Relationship of COVID-19 to Overall Deaths in the U.S.

5 Slide Series, Volume 94-b
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The Menges Group

Strategic Health Policy & Care Coordination Consulting

Analyzing Deaths During the Time of COVID-19

- This edition analyzes trends in total U.S. deaths over the past few years. For each month beginning in April 2020 through January 2021, we estimate excess deaths (deaths that were above the historical trend) at the national and state levels.
  - Across this timeframe, **total deaths in the U.S. were 25% above the trend for each month's average deaths extrapolated out using the 2017-2019 historical average.**
  - **Our estimated excess death figure, 591,492, is approximately 163,800 (or about 38.3%) above the number of COVID attributed deaths during this same timeframe.**
  - Deaths beyond the normal volume are almost certainly still accumulating due to the pandemic but cannot be quantified for recent months due to lags in the reporting of overall national deaths. Observed death data are weighted to account for this lag.
- We also compare 2020 deaths with prior years by racial cohort, finding that minority populations suffered the largest increases in deaths in 2020 compared to their historical averages. We find that the 25–44 age bracket experienced the sharpest increase in total all-cause observed deaths in 2020 compared to its 2015-2019 historical average, followed by the 65-74 and the 75-84 age brackets.

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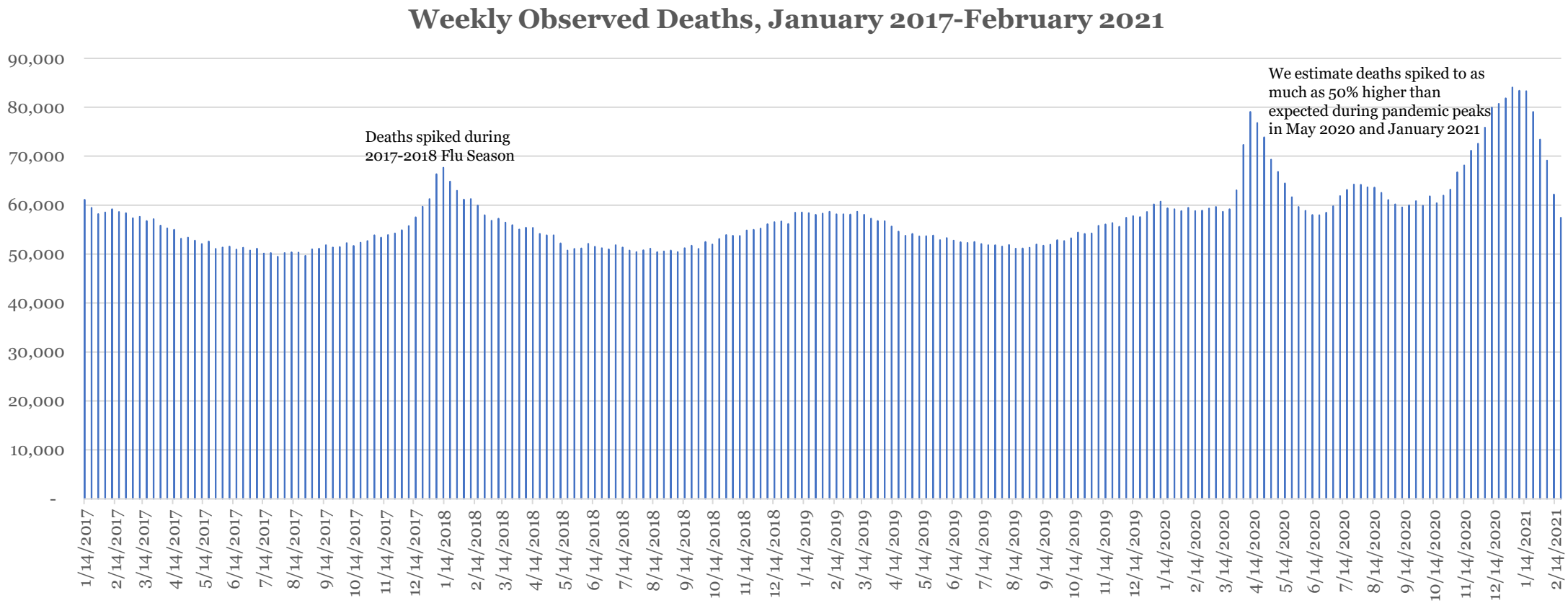
Observed Deaths Since 2017



Note: Observed death counts in very recent weeks are incomplete as reporting timeliness varies by jurisdiction. In these weeks, death counts are adjusted to account for incomplete data.

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Data Used to Perform Our Tabulations:
Centers for Disease Control and Prevention

Observed, Estimated, and COVID-Attributed Confirmed Deaths by Month

Month	Observed Deaths	Estimated Expected Deaths Using 2017-2019 Observed Death Average	Actual Deaths as % of Estimated	Difference, Actual Deaths & Estimated Expected	Confirmed COVID Deaths
Apr 2020	301,961	237,386	127%	64,575	55,258
May	321,763	210,556	153%	111,207	41,181
Jun	233,263	241,963	96%	(8,700)	19,515
Jul	248,948	221,405	112%	27,543	25,210
Aug	314,836	220,159	143%	94,677	30,234
Sep	239,556	240,144	100%	(588)	23,283
Oct	304,755	211,650	144%	93,105	23,514
Nov	272,563	236,876	115%	35,687	37,031
Dec	312,903	267,079	117%	45,824	77,101
Jan 2021	373,003	244,840	152%	128,163	95,380
Totals	**2,923,551**	**2,332,059**	**125%**	**591,492**	**427,707**

Annual Death Count Figures					
Year	Months of 250,000+ Deaths	Months of 300,000+ Deaths	Total Deaths	Death Count Increase vs. Prior Year	Percent Increase, YOY
2017	4	0	2,751,037		
2018	4	0	2,839,076	88,039	3.2%
2019	4	0	2,852,747	13,671	0.5%
2020	7	5	3,325,646	472,899	16.6%

- By taking the average of deaths in each month between 2017 and 2019 and extrapolating those numbers out to months between April 2020 and January 2021, we estimate that 591,492 excess deaths may have occurred so far during the pandemic during those months.
- Tracking with COVID deaths, May 2020 and January 2021 were also the deadliest months regarding overall deaths as a percent of expected deaths (+153% and +152%, respectively).
- We estimate there were roughly 25% more deaths than expected between April 2020 and January 2021.
- In 2020, five months had more than 300,000 overall deaths, whereas no month had this many deaths during the 2017-2019 timeframe.

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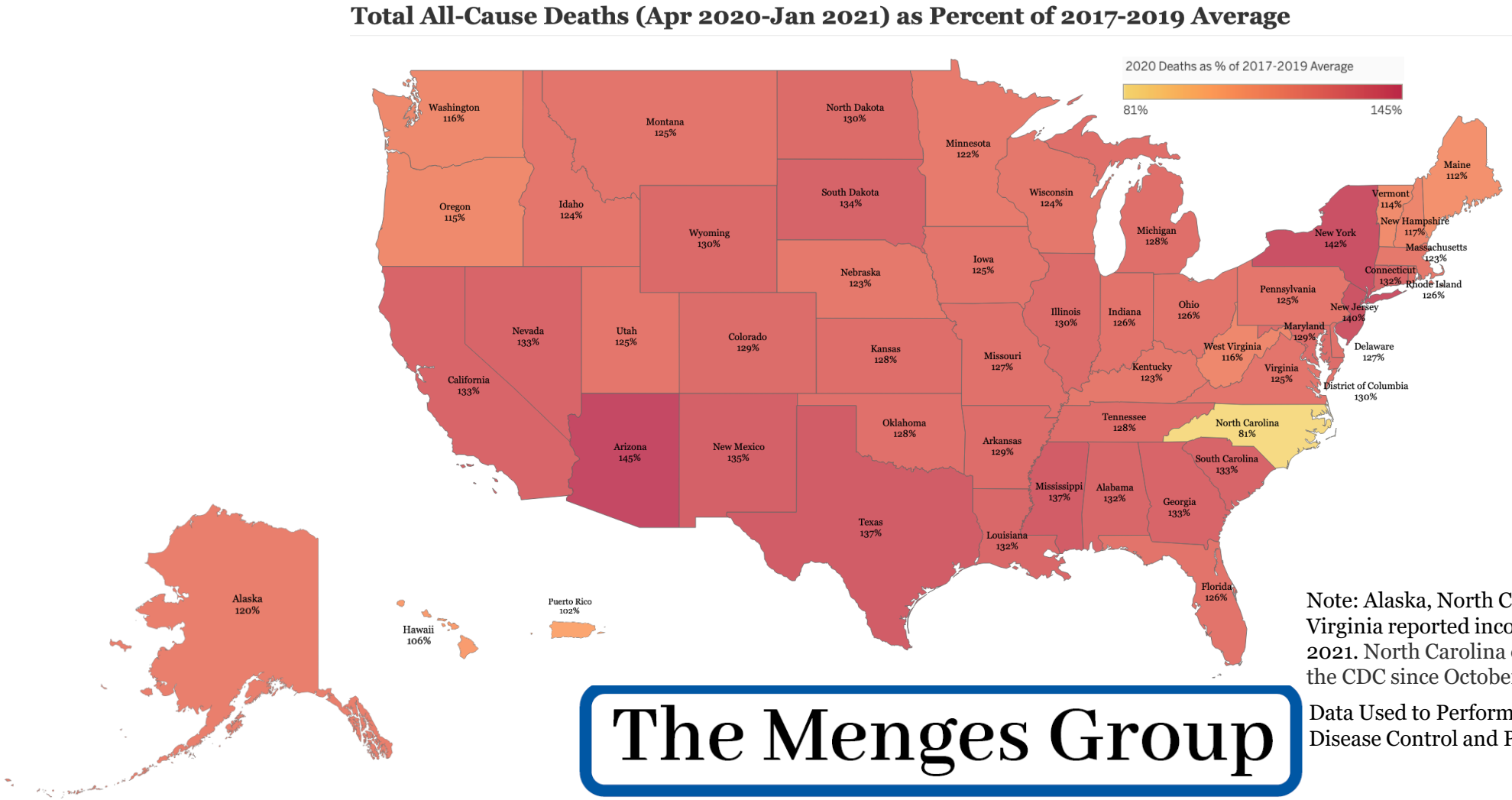
Data Used to Perform Our Tabulations:
Centers for Disease Control and Prevention

Observed Deaths as Percent of 2017-2019 Historical Average, By State



Note: Alaska, North Carolina, Rhode Island, and West Virginia reported incomplete death counts for 2020-2021. North Carolina data has not been available from the CDC since October 2020.

Data Used to Perform Our Tabulations: Centers for Disease Control and Prevention

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Observed and COVID-Attributed Confirmed Deaths by State: Alabama-Kansas

State/Jurisdiction	COVID-Attributed Deaths	Observed Deaths, Apr 2020-Jan 2021	Observed Deaths, 2017-2019 Average	2020 Deaths as Percent of 2017-2019 Average
Alabama	7,662	57,039	43,155	132.2%
Alaska	259	4,316	3,593	120.1%
Arizona	13,091	70,489	48,729	144.7%
Arkansas	4,858	33,539	26,025	128.9%
California	40,526	290,861	218,628	133.0%
Colorado	5,557	41,388	31,995	129.4%
Connecticut	6,961	33,916	25,692	132.0%
Delaware	1,077	9,593	7,566	126.8%
District of Columbia	902	6,560	5,033	130.3%
Florida	26,828	211,995	168,878	125.5%
Georgia	14,059	92,387	69,552	132.8%
Hawaii	409	10,031	9,457	106.1%
Idaho	1,716	14,328	11,509	124.5%
Illinois	21,112	112,313	86,665	129.6%
Indiana	9,909	67,803	53,818	126.0%
Iowa	4,892	30,925	24,680	125.3%
Kansas	3,769	27,435	21,379	128.3%

Yellow shaded cells highlight the top 10 ranked states
States in red have incomplete death data/reporting lags

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Data Used to Perform Our Tabulations: Centers for Disease Control and Prevention

Observed and COVID-Attributed Confirmed Deaths by State: Kentucky-North Dakota

State/Jurisdiction	COVID-Attributed Deaths	Observed Deaths, Apr 2020-Jan 2021	Observed Deaths, 2017-2019 Average	2020 Deaths as Percent of 2017-2019 Average
Kentucky	3,728	48,534	39,371	123.3%
Louisiana	8,586	49,581	37,686	131.6%
Maine	583	13,387	11,965	111.9%
Maryland	7,075	52,662	40,781	129.1%
Massachusetts	14,390	59,841	48,516	123.3%
Michigan	14,849	101,213	79,126	127.9%
Minnesota	6,183	44,832	36,677	122.2%
Mississippi	6,023	35,318	25,866	136.5%
Missouri	6,730	66,880	52,585	127.2%
Montana	1,228	10,411	8,302	125.4%
Nebraska	1,916	17,191	13,953	123.2%
Nevada	4,225	28,046	21,093	133.0%
New Hampshire	1,053	11,805	10,106	116.8%
New Jersey	21,009	84,692	60,299	140.5%
New Mexico	3,277	20,255	14,985	135.2%
New York	33,237	178,651	126,041	141.7%
North Carolina	9,325	62,493	77,350	80.8%
North Dakota	1,439	7,671	5,906	129.9%

Yellow shaded cells highlight the top 10 ranked states

States in red have incomplete death data/reporting lags

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Data Used to Perform Our Tabulations: Centers for Disease Control and Prevention

Observed and COVID-Attributed Confirmed Deaths by State: Ohio-Wyoming

State/Jurisdiction	COVID-Attributed Deaths	Observed Deaths, Apr 2020-Jan 2021	Observed Deaths, 2017-2019 Average	2020 Deaths as Percent of 2017-2019 Average
Ohio	11,110	127,020	101,100	125.6%
Oklahoma	3,517	40,917	32,062	127.6%
Oregon	1,939	34,454	29,958	115.0%
Pennsylvania	21,587	137,407	110,349	124.5%
Puerto Rico	1,818	25,135	24,537	102.4%
Rhode Island	2,158	10,746	8,546	125.7%
South Carolina	7,016	53,589	40,239	133.2%
South Dakota	1,776	8,951	6,696	133.7%
Tennessee	9,626	78,350	61,037	128.4%
Texas	36,433	228,098	166,353	137.1%
Utah	1,658	19,379	15,554	124.6%
Vermont	158	5,373	4,706	114.2%
Virginia	6,430	69,811	55,770	125.2%
Washington	4,003	53,927	46,603	115.7%
West Virginia	2,023	21,568	18,579	116.1%
Wisconsin	6,410	54,005	43,592	123.9%
Wyoming	596	4,879	3,743	130.3%

Yellow shaded cells highlight the top 10 ranked states

States in red have incomplete death data/reporting lags

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Data Used to Perform Our Tabulations: Centers for Disease Control and Prevention

Total Deaths by Racial and Age Cohort

- While the non-Hispanic white population experienced the largest number of deaths in 2020, other racial groups experienced relatively larger percentage increases in observed deaths in 2020 compared to their historical averages.
  - The Hispanic, Asian, and Black populations experienced death counts in 2020 that were more than one-third above their historical averages, and American Indian/Alaska Natives saw deaths spike to nearly 53% of their historical average. White deaths increased 13.6% from their average.
  - The Hispanic and Black populations experienced the largest relative increases in their share of total observed deaths in 2020 compared to previous years.
- The 25–44 age bracket experienced the sharpest increase in total all-cause observed deaths in 2020 compared to its 2015-2019 historical average, followed by the 65-74 and the 75-84 age brackets.
  - Compared to 2015-2019 averages, the share of total observed deaths for the 25-44, 65-74, and the 75-84 age brackets increased in 2020 compared to previous years.

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Total Deaths by Racial Group, by Year

2015-2020 Total Monthly All-Cause Observed Deaths							
Year	Hispanic	Non-Hispanic American Indian or Alaska Native	Non-Hispanic Asian	Non-Hispanic Black	Non-Hispanic White	Other	Total Deaths
2015	180,117	16,488	60,066	312,735	2,111,155	25,224	**2,705,785**
2016	192,257	17,305	63,906	329,868	2,157,152	23,997	**2,784,485**
2017	198,264	17,544	66,758	333,411	2,169,807	25,147	**2,810,931**
2018	206,102	17,766	69,279	341,393	2,179,943	24,593	**2,839,076**
2019	213,347	18,007	70,920	346,326	2,180,163	23,846	**2,852,609**
2020	302,315	24,067	89,836	440,572	2,452,865	29,094	**3,338,749**
2015-2019 Average	**198,017**	**17,422**	**66,186**	**332,747**	**2,159,644**	**24,561**	2,798,577
2020 Deaths Above 2015-2019 Average, Percent	**52.7%**	**38.1%**	**35.7%**	**32.4%**	**13.6%**	**18.5%**	**19.3%**

Racial Cohort Percent of Annual Deaths Each Year						
Year	Hispanic	Non-Hispanic American Indian or Alaska Native	Non-Hispanic Asian	Non-Hispanic Black	Non-Hispanic White	Other
Percent of Total Deaths, 2015	6.7%	0.6%	2.2%	11.6%	78.0%	0.9%
Percent of Total Deaths, 2016	6.9%	0.6%	2.3%	11.8%	77.5%	0.9%
Percent of Total Deaths, 2017	7.1%	0.6%	2.4%	11.9%	77.2%	0.9%
Percent of Total Deaths, 2018	7.3%	0.6%	2.4%	12.0%	76.8%	0.9%
Percent of Total Deaths, 2019	7.5%	0.6%	2.5%	12.1%	76.4%	0.8%
Percent of Total Deaths, 2020	9.1%	0.7%	2.7%	13.2%	73.5%	0.9%
2015-2019 Average	**7.1%**	**0.6%**	**2.4%**	**11.9%**	**77.2%**	**0.9%**
Percentage Point Difference, 2020 and 2015-2019 Average	**2.0%**	**0.1%**	**0.3%**	**1.3%**	**-3.7%**	**0.0%**

- The Hispanic population experienced the sharpest increase in total all-cause observed deaths in 2020 (+52.7%) compared to their 2015-2019 historical average, followed by the American Indian/Alaska Native (+38.1%) and Asian (35.7%) populations.
- Compared to the 2015-2019 average, the share of total observed deaths for Hispanics, American Indians/Alaska Natives, Asians, and Blacks all increased, with the largest share increase being the Hispanic population (+2 percentage points).
- The white population share of deaths in 2020 was 3.7 percentage points lower than the historical average.

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Total Deaths by Age Group, by Year

2015-2020 Total Monthly All-Cause Observed Deaths							
Year	**Under 25 years**	**25-44 years**	**45-64 years**	**65-74 years**	**75-84 years**	**85 years and older**	**Total Deaths**
2015	62,158	122,130	520,639	483,423	621,585	837,362	**2,647,297**
2016	66,359	137,689	548,668	519,731	645,961	865,686	**2,784,094**
2017	63,947	140,377	542,710	531,408	656,608	875,530	**2,810,580**
2018	61,120	139,698	540,727	543,859	674,624	878,744	**2,838,772**
2019	60,050	142,556	535,992	555,351	686,918	871,596	**2,852,463**
2020	63,614	175,837	624,032	664,943	810,252	999,832	**3,338,510**
2015-2019 Average	**62,727**	**136,490**	**537,747**	**526,754**	**657,139**	**865,784**	2,786,641
2020 Deaths Above 2015-2019 Average, Percent	**1.4%**	**28.8%**	**16.0%**	**26.2%**	**23.3%**	**15.5%**	**19.8%**

Age Cohort Percent of Annual Deaths Each Year						
Year	**Under 25 years**	**25-44 years**	**45-64 years**	**65-74 years**	**75-84 years**	**85 years and older**
Percent of Total Deaths, 2015	2.3%	4.6%	19.7%	18.3%	23.5%	31.6%
Percent of Total Deaths, 2016	2.4%	4.9%	19.7%	18.7%	23.2%	31.1%
Percent of Total Deaths, 2017	2.3%	5.0%	19.3%	18.9%	23.4%	31.2%
Percent of Total Deaths, 2018	2.2%	4.9%	19.0%	19.2%	23.8%	31.0%
Percent of Total Deaths, 2019	2.1%	5.0%	18.8%	19.5%	24.1%	30.6%
Percent of Total Deaths, 2020	1.9%	5.3%	18.7%	19.9%	24.3%	29.9%
2015-2019 Average	**2.3%**	**4.9%**	**19.3%**	**18.9%**	**23.6%**	**31.1%**
Percentage Point Difference, 2020 and 2015-2019 Average	**-0.3%**	**0.4%**	**-0.6%**	**1.0%**	**0.7%**	**-1.1%**

- The 25–44 age bracket experienced the sharpest percentage increase in total all-cause observed deaths in 2020 (+28.8%) compared to its 2015-2019 historical average, followed by the 65-74 (+26.2%) and the 75-84 (+23.3%) age brackets.

- Compared to 2015-2019 averages, the share of total observed deaths for the 25-44, 65-74, and the 75-84 age brackets increased in 2020, with the 65-74 age cohort increasing its share of total deaths the most (+1.0 percentage points).

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Data Sources and Methodology Notes

- We use all-cause observed deaths data from the Centers for Disease Control and Prevention (CDC). These data are provisional, meaning recent death counts are likely incomplete, and the degree of completeness varies considerably by jurisdiction and time.
- Data can be incomplete because of the time lag between when the death occurred and when the death certificate is completed, submitted to the National Center for Health Statistics (NCHS), and reported. This delay can range from 1 week to 8 weeks or more, depending on the jurisdiction and cause of death.
- More recent death figures are adjusted to account for incomplete data, based on completeness of provisional data in prior years.

5 Slide Series Overview

Our 5 Slide Series is typically a monthly publication whereby we briefly discuss/address a selected topic outside the confines of our client engagements. Since March, we have produced dozens of editions tracking the COVID pandemic. The Menges Group has developed a variety of datasets that we use to support our 5 Slide Series and client projects.

To be added to our list to receive these as they are published (or to be removed), please email us at pcall@themengesgroup.com. If you have questions about the content or data sources we have available, please email us at jmenges@themengesgroup.com or call 571-312-2360.

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