

HOST: When analyzing trends among leading cause of death (as well as other health measures), it's important to note that a statistically significant change from year-to-year, whether it be a percent increase or a percent decrease, usually ranges somewhere in the single digits. So, for example in 2019, death rates from Septicemia dropped nearly 7 percent from 2018, making it the second biggest decline among all leading causes of death.

Occasionally, the one-year change will hit the low double digits. Death rates from influenza and pneumonia fell 17 percent in 2019, the result of a mild flu season in comparison with a severe flu season the year before. A double-digit change really stands out as significant when analyzing trends from year to year.

This is why the 30 percent increase in the U.S. homicide rate during 2020 is so remarkable. The increase itself was not unexpected – after all, the FBI's Uniform Crime Report had documented a similar increase just days before NCHS released its provisional quarterly estimates on October 6. But the 30 percent jump in homicide in 2020 was the biggest one-year increase in over a century, with the lone bigger increase coming way back in 1905, essentially a statistical blip that was likely the result of changes to the national death registry at a time when the National Vital Statistics System was first being constructed.

Prior to 2020, the biggest increase in the national homicide rate came in 2001, the year of the September 11 attacks, when the rate increased 20 percent.

Joining us today to discuss this somewhat stunning increase, is Robert Anderson, Chief of the NCHS Mortality Statistics Branch.

Dr. Anderson, thanks for joining us. When you first saw the number – the 30 percent increase in homicide – what was your reaction?

ROBERT ANDERSON: Well it was it was a pretty big surprise overall. Now, not as big a surprise it might have been - as you know the FBI had recently released information that suggested nearly a 30% increase, so from that perspective we expected that the increase would be large but 30% is still sort of huge increase in terms of mortality.

HOST: In terms of statistical history, how does this one-year change historically with other one-year changes, either major increases or major declines, in leading causes of death?

ROBERT ANDERSON: Well for homicide we did see a pretty substantial increase in 2001 and of course that was directly due to 9/11, to the terrorist attacks that year. Generally, we don't see large increases like this for mortality. You have to go back to when infectious diseases were really prevalent to see large increases for causes of death. I mean, in terms of homicide prior to 2001 you had to go all the way back to the early 1900s – 1904 to 1905 - to find a larger increase than what we saw from 2019 to 2020. Although that's likely, at least partly, artifactual due to increases in reporting in the number of states reporting and there's some other things going on as well at that time that could explain the increase, but mainly it's an artifact of reporting.

HOST: So then that 1905 increase – is that even comparable to what we've seen here in 2020?

ROBERT ANDERSON: Not really. At the time there were maybe 20 states reporting and the number of states reporting was increasing at that time. Not only the number of states but also the completeness of reporting was increasing in the states that were already reporting as well. We didn't have all states reporting in the United States with regard to vital statistics until 1933. So anything prior to 1933 we would be missing some records and ideally the rate would be sort of reasonably representative for the United States but we know that some of the states coming on board at that time had higher homicide rates overall than the states that were already in the system.

HOST: So while the increase in 2020 was probably the largest in history the actual rate itself - the number of homicides per 100,000 - is lower than at other points in history more recently. Could you expand on this? What period was the peak homicide rate in the country?

ROBERT ANDERSON: Sure. So the homicide rate that we're seeing for 2020 is about 7.8 per 100,000 and it's a big increase from 6 per 100,000 and 2019 but if you go back to the early 80s and actually in the 70s, you had rates of higher than 10 per 100,000, so at those times you had a higher homicide rate. Not the big increases or big decreases at that time but the overall level was much higher.

HOST: Death certificate data don't provide any details about societal issues that may have contributed to the increase, so there's no way to look at the role the pandemic played in this, if any, correct?

ROBERT ANDERSON: Yeah that's essentially correct. With the death certificate data, you really would need to bring in more information. And I know that there are folks currently looking at this issue to try to understand better the role of the pandemic in this increase, but with death certificate data solely then we really can't make those determinations. You really have to look at other patterns and there certainly seems to be a correlation between the two but as we know correlation is not causation. It's going to require some I think fairly intensive research to try to sort it all out.

HOST: In the past, there have been some other studies that have drawn a link between economic downturns and increases in homicide. What can you tell us about that?

ROBERT ANDERSON: Well there certainly has been some research and the argument is that when economic times get tough, people - crime rises and along with property crime rises, violent crime as well. The correlation though between economic downturns and increases homicide isn't a perfect one - the correlation is actually fairly weak. It seems to be more correlated with activities that tend to foster violence. So you saw fairly large increases during prohibition. In the mid 70's and early 80's you had big increases and in the drug trade so I think that the connection is more with illegal activity in general rather than economic downturns per se although that does seem to definitely have an impact.

HOST: And to reiterate, nothing like that on the death certificate?

ROBERT ANDERSON: No. The research, they're looking at patterns using multiple data sets so they can use the final statistics datasets to look at homicides, but they are also using economic data and other sort of social data to model increases and decreases.

HOST: Could you talk a little bit about the differences between the data released by NCHS and the data in the Uniform Crime Report released by the FBI recently?

ROBERT ANDERSON: Sure. So the FBI data is a system where the FBI asks law enforcement agencies across the country to report certain types of information. Homicides are part of that. It's a voluntary system, not all law enforcement agencies report. The vital statistics data, of course, is coming from the death certificate. Death certificates have to be filed for every death that occurs in the United States, so vital statistics data are more complete than the data that come out in the Uniform Crime Report. That said, the trends match pretty closely between the UCR and the vital statistics data so you know when we see something come out in the UCR – like a big increase like we saw with homicide, - there's a good bet that the vital statistics data will show that as well. And that's indeed what we've seen.

HOST: Do you expect these provisional numbers to hold up when the 2020 are finalized in the next couple months?

ROBERT ANDERSON: Yeah the data are complete enough at this point that we're confident that there won't be any significant changes between now and when we release the final data. So the numbers will be pretty close – they are pretty close to final now.

HOST: Is it too early to get a sense of whether this increase in homicide has continued into 2021?

ROBERT ANDERSON: Yeah it really is because homicides typically require a death investigation. Information on the cause of death comes to us later than is typical for deaths. Generally, we get the fact of death and the cause of death in a reasonably timely fashion, within a few weeks at most of the date of death, but with homicides - and this is true for suicides as well and for drug overdoses generally, since an in-depth investigation has to be done and the cause of death may not come till months later and some jurisdictions may take six months for things like toxicology to be complete and the full investigation to be done. So there's necessarily a greater lag for causes such as homicides and suicides and drug overdoses, and things like that - deaths that require a lengthy death investigation. And so at this point we have data through the end of 2020 and those data are reasonably complete, but the data for 2021 are really not very complete at this point. We will be releasing some information for 2021 in the coming months but we just don't have a sense yet for whether homicides are continuing to rise in 2021.

HOST: Any other things you'd like to add?

ROBERT ANDERSON: Well I think it is interesting that we've seen this large increase in homicides, large increase in drug overdose deaths, and that those seem to be correlated with this big increase in COVID-19 – of course, well COVID-19 was going from zero to 700,000 deaths. I think for 2020 it's you know about 350,000 or 370,000,000. But this is sort of a strange time, I guess, from the standpoint of mortality statistics, I mean, this is just not the sort of thing that we

typically see. We're usually talking about relatively small increases in mortality or small decreases in mortality. We don't normally see these big jumps. As we go and as we calculate the official mortality statistics for 2020, we're going to have a lot more work than we normally have to describe what's going on. We're going to need to spend some significant time on these conditions, and these diseases that have increased so much during the pandemic.

HOST: Strange days.

ROBERT ANDERSON: Yeah.

HOST: Thanks very much, Dr. Anderson.

ROBERT ANDERSON: Alright - thank you.

HOST: The new data on homicide show there was a wide difference in the 2020 rates based on geography. The states with the highest homicide rates were: Mississippi, Louisiana, Alabama, Missouri, Arkansas, South Carolina, Tennessee, and Maryland. The District of Columbia had a higher homicide rate than any state. The states with the biggest rate increase in 2020 were Montana, South Dakota, Delaware and Kentucky, while only two states, Alaska and Maine, had definitive declines in homicide rates.

Homicide is one of 21 leading causes of death that are included in the quarterly provisional data release that posted this week. The new numbers are featured on a data visualization dashboard on the NCHS web site. Some of the significant findings include:

- A nearly 17% increase from 2019 to 2020 in death rates from accidents or unintentional injuries.
- Death rates from Diabetes also increased nearly 17%, from the one year period ending in March 2020 to the same point in 2021.
- Hypertension mortality increased nearly 16% in the one-year period ending in Quarter 1 2021.
- And death rates from Influenza/Pneumonia dropped 17% during this period.

In other news, this week NCHS also released a report on mortality and marital status in the United States. The report focused on adults age 25 and up, covering the period 2010 through 2019. The study found that death rates for married adults during roughly the last decade have declined by more than three times that of never-married or divorced adults. Suicide was found to be among the ten leading causes of death for never-married and divorced people, but not among the leading killers for married or widowed people. Cancer is the number one cause of death for married adults whereas heart disease is the leading killer for unmarried adults.

There are a number of other data releases in the queue for NCHS this month as well. The National Health Interview Survey is releasing two new reports on October 20th, on mental health treatment among adults and social and emotional support among adults. Both reports feature data from 2020.

In the area of vital statistics, the latest quarterly provisional estimates on infant mortality, featuring data through 2020, will be released on October 14. The day before that, the NCHS vital statistics team will release the latest monthly estimates on drug overdose deaths in the U.S., through March of 2021. Later in the month, on October 26, there will be a study on 2019 data on fetal mortality in the United States. And the following day there will be the latest in the series of rural-urban health studies, this one focusing on rural-urban differences in death rates from unintentional injuries among children.

Also, two methodological studies from the National Health Care Survey will be released on October 18, one focusing on “enhancing identification of opioid-related health outcomes,” and another on “machine learning for medical coding.”

Finally, October is dedicated to several health observances, including Sudden Infant Death Syndrome Awareness. SIDS is the 4th leading cause of infant death in the United States, according to the latest final data from NCHS.

October is also Breast Cancer Awareness Month. Over 42,000 women died from breast cancer in the United States in 2019, according to the latest NCHS data.

Join us next month for another NCHS “Statcast,” which will include new studies on suicide by month and demographic characteristics for 2020, as well as a study on mortality among the American Indian/Alaskan Native population.