

**HOST:** Since the beginning of the pandemic, there have been a lot of questions about how COVID-19 deaths are tracked and how they are entered onto the death certificate. Joining us to talk about those topics is Robert Anderson, Chief of Mortality Statistics at NCHS.

**HOST:** There are two CDC sources of COVID-19 deaths. Could you talk a little bit about each source - what they are and what role they play in providing key information about the pandemic?

**ROBERT ANDERSON:** Sure - there are two main sources for COVID-19 deaths. The first piece is the case surveillance system which is built on the national notifiable diseases surveillance system. So anytime that there's what's called a reportable disease - these are things like measles or mumps or things that are of significant public health import - a case report has to be filed. And of course at the beginning of the COVID-19 pandemic it was decided that COVID-19 would be a reportable disease as well. So anytime any health care provider comes across a COVID-19 case they're supposed to file a case report with the state health Department, with the County Health Department – it varies from state to state - so on that form there is a line that asks did the patient die from this disease. It is capturing the fact of death from that particular disease. So the case surveillance system then collects these reports and then aggregates them - they also do some, for those states that are really slow in sending reports, they also scrape websites in order to get numbers that they can report in a timely fashion. The second source is from vital statistics and these data are based on death certificates. And the death certificate is filled out typically by a funeral director who provides demographic personal information and then physician/medical examiner/coroner provides the cause of death information. And these are permanent legal records of the fact of death and the cause of death, and so they take a little bit more time to complete. These have to be done in a certain, specific way and they have to be done correctly. And so it takes a little bit longer. In general the death certificates lag the case reports by about two weeks on average, although that does vary quite a bit from state to state.

**HOST:** For the death certificate, NCHS issued a guidance report - a guidance document - for certifiers on how to include COVID-19 on the death certificate. That came out about a year ago. Can you talk about that a little bit?

**ROBERT ANDERSON:** Sure. At the beginning of the pandemic, we realized that we had an opportunity to reach out to physicians to help them understand how to complete the death certificate - in general, not just with regard to COVID-19. And so we created this document that was specific to COVID-19 that showed them how to fill out the death certificate properly in general, and then once they determined that COVID-19 was either the cause of death or a contributing factor, how to report it on the death certificate. This guidance just sort of builds on guidance that we issued several years earlier - I think the last time we issued guidance, general guidance, was in 2003. This guidance is essentially the same - it's just specific to COVID-19. This builds on the guidance that we issued before.

**HOST:** Turning to another topic here: comorbidities, other conditions contributing or involved with COVID-19 deaths. There was some confusion about the note on Table 3 on the website on COVID-19 deaths by contributing condition. The note says "For 6% of these deaths COVID-19 was the only cause mentioned on the death certificate." And this has led to some wild and inaccurate speculation that the other 94% of the deaths may have been really some other cause of death and not COVID-19. Could you talk about that a little bit?

**ROBERT ANDERSON:** Yeah sure. I can provide a little bit of background here. The cause of death section on the death certificate is designed in a specific way and it's designed to elicit a sequence of events leading to death. And then also to gather any significant conditions that contributed to death. So you have Part One about "cause of death" section which asks the certifier to provide the causal sequence. And so you would start on the top line and you would put the immediate cause of death. To use a COVID-19 example, you might have "respiratory distress syndrome" which is a common complication of COVID-19. And then you would work backwards from that immediate cause of death. And let's suppose that respiratory distress was brought on by pneumonia, viral pneumonia, and so you would put on the second line "viral pneumonia." And then on the third line - because we want to know what the cause of viral pneumonia was - if it was COVID-19, then you would write COVID-19 on the third line. So you'd have respiratory distress due to viral pneumonia due to COVID-19. That's a logical causal sequence from the immediate cause working back to the underlying cause. And then in Part Two, you could put any other conditions that might have contributed to death but weren't part of that causal pathway in Part One. Now with a disease like COVID-19, it should be fairly unusual to see only COVID-19 reported - I mean normally we should at least see the complications caused by the disease, such as pneumonia or respiratory distress. In cases where only COVID-19 is reported, the certifier is indicating that COVID-19 was the cause of death, but really they left it - the cause of death statement - somewhat incomplete. They neglected to provide the entire causal pathway. Now with regard to the other 94% which mentioned other diseases or conditions, it's important to understand that in the overwhelming majority of these cases the additional diseases or conditions are either complications of COVID-19 - they are in the causal pathway, like pneumonia or respiratory distress - or they're reported in Part Two as contributing conditions. So for about 92% of the deaths involving COVID-19 that mention other conditions - 91 or 92% - the certifiers indicated that COVID-19 is the primary or underlying cause. This is not a situation where the certifier is writing all of the diseases that the person had equally; they're actually reporting it in this causal sequence. And in the overwhelming majority of cases, COVID-19 has been indicated as the cause of the death. It's the cause that started that causal pathway, that causal sequence leading to death.

**HOST:** So to summarize, in some cases COVID-19 leads to complications such as pneumonia which can lead to death, and then in other cases a person already has a pre-existing condition - maybe diabetes or COPD - and in those cases COVID-19 can then cause serious illness and death in those individuals. Is that correct?

**ROBERT ANDERSON:** That's essentially correct. In almost all cases COVID-19 leads to some other complications, even if there are pre-existing chronic diseases. So for those that die from COVID-19, COVID almost always initiates a sequence of conditions and those can include respiratory, cardiovascular, neurological complications. And then the pre-existing chronic diseases seem to make things much worse and do seem to make people more prone to having a serious illness or death.

(MUSIC BRIDGE)

**HOST:** Join us next time for a further discussion with Robert Anderson about how COVID-19 is documented on death certificates.

**HOST:** A few weeks ago NCHS released a provisional report on how the pandemic impacted life expectancy in 2020. Each year NCHS releases national life tables for the country. This week for the first time in several years NCHS released state estimates on life expectancy. These life tables were based on

final data for 2018, and showed that Hawaii had the highest life expectancy of any state - 81 years at birth. West Virginia had the lowest life expectancy in 2018 at 74.4 years.

This week NCHS also released its latest summary of visits to hospital emergency departments, using data from the National Hospital Ambulatory Medical Care survey. The report showed ER visit rates were higher for infants than other age groups, and were also higher for females than for males.