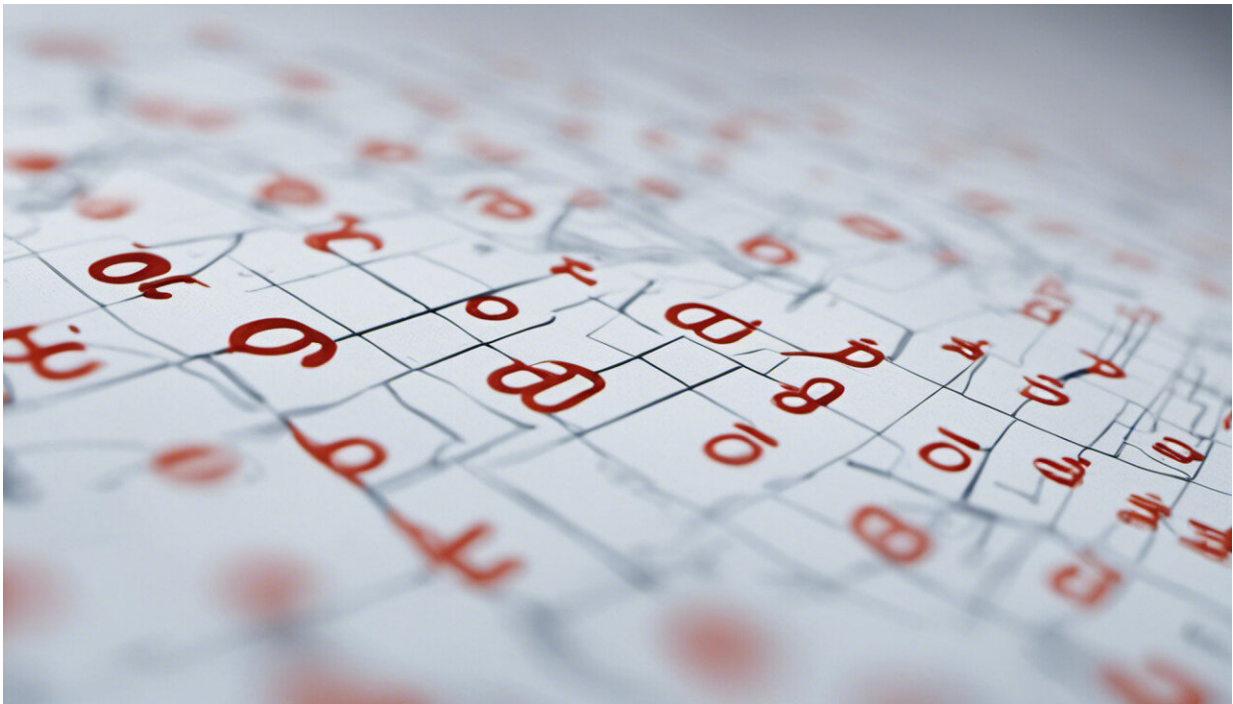


# More doctors means more competition and more antibiotics

February 9 2015, by Eili Klein And Ramanan Laxminarayan

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Credit: AI-generated image ([disclaimer](#))

According to the Centers for Disease Control and Prevention, two million people become infected with antibiotic resistant bacteria each year, leading to at least [23,000 deaths](#). And these infections cost a lot – US\$20billion in extra health care costs [each year](#). To combat the problem, the White House is requesting [\\$1.2 billion](#) in the 2016 budget

for diagnostics, new antibiotics, outbreak surveillance – and stewardship, which is how antibiotics are prescribed and used.

One of the reasons that [antibiotic-resistant bacteria](#) have become such a problem is because we take so many [antibiotics](#). Per capita consumption of antibiotics in the United States is among the highest in the world. In 2010, 258 million antibiotic [prescriptions](#) were written nationally, almost one per person ([0.83 prescriptions per person](#)).

There is a direct link between antibiotic use and [antibiotic resistance](#), and [studies](#) have found that antibiotic resistance rates are variable across the country. Thus it is important to understand what drives doctors to prescribe antibiotics as this could explain variable resistance rates. So we decided to examine if increased [competition](#) among providers leads to more prescriptions for antibiotics.

## More doctors mean more prescriptions

Prescribing rates can vary between states and within states. Many factors can drive these differences, like age, for instance. Children under the age of 10 and the elderly both consume [large amounts of antibiotics](#). Access to health insurance, which in the US is primarily provided through [employment](#) (for those under 65), also plays a role. So rates can vary based on the population makeup of a given area (ie, more young children, more elderly residents, unemployment rates).

But, we found that the number of [physicians](#) per capita can also drive up prescribing. In other words, the more physicians there are per person in an area, the more prescriptions per person there will be.

Why would more physicians lead to more prescriptions? One reason is that more physicians simply means it is easier to see a doctor and thus people may go to visit a physician more often than they need to. This is

sometimes referred to as [supplier-induced demand](#).

The second reason is that physicians are competing for business either by increasing the number of patients they see by adding walk-in hours and same-day [scheduling](#) or by prescribing antibiotics more readily – even if they wouldn't do any good – to maintain good patient [relationships](#) or to help retain [patients](#).

To try to understand the relative effect of access vs. competition in driving prescribing rates, we looked at what happens when retail and [urgent care clinics](#) move into an area.

## **The doc-in-the-box will see you now**

Retail and urgent care clinics, a delightfully American-style invention, have recently exploded in popularity and greatly expanded their reach. Sometimes called "Doc-in-the-Box" establishments, they are open nights and weekends when many doctor's offices are closed and don't require appointments. They also tend to cost less than a visit to more traditional [medical practices](#). And when they enter a new area, they often compete with existing medical practices.

Because the number of retail and urgent care clinics has increased dramatically in recent years, we used these "Doc-in-the-Box" establishments to examine how physician prescribing is influenced by this competition and how an increase in provider density affects prescribing.

## **More competition means more antibiotics**

We found that these clinics are great for improving access when they are placed in areas that are poorer. So in these areas we find that a clinic

results in more antibiotic prescriptions because access is better. This doesn't lead to competitive effects with physicians because the clinics are not drawing people away from physicians. Instead they allow people who would not have gone to the doctor to have access to the healthcare system.

In wealthier areas, where people already have access to providers, these retail clinics generally mean competition for physicians. So people now have a choice: they can just walk-in to a clinic or try to make an appointment at their doctor. Thus in areas with a lot of physicians, the introduction of a clinic and the resulting competition for patients pushed prescribing rates by physicians up even further.

## What can be done?

Understanding the factors that drive variability in prescribing rates, can help policy makers better target the activities that lead to inappropriate prescribing, like competition between providers.

Retail and urgent care clinics in both the US and [abroad](#) have increased access for people who lack access to primary care. But compliance with prescribing guidelines and oversight of clinics is necessary to ensure that better access and more competition doesn't result in unnecessary [antibiotic prescriptions](#).

While health care is a business, greater coordination between different kinds of practitioners (including clinics, [primary care physicians](#), and specialists) and fostering more collaborative environments between physician offices and clinics could help reduce factors that lead to over-prescribing of antibiotics.

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