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Health Care–Delivery Research-Training Opportunities in Gastroenterology and Hepatology

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The United States spends nearly 20% of its gross domestic product on health care to its citizens yet it ranks 37th out of 191 countries based on performance and measured outcomes.[1] Recently, several legislative initiatives have been passed by the United States government including the Patient Protection and Affordable Care Act (ACA) that was signed into law on March 23, 2010. The ACA's overarching goal is to improve access to health insurance for all Americans and to improve the value of medical care delivered to the population.[2,3] However, the organization and delivery of health care in the United States is currently based on several complex relationships between payers, health care providers, and patients. Understanding these relationships and the interventions needed to provide high value health care requires the development of a well-trained cadre of health care–delivery research investigators. In this commentary, we describe the various opportunities available for individuals who seek to acquire knowledge and methodologic training in health care–delivery research.

Definition of Health Care–Delivery Research

Before defining the concept of health care–delivery research, the discipline of health services research (HSR) was formally recognized by the Institutes of Medicine within a landmark publication in 1979.[4] More recently, HSR has been characterized as a multidisciplinary field that draws on all the health professions and disciplines including biostatistics, epidemiology, health economics, medicine, nursing, operations research, psychology, and sociology.[5] The main goals of HSR are to study how social factors, financing systems, organizational structures, health technologies, and personal behaviors affect the access, quality, cost, and ultimate health provided by systems of care.[6] HSR also examines the impact of new and existing diagnostic technologies and treatment on patient outcomes and health care costs. Ultimately, the byproducts of HSR are used to inform and evaluate health policy initiatives such as changes in Medicare and Medicaid coverage, disparities in access and utilization of care, innovations in private health insurance (eg, consumer-directed health plans), and trends among those without health insurance.[7–9] In its landmark 2001 report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, the Institute of Medicine proposed that the goals for health services should include 6 critical elements that include (1) patient safety, (2) effectiveness of care based on scientific evidence, (3) timeliness for seeking and receiving health care, (4) patient centeredness recognizing individual and population preferences for care, (5) efficiency in delivering care, and (6) equity for access to care.[10]

More recently, a focus on the science of health care–delivery research has emerged from within the field of HSR. Health care–delivery research is focused on applied experiences in conducting research within the context of actual health care delivery within existing systems.[11] Specific areas of interest include (1) quality and safety, (2) quantitative (ie, systematic reviews and meta-analyses) and qualitative studies to identify gaps in care, (3) evaluations of alternative models of care delivery, (4) implementation of clinical practice guidelines and best practices in various care settings, (5) comparative effectiveness research (CER) on diagnostic tests and treatments, and (6) shared decision making and the development of patient-reported outcome measures based on pertinent stakeholder engagement. To underscore the emerging interest in this nascent area of investigation, the ACA contains provisions for the creation of a national, independent organization called the Patient Centered Outcomes Research Institute (PCORI). The purpose of PCORI is to assist patients, clinicians, purchasers, and policy makers in making informed health decisions through the generation and dissemination of research findings with respect to the relative health outcomes, clinical effectiveness, and appropriateness of medical treatments and services.[12] PCORI also issues primary research funding for investigator and health system initiated grant projects as well as funding for research training in

0016-5085/$36.00
http://dx.doi.org/10.1053/j.gastro.2014.02.017

conjunction with the Agency for Healthcare Research and Quality (AHRQ). Furthermore, several academic medical institutions such as Dartmouth and the Mayo Clinic have initiated designated centers for investigating the science of health care delivery.

Health Care–Delivery Research in Gastroenterology and Hepatology

Despite the relatively young age of health care delivery system research as an investigative field, a growing number of examples of this type of research within gastroenterology and hepatology have been published within the past few years. Examples include examining the causes for hospital readmission for decompensated cirrhosis,[13,14] determining the impact of racial and ethnic differences in health care utilization and outcomes among ulcerative colitis patients in an integrated health care organization,[15] and assessing the impact of delayed referral for treating hepatocellular carcinoma on survival.[16] To date, the majority of publications have been retrospective investigations using previously collected data from national/proprietary registries or administrative claims databases. Future investigations are expected to identify and test hypotheses prospectively using data on quality, cost, and outcomes of medical care generated by health care systems over time. Furthermore, an increasing emphasis on utilizing accepted methodologies to assess specific aspects of health care–delivery research (such as CER) have been developed and endorsed by the PCORI Methodology Committee.

As with other disciplines, the identification of appropriate mentors to help trainees and junior faculty navigate the research enterprise process is critical for their success. By its nature, health care–delivery research is an interdisciplinary science where collaborations between divisions (ie, general internal medicine and gastroenterology), departments (ie, medicine and surgery), and schools (medical and public health) occur frequently. The successful investigator will develop a mentorship team composed of experienced and knowledgeable advisors from a variety of fields to create the opportunity for conducting innovative research. The conduct of such research within the actual delivery systems where medical care is provided represents the "translational" component. This has increasingly been recognized as essential for understanding how to improve the value of our investments in health care.

Educational Opportunities for Didactic Learning Within Degree Programs

Several opportunities exist for individuals to obtain formal education in the science of health care delivery. Two examples are the Master of Health Care Delivery Science program at Dartmouth and the Master of Science in the Science of Health Care Delivery at Arizona State University. Curricula for these degrees are intended to address the concept of value-based improvement of health care delivery. Topics include health economics and policy, using large-scale data to inform decision making, health disparities and access, policy and payment models; health law, population health, information technology, and leading change in organizational systems. Program tuition and fees will vary based on course load, credit hours, the need for periodic on-site residential learning sessions, and the incorporation of web-based technologies for instruction. A limited number of scholarships and financial aid through educational loans may also be possible to secure by eligible applicants. The composition of incoming classes will also be varied yet quite dynamic in level and range of experiences in health care and other related fields. Typical applicants range from medical students (ie, participating in a dual-degree track) to post-doctoral clinical fellows to working professionals who seek more knowledge or a change in career trajectory.

Research Training Opportunities

Several research training opportunities in HSR have been available through private and national organizations. In recent years, the institutions have expanded their offerings to include training in the concepts of delivery system research. Example areas of methodologic emphasis for these funding opportunities are listed in Table 1.

Institutional-Based Career Development Funding Opportunities

The Robert Wood Clinical Scholars Program and Veterans Administration's National Quality and Safety Fellowship and Health Services Research and Development Program are 3 of the most established programs offering training in health policy and delivery system research. The Robert Wood Clinical Scholars Program offers a 2-year master's degree graduate-level study and a minimum 80% protected time for conducting research. Typically, these programs are restricted to postgraduate physicians in training. Four institutions currently participate as training sites including the University of California, Los Angeles; the University of Michigan; the University of Pennsylvania; and Yale University.[17] The Veterans Administration's (VA) National Quality and Safety Fellowship program (which is also coordinated

Table 1. Examples of Methodologic Emphasis for Health Care–Delivery Research

Comparative effectiveness of health care diagnoses, treatment, and services using prospective, longitudinal cohort studies.
Cluster-randomized or practical clinical trials of new or existing health care technologies.
Innovative approaches that account for clinical heterogeneity of treatment effects.
Meta-analysis and systematic review methodology.
Decision science modeling and analysis.
Communication of risk and benefit in the use of evidence-based decision making.
Implementation science methodology.
Training in data mining techniques for registries and large-scale longitudinal data sets.