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How Do We Know the Value of Our Research?

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Research is vital to the progress of medicine. Patients depend on it to generate new knowledge that may improve their lives. Clinicians yearn for more effective tools and better guidance for themselves and their patients. Funders seek a substantial return on their investment, often in the form of a contribution to society. Researchers want their work to result in meaningful benefits for others. But how can we gauge the value of the information provided by our research?

Some scientists have had the thrill of a breakthrough that definitively eradicates pain and suffering. These researchers, such as Salk and Fleming, have witnessed their efforts result in a fundamental change in the lives of patients. However, for most research, the benefit is less apparent. Perhaps we should be considering the value of information produced by the research.

Value of information is an economic concept that quantifies how much we value certain types of information by determining what we might pay for it. We value some types of information highly. For example, we might have been willing to pay an extraordinary amount on 9/10/01 for information about the following day.

How might this concept be relevant to research? A thought experiment may be helpful. In the current paradigm, we generate an idea, develop a proposal, and seek funding. The result is a promissory note with the expectation of results that are worthy of the support.

What if we inverted the approach and researchers sold the results of their studies? Like farmers who borrow money to grow crops, the funds would come with the harvest and the market would determine the price. The research teams that produced knowledge with high value would succeed. Those who produced unwanted knowledge would ultimately need to abandon their efforts.

In a system that provides no direct feedback on the value of information that is produced, we may be subsidizing some research above its true value. This approach may maintain the livelihood of people in the field and the capacity in a medical-industrial complex to produce knowledge, but it does not guarantee that the product is needed or valued. Is this approach equivalent to the allocation of farm subsidies that maintain crops that otherwise would not

be economically viable? Are we paying for research that could not compete in the value of information marketplace?

There are researchers who might say that their unappreciated work, like some paintings by the Masters, will only be recognized appropriately through the lens of time. The existence of masterpieces that are unappreciated in our time is certainly possible, but for applied clinical research, evidence of benefit must manifest soon, given the dynamic clinical landscape that relegates even the most consequential research to historical interest within a decade.

In this thought experiment, we should assume that bidders are not merely other researchers, who may value knowledge for its own sake, but also patients, patient groups, policymakers, industry, healthcare systems, and clinicians who may be more practically oriented. Imagine that our society has set aside funds to purchase knowledge that would be made publicly available. Now, with a diverse constellation of individuals and groups representing an array of interests, imagine that we have a platform for selling information. If much of what we produce would command a low price or remain unsold, how would that affect the research enterprise? For more applied research, value lies in its direct or indirect relationship to decisions and ultimately patient outcomes. If the resources required to produce the knowledge consistently exceed the value of the information, we need to question our achievements and ask, in the language of outcomes research: What have we really done for people?

If the value of information harvested from a project is the ultimate arbiter of the wisdom of the investment, should funders assemble the knowledge that was produced to make such an assessment – rather than a “fund it and forget it” approach? This method would encourage investigators to cultivate interest in their work and anticipation for their findings. At the outset, investigators should consider the importance of the information they seek to produce. Is there a way to connect the dots from information to action such that it would make a difference to someone’s health? Investigators would also need to ensure that their final product was expressed in a way that would be attractive and understandable to end-users. Is there anyone who would do something differently because of the results of the research?

Ultimately, researchers have a responsibility to ensure that the value of their product is commensurate with the investments that were required to generate it. We do not expect each piece of the vast amount of information that we produce to be viewed as equally valuable, but the scorecard should reveal an enterprise in the black. In the analogy of farming, if we produce food that no one eats, we need to consider different crops. The question now is: what is the value of the research knowledge that we are producing?

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