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SPECIAL ISSUE: GLOBAL HEALTH SERVICES RESEARCH WORKFORCE

Are We Growing the Right Health Services Research Workforce of the Future? Thoughts from a National Delivery System

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At the height of debates over the Affordable Care Act, Reed Tuckson (then a VP at United Healthcare) implored the audience of health service researchers, "You wanted to be relevant—well, now's your chance. Don't screw it up!" The community of health services researchers stepped up to the challenge of assessing the complex impacts of health care reform over the last 5 years (Blumenthal, Abrams, and Nuzum 2015; Hsu 2016; Long et al. 2017). But we need health services researchers for much more than analysis of Federal health policy. To remain "relevant", researchers will need to be more flexible, nimble, entrepreneurial, collaborative, and innovative.

At the Veterans Health Administration, an integrated health system that cares for 6 million Veterans each year, health services research has been an essential component of our research program for over two decades. In our quest to be a "learning healthcare system" (Institute of Medicine 2012; Atkins, Kilbourne, and Shulkin 2017), VA has turned to researchers to identify opportunities for improvement, test interventions to address those areas, and evaluate the costs and impacts of major initiatives (Nelson et al. 2017). Research within a delivery system, however, has taught us that the path from research evidence to practice is rarely linear. In thinking about the goals of high quality health care—providing care that is safe, timely, effective, patient-centered, efficient, and equitable (Institute of Medicine 2001)—here are a few observations of the new skills researchers will need to help us get there.

1. First, a growing amount of important health services research in the United States won't be funded by traditional Federal research funders. We should celebrate rather than fret about this. Longitudinal

electronic health records with rich clinical data across large populations provides millions of opportunities for analysis within the delivery of healthcare. This "little r research" is a core element of the learning healthcare system (Atkins, Kilbourne, and Shulkin 2017) and allows systems to test the impacts of their improvement efforts. Clinical partners contributed an estimated $47 million to analyses done by VA health service research centers on topics including primary care, geriatrics and long-term care, women's health, and performance measurement. A number of important VA research findings have emerged from projects funded by clinical partners, including the clinical and economic impact of the VA's national roll-out of patient-centered medical homes (Nelson et al. 2017). Fortunately, more journals are recognizing the value of publishing such work and the VA has instituted processes to facilitate this by having program partners certify when a project is funded by clinical dollars and done in the context of improvement rather than research, thereby making it exempt from review by institutional review boards. Researchers will need to traverse the different worlds of research, quality improvement, and program evaluation which, although they share many methods, have distinct funding streams and priorities. We should work to share and learn from each other's methods and findings; even when publication is not the driving motivation of the work, we should seek venues to publish as much of it as possible. More formal partnerships can increase the impact of research, where components of the evaluation are supported by the clinical partners but deeper examinations are supported as hypothesis testing research. In VA, we have initiated a program where clinical offices planning to implement a new program— for example, a program that allows older Veterans more flexibility to purchase support services to meet their at-home needs— will partner with the research program to design a more rigorous test of the costs and impact of the new initiative.

2. If we want health services research to remain relevant, we need to train researchers how to partner with and communicate to clinical stakeholders, policymakers and the "C suite" of health organizations. The concept of "knowledge brokers" (Lomas 2007) is over a decade

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old but requires mastery of communication and interpersonal skills that are rarely emphasized in research training (Stokstad 2017). While understanding the perspectives, priorities and constraints of different research "customers" is critical, it is even more important for researchers to understand how to partner early in the research process with clinical leaders and policymakers. Relationships and partnerships built over time are much more important in persuading people to pay attention to your research than statistical significance of one's findings or journal publications. Some clinical offices have helped co-fund research investigators in return for help developing and analyzing critical data in support of their programs. The VA Health Services Research and Development service has just begun funding some early career researchers to spend 25 percent time working as a "researcher in residence" in clinical policy offices. The office gains from the analytic skills of our researchers while our researchers learn about critical priorities and how operational partners make decisions.

3. Researchers designing clinical interventions need to understand implementation in health care and consider implementation early in the design. This is equally true for an intervention being piloted in a few clinics and a policy change being implemented nationally. The QUERI (Quality Enhancement Research Initiative) program in VA has helped focus attention on how to speed getting evidence into practice (Kilbourne et al. 2017). In that effort it has invested in "hybrid" studies that simultaneously examine effectiveness and implementation issues (Curran et al. 2012). Implementation, however, is too important to leave to implementation researchers. The challenge of spreading best practices will not be solved because some researcher discovers the magic recipe for implementation. It will require joining people in different roles—including researchers, clinicians, mid-level managers and executives—who share a commitment to solve a particular problem. To encourage this in the VA, we created the Collaborative Research to Enhance and Advance Transformation and Excellence (CREATE) Initiative, which funded 10 program projects aimed at high-priority issues (e.g., hospital-acquired infections, post-traumatic stress disorder, etc.) and developed in close partnership with the clinical stakeholders (Department of Veterans Affairs 2018). To keep researchers engaged after the funding has run out and the findings have been published, we will need new funding

mechanisms and incentives. In the VA, we have initiated an award for most significant research impact and are offering "implementation supplements" to allow successful research teams to continue projects to a point when they can be handed over to their clinical partners.

4. Health services researchers will need to be comfortable in the distinct worlds of "big data" and "deep data". Rich data sets on millions of patients are no longer the exclusive province of integrated systems like VA and Kaiser Permanente. In VA, we have been able to harness big data to predict patients at high risk of hospitalization (Wang et al. 2013) and others at high risk of suicide. Prediction is less than half the battle, however. Improving outcomes requires that we understand how and where we can intervene in high-risk patients. It involves "deep data" to understand how patients and clinicians make decisions and requires attention to factors outside the delivery system—for example, social determinants of health, community services, social networks, and caregivers. Researchers have been able to capitalize on a range of nonclinical operational data in the VA from administrative and internal survey data, including information on budgets, staffing, patient satisfaction and access, and employee engagement. VA's CREATE initiative funded projects that paired big data and simulation studies— for example, a study that modeled spread of MRSA using national VA data was done in parallel with a qualitative analysis of work processes and behavioral factors that facilitated, or pose barriers to, more effective hand hygiene practices. Using this for research requires anthropologists, behavioral economists, psychologists, and operations researchers among others. In VA, we can now identify patients at highest risk for problems from opiate use and those facilities prescribing the most opiates, but continued progress requires understanding the complex needs of patients with chronic pain and the clinicians who care for them. We regularly encourage using mixed methods approaches that combine quantitative and qualitative methods to learn not only "what" we should be doing but also the more challenging question of "how" to do it in a complex health care environment.
5. Health economics will remain important, but focus needs to expand beyond traditional cost-effectiveness analysis. Health care costs are a topic of daily conversations, yet tangible examples where traditional cost-effectiveness analysis has shaped decisions remain scarce.

Because no decision makers have a true societal perspective, analyses with different perspectives are often needed, such as impact on a facility budget or on patient demand. Similarly, attention to behavioral economics can help us move beyond binary decisions in health care —do or don't do—to asking how we can modify financial and nonfinancial incentives to change the behaviors of patients and providers to improve outcomes and lower costs (Loewenstein, Asch, and Volpp 2012).

6. We will need researchers to help us navigate through the dizzying array of private sector innovations in technology, health informatics, and analytics. With big technology players such as Google and Amazon upping their stake in health care, the private sector will lead much of the innovation in both patient-facing and provider-facing technology. We will need researchers, however, to help separate hype from reality and test where and how technology and predictive analytics truly add value. Faced with a dizzying array of new healthcare apps (Powell, Landman, and Bates 2014), researchers need to explore the ways that patient-facing technology can help give a stronger voice to the patient in care decisions (for example, by allowing clinicians to get a better picture of how a patient is functioning throughout their day). For clinicians, to date most health informatics innovations have added rather than saved work for the clinician, presenting numerous reminders that need to be resolved or data fields that need to be entered—the proverbial "death by a thousand clicks". A new focus is needed on how informatics in the patient setting can improve work flows, free up clinicians to spend time with patients rather than computers, and promote coordinated, patient-centered, team-based care (Verghese, Shah, and Harrington 2018).

The good news for health services researchers is that the demand for their skills has only increased over the last decade. The variety of careers in which to apply well-designed, theory-informed, and objective analysis have grown. But to thrive in this new world, researchers will need qualitative as well as quantitative skills, facility with people as well as with numbers, ability to communicate with the public as well as with peers, and a willingness to be flexible while striving for rigor. This is still your chance—don't blow it!

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