How the Biopharmaceutical Industry Contributes to Open Scientific Knowledge

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A considerable share of biopharma research “spills over” and contributes to knowledge discovery and drug development overall, not just in individual firms’ labs.

The development of new drugs requires years of painstaking, risky, and expensive research that, for a new pharmaceutical compound, takes an average of 11.5 to 14 years of research, development, and clinical trials at a cost of $1.7 to $3.2 billion. Many nations either limit or are considering limiting drug prices as a way to shrink the growth of health care costs, even though drug prices in nations that belong to the Organization for Economic Cooperation and Development (OECD) grew more slowly than total health care costs from 2005 to 2013. This is a mistake, because price controls come at the cost of a slower pace of drug discovery, as expert studies show that the relationship between drug company revenues and research and development is almost one to one.

Price controls also reduce valuable knowledge generation and sharing, which enable a healthy drug innovation ecosystem. Indeed, much of the R&D that biopharmaceutical companies conduct ends up supporting the overall biopharmaceutical knowledge commons. For example, multiple academic studies demonstrate that a portion of the knowledge biopharma companies produce in the course of drug development spills over to competitors and to university and government researchers, in part through patent disclosures and filings, but also through published findings in open scientific journals available to researchers. In 2017, industry researchers were authors or coauthors of more than 12,790 scientific journal articles on subjects ranging from the effect of changes in cerebrospinal fluid on Alzheimer’s to the effect of osteoporosis therapies for postmenopausal women, to reducing toxicity effects from new Car-T cancer cell therapies. Moreover, that same year biopharma companies provided over $2.5 billion in research funding to America’s universities
—in all 50 states—accounting for more than 60 percent of industry funding of university research. As such, just as limiting the National Institute of Health (NIH) budget has a negative effect on the generation of knowledge to support drug innovation to improve and extend lives, so too does limiting drug prices.