COVID-19: Racial and Geographic Disparities in Maine

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Part I. The Uneven Effects of COVID-19 in Maine

In this section, we explore the economic, health, and social impacts of COVID-19 for various populations and regions across Maine. A condensed, long-range view of the pandemic's inequalities in Maine supports evidence-based decision-making in a recovery period bound to be more intensive for some groups than others.

COVID-19 Cases & Deaths

Geographic Variation

As of October 15, 2021, Maine had recorded more than 97,000 cases of COVID-19. The trajectory of total cases (Figure 1) mirrors national patterns, with period of rapid case increases followed by lulls.[1] Specifically, fall 2020 triggered a massive spike in cases that flattened early in 2021. New cases accumulated steadily in early spring, then declined to a crawl in June and July, when Maine averaged fewer than 44 new cases a day. By August 2021, the daily average of new cases hit 174, and in the first half of October, had nearly tripled to 480.[2] In both total cumulative cases and cases per 100,000 population, Maine is not unusual among its Northern New England neighbors, faring better than New Hampshire but worse than Vermont.[3]

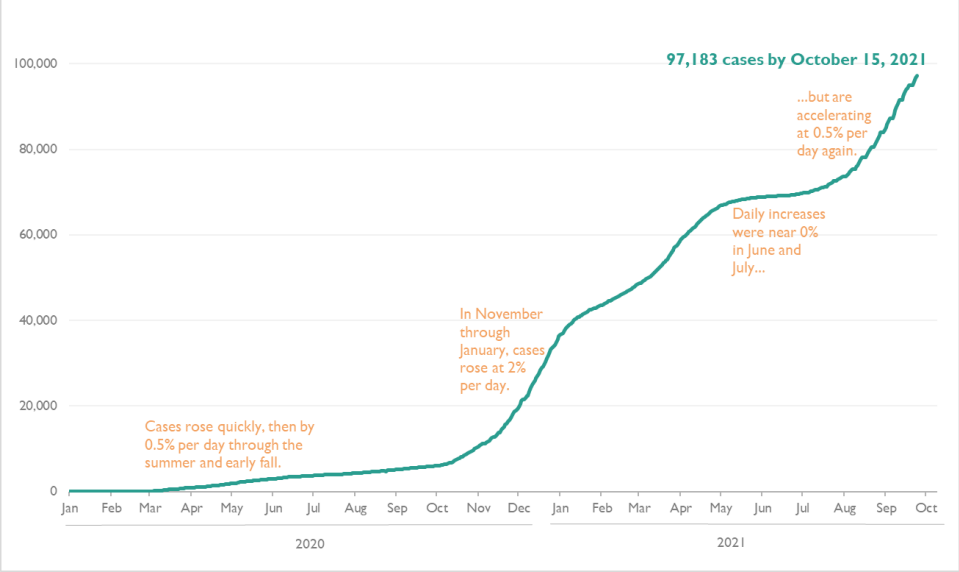
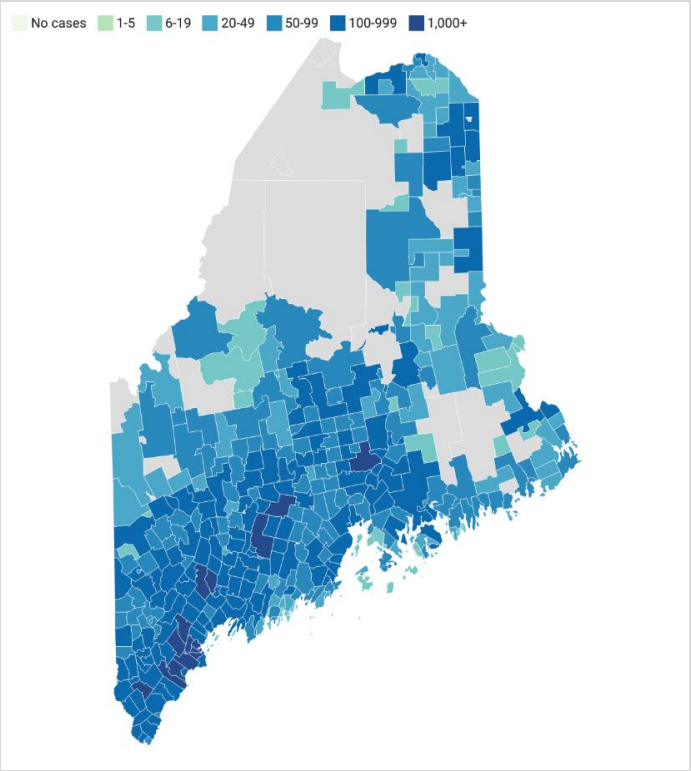


Figure 1. Cumulative COVID-19 Cases in Maine, January 2020 to October 2021

Source: Carsey School of Public Policy calculations using USA Facts data

Of course, COVID-19 cases are not randomly distributed across the state. Figure 2 shows cumulative cases in the zip codes for which data are available through Maine's Department of Health and Human Services. Cases have been especially high in the urban areas of the state's southern tier—where more people live—and zip codes in Bangor, Lewiston, and Portland have the three highest case counts statewide.

Figure 2. Cumulative COVID-19 Cases by Maine Zip Code



Source: Carsey School of Public Policy map using Maine CDC data
Note: Data present cases through October 17, 2021 and are not available for all zip codes (unavailable zip codes shown in grey).

It is unsurprising that places with more residents tend to have more cumulative COVID-19 cases. While this has been established at the county level,[4] this is also true at the zip code level in Maine. Figure 3 plots cumulative cases versus total population for each of Maine's zip codes with at least 10,000 residents,[5] showing a nearly perfect correlation between the two.[6]

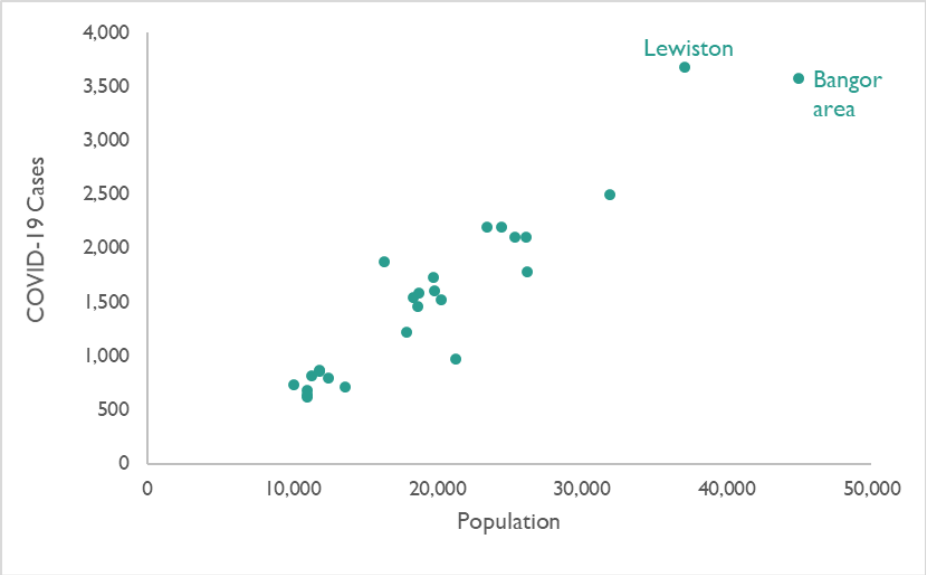


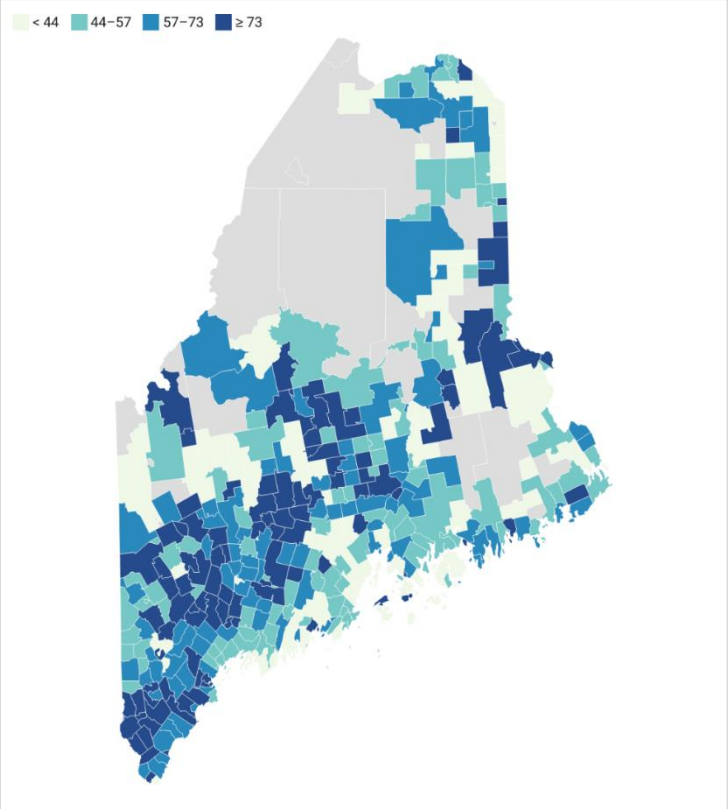
Figure 3. Cumulative COVID-19 Cases for Maine Zip Codes with At Least 10,000 Residents

Source: Maine CDC
Note: Data present cases through October 17, 2021 and are not available for all zip codes.

Both probability and COVID-19's highly transmissible nature, it is unsurprising that case counts are higher where populations are greater. However, understanding where cases are high

relative to population size reveals where communities are disproportionately burdened. Figure 4 estimates how zip code-level cases are distributed per 1,000 residents, to depict places that have especially high caseloads for their population size. Most of the larger urban communities identified in Figures 2 and 3 not only have high overall caseloads, but also high rates, with zip codes in Sanford, Portland, Westbrook, Biddeford, and Lewiston all reaching especially high levels. However, Figure 4 also shows a substantial smattering of high-caseload areas outside the Greater Portland Area and into the Rim Counties, including Washington and Aroostook. The highest rate, however, is in South Gardiner, a small zip code in Kennebec County with fewer than 100 estimated residents and at least 20 cases of COVID-19 documented.

Figure 4. Estimated COVID-19 Cases per 1,000 Residents, by Maine Zip Code



Source: Carsey School of Public Policy map using Maine CDC data
Note: Data present cases through October 17, 2021 and are not available for all zip codes. For 233 of the 396 zip codes with data, case counts were reported as ranges. For the cases-per-1,000-residents map (right) rates were calculating reported cases where available and using the median value of the reported range otherwise.

Finally, to illustrate the geographic contours of COVID-19 in Maine more completely, Figure 5 presents Maine's case fatality rates. These rates divide COVID-19-related deaths by all COVID-19 cases, approximating the percent of cases that result in death.[7] Because COVID-19-related deaths are only reported at the county level, Figure 6 presents caseload rates for each county (mapped earlier by zip code in Figure 4) for comparability. The maps identify some places that despite high relative caseloads, have experienced relatively low fatality rates, including York and Androscoggin Counties. By comparison, although Hancock County has experienced very low caseloads, fatalities there are among the highest. Meanwhile, Lincoln and Knox Counties have fared relatively well in both cases and fatalities. These disparities are driven at least in part by differences in community characteristics, described in more detail in a later section.

Figure 5. COVID-19 Case Fatality Rate by Maine County

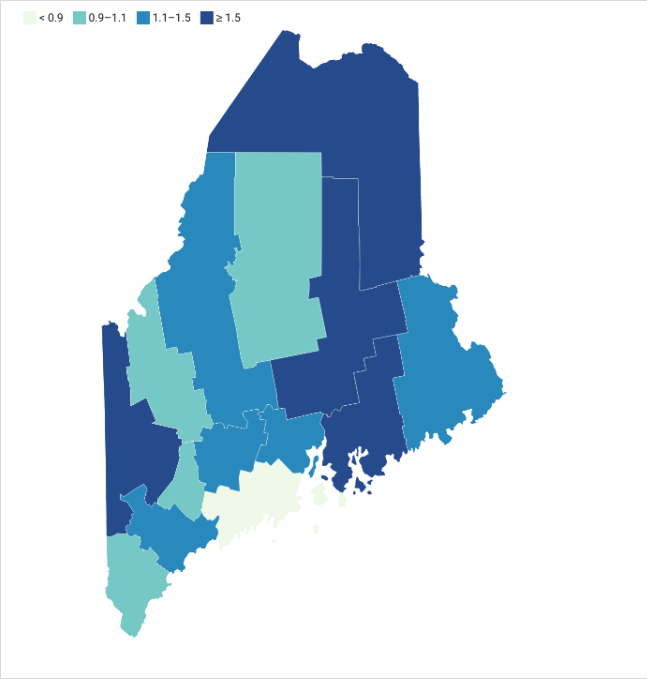
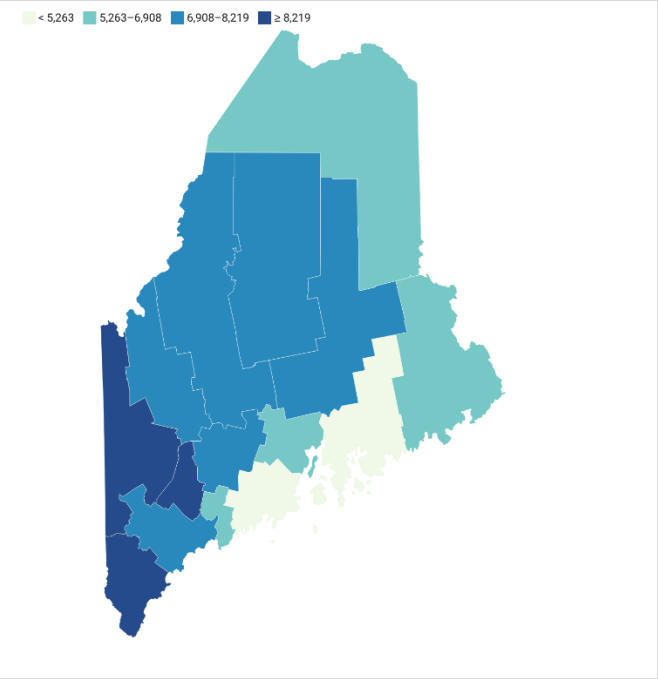


Figure 6. COVID-19 Cases per 100,000 Population by Maine County



Source: Carsey School of Public Policy map using USA Facts data
Note: Maps present cases through October 15, 2021.

Racial-Ethnic Disparities

Along with geographic disparities in COVID-19, the pandemic has also wrought disproportionate disease burden for Mainers of color. Caseload data show that Mainers of color are more likely to contract COVID-19 than their white counterparts. Figure 7 reveals essentially two groupings of rates across Maine populations: first, multiracial, Native, Asian, Hispanic, and white Mainers all have rates of infection lower than the statewide mean at the time of 7,511 cases per 100,000 population. In the second group, Mainers who identify as Black, as an "other race," and as Native Hawaiian/Pacific Islander all have rates that exceed statewide averages many times over. Native Hawaiian/Pacific Islander Mainers have contracted COVID-19 at nearly four times the statewide rate, or more than 27,400 cases per 100,000 population. This equates to nearly one in three Mainers in this racial group having contracted COVID-19 by mid-October 2021, compared with about one in 14 who are white. (Note that this count only includes cases known to the State CDC).

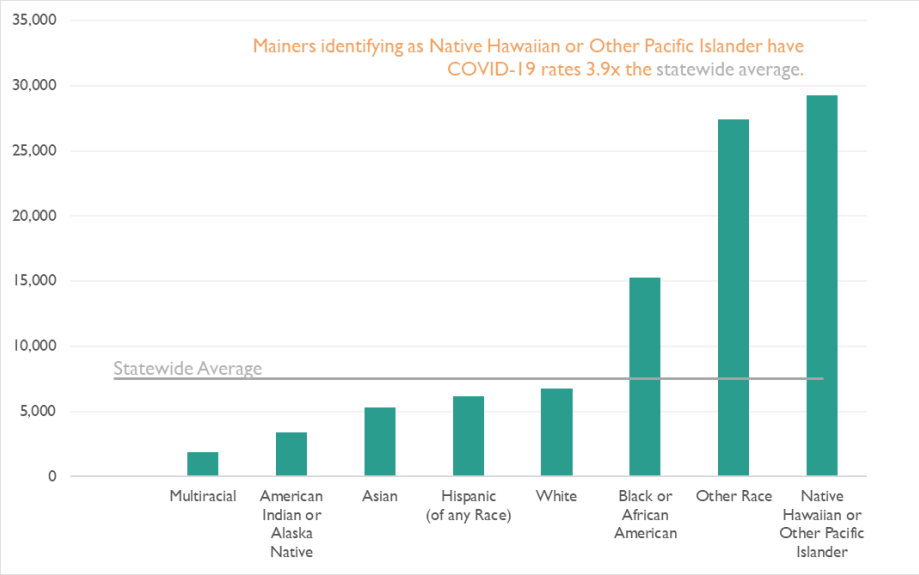
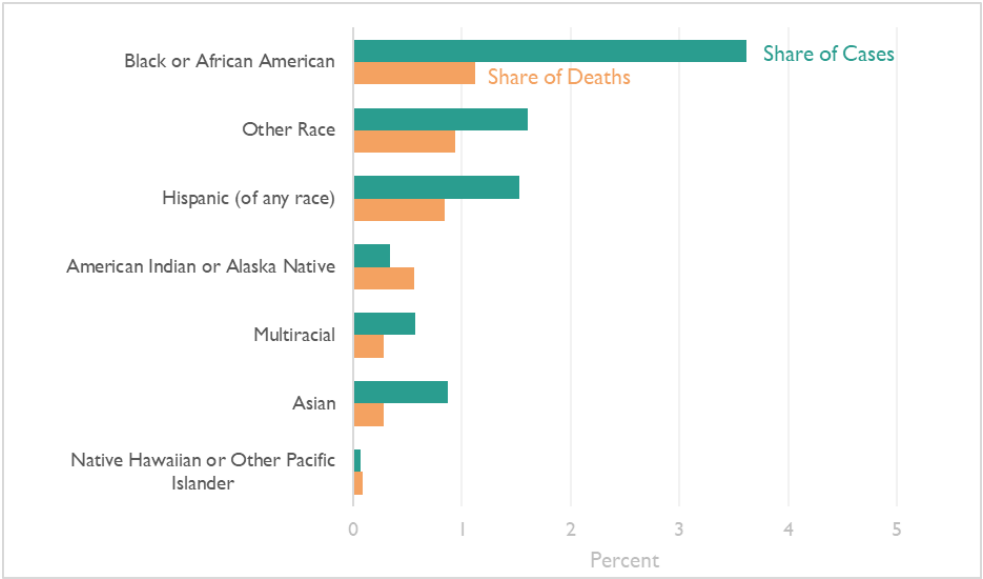


Figure 7. COVID-19 Cases per 100,000 Population in Maine, by Race and Ethnicity

Source: Maine CDC; U.S. Census Bureau ACS (2019 1-year estimates)
Note: Data present cases through October 24.

In addition to disproportionate caseload burden, there are important disparities in COVID-19 fatality by race-ethnicity in Maine. Specifically, case fatality rates are near or below 1 percent for all racial-ethnic groups except for American Indian or Alaska Native and Native Hawaiian/Pacific Islander Mainers, for whom case fatality reaches 1.5 percent and 2 percent, respectively.[8] This disparity is further illustrated in Figure 8, which shows the share of Maine's cases and deaths allocated by patients' race-ethnicity; note that both American Indian and Alaska Native residents and Native Hawaiian/Pacific Islander residents are the only groups in the figure for whom the share of deaths outstrips their share of cases.

Figure 8. Shares of All Maine COVID-19 Cases and Deaths by Patients' Race-Ethnicity



Source: Carsey School of Public Policy calculations using Maine CDC data.
Note: White rates are omitted from the figure to preserve scale but share of deaths also exceeds share of cases in this group (share of cases is 91.4 percent, while share of deaths is 95.8 percent). Note that reference periods differ slightly for cases and deaths, due to data availability. Data on cases are through October 24, 2021, while data on deaths are as of 7 days earlier.

COVID-19's Socioeconomic Effects

The pandemic has altered Maine's labor force in complex and uneven ways. Between March and April 2020, nearly 44,000 Mainers exited the labor force. In some cases, already-unemployed workers stopped looking for work, while others faced health concerns or caregiving responsibilities that rendered them unavailable to work. While the labor force partially recovered in summer of 2020, seasonally adjusted data from the Maine Department of Labor show that as of September 2021, the statewide labor force is still down nearly 20,000 people from the pre-pandemic period (February 2020).[9] Similar patterns of gains and losses are evident in the unadjusted labor force counts for each of Maine's counties; however seasonally adjusted data that would allow for consistent comparisons of monthly change are not available at the county level.[10]

Among Mainers remaining in the labor force, the pandemic has triggered massive spikes in unemployment, as in virtually every other state nationwide.[11] None of Maine's counties avoided this spike, with eight counties seeing peak unemployment in April 2020, seven in May 2020, and one (Washington County) in June 2020 (Figure 9). Washington County's also saw substantially elevated unemployment claims through the winter of 2020 and 2021 and was the only county where claims increased by more than 25 percent between December 2020 and February 2021. While it is difficult to identify a driving factor, it is possible that Washington County's seasonal employment (e.g., blueberries, wreathmaking) provided jobs through fall before disappearing at the end of the year and driving unemployment back up. Although unemployment has fallen since, Washington County's August 2021 claims rate was still more than 1 percentage point higher than in the next-highest county.

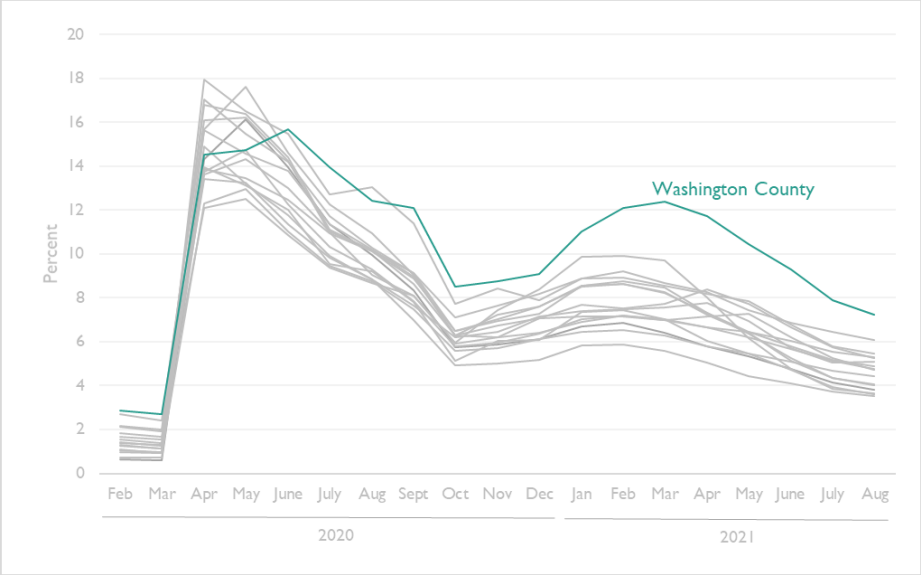


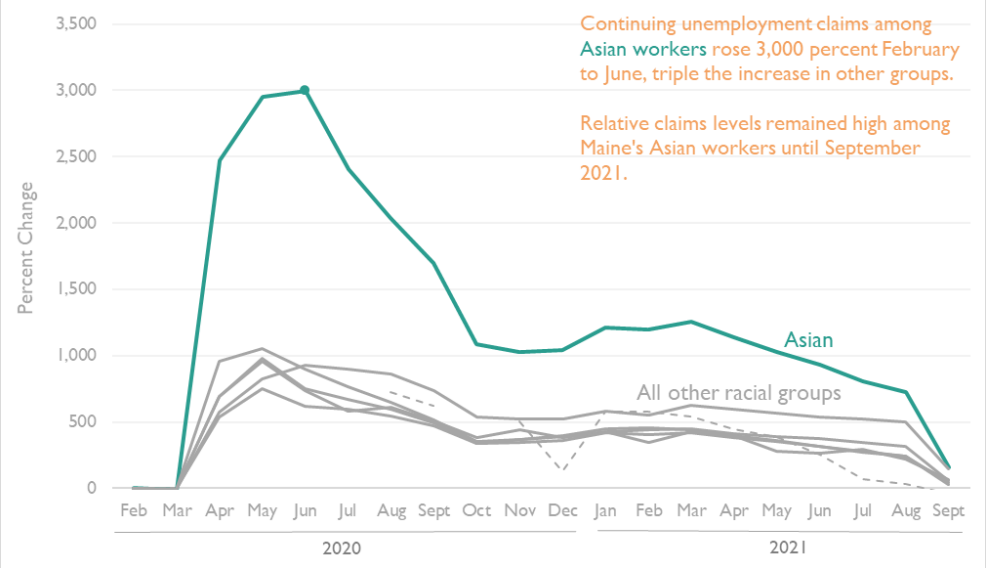
Figure 9. Continuing Unemployment Claims as Share of Labor Force, by Maine County

Source: Maine Department of Labor. Note: Includes claims filed through State Unemployment Insurance, Pandemic Unemployment Assistance, and Extended Benefits/Pandemic Emergency Unemployment Compensation (PEUC).

Finally, as shown in Figure 10, Maine has not been exempt from the racialized differences in job loss seen in other places. Unemployment claims among Maine's Asian workers far outstrip those in any other group, beginning in March 2020 and continuing through September 2021. This trend reflects patterns seen nationwide,[12] although to date, no clear explanation has been

put forth. It is possible that this is, at least in part, a function of the types of jobs that Asian workers disproportionately hold, like personal care and other services.[13] However, it is also possible that the wave of racism and discrimination that Asian Americans have faced in the pandemic plays a role.[14]

Figure 10. Relative Increase in Unemployment Claims by Race (February 2020 as baseline)



Source: Maine Department of Labor. Note: Dotted line indicates inconsistent availability of unemployment claims for workers of two or more races.

COVID Responses

COVID-19 Vaccination

As of October 25, 2021, 67.8 percent of Mainers of all ages have received their final dose of a COVID-19 vaccine (either a single final dose of Johnson & Johnson or two doses of Pfizer or Moderna vaccines).[15] Among Mainers ages 12 and above, 76.8 percent are fully vaccinated. Rates of vaccination vary by county, with higher rates of full vaccination in many of the southern counties (highest in Cumberland at 88 percent and Lincoln at 83 percent, see Figure 11). Although Piscataquis County has the lowest fully vaccinated rate, still more than three-in-five residents of all ages are fully vaccinated (63.7 percent).

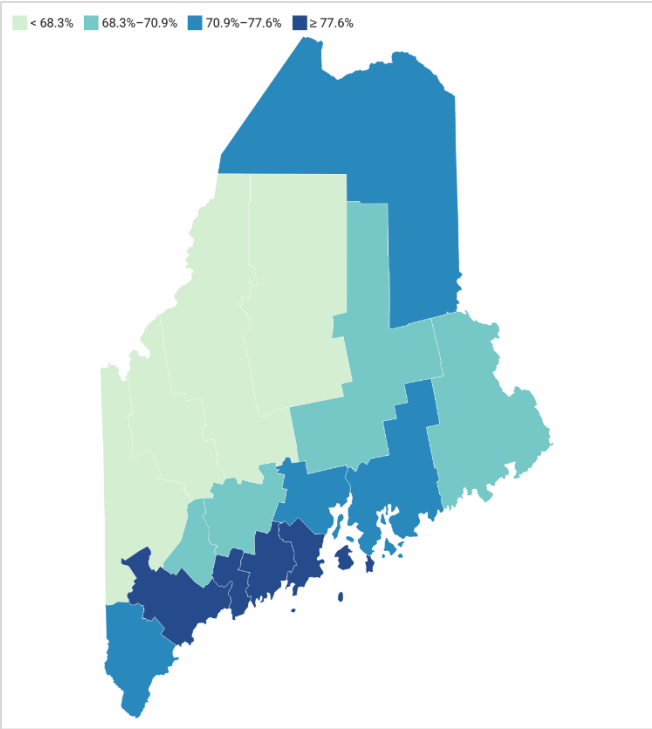


Figure 11. Rates of Fully Vaccinated Mainers of All Ages, by Maine County

Source: State of Maine COVID-19 Vaccination Dashboard, Maine CDC.
Note: Data are as of October 25, 2021 and include people of all ages who have received their final dose of a COVID-19 vaccine (either a single final dose of Johnson & Johnson or both doses of Pfizer or Moderna).

The State of Maine COVID-19 Vaccination Dashboard does include vaccination data by racial-ethnic category (Table 1), however the lack of detail on how these data were collected limits their useful interpretation. Principally, it is not possible to calculate shares of each racial-ethnic group vaccinated, because counts of vaccinated people by racial-ethnic group from the Dashboard do not align with population categories or counts from other sources, like the 2020 Decennial Census. For instance, the Dashboard's count of vaccinations administered to people identified as an "other race" is nearly 15 times as large as the Census's counted population in that group; vaccinations among Native Hawaiian/Pacific Islanders are also substantially high compared to their estimated population in Maine. Finally, because there is no multiracial category in the Dashboard, despite that the Census counts nearly 65,000 Mainers in this category. Such discrepancies might be explained by differences in question wording, or the types of racial-ethnic categories offered as response options, although it is unclear whether vaccinated persons reported their own race-ethnicity to the Maine CDC.

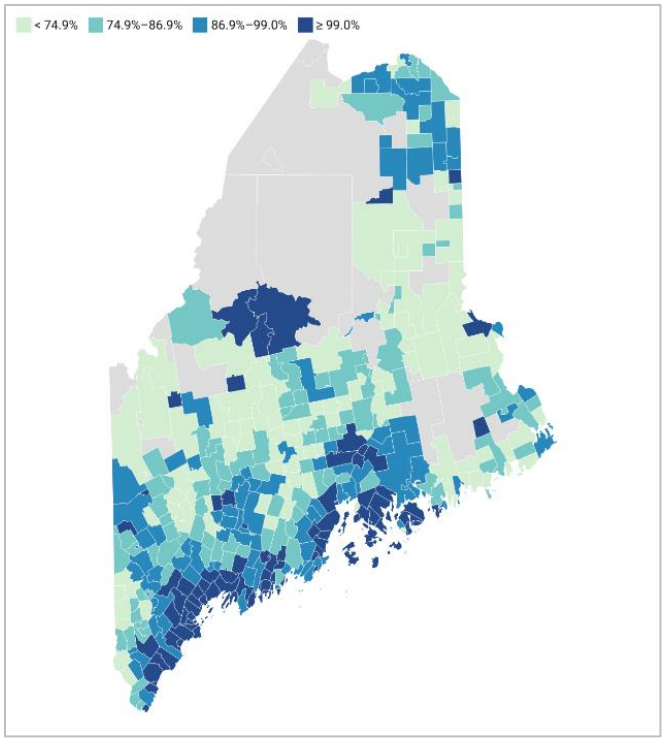
Table 1. Number of Vaccinated Mainers of All Ages, by Racial-Ethnic Category

Race/Ethnicity	Number Fully Vaccinated*	Total Population (2020 Decennial Census)
American Indian or Alaska Native	5,722	7,885
Asian	12,747	16,798
Black or African American	15,527	25,752
Hispanic (of any race)	14,607	26,609
Native Hawaiian or Other Pacific Islander	1,662	443
Other Race	144,273	9,730
White	676,296	1,237,041
Not provided	53,721	-

Source: State of Maine COVID-19 Vaccination Dashboard, Maine CDC. Data are as of October 25, 2021 and include people of all ages.
Note: Racial and ethnic categories are presented here as reported on the State of Maine COVID-19 Vaccination Dashboard. Exact data collection methods were not described. As the racial-ethnic categories reported do not align with standard Census Bureau categories and data collection methods were not provided, no direct comparisons to the total population estimates of each group could be made (for instance, authors could not note the percentage of any group that is vaccinated). While the state of Maine also presents data on the number of people who have had a "first dose" those data are not reported in an intuitive format. Those who have had a first dose include those who have received one dose of either a Pfizer or Moderna COVID-19 vaccine, but those who have *only* had one dose are not parsed out separately. The number "fully vaccinated" refers to those who have received either the one required dose of the Johnson & Johnson COVID-19 vaccine or two doses of Pfizer or Moderna vaccines. The degree of overlap between the two groups is not clearly delineated, and people who are fully vaccinated with Pfizer or Moderna vaccines look likely to appear in both counts. To avoid confusion, we have omitted the "first dose" data from this table.

Vaccination rates are also available by zip code as of October 18, displayed in Figure 12 (these data are released less frequently than the county- and state-level vaccination data). Note that here, vaccination rates are the share of residents of all ages who have received ***at least*** one dose of a COVID-19 vaccine (at least one dose of Pfizer or Moderna or a single, final dose of Johnson & Johnson). There are only three zip codes where less than half of all residents have received at least one dose of a vaccine—Kingman in Penobscot (40.5 percent), Cranberry Isles in Hancock (46.3 percent), Topsfield in Washington (46.3 percent). Three fourths of Maine zip codes with available data report that at least 75 percent of their residents of all ages have received at least one vaccine dose (298 of 396 zip codes). Further, 27 percent of zip codes report that 99 percent or more received at least one dose (108 of 396 zip codes). The highest rate of those with at least one dose is in the town of Belfast in Waldo County at 99.2 percent.

Figure 12. Share of Mainers of All Ages with At Least One COVID-19 Vaccine Dose, by Maine Zip Code



Source: State of Maine COVID-19 Vaccination Dashboard, Maine CDC.
Note: Data are as of October 18, 2021 and include people of all ages who have received at least one dose of a COVID-19 vaccine (at least one dose of Pfizer or Moderna OR a single final dose of Johnson & Johnson). Data are not available for all zip codes.

Part II. Factors Underlying the Uneven Effects of COVID-19

COVID-19 has not spread randomly, in Maine or anywhere else. Instead, a slew of health, social, and environmental factors have shaped the distribution and spread of COVID-19 in communities. In the short-term, health-influencing factors and environmental conditions have shaped patterns of transmission, susceptibility to COVID-19 infection, and odds of serious illness. But in the longer term, health, environmental exposures, and capacity to buffer the physical and economic effects of the pandemic have been ingrained in communities by the entrenched and enduring nature of inequality and structural racism. Part II of this paper explores each of these issues in turn, first identifying factors that elevate the risk of being exposed to and becoming ill from COVID-19 in specific corners of the state or among specific populations. This is followed by a larger view of factors underlying these exposures, framed broadly as an exploration of the social determinants of health.

Factors Correlated with COVID-19 Infection & Fatalities

Age

For nearly two years, there has been a steady stream of scholarly work on correlates of COVID-19 infection and fatalities. Some of the most consistent findings include greater risk of mortality among older populations[16] and the role of certain pre-existing chronic health conditions as risk factors for infection and fatality.[17] Data show that caseloads are lower among older adults, but they more likely to experience severe symptoms and mortality once infected.[18] This sharp age-and-caseload gradient persists in Maine, and counties with higher shares of residents age 70 or older have fewer cases per 100,000 residents (Figure 13).

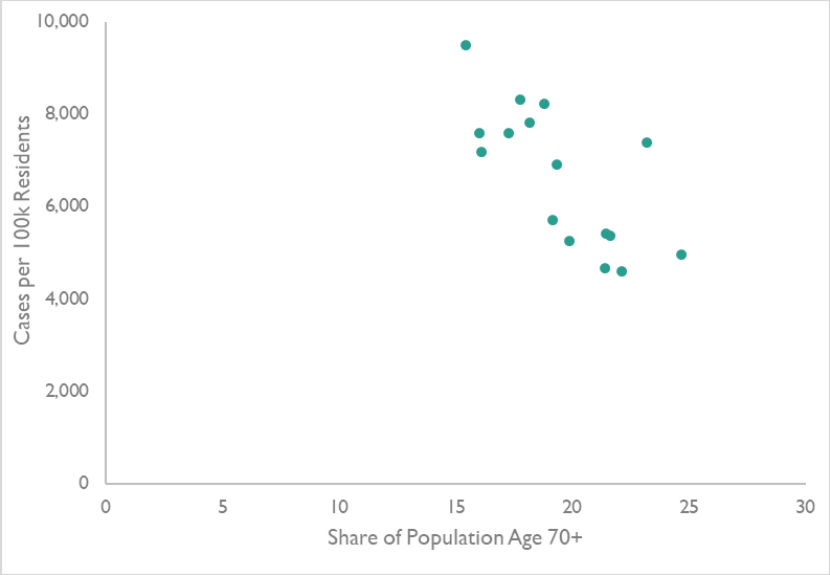


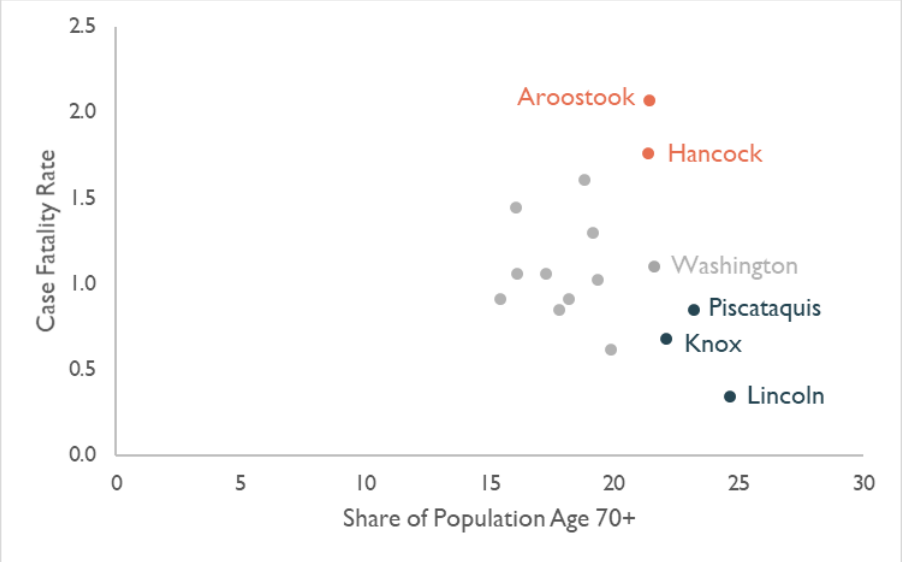
Figure 13. COVID-19 Cases per 100,000 Residents & Percent of Population Over Age 70 by Maine County

Source: Carsey School analysis of Maine CDC and ACS 2019 5-year estimates

Also mirroring national patterns, case fatality rates are generally higher in places with greater shares of older adults (Figure 14). However, in Maine, this comes with an important caveat: while younger counties have uniformly lower case fatality rates, there is substantial spread in

the fatality rates of older counties. In Maine's six counties where at least one-in-five residents are age 70 or older, Hancock and Aroostook have high fatality rates, Washington has near average, and Piscataquis, Knox, and Lincoln have low fatality rates. This variability indicates that while younger age may be protective, an older age structure isn't necessarily decisive and additional factors may buffer older communities from high COVID-related mortality. For instance, Knox and Lincoln Counties, despite being older, are higher-income Midcoast counties. Piscataquis, while more rural than the former two, attracts retirees, who may be better resourced than Mainers aging in place. These higher levels of resources may indicate residents who have access to better health care or greater capacity to shelter at or close to home.

Figure 14. Case Fatality Rates and Residents Over Age 70, by Maine County

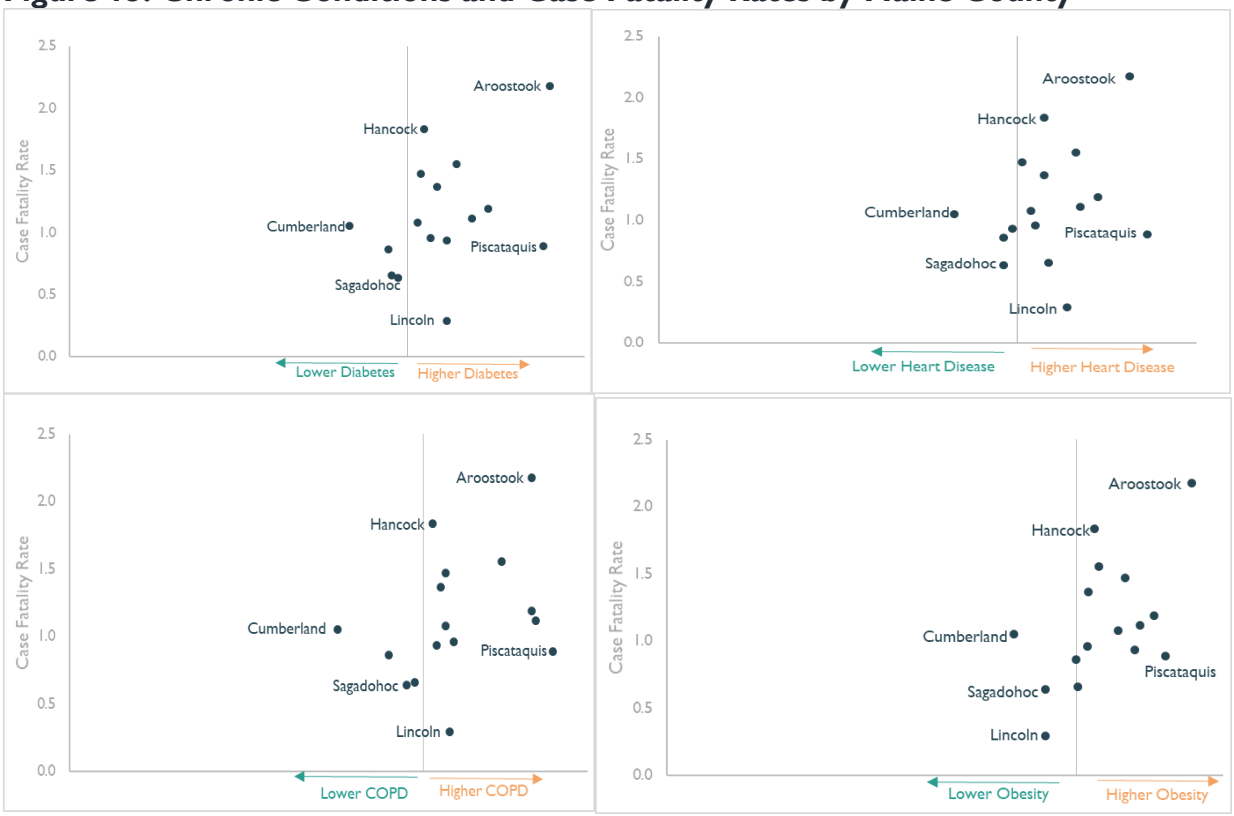


Source: Carsey School of Public Policy calculations using Maine CDC & American Community Survey, 2019 5-year estimates

Chronic Health Conditions

Because having certain chronic conditions predicts COVID-19 outcomes at the person level,[19] a substantial body of work has linked community prevalence of chronic conditions to community COVID outcomes.[20] For Maine, these associations hold true, and counties with higher levels of chronic conditions also tend to have higher case fatality rates. Figure 15 plots case fatality rates against county-level prevalence of diabetes, heart disease, chronic pulmonary obstructive disorder (COPD) and obesity—four conditions regularly linked to COVID in existing work.[21] In each of the figure's quadrants, a grey line divides counties with the lowest prevalence of chronic conditions from places with higher rates.

Figure 15. Chronic Conditions and Case Fatality Rates by Maine County



Source: Carsey School of Public Policy calculations using Maine CDC & U.S. CDC estimates in (Razzaghi et al. 2020). Note: Gray dividing lines placed at the Maine-specific 25th percentile.

Most generally, Figure 15 shows a general upward right drift of datapoints, indicating higher levels of fatalities in places where chronic conditions are more prevalent. Also important is the specific placement of counties: Cumberland and Sagadohoc Counties, which have low COVID-19 mortality, are healthier on each measure in the figure, while Hancock and Aroostook Counties record more chronic conditions and greater fatalities. A consistent exception to this pattern is Piscataquis County, which has high rates of chronic conditions, perhaps due to its greater share of older residents, and low fatalities. Its lower fatalities could relate to the share of those older residents who are aging at home, rather than in a shared facility, or to the buffering effects of wealth supplied by older adults entering Maine's only officially designated retirement destination county.[22]

Beyond geographic differences, chronic condition prevalence may also help to explain racial-ethnic differences in susceptibility to COVID-related infections and death among Maine's populations of color. For instance, research finds that hospitalized COVID patients are especially likely to have chronic kidney disease and diabetes compared to the general population,[23] two illnesses that the National Institutes of Health has identified as disproportionately prevalent among Black populations.[24] One important implication of the connection between chronic condition prevalence and community COVID caseloads is the risk that routine management of chronic conditions may have been under-attended by nervous patients and strained health care systems during the pandemic, further entrenching health

disparities along racial-ethnic lines. Data from the Census Bureau's Household Pulse Survey suggests that even more than a year into the pandemic,13 percent of Mainers had delayed getting medical care in the past four weeks due to the pandemic. Rates of delaying care are especially high among low-income residents (income below $35,000), at 31 percent.[25]

Socioecological Factors

Aside from age and chronic condition-linked risks that have direct influences on the likelihood of infection and death, additional socioecological factors have been identified as important in predicting community-level COVID risk. For instance, conditions that increase the frequency of close contact with others—including through population density, working conditions, or housing arrangements—or that produce generally hazardous environments—like poor air quality—have both been linked to infection and mortality rates.[26] Further, local social conditions that shape community capacity for adherence to public safety guidelines, for accessing appropriate health care, and for buffering health or economic shock may also be important.

For each Maine county, we examine a series of socioecological indicators as potential correlates of cases per 100,000 population and case fatality rates, as shown in Table 2. Importantly, while some of these sociological indicators were related to outcomes in earlier waves of the pandemic, by October 2021, few of these measures reliably relate to COVID-19 outcomes, indicating that disparities may be correlated with different measures over time.[27]

Table 2. Relationships Between Socioecological Factors & COVID Caseloads & Fatality in Maine Counties

	Cases per 100k Population	Case Fatality Rate
Physical Distancing		
Population Density	-	-
Percent of Housing Units that are Crowded	-	-
Percent Employed in Care Facilities	-	-
Social & Environmental		
Air Particulate Matter	-	-
Median Income	-	-
Percent of the Population Age 70+	↓	
Percent Poor	-	-
Percent Black	-	-
Health and Health Care		
Percent of Adults Obese	-	↑
Percent of Adults with Diabetes	-	-
Percent of Adults with Heart Disease	-	-
Population per Primary Care Provider	-	-
Percent Uninsured	-	-
Mean Distance to Hospital	-	-

Source: Carsey School analysis of Maine CDC, Census Bureau, W.E. Upjohn, County Health Rankings, and UNH Cooperative Extension data.
Note: Upward facing arrows indicate a statistically significant (p <0.05) positive linear correlation between measures; dashes indicate no correlation.

Exploring these measures jointly and in turn allows us to identify which of these predictors are most strongly associated with COVID caseloads and case fatality rates across counties. For

cases per 100,000, the single most predictive factor examined here is the share of residents over age 70. Counties with greater shares of these older adults have lower caseloads, and accounting for differences in the share of the population over age 70 explains half of the variation in caseloads between counties. This relationship persists even when accounting for other factors correlated with having high shares of older adults in Maine's counties (e.g., lower population density; lower shares of residents who are Black). It is possible instead that counties with larger shares of older adults made certain behavioral adjustments that other counties did not, resulting in fewer cases per 100,000 residents.

Regarding case fatality rates, having a higher share of adults who are obese predicts higher case fatality rates in Maine counties, although the relationship is not strong. Specifically, the combination of relatively high obesity and low case fatality in Piscataquis County is an exception to this pattern, weakening the overall measured relationship (see Figure 15). Accounting for some of the strongest correlates of obesity, like median household income, attenuate this relationship, although income is not a strong predictor of case fatality on its own either.

Importantly, although few socioecological measures emerged as strong predictors of COVID-19 caseloads and case fatality rates among Maine counties, it should be noted that this conclusion has not been static over time. Cumulative COVID-19 cases, deaths, caseloads per 100,000 population, and case fatality rates have been differentially associated with specific socioecological factors throughout the pandemic. For instance, population density was a strong predictor of cases per 100,000 population in Maine's counties throughout 2020. However, when data through October 2021 are included, the population density exhibits no relationship with caseloads, with the shift largely owing to caseloads growing more slowly in Cumberland County than in other places. This temporal variation illustrates the evolving nature of an enduring public health crisis, and the importance of data monitoring and response calibration in such a context.

Uneven Resources & Social Determinants of Health

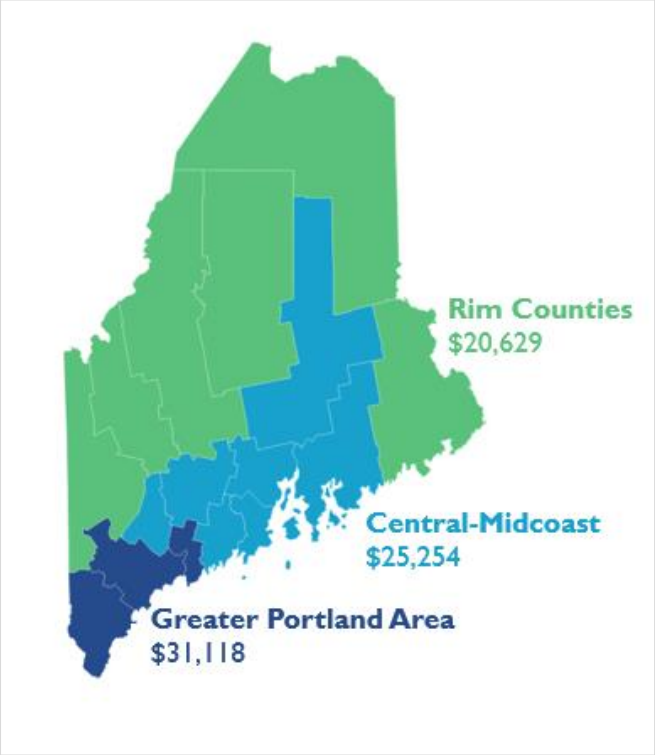
Mainers headed into the pandemic with differential access to supports and disparate levels of financial cushion. These differences shape, for example, who was able to work from home, weather a job loss, isolate safely, live in uncrowded space, and access timely medical advice. And while these elements may sound pandemic-specific, a long and deep evidence suggests that these factors help determine health in general. This section explores these broader social determinants of health within the state and by race and ethnicity, with an eye toward translating lessons learned beyond the pandemic.

Income & Savings

Although median personal income[28] is around $26,000 in Maine, there is considerable variation within the state. Using the state's "economic regions,"[29] Figure 16 shows median total personal income across the state. Median personal income in Maine's Rim Counties is just two-thirds of that in the Greater Portland Area, with income in the Central-Midcoast region falling in the middle. While resources are lowest in the more rural Rim Counties, it is also important to

consider how differences in cost of living and eligibility for statewide benefits may shift the resources available to residents in different parts of the state.

Figure 16. Median Total Personal Income by Economic Region, 2015-2019



Source: Carsey School of Public Policy calculations using American Community Survey, 2019 5-year Public Use Microdata Sample.

Median personal income among Maine adults is around $26,000 overall, but Figure 17 shows a stark set of disparities by race and ethnicity. Mainers identifying as white alone had the highest median personal income at $26,836. Although Hispanic Mainers (of any race) had the second-highest median personal income, at $19,322, that income is less than three-quarters that of white Mainers. At the bottom of the income distribution, Black and African American Mainers had median personal incomes at less than half of white levels, at $11,808. These especially low rates may relate at least in part to the fact that 27 percent of Maine's Black population is foreign-born and not a U.S. citizen, a group that consistently has lower median income than native-born counterparts.[30] Regardless, Figure 17 suggests that Mainers of color entered the pandemic with fewer personal income resources than their white counterparts.

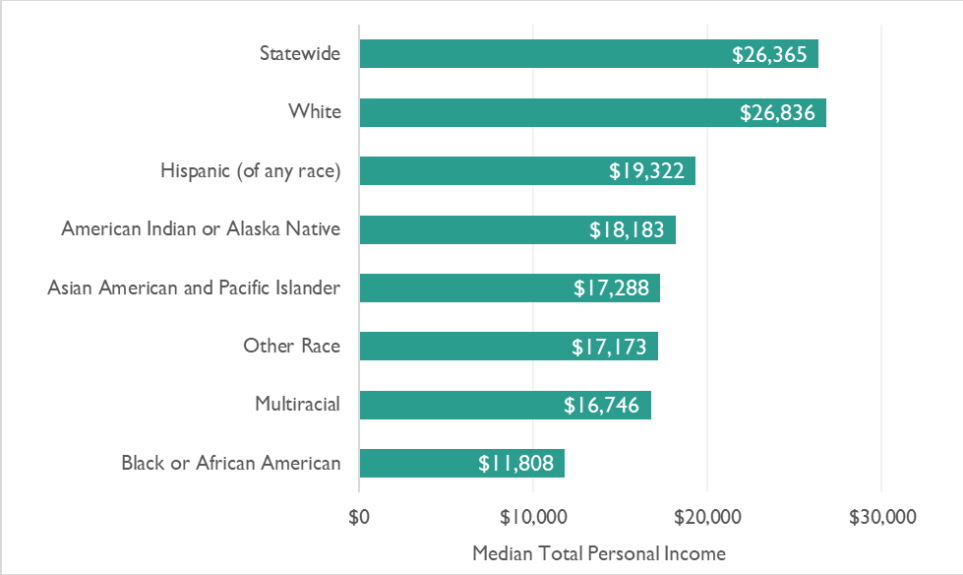


Figure 17. Median Personal Income by Race-Ethnicity in Maine

Source: Carsey School of Public Policy calculations using American Community Survey, 2019 5-year Public Use Microdata Sample.
Note: Adults 18 years and older. Past 12 months total personal income in 2019 dollars. Asian American and Pacific Islander includes those identifying as "Asian alone" or "Native Hawaiian and other Pacific Islander alone."

Table 3 provides additional details on median personal income in each economic region by race and ethnicity. While data are not available for all racial ethnic groups in each place, these estimates adhere to the statewide trend, with white Mainers having the highest median personal income and Mainers of color reporting significantly lower levels.

Table 3. Median Personal Income by Race and Ethnicity by Maine Economic Regions, 2015-2019

	Statewide	Rim Counties	Central-Midcoast	Greater Portland
All Adults	$26,365	$20,629	$25,254	$31,118
AAPI	$17,288	-	-	-
AIAN	$18,183	$12,274	-	-
Black	$11,808	-	$9,446	-
Hispanic	$19,322	-	$15,152	-
Multiracial	$16,746	$9,902	-	-
Other Race	$17,173	-	-	-
White	$26,836	$21,092	$25,655	$32,022

Source: Carsey School of Public Policy calculations using American Community Survey, 2019 5-year Public Use Microdata Sample.
Note: A hyphen (-) indicates insufficient sample size. Includes adults 18 years and older. Reported total personal income has been adjusted to constant dollars (inflation-adjusted to 2019 dollars). AAPI = Asian American and Pacific Islander. AIAN = American Indian & Alaska Native.

Beyond income, understanding levels of assets can provide important insight into individuals' capacity to weather a financial crisis like that wrought by the pandemic. Few data sources collect details on assets and even fewer have sufficient sample sizes for state-level analysis, particularly among communities of color. However, existing sources with national and regional data are used here to bolster the limited estimates available at the state level (sub-state detail was too imprecise to be included at all) and give a sense of general resources available to Mainers and to different racial ethnic groups.

In New England, 3.8 percent of households have no checking or savings account (see Figure 18), and in Maine, the rate was even lower at 2.4 percent (not shown). While racial-ethnic group analysis was not feasible for Maine, Figure 18 also shows differences by race-ethnicity across New England. The unbanked rate was the highest among households with a member identifying as Hispanic/Latinx, at 15.9 percent, and more than one-in-ten households with a Black household member are unbanked—more than double the rate among all New Englanders.

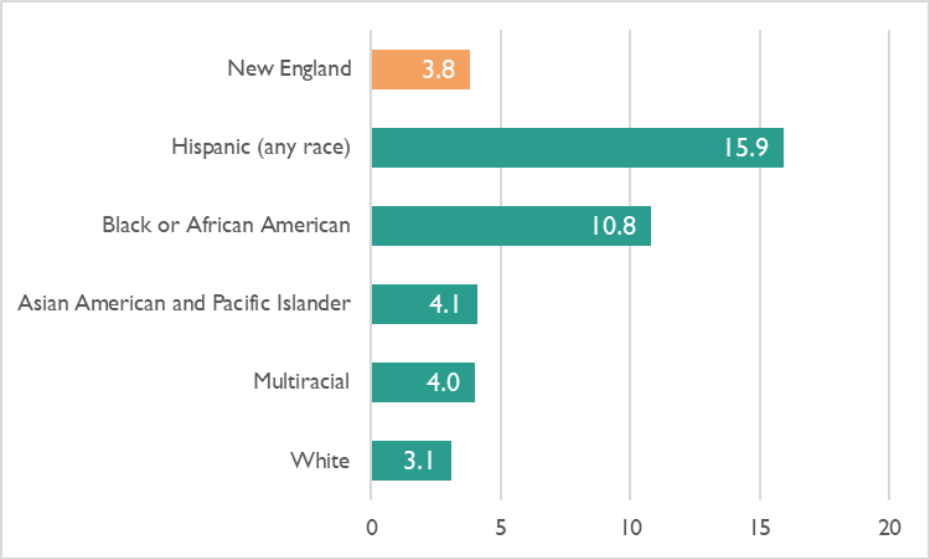


Figure 18. New England Households Without Checking or Savings Account by Race and Ethnicity (Percent)

Source: Carsey School of Public Policy calculations using Current Population Survey (CPS), Un(der)banked Supplement, 2015, 2017, and 2019[31]

Note: Estimates not available for American Indian or Alaska Native populations.

Households without checking and savings accounts are considered "unbanked" by the Federal Deposit Insurance Corporation (FDIC). While they may store and save money other ways, they do not have access to the types of benefits that accompany a bank account, like ease of tracking transactions, free check cashing, and institutional protection of assets.

Unbanked households may also have greater difficulty obtaining credit from mainstream sources. According to the Federal Reserve's 2019 Survey of Household Economics and Decisionmaking (SHED), 83 percent of U.S. adults had at least one credit card in 2019.[32] A higher share of white adults had a credit card (87 percent) while lower shares of Hispanic adults (75 percent) and Black adults (69 percent) did. Further, adults with lower family incomes and lower levels of educational attainment were less likely to have a credit card. Access to a credit card can be especially important for dealing with unexpected expenses. For instance, the 2019 SHED survey also showed that 63 percent of U.S. adults would be able to cover an unexpected $400 expense. However, among those without a credit card, only 27 percent anticipated they could cover an unexpected $400 expense. Adults who do not have a credit card were also less likely to report having a 3-month rainy day savings fund than adults overall (18 percent vs. 53 percent, respectively).[33]

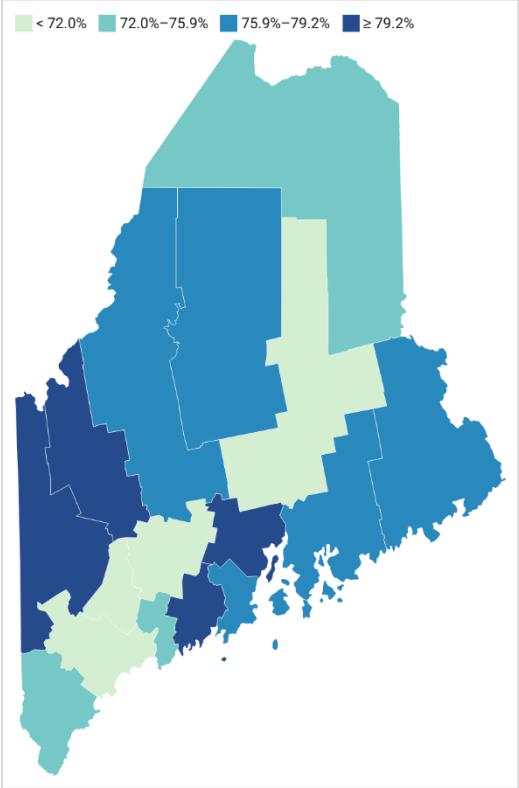
A second data source—the 2019 FDIC Survey of Household Use of Banking and Financial Services—provides additional Maine-specific asset details and finds that 72 percent of Maine households had saved for unexpected expenses or emergencies in the past 12 months.[34] This

considerable share with active savings behavior is higher than in the U.S. (64 percent) and all New England states except New Hampshire (73 percent). Unfortunately, no sub-state detail by race and ethnicity are available, but taken together, available data suggest that while Mainers may fare well on assets measures in general, Mainers of color are likely disproportionately underbanked.

Homeownership and Characteristics

Homeownership represents a considerable asset and, according to the U.S. Census Bureau, home equity is typically the largest component of individual net worth.[35] Nationwide, 64 percent of U.S. households own their home, with higher rates in New England (65.3 percent) and Maine (72.3 percent). Figure 19 shows variation in the rate of homeownership even within Maine, with the highest levels in Oxford County (80.8 percent) and lowest in Androscoggin County (64.3 percent). In the COVID-19 context, home ownership is important for several reasons, including as a potential source of liquidity for meeting short term expenses and as a private place to socially distance or isolate, often apart from other families.

Figure 19. Percent of Homeownership Among Households by Maine County, 2015-2019



Source: American Community Survey, 2019 5-year estimates

About two in three New Englanders live in single family homes, a pattern largely driven in part by high rates among white New Englanders (70.4 percent). By comparison, for Hispanic New Englanders and those identifying as an "other race," small apartment complexes are the most common housing type, and only one in three live in single family homes. And although 12.7 percent of New Englanders live in larger apartment complexes, shares are much higher among New Englanders of color. This type of indicator is especially important in the context of understanding COVID-19 transmissibility and safe access to outdoor recreation. However,

dense housing structures could also be leveraged as a resource in pandemic recovery, as community organizations plan to efficiently deliver supportive services, vaccinations, and other pandemic-specific assistance.

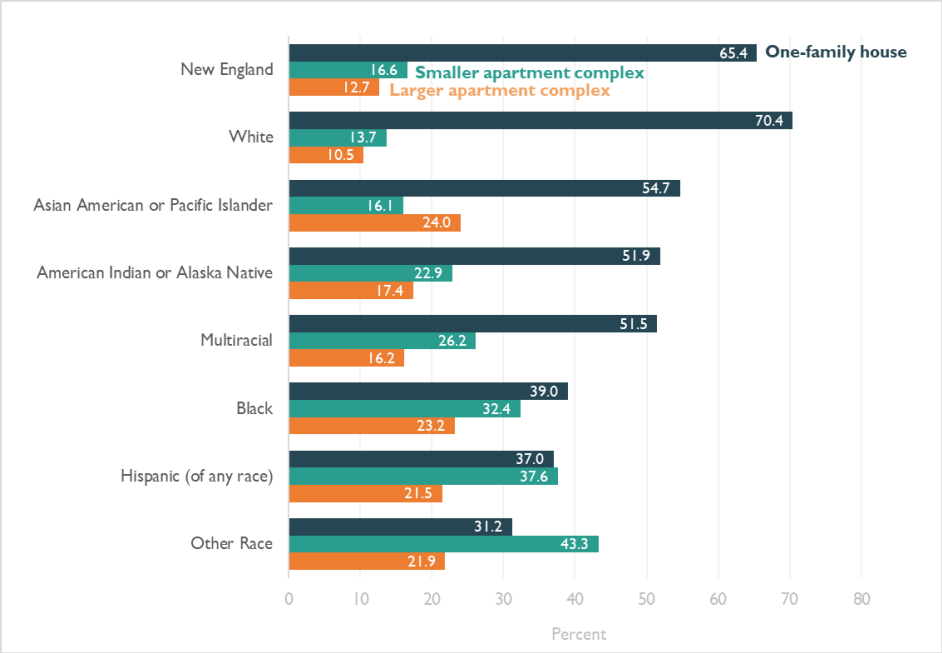


Figure 20. Type of Housing Unit by Race-Ethnicity in New England

Source: Carsey School of Public Policy calculations using American Community Survey, 2015-2019 5-year Public Use Microdata Sample[36]
Note: Estimates do not total 100% since less-common housing unit types (e.g., mobile home; boat) are excluded. One-family house can be attached or detached. Smaller apartment complexes have 2-4 units in the structure; larger complexes have 5 to 50+ units.

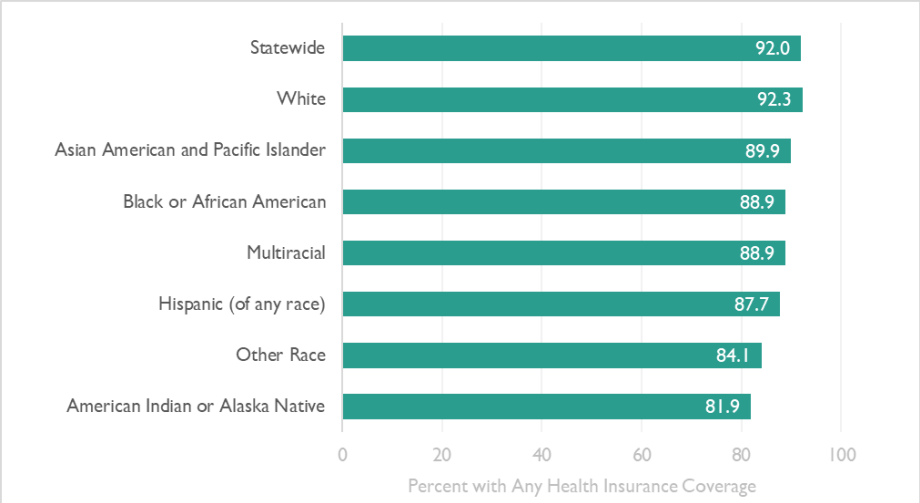
Health Insurance

In a pandemic, it is impossible to overlook health-specific resources, particularly health insurance. In addition to imminent health concerns of the pandemic, related labor market disruptions resulted in concurrent loss of employer-sponsored health insurance, with the Commonwealth Fund estimating 7.7 million workers having lost health insurance as of June 2020 (plus an additional 6.9 million dependents).[37] Worried about cost, uninsured Mainers suspecting COVID-19 infection may forgo care or wait until their symptoms become severe to seek medical care. This may have been especially true in the early days of the pandemic when symptom assessment tools and diagnostic tests were not widely available. Uninsured Mainers may also be wary of COVID-19 testing, especially again in early days when lower-cost options were unavailable. Even now, still 7 percent of unvaccinated adults in Northern New England cited being worried about cost as a reason for avoiding a COVID-19 vaccine.[38] Pre-pandemic data show that these cost fears are not unwarranted: 19 percent of all U.S. households, including those with health insurance, carried medical debt in 2017.[39] Medical debt is more prevalent among households with a Black or Hispanic householder too (27.9 percent and 21.7 percent, respectively), strengthening potential reasons to avoid health care systems and concentrating the risks already facing these populations in the pandemic.

Pre-pandemic, 8 percent of Mainers did not have any kind of health insurance, and early analysis accounting for job loss suggests this could be as high as 13 percent post-pandemic.[40] These

potential losses should be considered alongside pre-existing racial-ethnic gaps in health insurance coverage. For instance, eighteen percent of American Indian or Alaska Native Mainers already had no health insurance pre-pandemic (Figure 21).

Figure 21. Maine Health Insurance Coverage by Race-Ethnicity, 2015-2019



Source: Carsey School of Public Policy calculations using American Community Survey, 2019 5-year Public Use Microdata Sample.

Note: Any health insurance coverage includes public or private plans including insurance through an employer or union, insurance purchased directly from an insurance company, Medicare, Medicaid, Medical Assistance or any kind of government-assistance plan, TRICARE or other military health care, VA including VA health care, Indian Health Service, or any other type of health insurance or health coverage plan.

The share of Mainers with any health insurance ranges by a few percentage points across regions, with the highest coverage at 93.5 percent in the Greater Portland Metro Area (Figure 22). These differences might spawn from variation in residents' eligibility or offers of employer-sponsored health insurance, interactions between income and affordability of marketplace options, and eligibility for public options like Medicaid and Medicare. How place-based differences in employment characteristics may have altered Maine's health insurance landscape in the pandemic is especially important to track. A research commentary published on the New England Journal of Medicine website[41] suggests that economic disruptions have rendered many smaller businesses unable to cope with health insurance premiums for their employees in the medium term, a possibility that could trigger losses even for Mainers who are still employed.

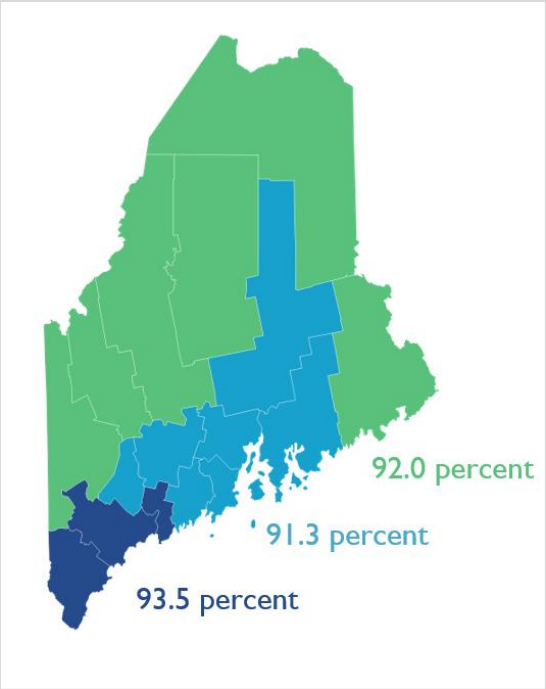


Figure 22. Percentage of Mainers with Any Health Insurance Coverage by Economic Region, 2015-2019

Source: Carsey School of Public Policy calculations using American Community Survey, 2019 5-year Public Use Microdata Sample

Conclusions

The COVID-19 pandemic and its uneven impacts have drawn national attention to enduring inequities between people and places. As local governments, philanthropic organizations, and other community-based organizations tailor their pandemic responses, understanding the contours of those inequities is especially important. Although data are not always available disaggregated by race-ethnicity or at more localized geographies, assembling multi-source datasets, as used here, can lend context and benchmarks to evidence-based decision-making. While not a substitute for direct community engagement or deep local knowledge, this overview of quantitative indicators aims to be a complement to other data sources, lived experiences, and ways of knowing.

Data on COVID-19 caseloads and fatalities in Maine reveal important differences by both geography and race-ethnicity. COVID-19 case counts are greatest in the state's more populated areas with the highest case counts in the Bangor, Lewiston, and Portland areas. Case rates that account for different population sizes are also elevated in these areas, some of Maine's less urban counties, including into Washington and Aroostook Counties, have also experienced high caseloads. Not only have infection rates varied, but so too have outcomes, and not all places with high case rates have experienced high COVID-19-related fatality (e.g., York and Androscoggin Counties). In other places, like Hancock County, fatality rates have been high, despite relatively low caseloads. Analysis of COVID-19 data disaggregated by available racial-ethnic groups finds that both Native Hawaiian/Pacific Islander and American Indian or Alaska Native Mainers stand out as having exceptionally high rates of COVID-19 infection and case fatality rates. Identifying how well these disparities have been addressed in the immediate term is difficult, and the state's methods for collecting and providing vaccination data would benefit

from additional detail, to ensure that the reach of lifesaving vaccines can be quantified and made equitable.

Many of Maine's places and people disproportionately affected by the COVID-19 infection have also been disproportionately encumbered by its economic impacts, including in job loss, and in many cases, these are the same groups who entered the pandemic already at a disadvantage. Research has consistently found that older populations and those with chronic conditions are at a greater risk of COVID-19 fatalities and we find that Maine is no exception. Pre-pandemic racial-ethnic disparities in economic resources—such as income, savings, access to a credit card, homeownership, and health insurance—are clear. Black or African American Mainers stood out as being especially economically under-resourced, with a median personal income at less than half of the statewide level. Across New England, Hispanic and Black adults are substantially less likely to have bank account and credit cards, and Maine adults of color have lower health insurance coverage rates than their white counterparts.

The COVID-19 pandemic has highlighted opportunities for targeted supports that can buffer Mainers from deleterious effects of a crisis. While the pandemic's effects have not been necessarily uniform across all Maine's counties or regions, the patterning in those disparities is less stark than the differences between racial-ethnic groups. Whether another pandemic, a natural disaster, the ongoing effects of climate change, or other emergency, all Mainers benefit from access to safe housing, nutritious food, clean air, reliable work, access to medical care, and flexible resources to deploy when facing unexpected loss. Both short- and long-term investments are needed to support Mainers' capacity to respond to emergency, particularly for people of color. For many, including those who have still not regained their health, employment, childcare, or housing, the pandemic is far from over. And for those regaining their footing, another emergency could easily wipe out any precarious gains. In both the pandemic and beyond, leveraging the resiliency of Mainers to build a more durable foundation for historically disadvantaged communities will be key.

About the Data

The Maine Center for Disease Control & Prevention's Division of Disease Surveillance is the main source for COVID-19 case and death data for this paper. These data are supplemented by historical data from USA Facts, which sources data from state and local public health agencies. from the state of Maine. USA Facts follows official CDC reporting guidelines by including presumptive COVID-19 cases in total confirmed case counts. The state of Maine records confirmed and presumptive cases separately; for comparability and ease of discussion, we follow CDC guidelines and treat as one set of cases, although probable cases make up one-quarter of all cumulative cases statewide.[42]

Data may be sourced from the state of Maine including the Maine CDC and the Maine Department of Labor, the Census Bureau's American Community Survey and Current Population Survey, the CDC's Social Vulnerability Index and Chronic Conditions files, the Robert Wood Johnson Foundation's County Health Rankings, the W.E. Upjohn Institute for Employment Research, UNH Cooperative Extension, the Bureau of Labor Statistics, the USDA Economic Research Service, USA Facts' COVID-19 data project, the COVID Racial Data

Tracker, the Current Population Survey (CPS) Un(der)banked Supplement, the FDIC Survey of Household Use of Banking and Financial Services, the Federal Reserve's Survey of Household Economics and Decisionmaking, and the Commonwealth Fund.

[1] Centers for Disease Control and Prevention. "COVID Data Tracker." https://covid.cdc.gov/covid-data-tracker/#trends_dailytrendscases

[2] Carsey School of Public Policy calculation using USA Facts data.

[3] As of October 15, 2021, Maine had 7,230 cases per 100,000 residents, compared with 99,428 in New Hampshire and 55,886 in Vermont. Carsey School of Public Policy calculation using USA Facts data.

[4] Aytur & Carson, forthcoming.

[5] We restrict to larger places because actual COVID-19 case counts are provided for these sites, whereas counts are inconsistently available for smaller places. As a result, it is not yet known whether this pattern holds among less populous places too.

[6] Zip code designations are subject to multiple influences, including population size and distance to mail processing facilities. These factors mean that the Bangor zip code doesn't only refer to Bangor, and that caution should be used when translating zip code level findings into more familiar geographic boundaries like towns or cities. For a high-quality, enlargeable zip code map, see http://www.aboutzipcode.com/statemaps/Maine-zip-code-map.png.

[7] Maine CDC defines a COVID-19-associated death as "a death resulting from an illness that is clinically compatible with COVID-19 that is confirmed by an appropriate laboratory test" and notes "it is not necessary that COVID-19 be the primary cause of death." See https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus/data.shtml. We consider this a proxy because determining both deaths and cases can be difficult to do with certainty, and practices for determination may vary by county.

[8] Carsey School of Public Policy calculation using Maine CDC data through October 24, 2021.

[9] See https://www.maine.gov/labor/cwri/laus.html for statewide seasonally adjusted rates.

[10] Ibid.

[11] For an overview of job loss and unemployment by state, see Carsey's monthly state-by-state jobs tracker at https://carsey.unh.edu/COVID-19-Economic-Impact-By-State.

[12] See, for example, https://www.marketwatch.com/story/a-pandemic-mystery-the-rise-in-asian-american-unemployment-11617128194

[13] Bureau of Labor Statistics, "Labor Force Statistics from the Current Population Survey," https://www.bls.gov/cps/cpsaat18.htm.

[14] https://www.pewresearch.org/fact-tank/2021/04/21/one-third-of-asian-americans-fear-threats-physical-attacks-and-most-say-violence-against-them-is-rising/ and https://www.cnn.com/2021/03/16/us/asian-americans-hate-incidents-report/index.html.

[15] State of Maine Office of the Governor, "COVID-19 Vaccination Dashboard," https://www.maine.gov/covid19/vaccines/dashboard

[16] Johnson, Kenneth M. 2020. *An Older Population Increases Estimated COVID-19 Death Rates in Rural America. National Issue Brief*. 147. University of New Hampshire Carsey School of Public Policy.

[17] Ssentongo, Paddy, Anna E. Ssentongo, Emily S. Heilbrunn, Djibril M. Ba, and Vernon M. Chinchilli. 2020. "Association of Cardiovascular Disease and 10 Other Pre-Existing Comorbidities with COVID-19 Mortality: A systematic Review and Meta-Analysis." *PLOS ONE* 15(8): e02382150.

[18] National data show that adults age 80 and above have not had the highest cases per 100,000 since the end of May 2020, when young adults age 18-24 outpaced their rates. See https://covid.cdc.gov/covid-data-tracker/#demographicsovertime.

[19]Adams, Mary L., David L. Katz, and Joseph Grandpre. 2020. "Population-Based Estimates of Chronic Conditions Affecting Risk for Complications from Coronavirus Disease, United States." *Emerging Infectious Diseases* 26(8):1831–33. doi: 10.3201/eid2608.200679; Clark, Andrew, Mark Jit, Charlotte Warren-Gash, Bruce Guthrie, Harry H. X. Wang, Stewart W. Mercer, Colin Sanderson, Martin McKee, Christopher Troeger, Kanyin L. Ong, Francesco Checchi, Pablo Perel, Sarah Joseph, Hamish P. Gibbs, Amitava Banerjee, and Rosalind M. Eggo. 2020. "Global, Regional, and National Estimates of the Population at Increased Risk of Severe COVID-19 Due to

Underlying Health Conditions in 2020: A Modelling Study." *Lancet Global Health* 8:1003–17. doi: https://doi.org/10.1016/ S2214-109X(20)30264-3; Chang, Man-Huei, Ramal Moonesinghe, and Benedict I. Truman. 2021. "COVID-19 Hospitalization by Race and Ethnicity: Association with Chronic Conditions Among Medicare Beneficiaries, January 1–September 30, 2020." *Journal of Racial and Ethnic Health Disparities*. doi: 10.1007/s40615-020-00960-y; Johnson, Kenneth M. 2020. *Health Conditions and an Older Population Increase COVID-19 Risks in Rural America*. *National Issue Brief*. 150. University of New Hampshire Carsey School of Public Policy.

[20] Adams et al. 2020; Amram, Ofer, Solmaz Amiri, Robert B. Lutz, Bhardwaj Rajan, and Pablo Monsivais. 2020. "Development of a Vulnerability Index for Diagnosis with the Novel Coronavirus, COVID-19, in Washington State, USA." *Health & Place* 64(102377):1–4. doi: 10.1016/j.healthplace.2020.102377; Clark et al. 2020; Paul, Rajib, Ahmed Arif, Kamana Pokhrel, and Subhanwita Ghosh. 2021. "The Association of Social Determinants of Health With COVID-19 Mortality in Rural and Urban Counties." *The Journal of Rural Health* 37(2):278–86. doi: 10.1111/jrh.12557.

[21]Razzaghi, Hilda, Yan Wang, Hua Lu, Katherine E. Marshall, Nicole F. Dowling, Gabriela Paz-Bailey, Evelyn R. Twentyman, Georgina Peacock, and Kurt J. Greenlund. 2020. "Estimated County-Level Prevalence of Selected Underlying Medical Conditions Associated with Increased Risk for Severe COVID-19 Illness — United States, 2018." *MMWR. Morbidity and Mortality Weekly Report* 69(29):945–50. doi: 10.15585/mmwr.mm6929a.

[22] U.S. Department of Agriculture, Economic Research Service, "County Typology Codes." https://www.ers.usda.gov/data-products/county-typology-codes/.

[23] Chang, Man-Huei, Ramal Moonesinghe, and Benedict I. Truman. 2021. "COVID-19 Hospitalization by Race and Ethnicity: Association with Chronic Conditions Among Medicare Beneficiaries, January 1–September 30, 2020." *Journal of Racial and Ethnic Health Disparities*. doi: 10.1007/s40615-020-00960-y.

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[25] Carsey School of Public Policy analysis of Census Bureau Household Pulse Survey, Week 29, Detailed Tables.

[26] Cao, Yang, Ayako Hiyoshi, and Scott Montgomery. 2020. "COVID-19 Case-Fatality Rate and Demographic and Socioeconomic Influencers: Worldwide Spatial Regression Analysis Based on Country-Level Data." *BMJ Open* 10(11)Le043560; Mendez, DeCastro, Andrea, Milagro Escobar, Maria Romero, and Janet M. Wojcicki. 2021. "Overcrowding and Exposure to Secondhand Smoke Increase Risk for COVID-19 Infection Among Latinx Families in the Greater San Francisco Bay Area." *Tobacco Induced Disease* 19(79); Rader, Benjamin et al. 2020. "Crowding and the Shape of COVID-19 Epidemics." *Nature Medicine* 26(12):1829-1834.

[27] See Aytur and Carson, forthcoming.

[28] Personal income is more appropriate than household income here since racial identity is self-reported at the person level in these data (2015-2019 American Community Survey 5-year Public Microdata Sample). It is also worth noting that the disparities seen here in personal income by race were also present when examining household income by race. An adult's personal income (also termed "money income") is defined as "the income received on a regular basis (exclusive of certain money receipts such as capital gains and lump-sum payments) before payments for personal income taxes, social security, union dues, Medicare deductions, etc. It includes income received from wages, salary, commissions, bonuses, and tips; self-employment income from own nonfarm or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income, royalty income, or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); any cash public assistance or welfare payments from the state or local welfare office; retirement, survivor, or disability benefits; and any other sources of income received regularly such as Veterans' (VA) payments, unemployment and/or worker's compensation, child support, and alimony." See "Glossary" at https://www.census.gov/glossary/#term_Income

[29] See the Maine Center for Economic Policy for more about Maine's Economic Regions at https://www.mecep.org/maines-economy/sowm2017/. PUMAs do not cross county borders, and in this case, did not cross any Economic Region borders. Details on PUMAs included in each region are available upon request.

[30] Carsey School of Public Policy analysis of American Community Survey data, 2019 5-year estimates.

[31] Via IPUMS: Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles and J. Robert Warren. *Integrated Public Use Microdata Series, Current Population Survey: Version 8.0* [dataset]. Minneapolis, MN: IPUMS, 2020. https://doi.org/10.18128/D030.V8.0.

[32] See "Report on the Economic Well-Being of U.S. Households in 2019 – May 2020" at https://www.federalreserve.gov/publications/2020-economic-well-being-of-us-households-in-2019-banking-and-credit.htm
[33] Ibid
[34] See "Custom Chart Tool" at https://www.economicinclusion.gov/custom-chart/?chart=map&yri=2019
[35] Eggleston, Jonathan and Robert Monk. 2019. "Net Worth of Households: 2015." *Current Population Reports* P70BR-164. https://www.census.gov/content/dam/Census/library/publications/2019/demo/P70BR-164.pdf.
[36] via IPUMS: Steven Ruggles, Sarah Flood, Sophia Foster, Ronald Goeken, Jose Pacas, Megan Schouweiler and Matthew Sobek. IPUMS USA: Version 11.0 [dataset]. Minneapolis, MN: IPUMS, 2021. https://doi.org/10.18128/D010.V11.0.
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[38] See Carsey School of Public Policy analysis of Census Bureau Household Pulse Survey in *Maine Data Glimpse*, submitted to the John T. Gorman Foundation April 29, 2021.
[39] See "Who Had Medical Debt in the United States?" at https://www.census.gov/library/stories/2021/04/who-had-medical-debt-in-united-states.html
[40] Among nonelderly adults. Dorn, Stan. 2020. "The COVID-19 Pandemic and Resulting Economic Crash Have Caused the Greatest Health Insurance Losses in American History." *Families USA.* https://familiesusa.org/resources/the-covid-19-pandemic-and-resulting-economic-crash-have-caused-the-greatest-health-insurance-losses-in-american-history/.
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[42] See "Cumulative COVID-19 Cases by County," at https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus/data.shtml.