House Energy and Commerce Committee
5 G Testimony
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CEO
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November 16, 2017

Key Points:

5G is an important technology for enabling future medical innovations in life sciences and to support advanced manufacturing of medical devices, pharmaceuticals, and diagnostics.

Convergence of biological and applied data science will require capabilities and infrastructure like 5G to send massive amounts of information better, faster, cheaper. This enables the Massive Internet of Medical Things (MIoMT) and creation of new innovations.

5G technology will enable life science manufacturers to create better and more secure supply chains that will connect patients and distribution partners and create opportunities to improve the quality and productivity for the development and manufacturing of products.

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Chairman Blackburn, honorable members of the committee, thank you for inviting me to join you today to discuss the impact of 5G on the future of life sciences and advance manufacturing.

My name is David Broecker, and I am the founder of Legacy Consulting and the Founding President and CEO of the Indiana Biosciences Research Institute.

Indiana is home to one of the most diverse, robust life sciences sectors in the country, with companies in pharmaceuticals, medical devices, agriculture, and diagnostics. The state has consistently been the second largest exporter of life sciences products in the United States, exporting $9.9 billion in products and contributing $62 billion to the Indiana economy in 2016.

In today's life sciences, biology and applied data science are converging to help scientists understand the massive amounts of data being generated. This convergence will require new capabilities and infrastructure like 5G to allow scientists to share these large data streams in ways that are better, faster, and cheaper. The ability to do that will enable the Massive Internet of Medical Things (MIoMT) and create new innovations.

The development of the Massive Internet of Health things will connect patients to their physicians through telemedicine and virtual reality nterventions. It will make digital technologies like smart devices, wearables, and sensors a part of the delivery of care to improve patients' lives. And when combined with other enabling technologies like block chain, data standards, and encryption, it will create a shift away from place dependent, electronic medical records to virtual,

individual patient records that will improve the quality of care through personalized medicine.

5G technology will enable life science manufacturers to create better and more secure supply chains that will connect patients and distribution partners, as well as create opportunities to improve the quality and productivity for the development and manufacturing of products.

For example, 5G technology will enable the real-time capture of appropriate patient information to improve safety monitoring and adverse event reporting. It also will allow for 100 percent tracking of product distribution to the patient. It will improve the efficiency of clinical studies by providing 100 percent verifiable external data capture and exchange with researchers and development partners like contract research organizations. It will improve the technology transfer within companies between development teams and manufacturing operations to shorten timelines. 5G also will create opportunities to connect the patient to the shop floor and integrate advanced manufacturing capabilities like 3-D printing to make customized devices, cell-based therapies, and therapeutics. Finally, 5G will result in more automation of manufacturing, improving the speed and efficiency of manufacturing, creating more manufacturing jobs, and enhancing the technology focus for current positions.

Just as the nation's interstate highway system made the fast and easy exchange of goods across the country possible, 5G technology will drive innovation in the life sciences by providing a better avenue for the exchange of the massive amounts of data being generated across the information rich landscape of health care and life science innovation.