



Distinguishing phases of biomedical research is critical to improving health outcomes

Bowen and Casadevall (1) offer data suggesting that research inputs have not been associated with comparable increases in health outcomes over the past five decades. However, their analysis treats biomedical research the same, regardless of whether the research focuses on early phases, (i.e., basic discovery) or late phases, (i.e., comparative effectiveness and implementation and dissemination research).

The most direct way to improve the relationship between research input and health outcomes is to focus on “pushing out” proven interventions into use using pragmatic late-phase research.

Several barriers hinder this push-out. First, health care payments have historically been based on output rather than improved health. This is shifting rapidly. Major payers, including the Centers for Medicare and Medicaid Services, are moving toward value-based payment (2). Value-based payment offers better alignment between payment and health outcomes.

Second, late-phase research remains grossly underfunded (3). Low research funding hampers identification of barriers and facilitators to uptake of proven interventions and delays public benefit (4).

Third, institutional and cultural silos between administrators within health care systems and late-phase researchers hinder partnerships that blend health system priorities with operational and pragmatic research expertise needed to effectively push-out proven interventions. Academic Medical Centers (AMCs) are often homes for large health care systems and also academic homes for late-phase researchers. As such, AMCs represent laboratories for novel partnerships for pushing out proven interventions. However, AMCs are hesitant. They may need to be pushed to overcome long-standing silos within their own institutions to build late-phase research into clinical practice (5). Funders such as the NIH could push AMCs to undertake this type of research by increasing funding levels or by including some of these costs within calculation of institutional facilities and administrative costs.

Whereas a major push-out based on late-phase research could improve health outcomes, paradoxically a pull-back from obvious translation might be needed to improve the quality of early-phase research. Excessive focus on direct translational benefit at this phase may discourage creativity and hinder

investments in programs of research that have no immediate translational value, but could in the long-run result in major breakthroughs. In summary, distinguishing between phases of research suggests a potential combined push-out and pull-back approach to improving health outcome and enhancing scientific innovation.

Kevin Fiscella¹

Departments of Family Medicine and Public Health Sciences, University of Rochester Medical Center, Rochester, NY 14620

- 1 Bowen A, Casadevall A (2015) Increasing disparities between resource inputs and outcomes, as measured by certain health deliverables, in biomedical research. *Proc Natl Acad Sci USA* 112(36):11335–11340.
- 2 Burwell SM (2015) Setting value-based payment goals—HHS efforts to improve U.S. health care. *N Engl J Med* 372(10):897–899.
- 3 Moses H, 3rd, et al. (2015) The anatomy of medical research: US and international comparisons. *JAMA* 313(2):174–189.
- 4 Woolf SH (2007) Potential health and economic consequences of misplaced priorities. *JAMA* 297(5):523–526.
- 5 Institute of Medicine (2012) *AAMC-IOM Building Effectiveness & Implementation Research into Clinical Practice* (National Academy of Sciences, Washington, DC). Available at iom.nationalacademies.org/Activities/Quality/VSRT/2012-FEB-13.aspx. Accessed October 20, 2015.

Author contributions: K.F. wrote the paper.

The author declares no conflict of interest.

¹Email: Kevin_Fiscella@URMC.Rochester.edu.