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COMMENTARY/POSITION PAPER

Sharpening our focus on designing for dissemination: Lessons from the SPRINT program and potential next steps for the field

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Implementation, Designing for dissemination, Training

"Turning Discovery Into Health" is the tagline of the National Institutes of Health (NIH). Through the tens of thousands of research studies funded by the NIH, the scientific community has developed and tested a plethora of interventions, targeting every aspect of the disease continuum and across many diseases and health topics. At the National Cancer Institute, we have been able to collect a subset of these interventions, now numbering 197, into an evidence-based repository—the Research-Tested Intervention Programs (RTIPs) website (http://rtips.cancercontrol./rtips). However, we know that just because an evidence-based intervention exists does not necessarily mean that it is optimally designed, so that it can be used to benefit the populations that it was intended to reach. Too often, we have pristinely designed interventions that may only be usable in a small number of highly resourced, tightly controlled settings, and by only a subset of the population that might have the need for which the intervention was designed. Thus, the gap between discovery and health is a wide one, requiring more efforts on the part of investigators and NIH to translate our research investments into population benefit.

This challenge has led the National Cancer Institute (NCI) over the years to focus on different strategies to promote "Designing for Dissemination," with the idea that if interventions are conceived of with the resources and limitations of the patient or client, practitioner, and system in mind, the likelihood that those interventions can achieve their intended goal rises dramatically. NCI's first foray in this area came some 15 years ago, where after a series of "Dialogues on Dissemination" [1], a large meeting gathered researchers, practitioners, and policymakers to discuss the degree to which each of these groups was responsible for ensuring that interventions could be implemented to benefit population health. The take home from that gathering was that while all stakeholders saw the importance of "designing for dissemination," none felt that it was their exclusive domain to ensure a fit between the intervention and the practice setting.

Implications

Practice: Increased participation by practitioners in the development of interventions may pave the way for the easier implementation of those interventions into clinical and community practice.

Policy: Improving the "designing for dissemination" of health interventions may result in a better set of interventions whose use policy can facilitate.

Research: Interventions designed with dissemination and implementation in mind will likely be more readily used in community and clinical settings than those traditionally developed.

In the intervening years, the NCI took various steps to support "designing for dissemination." RTIPs review criteria included elements addressing the fit of the intervention with the target audience. Research funding opportunity announcements called for the "user-centered design" of interventions, and more focus on the need to adapt [2] or tailor interventions to better fit the settings or populations where cancer prevention and control programs were needed (e.g. PAR-18-007, "Dissemination and Implementation Research in Health"). Simultaneously, researchers expanded ideas of how studies could better result in implementable interventions (i.e. "Hybrid effectiveness-implementation designs" would permit contemporaneous testing of interventions alongside implementation strategies [3]), and summarized lessons learned to improve intervention design toward higher rates of dissemination, implementation, and sustainability [4]. However, key challenges remained.

BUILDING FIELD CAPACITY FOR DESIGNING FOR DISSEMINATION

As detailed in the two papers in this volume [5,6], the NCI Implementation Science Team engaged in an Departmental training program to better understand barriers to the use of RTIPs programs and found from multiple interviews with our researchers that few reported having the necessary skills and experience in understanding how these interventions, once developed, could best be positioned for widespread uptake. While the research community was well prepared to understand mechanisms underlying intervention development, and to design trials that optimize the chance of detecting a benefit from an intervention versus some comparator, exposure to the entrepreneurial side of innovation design and implementation, and specific understanding of the marketplace and the business models needed for the intervention to survive within were not compulsory components of the intervention researcher's armamentarium.

The Speeding Research-tested Interventions (SPRINT) program, as described in the related papers, was expressly developed to address this need at three fundamental levels:

1) In the context of a specific intervention, what does the "marketplace" look like and what strategies can be developed that will aid the intervention in enhancing its viability for implementation?
2) For other interventions that participants may be developing in the future, how can more of this "entrepreneurial" thinking be baked into the initial design of the interventions to increase the likelihood they can be implemented in diverse settings?
3) How can the field collectively learn more about how to embed design-thinking and design for dissemination across all health intervention development?

As the evaluation paper explains, the SPRINT program demonstrably improved the familiarity and comfort of our investigative teams with the market aspects of intervention delivery and led teams to shift toward implementation foci, pursue connections with small businesses, establish companies to deliver their intervention, or in some cases redesign the intervention itself to make it more responsive to the needs of stakeholders. In conversations with our research community, we have also recognized the potential added benefit as they consider the course experience in light of other interventions they may develop in the future. As the course has evolved over three completed cohorts, with an upcoming fourth cohort in 2019, we are looking at the degree to which this model might be scalable across other areas of health and healthcare. Might this be exported to cover a wider swath of preventive, community, and health system interventions?

PROMOTING CONTINUED ACTIVITIES ON DESIGNING FOR DISSEMINATION

For many of us working at the interface of intervention testing and implementation, the SPRINT program has given us new perspective on the degree to which expectations of fit between an intervention and its targeted market can only go so far as we are able to offer opportunities for knowledge acquisition and entrepreneurial partnerships. The SPRINT model has provided for our behavioral intervention research community one mechanism for enhancing skills as well as gathering the important information about what intervention users are looking for and how well they are prepared to incorporate research-tested interventions into standard practice. Moving forward, we see a number of potential opportunities for enhancing the focus on designing for dissemination, particularly for interventions that do not necessarily have a built-in market to enter.

Expanding SPRINT to other areas of intervention

The SPRINT program, as the accompanying papers explain, was modified from a National Science Foundation model, I-Corps, and multiple NIH institutes have used this model primarily for biotechnology innovations. As far as we know, SPRINT has been the first effort to modify this program to address behavioral interventions. While SPRINT, as an NCI program, has focused on those interventions related to cancer control, there is tremendous opportunity to apply similar training opportunities to other types of health and healthcare interventions. If more of our interventions were designed with the ultimate target setting and populations in mind, we hypothesize that the path from discovery to delivery would be far more seamless.

Extending SPRINT-style training at earlier stages of the intervention development continuum

The SPRINT program has largely been designed for those investigators who have an intervention that has already shown benefit through one or more efficacy or effectiveness trials. This experience can clearly help to address the degree to which an already designed intervention fits the targeted context and is used by the target population. However, we might get even greater benefit by bringing this training to bear on earlier points of intervention development. Might this customer discovery and market exploration shape the way the intervention is developed from the beginning, and even identify previously undiscovered targets for intervention that can lead to a more comprehensive armamentarium of approaches to benefit health and health care? In addition, this type of training can promote co-design of interventions with key stakeholders to reflect the needs of the target audience and increase the fit with practice settings.

Establishing a community of practice around designing for dissemination experiences

As we now enter the fourth cohort of SPRINT, and multiple cohorts of I-Corps trainees across other areas of the biomedical research continuum, we may benefit from a collection of the experience and expertise gained by investigators who have gone through the program. The SPRINT teams have summarized some of this learning through the program deliverables but establishing mechanisms by which graduates of these programs can form a community of practice around "designing for dissemination" (D4D) may enable the lessons learned to further permeate our research community.

The SPRINT program has given many of us new enthusiasm around incorporating D4D and implementation within the fabric of our intervention development and testing pathway. While we continue to have more work to do to ensure that our evidence-based interventions are implemented and sustained in community and clinical practice settings, we have seen the difference that these additional skills and experiences can provide to our research teams and their practice collaborators. While gaps between research and practice remain, we feel confident that our cancer control research community has new tools, new perspectives, and new appreciation for the benefit of designing for dissemination and implementation.

Compliance with Ethical Standards

Conflicts of Interest: Author declares no conflicts of interest.

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