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SPECIAL SECTION ARTICLE

The Health Services Researcher of 2020: A Summit to Assess the Field's Workforce Needs

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Objective. To summarize the current state of the health services research (HSR) workforce and recommend ways to improve the field's ability to respond to future challenges facing the health system.

Data. Summaries of workgroup discussions and recommendations at a stakeholder meeting.

Study Design. In late 2007, 50 educators, students, employers, and funders of HSR participated in a meeting to discuss findings of three commissioned papers on the HSR workforce. The group undertook a consultative process to develop recommendations for the field.

Principal Findings. Stakeholders developed recommendations in five major areas focused on HSR workforce needs: (1) improving the size and composition of the field; (2) understanding the growth of HSR in the private sector; (3) improving the graduate training of health services researchers, especially at the master's level; (4) expanding postgraduate training and continuing education opportunities; and (5) increasing awareness of the value of HSR.

Conclusions. Specific recommendations in the five major areas emphasized developing partnerships between HSR organizations and other professional societies or health organizations, as well as ways to improve training for the future workforce. The need to develop a "client orientation" toward research by improving communication and dissemination skills was discussed, as was the importance of improving diversity in the field.

Key Words. HSR workforce, training, HSR 2020 Summit, diversity

BACKGROUND

With health care costs soaring, diagnostic and therapeutic options proliferating, and the number of uninsured growing, the role of health services research (HSR) in providing evidence for policy may be increasingly important in coming years.¹ However, there is a question as to whether the field has the right workforce to adequately respond to expectations.

Understanding the field's size, composition, and skills is no easy task. One reason is that HSR is an unregulated profession that self-identifies, rather than a career track with a standard graduate degree program or with a required license or accreditation. It is a broad, multidisciplinary field that absorbs researchers from varied disciplinary backgrounds, including medicine and nursing, economics, engineering, and sociology. Some of these researchers remain in the field, while others are only intermittent participants. Ricketts describes this phenomenon as a "sponge," rather than a traditional educational pipeline (Ricketts 2009).

AcademyHealth set out to assess the current HSR workforce and its ability to respond to future challenges. Three studies published in this Special Section were commissioned with support from the Robert Wood Johnson Foundation (RWJF) and the Agency for Healthcare Research and Quality (AHRQ). McGinnis and Moore (2009) examined the current stock of health services researchers. Ricketts (2009) analyzed trends in the educational training of health services researchers. Thornton and Brown (2009) reviewed trends in the market demand for health services researchers. A stakeholder meeting was convened in late 2007 to discuss findings. Fifty educators, students, employers, and funders of HSR participated in a consultative process that resulted in five sets of recommendations.

FINDINGS

A Growing Field

Efforts to assess the size of the HSR field are hampered not only by the transient nature of any interdisciplinary field but also by self-definitional issues, because not all those that do HSR necessarily consider themselves health services researchers. The 2009 McGinnis and Moore study and a 1995 report by the Institute of Medicine (IOM) addressed this difficulty by counting those who join, present, or publish in venues that are identified as HSR. Thus, both studies looked at participation in AcademyHealth (or its predecessor, the Association for Health Services Research), registration of principal investigators in HSRProj, and the National Library of Medicine database of ongoing

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HSR. In 1995, the IOM estimated the size of the field to be just short of 5,000.² The 2009 AcademyHealth study used similar sources and concluded that even under the most conservative estimates, the field had more than doubled in size since 1995 to over 13,000 researchers.³ According to McGinnis and Moore, if researchers in disciplinary associations with subgroups that sometimes do HSR, such as the American Public Health Association, the American Society of Health Economists, the American Statistical Association, and the American Sociological Association, were included, there could be an additional 6,000 intermittent members of the field. These estimates are likely lower-bound due to perpetual growth of HSR programs and study sections within associations whose members are intermittent researchers interested in HSR.

More Interdisciplinary HSR Programs

Ricketts reported that trends in educational programs show an increase in the number of researchers graduating from interdisciplinary HSR programs and an increase in the proportion of the field trained in such programs. The 1995 IOM report found 1,105 master's students and 51 doctoral students enrolled, while our 2009 study estimated that there were approximately 4,500 master's students and between 150 and 300 doctoral students graduating per year. Among AcademyHealth's membership, HSR is now the most common educational background with 14.5 percent of Ph.D.s having received their degree in HSR and 6.4 percent of master's having trained in HSR programs. Other common areas of training include economics, health policy, public health, and public policy (Moore and McGinnis 2007).

More Organizations

Based on data in the HSRProj database,⁴ Thornton and Brown (2009) found that the number of organizations housing principal investigators grew from 523 to 709 between 2000 and 2005. The largest increase occurred in academia, which has grown 63 percent from 2000.

Funding Stable

Based on data gathered by the Coalition for Health Services Research, Thornton and Brown found that public funding for the field has remained constant at U.S.\$1.5 billion/year level since 2002. They estimate that foundation-funded HSR has also remained stable. However, HSR funding has not kept pace with the dramatic increases in total health spending. In constant

2002 dollars there has actually been a decline to U.S.\$1.34 billion. If this trend continues, federal funding for HSR as a share of national health expenditures will decrease from its 2006 level of 0.07–0.04 percent in 2016. There is the additional issue of declining support for investigator-initiated research at AHRQ, with half as many extramural research grants awarded in 2005 as in 2000.

Demographic Composition

Data on the composition and distribution of the field are largely drawn from AcademyHealth membership surveys, which, as is the case with most professional societies, likely represent a bias in favor of academics. General findings from the Moore and McGinnis study include the following:

- The recent growth of the field may help to compensate for an aging field. The median age of researchers in HSR (46) continues to be slightly older than the average labor force (40).
- HSR is an increasingly female-dominated profession, with 56 percent women. This represents a dramatic shift from a 1978 study in which 90 percent of principal investigators were males (IOM 1979). A 2007 AcademyHealth salary survey cited by Moore and McGinnis revealed that women are paid considerably less than their male counterparts, on par with national estimates of gender disparity in pay levels (Goldberg and Hill 2007).
- The 1978 survey showed minimal racial/ethnic diversity, with 95 percent of HSR researchers as non-Hispanic white. The 2007 study showed improvement, but still a lag in the racial and ethnic diversity of the field. Eighty-four percent of the HSR workforce is non-Hispanic white. Asians were the only minority with a high level of participation in the field at 8 percent. Other minorities combined represented only 6 percent of the HSR workforce. These data are strikingly consistent with diversity of medical doctors. As of 2004, black, Hispanic, and Native American graduates from U.S. medical schools represent 6 percent of the field, compared with 26 percent of the U.S. population (AAMC 2006).

More Jobs in the Private Sector

The Ricketts study found that while universities remain the primary source of employment for health services researchers, there is an increase in the number of graduates of HSR programs going into the private-for-profit sector.

THE RECOMMENDATIONS

Based on these findings, Summit participants discussed future challenges facing the health system and the field's likely ability to respond. Recommendations were issued in five areas:

1. Improving the size and composition of the field
2. Understanding the growth of HSR in the private sector
3. Improving the graduate training of health services researchers, especially at the master's level
4. Expanding postgraduate training and continuing education opportunities
5. Increasing awareness of the value of HSR

In most cases, recommendations are directed at the field of HSR, including those trained in HSR as well as intermittent researchers, though in some specific cases the recommendations focus on one group or another.

Improving the Size and Composition of the Field

Gender Distribution. Summit participants discussed the rising participation of women in the field and its potential impacts. They concluded that it is difficult to assess whether women will have the same career paths as their male predecessors because generational differences may change career trajectories for both men and women. Gender differences in pay are endemic to the U.S. workforce overall, and the issues that drive these differences in HSR are probably no different than those that drive differences in other professions, though the field needs to better understand leadership and promotion trends by gender. Specific recommendations include the following:

- AcademyHealth should consider developing a program on leadership training for women.
- AcademyHealth should consider partnering with the Office of Women's Health and should track developments of a foundation-funded National Initiative on Gender, Culture, and Leadership in Medicine (C-Change 2008).
- AcademyHealth should continue to conduct salary surveys every 3 years and be especially attentive to exposing gender disparities.

Racial and Ethnic Diversity. The group strongly believed that the composition of health services researchers should reflect the diversity of society, but as in other health fields it currently does not. It is disappointing that with health disparities being one of the most pressing issues facing today's society, minority researchers are still underrepresented in HSR. While a number of organizations are working on this issue, the group suggested that the following additional efforts should help:

- Pipeline programs exist for basic and bench science trainees. Health services researchers should participate in these programs as speakers to expose students to the promise of the field as early as practically possible.
- Health services researchers should recognize that the field is competing for the best students. Appropriate and timely scholarships and stipends must be offered.
- Partnerships should be established with the new RWJF-funded center at the University of New Mexico to attract minorities into the field.
- Marketing is important to recruit more minorities into HSR. Often people do not realize that you can do an array of things with a degree in HSR.
- To increase minority enrollment into HSR programs, we need to help minority candidates explore graduate school opportunities; negotiate their first job, etc.

Mentoring of minority students and junior faculty was viewed as critical. More effective mentoring could lead to more promotion of women and minorities, but it can require a significant investment of time.

- AcademyHealth should set up a system to train mentors; keep mentoring commitments specific and time limited.
- AcademyHealth should facilitate mentoring in professional development (e.g., maintain a list of willing mentors and matching mentors).
- Academia and funders should provide support for research mentoring.

Future Efforts to Monitor the HSR Workforce. Data are useful to assess demand and guide investment in scientific training and can also provide a better

understanding of funding trends. HSR is a difficult workforce to quantify, and frequent monitoring is necessary to stay abreast of changes. Early identification of new research areas (e.g., comparative effectiveness) and disciplines that have increased interaction with HSR (e.g., clinical informatics) is especially important. More information on workforce trends will enable adaptation of training programs to meet demand.

A periodic, comprehensive assessment of the workforce should be combined with more frequent monitoring to collect basic demographic information. More recommendations include the following:

- Systematically track recipients of HSR grants through HSRProj and provide updates on research funding priorities and areas of study.
- Establish a taxonomy to accurately classify dissertations, articles, etc.
- Use a monitoring system to gather and assess HSR-related dissertations every 5 years and to set goals and benchmarks for the profession.

Understanding the Growth of HSR in the Private For-Profit Sector

The group discussed the Ricketts' finding that more students graduating from HSR programs are going into private for-profit sector jobs. This may be a result of diminished funding for academic research, or it may be a reflection of increased awareness of HSR in the private sector. In either case, health services researchers employed in the private for-profit sector are eager to be acknowledged for their potential contributions to the field and to provide feedback to educational institutions on the specific skill sets their future employees need and may be lacking.

Health services researchers who work for private sector companies are often placed in leadership roles because they have skills for convening stakeholders and building consensus. HSR trainees have also proven useful in identifying the policy problems that need research.

The group pointed to two specific contributions that private sector researchers could potentially bring to the broader field. The first is the development of a common vocabulary to communicate across disciplines. This is a potentially useful contribution from those outside academia because the major academic disciplines contributing to HSR are often siloed and unaware of differences in terminology. The second concerns a shared role and interest in health care reform. The private sector has a wealth of experience examining the implications and outcomes of policy reforms, and it could be instrumental

in providing data and information to inform decisions. Health care reform also provides a unique opportunity to pull the field together regardless of the employment setting of researchers.

Recommendations also focused on improving the interface between academia and the private sector. The group emphasized that the private sector should articulate to academic institutions and students how private sector activities should be a consideration for training programs. This may require greater involvement in the development of core competencies for the training HSR workforce. It may also include targeting master's-level health services researchers to develop their private sector skills.

Critical skills in addition to those traditionally taught in public health schools with programs in HSR that were identified by the group include the following:

- Basic knowledge of human physiology and medical conditions
- Extensive knowledge of the health insurance and delivery systems
- Ability to manage large data sets
- Awareness of culture, politics, and global health care systems
- Client orientation skills such as:
 - Writing and verbal presentation skills
 - Project management skills
 - Ability to work in teams
 - Skills to understand and bridge the language of different disciplines
 - Team leadership

The group also acknowledged that the private sector should do more to provide current health services researchers with continuing education to help them keep pace with current methods. They proposed developing training programs that would offer students opportunities to experience working in teams, developing a budget, meeting deadlines, and presenting work. These might draw on the training models of law and business programs, which offer students “real world” work experiences.

A variant on this idea was to develop a system for mentoring researchers coming into the field and provide opportunities for them to work as fellows or interns in the private for-profit sector. This could help build partnerships between for-profit companies and academic training programs.⁵

Specific recommendations were also made for professional societies, especially AcademyHealth, as follows:

- Develop a publication that profiles private sector work to help students understand whether they want to pursue work in the private sector and what skills they need in order to do so.
- Conduct a review of the differences between private sector and academic work to identify subtle differences in the type of projects and skills in the private sector.
- Work with universities and accreditation organizations to give students exposure to the private sector and experiences that prepare them for the private sector.
- Incorporate private sector health services researchers onto professional boards and into traditionally academic contexts/presentations/government meetings.

Participants stressed that all of the recommendations are relevant for Ph.D. and master's-level researchers. Master's trainees are considered highly desirable in the private sector, and defining the necessary competencies for this group is just as important as the doctoral level.

Improving the Graduate Training of Health Services Researchers

Interdisciplinary HSR Programs. Discussants acknowledged trade-offs for researchers who are trained in HSR rather than specific disciplinary programs. But for the field as a whole, the trend toward more interdisciplinary training was viewed as potentially beneficial. Experts agreed it is crucial for students to be trained with sufficient methodological "depth," which for some programs is provided by offering masters-level training in a primary discipline. One potential way to break down academic silos would be to foster collaboration among researchers focusing on applied problems. Other benefits of interdisciplinary training include the ability to communicate across disciplines and lead teams. HSR trainees were identified as team players and translators across disciplines with an applied orientation to problems, resulting in low start-up cost of incorporating them into projects. Those trained in HSR also tend to be lifelong learners with an orientation toward self-teaching.

However, interdisciplinary HSR programs may be perceived as threats to more established discipline-based programs. Lack of common naming conventions across departments is also a potential problem because the specific contributions of interdisciplinary programs and researchers can be

unclear. There is also some concern about where interdisciplinary HSR programs should be housed and that programs may end up borrowing faculty and have no real home. In addition, interdisciplinary fields produce a great deal of new information and need good mechanisms to transmit new research, models, and methods.

The new HSR programs need an infrastructure that supports their growth and development. Academia may support interdisciplinary programs verbally, but programs do not always give financial support. The group's recommendations for professional societies, and AcademyHealth in particular, were as follows:

- Strengthen ties to other professional societies such as sociology and economics. One potential activity could be a joint meeting.
- Provide a digest of methodological advances and key papers.
- Create guidelines for tenure committees regarding the benefits of applied research.

Core Competencies for HSR Training. The workgroup believed that the following competencies will become increasingly important in the future:

- Mixed-methods
- Clinical informatics
- Genomics
- Effectiveness and personalized medicine
- Health systems engineering
- Systems thinking
- Project management
- Communication and marketing skills
- Public policy
- Political science

The group felt that current training programs need more team-based courses that put a greater emphasis on writing skills to communicate and disseminate research results. These programs may be targeted to interdisciplinary health services researchers or disciplinary researchers interested in learning more about HSR. Specific recommendations include the following:

- Academia should provide greater support for writing skills.

- Funders who hire health services researchers should pool resources for fellowships and training activities.
- Funders and professional societies should provide weeklong short courses that will provide depth of training on specific HSR methods or topics. This could be through a consortium or center of excellence.
- Academia should develop master's programs in HSR with greater focus on key skills to address a specific set of skill-based competencies with a focus on research rather than practice.
- Academia and funders should develop more opportunities for private sector internships related to applied HSR problems, specifically for Ph.D.s and postdocs.
- Academia, professional societies, and government should continue to discuss the development of core competencies at the doctoral level.

Expanding Postgraduate Training and Continuing Education Opportunities

Summit participants addressed this issue by reviewing current fellowships and exploring opportunities for new programs.⁶ Participants agreed that existing programs are extremely valuable and their availability should be further disseminated, especially among minority groups. However, they also saw some gaps in current offerings. Recommendations were as follows:

- Federal agencies should collaborate to offer internship and clerkship opportunities to “capture” trainees in disciplinary programs, before the dissertation stage who might otherwise go into other fields.
- Universities should pursue building HSR “training centers” with funding from multiple programs (e.g., National Research Service Award [NRSA], Clinical Translation Service Award [CTSA], RWJF clinical scholars), to attract interdisciplinary and disciplinary-trained researchers to HSR.
- Universities should promote research translation as an increasingly important skill set that should be included in interdisciplinary as well as disciplinary training programs. Innovative academic programs like those at the University of Pennsylvania and the University of Pittsburgh can serve as models.

- Building the capacity of practitioners to use research is also important, and nonacademic programs such as the Canadian Health Services Research Foundation's Executive Training for Research Application could be a model for trainees not affiliated with universities.
- Professional societies should consider developing "on-the-job training" manuals for specific analytical tasks that master's level researchers could use to improve data analysis skills.
- Professional societies, including AcademyHealth, should offer more continuing medical education in HSR for nurses and physicians, to encourage participation among these disciplines in HSR.
- Private sector employers (e.g., pharmaceutical companies, HMOs, and companies like GE) could and should provide continuing education training, perhaps through linkages with business school programs with a health focus (e.d., Wharton, Harvard).
- Public and private sector employers should involve masters-trained researchers in projects for on-the-job training.
- Employers should mentor health services researchers in all career stages as an essential component of building and retaining an appropriately trained workforce. The RWJF scholars program is a good model for a large-scale, university-based mentoring program, but smaller, less formal programs are also needed.
- AcademyHealth should develop a mentoring program, with emphasis on outreach to researchers from a variety of disciplines.

Increasing Demand and Recognition for the Field

Summit participants pointed out that the U.S. health care system faces the combined problem of lack of access to care and an over-use of certain types of care. HSR provides critical value to the system not only using research to identify the best methods of delivering care but also by evaluating clinical diagnostic and treatment technologies. In the recent past, the field has done a better job of disseminating the results of its research to policy makers and clinical decision makers, but health services researchers must continue to promote the utility of their work in new and different ways to all stakeholders. Specific recommendations include the following:

- Academics should reach out to other departments and disciplines within their own institutions.

- AcademyHealth should build networks among stakeholder organizations that use research.

The field should promote the utility of HSR by identifying the information that policy makers and stakeholders need to know, and showing the potential contribution of HSR.

CONCLUSION

Papers commissioned for the Summit found that more organizations are employing health services researchers, and that the number of researchers that do HSR has more than doubled in the last decade. In addition, more researchers are being trained in HSR interdisciplinary programs. While the field's leaders view the expansion of interdisciplinary programs as beneficial, they recognize the need for balance between disciplinary specialists and HSR generalists. However, the reduction of HSR funding and the decline in investigator-initiated grants from public sources may stifle growth in a field that is recognized as offering some of the most promising approaches to improving quality and reducing waste in the U.S. healthcare system.

Attracting and retaining the best researchers will require a multipronged approach. Improving communication of HSR findings to major policy audiences and funders can help clarify the distinct and important contributions of HSR, may increase awareness of the field among researchers from other disciplines who may be conducting HSR, and improve awareness among minority researchers so that the field can attract the best researchers from a variety of backgrounds.

The Ricketts and the Moore and McGinnis papers discuss the two paths of entry to the field: training in interdisciplinary programs in HSR, and participation in HSR projects on an intermittent basis. As discussed, some strategies should be developed to expand HSR training programs while others should provide training support for traditional disciplinary researchers.

Efforts to outline core competencies in doctoral training are important and participants felt these efforts should be encouraged. However, there was agreement that HSR core competencies should build a common language, identify the contributions that are made by HSR as a field, and enable prospective students to differentiate among current HSR training programs, rather than establish a common curriculum.

There is a newly recognized need to reflect the private sector employers' needs in graduate and postgraduate training. Private employers emphasized their desire for masters trainees with quantitative skills and also expressed the need for additional training in writing and presentation skills, project management, and other "client-oriented" skills. Greater exposure to medical knowledge and the businesses of health insurance and health care delivery organizations was also thought to be beneficial.

New training models that provide applied training in analytic methods in HSR, such as the successful RWJF health policy scholars and clinical scholars programs, are of great interest. Traineeships and fellowships designed to encourage disciplinary researchers to undertake HSR projects have great potential to build bridges among the disciplines and encourage a focus on HSR questions.

Improvements in health and health care delivery, particularly given increased access to data, will require researchers capable of synthesizing volumes of clinical, cost, and systems data. These needs will only increase as genomic information offers new opportunities and challenges for the field. To meet future research needs and challenges, a mix of approaches will be required. Bolstering training opportunities for researchers in interdisciplinary programs; recruiting disciplinarily trained researchers to engage in the field and foster multidisciplinary collaborative relationships; improving translational research; and promoting understanding of HSR contributions are all strategies that will contribute to expanding the capacity of the field to meet future needs.

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NOTES

1. HSR has been defined as a "multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and pro-

cesses, health technologies, and personal behaviors affect access to health care, the quality, and cost of health care, and ultimately our health and well-being" (Lohr and Steinwachs 2002).

2. The IOM study used the following sources:
 - Membership lists from AHSR
 - List of PIs from HSRProj
 - Participants from AHSR annual meetings
 - Names from brochures of approximately 50 health research centers
 - Members of Sigma Theta Tau (nursing research honorary society)
 - A survey of 500 HSR organizations
3. The 2009 study included a list of authors from two journals that publish HSR (*Health Services Research* and *Medical Care*) during a 12-month period. The 2009 count, however, did not include Sigma Theta Tau or the survey of 500 HSR organizations. If only identical sources are compared, significant growth has still occurred, from 2,900 to 8,696 health services researchers.
4. HSRProj is a National Library of Medicine database that provides access to ongoing grants and contracts in health services research.
5. There was enthusiasm among participants for public-private partnerships but also awareness that partnerships can raise challenging ethical dilemmas for researchers. AcademyHealth, AAMC, and the U.S. Department of Health and Human Services developed a report to explore the potential ethical challenges that may arise in HSR, including discussion of public-private partnerships (AcademyHealth 2004). The report was developed into an education module to guide discussion on these topics and is available at <http://www.hsrmethode.org/ethicsinresearch.aspx>
6. Existing programs include the following: The NRSA program, which is administered by the National Institutes of Health (NIH), the Agency for Healthcare Research and Quality (AHRQ), and the Health Resources and Services Administration; the AHRQ Career Development Awards and Dissertation Awards; the NIH CTSA, which may support training in HSR; The Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS) NCHS-AcademyHealth Health Policy Fellowship; and The Intergovernmental Personnel Act, which can support individuals from states, universities, and the private sector interested in working at federal agencies; fellowships at the Department of Veterans Affairs, which are the only training opportunities that expose researchers to delivery settings. These include the RWJF-VA clinical scholars program, the VA quality scholars program, and the VA Patient Safety fellowship. Training programs through the NIH institutes are available and vary by institute.

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Appendix SA1: Author Matrix.

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