We need more research in regulatory process outcomes

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Abstract

I don't believe an abstract is needed for a commentary

Commentary: We need more research in regulatory process outcomes

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In the field of economics, there is a principle of diminishing marginal productivity also known as the Law of Diminishing Returns.11https://www.britannica.com/topic/diminishing-returns The concept is that overtime you reach a point such that additional inputs into a system or process tend to yield progressing smaller outputs or value. Thus, particularly for mature processes, it would be wise to ensure one does not reach a point where input is no longer cost effective as additional effort outweighs the anticipated gain.

In the field of regulatory science, efforts by government health agencies related to improving the speed of regulatory reviews should be far from removed from worrying about this concept. As any person or group who deals with patients suffering from the legion of serious and life-threatening diseases with unmet medical need would agree, ongoing efforts to accelerate drug development are valuable in encouraging, learning from, and spurring new action. Over the last 10 years, this recognition for the need to act has been realized with new programs from each of the three original International Council for Harmonisation (ICH) health agencies, the European Union, Japan and the United States.

Of course, the need for these programs, however great, is not enough. We must ensure that the acceleration activities employed result in the desired outcomes. There is a paucity of research investigating the value and effectiveness of pharmaceutical regulation in general. Most of the literature focus on what a new regulatory process is, but not what it has delivered. These examples serve as primers for the reader's awareness of the regulatory programs but are often created without an analysis of the associated outcomes.

The scarcity of research into regulatory acceleration programs is not surprising. There are many reasons such investigations are difficult to conduct. Confidentiality laws that prevent health agencies from disclosing certain information being just one example, but one that serves to limit what can be ascertained and makes the compilation of data difficult. When Drs. Muensterman, Luo and I recently investigated expedited regulatory pathways including Sakigake, we encountered this barrier.22Breakthrough Therapy, PRIME and Sakigake: A Comparison Between Neuroscience and Oncology in Obtaining Preferred Regulatory Status Elena Tomaselli Muensterman, PharmD, Yijia Luo, PharmD, RPh, and Jonathon M. Parker, RPh, MS, PhD,*Therapeutic Innovation & Regulatory Science* **volume 54** , pages 658–666(2020). And while the amount of data being made available to the public seems to be increasing each year, most researchers are still limited to public information. This creates situations where the valuable details were either unclear, contradictory,

or completely missing. One aspect of what makes papers like the one by Dr. Tanaka and his colleagues so valuable, is that it is compiled by those involved in the process who have full access to the relevant information.

Dr. Tanaka and his colleagues describe the evaluation of the Sakigake process implemented by Japan's Pharmaceuticals and Medical Devices Agency (PMDA). This process serves two purposes. First, to accelerate drug development of treatments in serious illnesses and the second to encourage such innovation be initially performed in Japan. Focusing on the later objective, they then describe first-in-world approvals that were accomplished through the Sakigake process. The discussion of this data is a significant first step in what should be an ongoing conversation with substantial follow up.

As is the case with leading edge research, I am left with more questions than answers. Tanaka and his colleagues cite oncology, neurology and cardiovascular as key therapeutic areas of success. Is that trend consistent with FDA's Breakthrough Therapy (BTD) and EMA's PRIME designations? Of the 37 Sakigake-designated programs less than 25% were co-designated BTD or PRIME, why such a disparity? What is the approximate time saving one gets through the drug development process as a Sakigake versus not achieving this status and why? The list goes on and would is too long include in this commentary.

Answering these questions and many more like them could translate to improvements in the drug development process for health agencies and the pharmaceutical industry. This will ultimately serve to accomplish the most important goal – to make the process more efficient in getting important new drugs to the people who need them as soon as possible. I always remind myself of the maxim anyone involved in healthcare should remember – *the patient is waiting* .