

The coronavirus has been devastating for people over 80, but many are surviving

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This scanning electron microscope image shows SARS-CoV-2 (yellow)—also known as 2019-nCoV, the virus that causes COVID-19—isolated from a patient, emerging from the surface of cells (blue/pink) cultured in the lab. Credit: NIAID-RML

Anna Marie Bresnan, who lives at Philadelphia Protestant Home, a

retirement community in Northeast Philadelphia, is 84 and has chronic obstructive pulmonary disease.

John and Kitty Stagliano, of Exton, are both 82 and have diabetes and [high blood pressure](#).

Norma Cammisa is 93, has dementia, takes medicine for high cholesterol, and lives in a nursing home in Collingswood.

All of them caught the [coronavirus](#). All of them survived.

Why they did so well when thousands of other people over 80 have succumbed to the new disease is a mystery that intrigues and heartens physicians and aging experts. In New Jersey, nearly half of the 11,880 people who have died of coronavirus were 80 and older. As of May 29, 44% of Pennsylvania's 5,464 deaths were in that age group. Age, plus [chronic health problems](#) such as heart and lung disease or diabetes, greatly increase the odds that people with COVID-19 will get very sick or die.

Even in nursing homes, which are populated by frail elders who need hands-on care, a high percentage of residents who test positive for the virus have had no symptoms or mild ones. Most survive.

Joshua Uy, a Penn Medicine geriatrician who is medical director of a West Philadelphia nursing home that had the city's first coronavirus outbreak, said about a third of the 22 residents there with confirmed coronavirus were asymptomatic, a third had mild symptoms, and the remainder got very sick. Five died.

"We had a 96-year-old guy who never had a symptom," Uy said. Some with mild symptoms have "recovered and it's like nothing ever happened to them."

Uy couldn't predict which residents at Renaissance Healthcare and Rehabilitation Center would be fine and which would "crump" or go into rapid respiratory failure. Patients with obesity—another big risk factor—and frailty sometimes lived. One resident with serious lung disease survived. "It's really amazing to me," he said. "It blows my mind."

Early in his center's two-week outbreak, he felt hopeless. "On my worst day, I was worried that they were all going to die, to be honest." Then widespread testing revealed how many residents were asymptomatic. Some with symptoms began getting better. "When you look at the numbers," he said, "I think most people will survive it. It just doesn't feel like it at the moment."

Other nursing home medical directors described similar proportions of residents with mild illness and equally surprising survivors. Nina O'Connor, chief of the University of Pennsylvania Health System's palliative care program, cared for a 101-year-old coronavirus patient with no symptoms. Jim Wright, medical director of Canterbury Rehabilitation and Healthcare Center near Richmond, Va., where 136 residents tested positive and 56 died, said one 91-year-old had poor oxygenation for a long time and kept removing her oxygen mask.

"She's in our memory center now," Wright said in wonderment. "Her favorite thing to say is, 'I love you.' She says it every time."

Jim Clancy, executive director of United Methodist Communities of Collingswood, where Cammisa lives, said a 91-year-old who was already on oxygen for advanced [lung disease](#) survived while the virus "wiped out" people who were not as sick.

"This is such a strange, random and devastating virus. ... I don't think any two residents have been affected the same way," he said. Asked what

was different about survivors, he said, "This is the thing. There is no rhyme or reason to it."

Wright has started analyzing the numbers at his facility and found no clear trends. He said patients there for rehabilitation, who tend to be younger and stronger than full-time nursing home residents, were more likely to survive. There were no [racial differences](#).

"There was nothing I could put my finger on that determined your course," he said.

Scientists will sort this out eventually. In the meantime, speculation focuses on differences in the immune system, genetics, and possibly medications that could alter response to the virus. One doctor suspects that hydration and even sleeping position could be important.

Coronavirus often does not announce itself loudly in the elderly, a fact that allowed it to take hold in many nursing homes before anyone knew it was there. Instead of the classic symptoms we were all initially told to look for—fever, cough and shortness of breath—people over 80 often lose their appetites, develop diarrhea, or become confused, agitated or more subdued. Fevers over 99 are rare. Sabine von Preyss Friedman, medical director of 50 facilities in Seattle, including one with an early and large outbreak, has learned to look for very subtle changes. "People look at you sideways and they don't look right, you're doing a test," she said.

Doctors said some patients never have more than mild symptoms. Wright said some can go from no symptoms to death in a few hours. Others develop what appears to be an overreaction of the immune system, or cytokine storm, a few days into the infection. In all age groups, this is a hallmark of very serious illness. Elderly people who get this sick typically do not do well, doctors said.

George Anesi, a pulmonary and critical care doctor at Penn Medicine who sees only hospitalized patients, said that the virus is harder on people the older they are. Those with low blood-oxygen levels and high inflammation levels do the worst. Those whose problems are confined to their lungs fare much better than those with multi-organ failure.

But that doesn't explain why people have such different reactions to the disease, a question at all ages.

"It likely has to do with idiosyncrasies in their immune system and their genetics," said Amesh Adalja, a Johns Hopkins infectious-disease specialist and spokesman for the Infectious Diseases Society of America. "That's part of the bigger puzzle with this virus."

The immune system wanes and becomes less efficient with age. These changes could affect both the initial response to the new virus and the more sustained response, experts said. With aging, underlying inflammation tends to increase and cells may not clear waste products as effectively. All of these things can affect the way older people respond to disease.

Chronic illness can accelerate aging. When it comes to fighting infection, chronological age is less important than biological age. An 80-year-old still living independently is more likely to survive than an 80-year-old who is sick enough to be in a nursing home. But the body can also age unevenly. "They might have Alzheimer's, but their immunity is pretty good," said Nir Barzilai, director of the Einstein Institute for Aging and scientific director of the the American Federation for Aging Research. "Their liver can be younger than their brain."

Barzilai thinks certain common medications, including the diabetes drug metformin, may improve immune functioning. Nicole Osevala, a Penn

State geriatric medicine specialist, wonders about angiotensin-converting enzyme (ACE) Inhibitors, which recently were shown to decrease the risk of hospitalization in older people with COVID-19. Because COVID-19 can increase blood clotting, Stefan Gravenstein, director of geriatrics and palliative care at Alpert Medical School of Brown University, wonders whether people on blood thinners could be protected.

Viral load, or how much virus a patient was exposed to, may also be a factor, Barzilai said.

Because reflux can bring the virus up from the digestive system and lead to aspiration into the lungs, Gravenstein also said older people who go to sleep immediately after a meal—this increases reflux—could be at higher risk. Sleeping with the head elevated could be protective, although that's hard to test.

He is among many who think that maintaining hydration is crucial for elders with this disease. Nursing-home survivors may have been better at drinking enough liquids, he said.

When Gus Cammisa heard that his mother, who will turn 94 later this month, had the disease late in April, he wondered whether "this is what's going to take her." She was in relatively [good health](#), although she had had a small stroke and sometimes had blood pressure fluctuations. She'd lived a clean life. With COVID-19, she had fevers, needed oxygen, and stopped eating. The staff at United Methodist Communities gave her intravenous fluids. She has very slowly returned to baseline. Cammisa credits good care and Providence. "God decided, 'Not yet.'"

John Stagliano was still delivering auto parts part time when he got sick March 23. While waiting for test results, he felt weak and feverish. He isolated in his man cave. "It's not a hardship, believe me," he said. His

wife Catherine—everyone calls her Kitty—took care of him. He admits he was worried. "I'm damned scared the first week and I'm thinking, 'Is this the way it's going to end?'"

His son, John Stagliano Jr., said his father's doctors at Penn Medicine Home Health urged him to go to the hospital but he resisted. Meanwhile, the son, who is a cancer survivor, worried about the fatigue he heard in his mother's voice. He and a brother insisted she go to the hospital. When they arrived to meet her ambulance, she passed out. "I was just so exhausted," she remembered. "I thought it was from climbing up and down the stairs. ... It was the most exhausted I've ever been." She never had much of a fever or cough. Doctors said the virus may have attacked her heart.

Her husband never went to the hospital. She went twice. She's getting better, but is still tired. He feels fine. "I can't wait to get back to work," he said.

Bresnan, who lives in independent living with her husband, tested positive on April 14, but she'd already been sick for quite a while. She lost her appetite, along with her sense of taste and smell. She had severe diarrhea and terrible chills. Even though she has COPD, her oxygen levels were always normal and she never had a cough or shortness of breath. She was hospitalized for dehydration and her lungs showed signs of pneumonia. She wasn't frightened until she saw all the protective garb that nurses were wearing. "I just felt so terrible, I didn't even care."

After a week in the hospital, she came home to the rehab unit at Protestant Home. Her energy is back now, but not her appetite. She has no idea why she lived and so many others didn't.

"I am just so grateful," she said.

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