It's a truism among disaster experts that people who were disadvantaged before a disaster are also the most vulnerable during the disaster. There are aspects of the coronavirus pandemic that fit this mold. Here are some of the disparities we can expect to see.

Rural v. Urban.

Much of our economic growth and job opportunity is in cities, which is why young people continually leave the countryside Life expectancies also tend to be lower in rural areas. Although it's hard to be sure, people in those areas may also be disadvantaged in terms of the coronavirus. The virus is likely to spread more slowly in rural areas, because the web of interpersonal interactions is less dense and because rural areas are further from the airports that initially spread the disease. That's a definite advantage. But when the epidemic does reach rural areas, the toll may be greater. According to *USA Today*, "18 million people live in counties that have hospitals but no ICU, about a quarter of them 60 or older, the analysis shows. Nearly 11 million more Americans reside in counties with no hospital, some 2.7 million of them seniors."

If the disease does reach these people, their mortality rate may be much higher than that of those who are closer to healthcare resources. The mortality rates from flu outbreaks give some indication of potential COVID-19 mortality, since the vulnerable populations are somewhat similar. One modeling effort concluded:

> "The pattern of flu deaths over the past five years, however, shows that big metro areas are not hot spots for high flu death rates. Most of the deaths are among the large population in big cities, but the risk for any individual person goes up dramatically where homes are sparse.
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> "Very rural areas have a 60 percent higher death rate from flu than the big metro areas, according to analysis of CDC death records."

Some other modeling indicates, however, that with strong measures to prevent spread, rural areas could be spared much of the impact. However, for political reasons, rural areas may be less likely to impose such measures.

Race and Class.

There are likely to be racial disparities in terms of exposure to the virus. For instance, a

study during the swine flu outbreak found that Hispanic respondents were much more likely to say that their job could only be done at their workplace, or that they would have difficulty taking a week off work. The study also found that blacks and Hispanics were much more likely to have difficulty avoiding public transportation.

There are also possible racial disparities in terms of preexisting conditions that increase vulnerability. The connections between race and chronic disease is complicated. Diabetes rates for blacks and Hispanics are about 50% above those for non-Hispanic whites. High blood pressure is significantly more prevalent among blacks than whites, with an especially pronounced difference between black women and white women. The CDC reports that "hypertension prevalence was higher among non-Hispanic black (40.3%) than non-Hispanic white (27.8%), non-Hispanic Asian (25.0%), or Hispanic (27.8%) adults."

In terms of income level, people under the poverty line are much more likely to suffer from asthma. There's also a striking connection between diabetes and income. People whose income is below $24,000 are *three times* as likely to be diabetic as people with incomes over $120,000.

Probably the biggest impact of income involves accessibility to healthcare. Even in states that have expanded Medicaid, people below the poverty line are more likely to be uninsured. In states that have not expanded Medicaid, the difference is dramatic. In those states, affluent individuals with income more than four times the poverty level are about *six times* more likely to have health insurance than people below the poverty line. Poorer adults are also about 50% more likely to say that they have no "usual source" of healthcare. Even if the healthcare system is willing to provide expensive coronavirus treatment to the uninsured poor, their lack of resources and lesser familiarity with the healthcare system may make them reluctant to seek help or testing.

The upshot. The top priority right now is slowing the spread of the disease while getting the resources we need for the healthcare system to function. The disparities in disease exposure and prevalence mean that we will have to be careful going forward to ensure that these particularly vulnerable populations are not left behind.