ARTICLE | POLITICS, POLICY & LAW

Rare ≠ uncommon: patient advocates aim to increase visibility of orphan diseases

Making the case for policies and investments that could increase the speed and scale of drug development

BY STEVE USDIN, WASHINGTON EDITOR

February 23, 2022 12:18 AM GMT

BioCentury & Getty Images

The burden of rare diseases is hiding in plain sight. A lack of disease codes and imprecise electronic health records create the false impression that conditions that affect small numbers of people are uncommon, and this impression can hurt patients. Illuminating the costs and highlighting the burdens on society, patient advocates hope, will make the case for policies and investments that could increase the speed and especially the scale of drug development.

About one in 10 Americans lives with a rare condition and, according to four recently released studies, the total economic costs rival those of the most common diseases. The studies were conducted or commissioned by the EveryLife Foundation for Rare Diseases; NIH's National Center for Advancing Translational Sciences (NCATS); Advocate Aurora Health, a not-for-profit healthcare system; and the Government Accountability Office. Authors of the studies summarized their collective findings and recommendations in *Health Affairs*.

Economic incentives, including the ability to command premium prices, orphan exclusivity and tax credits have fueled a boom in orphan drug R&D, but the results are still tiny in comparison to the needs.

Since 1983, FDA has approved about 600 orphan drugs. There may be more than 10,000 rare diseases, according to an international study published in 2020.

Three of the studies assessed the economic burden of rare diseases, coming up with estimates of direct annual costs in the U.S. ranging from $400 billion to $768 billion.

The EveryLife Foundation study also looked at indirect costs and non-medical costs, estimating them at $437 billion and $111 billion, respectively, in 2019. That adds up to a total economic cost of rare diseases of $1 trillion, according to the foundation's study, which was conducted by the Lewin Group.

"One of the important messages is rare diseases aren't someone else's problem," Annie Kennedy, chief of policy, advocacy and patient engagement at the EveryLife Foundation, told BioCentury.

Toting up the economic costs makes it clear that rare diseases are a "public health problem," Joni Rutter, acting director of NCATS, said. "We are talking about a trillion dollars in total costs, 400 million in direct medical costs. That's four times the cost of most common diseases."

A call for codes

Obstacles to tallying the costs of rare diseases revealed problems that, if resolved, could improve the treatment rare disease patients receive and facilitate the creation of new therapies, Rutter said. One of the challenges to assessing the costs of rare diseases, she said, is the lack of International Classification of Diseases (ICD) codes, identifiers that act like hashtags following patients through diagnosis, treatment, prescriptions and billing. The EveryLife Foundation has collaborated in the creation of a guide that helps patient advocates participate in the development of new ICD codes.

There are ICD codes for only 500 rare diseases, Kennedy said, a paucity that "makes rare diseases invisible."

One consequence of the lack of ICD codes, she said, is that health systems can overestimate the cost of new therapies.

Kennedy cited the example of Duchenne muscular dystrophy (DMD), which is lumped in with a broader ICD code for muscular dystrophy. When the first drug was approved for a subset of DMD patients, to estimate their costs, state Medicaid programs "needed to look at 13% of DMD patients, but they were looking at the entire muscular dystrophy population, so they grossly overestimated the costs."

The authors of the *Health Affairs* article call for establishing additional ICD codes, including by providing additional resources to help rare disease stakeholders apply for codes.

In addition to clouding economic analyses, the lack of ICD codes can make it more difficult for patients to receive accurate diagnoses, Rutter told BioCentury. "Sometimes patients get codes that are very misleading, for example, basket terms in electronic health records that might identify people as having an intellectual disability or short stature — descriptions that are broad and misleading."

Authors of the four studies on the burdens of rare diseases called for expanding patient access to advanced diagnostic tools, especially genetic testing. Timely diagnoses are especially important for patients who have progressive diseases that can be modified with appropriate treatment, Rutter said.

She predicted that "the number of rare diseases will grow over time as sequencing capability increases" and genetic diseases that affect tens or hundreds of people are identified.

It isn't commercially feasible to develop therapies specifically targeted at thousands of rare diseases, Rutter said, adding that "we have to develop platform technologies and learn to disseminate them to bear on specific diseases."

She cited the Bespoke Gene Therapy Consortium, a public-private partnership that is trying to lay the groundwork for an industry that could efficiently create gene therapies for a large number of rare conditions.

The researchers and advocates who collaborated on the *Health Affairs* article called for modifying the structure of electronic health records to facilitate rare disease research, and supporting initiatives to learn more about rare diseases, including by funding natural history studies and registries. They also recommended enhancements in the collection of rare disease patient data, including by "routinely including questions about rare diseases within various public health survey instruments."

The recommendations are timely as Congress is considering legislation to reauthorize FDA user fees and the 21st Century Cures Act 2.0.