Public Health Systems and Services Research: Dataset Development, Dissemination, and Use

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SYNOPSIS

Public health systems and services research (PHSSR) is defined as "a field of study that examines the organization, financing, and delivery of public health services within communities and the impact of those services." PHSSR is a relatively young field and suffers from a paucity of research resources. In this article, we describe the development and utility of a data resource, housed on the Health Services and Sciences Research Resources website maintained by the National Library of Medicine, which provides easy access to instruments, indices, and datasets that are relevant to PHSSR researchers. We also investigate efforts to promote the use and dissemination of these data resources, including the awarding of research grants and the organization of a PHSSR conference.

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While public health systems and services research (PHSSR)[1] is a relative newcomer to research synthesis and evidence-based practice, the field of health services research (HSR) has a history that extends several decades.[2,3] Health services researchers have long recognized the need for databases that are suitable for secondary data analysis, as well as data collection instruments that have been refined through psychometric and common use procedures. These resources have enabled health services researchers to become productive quickly, and have helped HSR to become a well-defined area of inquiry.

The National Library of Medicine's (NLM's) National Information Center on Health Services Research and Health Care Technology sponsors several research tools of use to HSR, including the Health Services and Sciences Research Resources (HSRR) database—an Internet database that contains approximately 800 records of various research resources (i.e., instruments/indices, datasets, and software) that have utility for HSR. NLM also sponsors the Health Services Research Projects in Progress (HSRProj) website, which gives researchers access to descriptions of current research projects in HSR. These NLM Web-based resources serve as a clearinghouse of information on HSR data and research.

The efforts of researchers and the NLM to make relevant research readily available have contributed to the support, identity, and respect that HSR currently enjoys. Many of the NLM HSR resources can also be useful in PHSSR.[3] However, a need exists for resources that serve the specific needs of those conducting research in the field of public health, particularly those involved in PHSSR.

PHSSR is an area of inquiry that examines the organization, financing, delivery, and impact of public health services within communities, and has emerged as a vehicle for applying the concepts and methods of HSR to public health settings. However, PHSSR has been hindered by the lack of systematic resources that satisfy the information needs of researchers engaging in PHSSR. Anderson and colleagues describe the current state of PHSSR: "At a time when demand for evidenced-based practice (in public health) has reached its peak, a parallel understanding of how scientific evidence contributes to the larger realm of knowledge for decision making has not been adequately explicated."[2]

To strengthen the nation's public health systems, practitioners and researchers need "reliable, timely information with which to make information-driven decisions, better ways to communicate, and improved tools to analyze and present new knowledge."[4] A PHSSR resource comparable to those found in the field of HSR strengthens the capacity to conduct PHSSR. This, in turn, facilitates the use of existing datasets and instruments for secondary analysis, and encourages the further development of databases and instruments for PHSSR. This article describes an ongoing project intended to address the need for PHSSR resources.

BACKGROUND

Since 2006, the University of Kentucky, in conjunction with the NLM and with support from the Robert Wood Johnson Foundation (RWJF) and the NLM, has been developing the PHSSR subset of the HSRR database. The PHSSR subset reflects the recognition by RWJF and the NLM that efforts focused on improving quality in public health practice must be evidence-based. The provision of reliable and easily accessible data for PHSSR is an essential element of these efforts.

The project described in this article represents an essential first step in providing researchers with information about data suitable for PHSSR. The project's objectives are threefold: (*1*) identify and create descriptive records of data resources for inclusion in a PHSSR subset of the HSRR database maintained by the NLM, (*2*) disseminate information about the new PHSSR subset of the HSRR database to the research community, and (*3*) encourage increased use of these resources by those who conduct PHSSR.

PHSSR DATABASE DEVELOPMENT

The PHSSR subset of the HSRR database is the result of a comprehensive search for PHSSR resources. Development of the PHSSR subset of the HSRR database began with a comprehensive review of the existing data included in the HSRR database (available at http://www.nlm.nih.gov/nichsr/hsrr_search), using the keywords and MeSH (NLM's medical subject headings) terms contained in the Table, to identify existing HSRR resources with potential utility for PHSSR. The search resulted in the identification of 473 existing resources with potential utility for PHSSR, not including duplicate resources.

Two project staff members then reviewed the HSRR data resource profile to ascertain the relevance of each item for PHSSR. Resources identified by the keyword search were tagged PHSSR only if both reviewers agreed on the appropriateness of including the resource, and if the profile of the resource contained or collected information on the following issues: (*1*) organizations/agencies that deliver or administer public health services; (*2*) financing, spending, and/or payment for public health services; (*3*) access to, and delivery

Table. Identification of data resources through targeted PHSSR search

Keyword used in HSRR search	Number of data resources identified by keyword[a]
Assessment	103
Capacity	25
Infrastructure	13
Performance	32
Public health systems	61
Standards	20
Surveillance	110
Utilization	100
Workforce	9

[a]Data resources on PHSSR include datasets, instruments/indices, and software.

PHSSR = public health systems and services research

HSRR = Health Services and Sciences Research Resources

of, public health services to defined populations; (*4*) public health infrastructure and workforce; (*5*) public health quality and performance improvement; and (*6*) public health policy and/or program planning and evaluation. If consensus was not achieved between the two project staff members, a more senior staff member reviewed the profile and determined if it was suitable for PHSSR.

The second phase of data resource identification involved conducting a PubMed literature review of selected journals for PHSSR-related articles and reports, led by a subject-area expert medical librarian, to identify data resources that have been used by public health systems and services researchers. Selection of the journals to be used was based on a thorough review of all potential journals by the research team and the subject-area expert medical librarian. Journals that were relevant to public health, but deemed unlikely to contain PHSSR-related work, were excluded. Figure 1 lists the journals that were included in the search.

We conducted the PubMed search using a number of screening strategies. First, the keyword/MeSH term "public health" was combined using "or" with the terms contained in the Table. Articles identified during this search were then limited to those written in the English language. Figure 2 lists the myriad article types excluded from the search. This process resulted in the identification of 535 articles, which were then subjected to the same staff review process described previously. These records yielded seven research resources that were deemed appropriate and useful for PHSSR. A PubMed search using this same strategy is now conducted weekly to capture and tag new data resources for inclusion in the PHSSR subset of HSRR.

We also queried the major public health practice organizations (Figure 3) about the availability of databases or data instruments for inclusion in the PHSSR subset of HSRR. This identified some additional and very useful data resources, such as the National Association of County and City Health Officials Profile of Local Health Departments and the National Public Health Performance Standards Data. Study staff then worked with each practice organization to post the data resource profile on the PHSSR subset of HSRR. In addition, we examined the grey literature—publications that are outside the scope of commonly used search engines—published by these and other organizations to find resources suitable for inclusion to the PHSSR subset, but no new resources were found.

To identify individuals who conduct PHSSR and might have research resources available, we sent letters to all accredited schools and colleges of public health, members of the AcademyHealth PHSSR Interest Group, individuals who submitted abstracts to the 2006 AcademyHealth PHSSR Interest Group meeting, and authors who submitted proposals to the Health Care Financing and Organization initiative funded by RWJF, requesting that researchers share information about

Figure 1. Journals used for PubMed search

- *American Journal of Health Promotion*
- *American Journal of Public Health*
- *Annual Review of Public Health*
- *Current Issues in Public Health*
- *European Journal of Public Health*
- *Harvard Journal of Minority Public Health*
- *Health Affairs*
- *Health and Quality of Life Outcomes*
- *Health Care Management Review*
- *Health Education and Behavior*
- *Health Education Quarterly*
- *Health Policy and Education*
- *Health Policy and Planning*
- *Health Research Policy and Systems*
- *Health Services Reports*
- *Journal of Community Health*
- *Journal of Health Administration Education*
- *Journal of Health and Human Services Administration*
- *Journal of Health and Social Policy*
- *Journal of Health Communication*
- *Journal of Health Services Research and Policy*
- *Journal of Public Health*
- *Journal of Public Health Management and Practice*
- *Journal of Public Health Medicine*
- *Journal of Public Health Policy*
- *Journal of Rural Health*
- *Journal of the American Public Health Association*
- *Medical Care Research and Review*
- *Milbank Quarterly*
- *Morbidity and Mortality Weekly Report*
- *Public Health Reports*

data resources that could be included in the PHSSR subset of the HSRR database.

This effort resulted in a total of 133 research resources that are now identified on the NLM HSRR website as having utility for PHSSR. Of these, we identified 111 from the keyword/MeSH search, seven as the result of the PubMed review, and 15 through searching the products of public health practice organizations.

UTILITY

The PHSSR subset of the HSRR database has exhibited utility for PHSSR. To disseminate knowledge of the resource and increase the number of public health systems and services researchers, junior investigator grants for research projects using one of the research resources contained in the PHSSR subset were awarded to new researchers in 2007. Figure 4 lists the titles of those grants and datasets that these grantees are using. Junior faculty—within the first three years of their initial appointment to their first faculty position and with sponsorship from a senior-level researcher—were eligible for grants. This activity has since been expanded to include dissertation awards to doctoral students who are in the dissertation research phase of their program. The program's success demonstrates the

Figure 2. Limits used during PubMed search

- Addresses
- Articles published in the last two years
- Bibliographies
- Biographies
- Classical articles
- Clinical conferences
- Comments
- Consensus development conferences
- Dictionaries
- Directories
- Duplicate publications
- Editorials
- English only
- Guidelines
- Historical articles
- Human subjects only
- Interviews
- In vitro
- Letters
- News
- Newspaper articles
- Patient education handouts
- Periodical indices
- Practice guidelines
- Published errata
- Retracted publications
- Retraction of publications
- Scientific integrity reviews

Figure 3. Public health partner agencies and organizations with potential data resources suitable for inclusion in the PHSSR subset of HSRR

- AcademyHealth
- AcademyHealth Changes in Health Care Financing and Organization Program
- Association of State and Territorial Health Officials
- Centers for Disease Control and Prevention
- National Association of County and City Health Officials
- National Association of Local Boards of Health
- National Network of Public Health Institutes
- National Network of Public Health Leadership Institutes
- Public Health Foundation

PHSSR = public health systems and services research

HSRR = Health Services and Sciences Research Resources

utility of the PHSSR database and the PHSSR resources contained therein.

Another activity intended to enhance the use of these resources and the discipline of PHSSR is the establishment of the Keeneland Conference, which is intended, in part, to showcase the work of junior faculty who have received mini-grants, and other senior PHSSR faculty who are mentors or working actively with programs designed to enhance PHSSR activities.[5] Honore's work on public health financing[6] and Mays' burgeoning work with practice-based public health research networks are excellent examples of the kind of PHSSR enhancement initiatives we showcase at the Keeneland Conference. The conference gives grantees opportunities for small group consultation regarding their projects, and networking support in their continued PHSSR careers. This provides an excellent opportunity to grow the discipline and to enhance the use of the PHSSR subset of the HSRR database.

Presentations at meetings of the American Public Health Association, AcademyHealth, the Academy-Health PHSSR Interest Group, and regional medical library associations have also been given to promote the use of the PHSSR resources available on the NLM website.

CONCLUSION

These initial efforts to collect, catalog, and encourage the use of PHSSR resources have been successful. A weekly automated PubMed search of relevant literature is conducted to help us identify new data sources that will be placed on the NLM HSRR website. The datasets contained on the PHSSR subset of HSRR have exhibited great utility, as reflected by the seven research projects that are already completed as a result of the mini-grant program, and the additional grants that

Figure 4. List of titles and datasets used in first round of PHSSR mini-grants

Title of PHSSR mini-grant project	PHSSR dataset used by researcher for the mini-grant project
Health Status, News Portrayal, and the Mission of Public Health: Implications for Public Health Branding	Community Health Status Indicators
Inventory of Courses in Finance and Economics with a Specific Focus on Public Health	Directory of Training Programs in Health Services and Health Policy Research
Longitudinal Analysis of Seasonal Influenza in the United States: A Look at Laboratory Confirmed Cases and Sentinel Provider Reporting from 1997–98 to 2006–07	CDC Seasonal Influenza Surveillance
Preparedness Implementation and Local Health Department Capacity	2005 NACCHO National Profile of Local Health Departments Dataset
Promoting and Protecting the Public's Health Through Partnerships in Local Public Health Systems	National Public Health Performance Standards Program Dataset
Relationships Between Public Health Agency Workforce Composition and Agency Functions	2005 NACCHO National Profile of Local Health Departments Dataset
Social and Economic Determinants of Health Services Under Two Different Public Health Systems: A Comparison of the United States and Canada	Joint Canada/U.S. Survey of Health

PHSSR = public health systems and services research

CDC = Centers for Disease Control and Prevention

NACCHO = National Association of County and City Health Officials

were awarded for 2008. However, much work remains to be done to propel PHSSR to a stage of development equivalent to that of HSR.

The large number of resources that have marginal, if any, use for PHSSR that were identified in the initial stages of our PubMed search suggests that there is a need to develop both sensitive and specific search strategies suitable for PHSSR, similar to those developed by Wilzcynski et al. for health services researchers.[7] In addition, the grey literature has the potential to yield many useful sources of information relevant to PHSSR. However, this literature is currently outside the purview of search resources such as PubMed, and thus may be difficult to access. Providing easy access to the grey literature in public health through another mechanism may facilitate the use of this information by public health systems and services researchers.

Regardless of the methods used to catalog and disseminate data, data collection and dissemination must be conducted while keeping in mind the diversity of the makeup and backgrounds of the public health community. PHSSR is a transdisciplinary field, and those who conduct PHSSR come from many diverse backgrounds, including business and law. The diversity of the public health community and of public health systems and services researchers suggests that a wide net be cast when searching for research resources,

and efforts to disseminate PHSSR should be spread across disciplines.

Public health is entering an era similar to that seen in health care, where specific research data are necessary to make program decisions. The availability of research resources, their dissemination, and their use in research will facilitate the transition to evidence-based decision-making in public health. The database and related activities described in this article reflect ongoing efforts to make important and relevant research resources available, so that public health systems and services researchers, similar to their colleagues in HSR, may serve as valued sources of information for good decision-making.

REFERENCES

1. Mays GP, Halverson PK, Scutchfield FD. Behind the curve? What we know and need to learn from public health systems research. J Public Health Manag Pract 2003;9:179-82.

2. Anderson LM, Brownson RC, Fullilove MT, Teutsch SM, Novick LF, Fielding J, et al. Evidence-based public health policy and practice: promises and limits. Am J Prev Med 2005(5 Suppl);28:S226-30.
3. Whitener BL, Van Horne VV, Gauthier AK. Health services research tools for public health professionals. Am J Public Health 2005;95:204-7.
4. Friede A, Blum HL, McDonald M. Public health informatics: how information-age technology can strengthen public health. Annu Rev Public Health 1995;16:239-52.
5. Public Health Systems and Services Research. Keeneland Conference [cited 2007 Nov 20]. Available from: URL: http://www.keenelandconference.org
6. Honore PA, Simoes EJ, Jones WJ, Moonesinghe R. Practices in public health finance: an investigation of jurisdiction funding patterns and performance. J Public Health Manag Pract 2004;10:444-50.
7. Wilczynski NL, Haynes RB, Lavis JN, Ramkissoonsingh R, Arnold-Oatley AE. Optimal search strategies for detecting health services research studies in Medline. CMAJ 2004;171:1179-85.