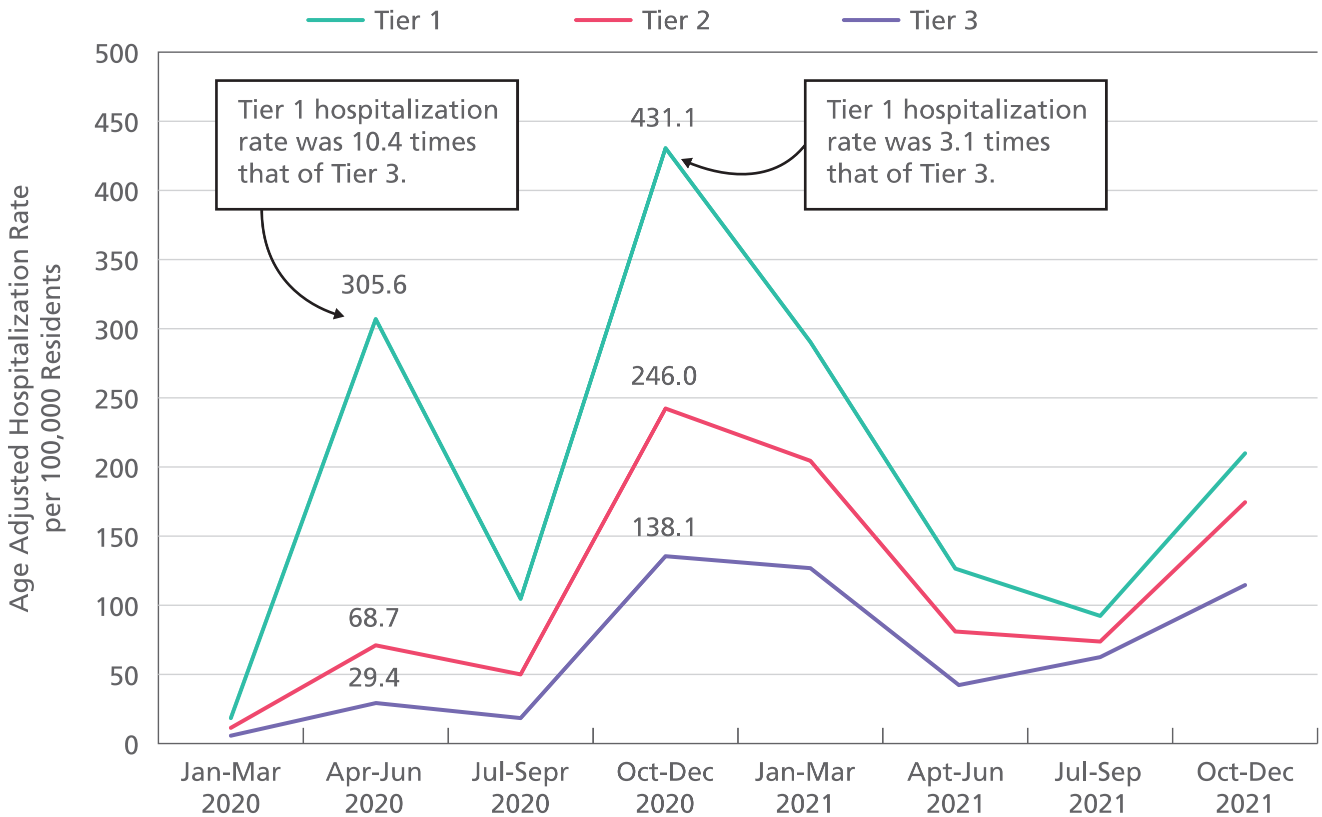


Figure 8: *Quarterly age-adjusted hospitalization rates by tier per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 5.*

The impact of higher hospitalizations in Tier 1 extends beyond the individuals hospitalized or the time of hospitalization. COVID-19 hospitalization is associated with an increased likelihood of physical Long COVID symptoms and a higher chance of dying within a year.[13,14] Nationally, being hospitalized is also linked to a higher mental health burden.[15]

Tier 1 communities had the highest COVID-19 death rates

In the US, COVID-19 was the third leading cause of death in 2020.[16] These deaths were mostly among people 65 and older.[17] As with cases and hospitalizations, death rates differed based on where people lived. Tier 1 residents had the highest COVID-19 death rates, and Tier 3 residents had the lowest death rates (Figure 9). This means that for every 10 Tier 3 residents who died, 28 Tier 1 residents died (Figure 10).

Differences in death rates between tiers were greatest at the start of the pandemic

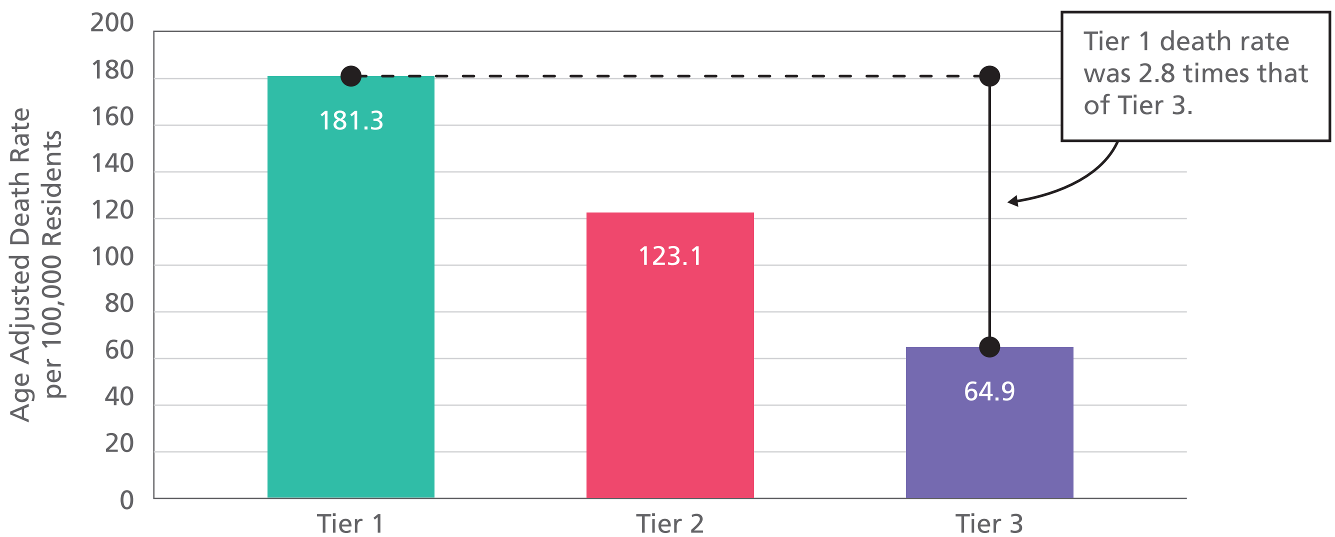


Figure 9: *Age-adjusted death rates by tier per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 6.*

For every 10 people who died in Tier 3, 28 people died in Tier 1

Figure 10: *Age-adjusted death rate ratios per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 6.*

Like with cases and hospitalizations, differences between death rates were largest earlier in the pandemic (Figure 11). In 2020, Tier 1 death rates were almost 4 times those of Tier 3 (96.1 versus 24.1). The gap in death rates between tiers narrowed in 2021 but remained. Tier 1 had a small decrease but continued to have the highest death rate overall. The death rate in Tiers 2 and 3 increased more than the death rate decreased in Tier 1. The Tier 1 decrease in death rate and Tiers 2 and 3 increase narrowed the difference between tiers. Still, in 2021, for every 10 people who died in Tier 3, twenty people died in Tier 1.

Differences in death rates between tiers were greatest at the start of the pandemic

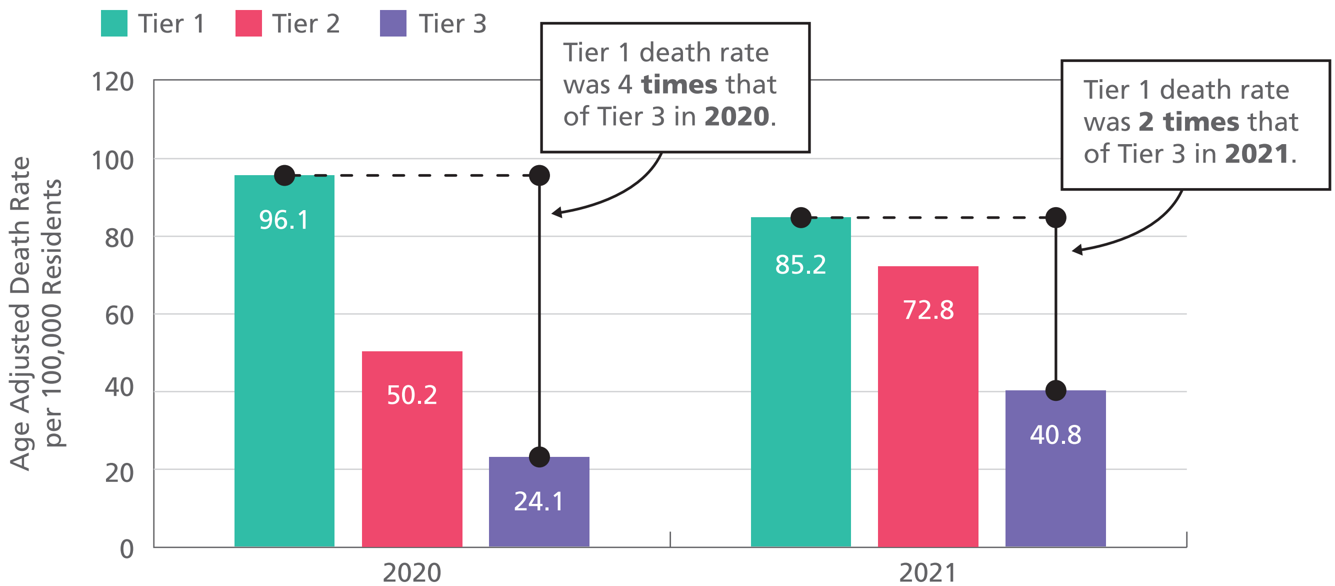


Figure 11: *Yearly age-adjusted death rates by tier per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021. Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1. Data in Appendix 3 Table 7.*

What do predictable and preventable COVID-19 differences mean?

Preventable health differences between tiers during COVID-19 were not a surprise. The places we live, work, and play shape our health. Communities in Tiers 1 and 2 consistently faced greater challenges, making it harder to meet basic needs and stay healthy, resulting in larger COVID-19 impacts. Tier 1 consistently had the highest case, hospitalization, and death rates. These communities are also home to many residents who identify as Black, Indigenous, Hispanic or Latino, and other People of Color and experience additional structural barriers such as financial hardship, crowded living conditions, and limited access to health insurance, internet, or transportation (Appendix 2). These factors increased exposure to COVID-19 and made access to prevention, identification, and treatment more difficult.

Rhode Islanders facing the greatest structural barriers were more likely to have worse COVID-19 outcomes. Tier 1 faced the most severe outcomes throughout the pandemic, while Tier 2 experienced less severe outcomes than Tier 1 but more than Tier 3. During periods of higher COVID-19 rates, Tiers 1 and 2 were most affected, and differences between tiers increased across case, hospitalization, and death rates. When COVID-19 rates lowered, the gap between tiers narrowed.

Differences between tiers extended beyond COVID-19 peaks. Throughout the pandemic, people in Tier 1 were more likely to have household members, neighbors, family, or friends severely impacted by or lost to COVID-19. Measuring the long-term impacts of COVID-19 is beyond the scope of this brief, but this also means that Tier 1 communities were experiencing more ongoing effects of missing workdays, losing family members, and the ongoing burden of living with Long COVID. The disproportionate impacts of COVID-19 in Tier 1 persist to this day.

Call to action: Shape emergency efforts with data and community collaboration

Accessing and analyzing community-level data can aid in understanding the needs of individual communities, down to the neighborhood level, leading to more customized preparedness. Consider community-level data like internet access, health insurance access, types of housing (public, single-family/multi-family, etc.), languages spoken, and ethnicity.

Effective place-based work requires community expertise and collaboration. People living and working in communities know their communities best. They can provide context and essential information that data cannot capture. Community members, leaders, and neighborhood-based organizations are most familiar with their community's strengths, needs, local resources, and social networks. Their expertise must be central to all community work, including preparing for and responding to emergencies.

Call to action: Continue to improve the root causes of health

COVID-19 tier data demonstrates how critical it is for all sectors (government, residents, non-profits, businesses, etc.) to address the root causes of health before and between emergencies. Living under unfair and unjust systems makes it harder to stay healthy. Health depends on community surroundings. Factors like housing density and type (public, multi/single family, etc.), air quality, and healthcare access all impact health.

Uneven burden during emergencies is both predictable and preventable. Those already experiencing more structural burdens have the most severe impacts during emergencies. The COVID-19 pandemic followed this pattern.

Improving health outcomes between and during emergencies requires working on root causes that lead to health differences. Rhode Island Health Equity Measures show some root causes that impact health. The HEZ initiative is a leading example of what working on root causes can look like. The HEZ 2021 Report, which corresponds to the timeline of this brief's data, details how each HEZ addressed barriers to health in communities. To learn more about Rhode Island's HEZs, please visit health.ri.gov/HEZ.

Prioritizing ongoing work addressing root causes of poor health outcomes is crucial to minimizing inequity during future emergencies.

Appendix 1: Data Notes

How does RIDOH define a COVID-19 case?

RIDOH defines a case as Rhode Island residents who test positive for COVID-19 using an antigen or PCR test. A case is only counted once for each person during a 90-day period. This data brief includes cases that RIDOH recorded from March 1, 2020, to December 31, 2021. Case counts in this brief leave out known congregate care residents. Congregate care residents are people living in congregate settings such as nursing homes, assisted living facilities, or group homes. The ZIP code a person lives in at the time of infection determines their tier. RIDOH uses a person's age at the time of infection.

How does RIDOH define a COVID-19 associated hospitalization?

A COVID-19 associated hospitalization is defined as any person with COVID-19 admitted to an acute care or psychiatric inpatient facility for at least one night. The hospitalization dataset includes residents admitted to an inpatient facility with a positive COVID-19 test, regardless of when the test was performed. The hospital admissions in the dataset counted an individual more than once if they were re-admitted during a single COVID-19 infection. This data brief includes hospital admissions from March 1, 2020, to December 31, 2021. This brief excludes hospital admissions among known congregate care residents. The ZIP code a person lives in at the time of infection determines their tier. RIDOH uses a person's age at the time of infection.

How does RIDOH define a COVID-19 associated death?

A COVID-19 associated death is reported when:

- An individual's death certificate lists COVID-19 as an underlying or contributing cause of death,
- An individual is hospitalized with COVID-19 as a primary or contributing cause of hospitalization and dies in the hospital, or
- A case investigation determines that COVID-19 was the cause of death or contributed to the death.

Deaths are reported to RIDOH by Vital Records and Rhode Island hospitals. COVID-19 death totals in this brief represent only Rhode Island residents. This data brief shows COVID-19 deaths between March 1, 2020, and December 31, 2021. This brief excludes deaths among known congregate care residents. Deaths used ZCTA at time of infection to determine tier instead of ZIP code. Age at time of death determined age group for age adjustment.

What is age adjusting?

Groups of people can vary in age, meaning there can be more older or younger people in one group compared to another. When comparing an outcome, like COVID-19 hospitalizations, which is more common among older people, age adjusting lets you see how different groups would compare if the people in them were all the same age. **The data in this brief is age-adjusted except in Figure 7**.

Small numbers:

Data for smaller groups are sometimes excluded or added to other groups. This kind of reporting may make it seem like groups are invisible or excluded. RIDOH's small number's policy is in place to protect individuals' privacy in reporting (N ≤ 5). When groups are small, changes in their data may look bigger or more severe than they are. RIDOH's small number's policy is in place to prevent making comparisons that are inaccurate or that could harm smaller populations (Relative Standard Error (RSE) 20-30% or RSE ≥ 30%).

Naming the tiers:

"Tiers 1 and 2" were originally referred to as "High Density Communities" but this naming has been retired since it over emphasized only one factor leading to higher COVID-19 impacts in these areas and downplayed the impact of systemic racism contributing to these outcomes.

Appendix 2: Demographic Characteristics Across Tiers

		Tier 1		Tier 2		Tier 3		Statewide	
		#	%	#	%	#	%	#	%
Population*		231,868	21.9	249,017	23.5	576,913	54.5	1,057,798	100
Land Area (square mile)		24.36		65.89		943.39		1,033.64	
Population Density (Population per Square Miles of Land)		9,518		3,779		612		1,023	
Religious Organizations		103		90		257		—	
Religious Organizations Density (per Square Miles of Land)		4.22		0.94		0.25		—	
Race/ Ethnicity	White (non-Hispanic)	74,488	32.1	175,109	70.3	506,111	87.7	755,708	71.4
	Black, Indigenous, Hispanic or Latino, and other People of Color	157,380	67.9	73,908	29.7	70,802	12.3	302,090	28.6
Median Household Income		$49,551		$69,146		$90,522		$74,008	
Age Group* (years)	0-17	56,088	24.2	45,668	18.3	104,688	18.0	205,444	19.4
	18-49	109,480	47.2	112,923	45.3	225,077	39.0	447,480	42.3
	50-64	109,480	16.9	49,545	19.9	133,589	23.2	222,388	21.0
	65+	27,046	11.7	40,881	16.4	114,559	19.9	182,486	17.3
Access to Vehicle (household)		74,592	84.1	94,083	90.3	220,274	94.2	402,839	91.5
Access Internet (household)		21,441	24.2	36,034	34.6	192,836	82.4	400,208	90.9
Limited English (household)		13,894	15.7	4,670	4.5	4,174	1.8	24,952	5.7
Own Residence		32,895	39.4	56,580	56.1	165,975	72.0	255,450	61.6
Multiple Units in Residence building		60,847	72.9	51,153	50.7	69,332	30.0	181,332	43.7
Access to Health Insurance		221,312	92.5	238,108	95.2	568,963	97.0	1,033,493	95.7

* Percents are out of the statewide total. They do not add up to 100% due to rounding to the nearest tenth of a percent.

Appendix 3: Data Tables for Figures 2 – 11 and Additional Data from RIDOH COVID-19 Dataset Referenced

Table 1: *Age-adjusted case rates per 100,000 Rhode Island residents and corresponding rate ratios compared to Tier 3, March 1, 2020–December 31, 2021.*

Tier	Cases	Case Rate	Cases Rate Ratios
Tier 1	59,246	25,307.3	1.4
Tier 2	50,187	20,658.1	1.1
Tier 3	98,477	18,222.4	1.0

Data Source: Rhode Island COVID-19 Case Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 2: *Quarterly age-adjusted case rates per 100,000 Rhode Island residents, March 1, 2020–December 31, 2021.*

Quarters	Tier 1		Tier 2		Tier 3	
January 2020-March 2020	97	41.3	111	40.6	201	31.4
April 2020-June 2020	6,670	2,827.2	2,175	852.3	2,101	344.3
July 2020-September 2020	3,296	1,397.6	1,423	585.9	2,046	374.3
October 2020-Decmeber 2020	17,286	7,365.8	14,194	5,620.9	24,456	4,289.6
January 2021-March 2021	10,127	4,317.3	9,878	3,984.0	22,044	4,028.5
April 2021-June 2021	3,916	1,678.7	3,397	1,454.6	6,197	1,216.0
July 2021-September 2021	4,449	1,909.1	4,864	2,065.7	9,537	1,802.3
October 2021-Decmeber 2021	13,405	5,770.2	14,145	6,054.2	31,895	6,136.2

Data Source: Rhode Island COVID-19 Case Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 3: *Age-adjusted hospitalization rates per 100,000 Rhode Island residents and corresponding rate ratios compared to Tier 3, March 1, 2020 – December 31, 2021.*

Tier	Hospitalizations	Hospitalization Rate	Hospitalization Rate Ratio
Tier 1	3,626	1,574.1	2.9
Tier 2	2,676	904.2	1.7
Tier 3	4,044	537.0	1.0

Data Source: Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 4: *Hospitalization rates by age group per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021.*

	Tier 1		Tier 2		Tier 3	
Age Group	**Hospitalizations**	**Rate**	**Hospitalizations**	**Rate**	**Hospitalizations**	**Rate**
0-17	99	176.5	52	113.9	71	68.5
18-44	972	1,021.0	463	475.0	549	290.4
45-54	510	1,808.2	355	1,123.5	509	640.0
55-64	746	2,945.5	520	1,556.7	775	860.5
65-74	618	3,882.2	566	2,562.3	877	1,341.0
75+	681	6,120.3	720	3,831.6	1,263	2,569.1

Data Source: Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 5: *Quarterly age-adjusted hospitalization rates per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021.*

	Tier 1		Tier 2		Tier 3	
Month	**Hospitalizations**	**Rate**	**Hospitalizations**	**Rate**	**Hospitalizations**	**Rate**
Jan 2020-Mar 2020	37	16.1	32	10.6	39	5.2
Apr 2020-Jun 2020	712	305.6	203	68.7	219	29.4
Jul 2020-Sep 2020	228	97.7	131	45.6	144	19.9
Oct 2020-Dec 2020	975	431.1	740	246.0	1100	138.1
Jan 2021-Mar 2021	658	288.1	614	202.6	972	126.3
Apr 2021-Jun 2021	294	125.6	228	79.2	290	41.3
Jul 2021-Sep 2021	216	91.7	200	69.7	424	60.2
Oct 2021-Dec 2021	485	209.0	505	173.7	836	113.5

Data Source: Rhode Island COVID-19 Hospitalization Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 6: *Age-adjusted death rates per 100,000 Rhode Island residents and corresponding rate ratios compared to Tier 3, March 1, 2020 – December 31, 2021.*

Tier	Deaths	Death Rate	Death Rate Ratio
Tier 1	397	181.3	2.8
Tier 2	389	123.1	1.9
Tier 3	554	64.9	1.0

Data Source: Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 7: *Yearly age-adjusted death rates per 100,000 Rhode Island residents, March 1, 2020 – December 31, 2021.*

	Tier 1		Tier 2		Tier 3	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
2020	209	96.2	158	50.3	202	24.1
2021	188	85.2	231	72.8	352	40.8

Data Source: Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

Table 8: *Percent positivity by tier among Rhode Island residents, March 1, 2020 – December 31, 2021.*

Tier	Tests	Cases	Percent Positivity
Tier 1	929,230	59,246	6.4%
Tier 2	1,326,883	50,187	3.8%
Tier 3	3,040,172	98,477	3.2%

Data Source: Rhode Island COVID-19 Testing Dataset; Rhode Island COVID-19 Case Dataset. Case data as of April 30, 2024. Testing data as of September 27, 2024. Additional data notes in Appendix 1.

Table 9: *Case to hospitalization ratio and hospitalization to death ratio among Rhode Island residents, March 1, 2020 – December 31, 2021.*

Tier	Case to Hospitalization Ratio	Hospitalization to Death Ratio
Tier 1	6.2%	11.5%
Tier 2	4.4%	13.6%
Tier 3	2.9%	12.1%

Data Source: Rhode Island COVID-19 Case Dataset; Rhode Island COVID-19 Hospitalization Dataset; Rhode Island COVID-19 Death Dataset. Data as of April 30, 2024. Additional data notes in Appendix 1.

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Notes:

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