

# Health Services Research Tools for Public Health Professionals

Although the fields of public health and health services research have much in common, public health practitioners—in their daily encounters with practical, frontline challenges—may not be aware of the quantity and the quality of information generated by health services research that is directly related to public health activities.

We describe a number of health services research resources that public health practitioners may find useful, including an overview of these resources and several in-depth examples. (*Am J Public Health*. 2005;95:204–207. doi: 10.2105/AJPH.2003.035030)

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**PUBLIC HEALTH IS A BRANCH** of medicine concerned with the prevention and control of disease and disability and the promotion of good physical and mental health at the international, national, state, and municipal levels.<sup>1</sup> The goal of public health professionals is to attain and ensure good population health through immunization, sanitation, and occupational health and safety and through the monitoring of air, water, and food. Public health has 3 core functions: assessment, policy development, and assurance.

Health services research is “the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations.”<sup>2</sup> Health services research fosters inquiry that informs public health activities. It encompasses public health concerns and can inform public health practice.

There are a number of health services research resources that public health practitioners may find useful. They are available from the National Library of Medicine’s (NLM) National Information Center on Health Services Research and Health Care Technology (NICHSR).<sup>3</sup> The in-depth examples that follow overviews of these resources were identified in May 2004.

## NLM HEALTH SERVICES RESEARCH TOOLS

The mission of the NICHSR is to “improve the collection, storage, analysis, retrieval, and dissemination of health services research.”<sup>4</sup>

NICHSR connects users to databases, Web sites, and presentations. Its resources include Health Services Research Projects in Progress (HSRProj), a database that provides information about health services research projects that are ongoing, and Health Services and Sciences Research Resources (HSRR), a database that contains information about datasets and instruments that are useful to researchers.

Additionally, the NICHSR homepage provides access to Partners in Information Access for the Public Health Workforce (<http://phpartners.org>), a Web site that provides integrated access to the public health information resources available from collaborating US government agencies, public health organizations, and health sciences libraries.

Other NLM resources offer features useful to public health practitioners. MEDLINE (Medical Literature, Analysis, and Retrieval System Online)<sup>5</sup> is a particularly valuable tool. It is NLM’s premier bibliographic database that covers the fields of medicine, nursing, dentistry, public health, and veterinary medicine; the health care system; and the preclinical sciences.

## HEALTH SERVICES RESEARCH PROJECTS IN PROGRESS

Public health practitioners can use HSRProj to learn about current health services research projects. HSRProj is a joint effort between the AcademyHealth<sup>6</sup> and the Cecil G. Sheps Center for Health Services Research, and it receives NLM funding. In May 2004, HSRProj had nearly 6000 descriptions of ongoing health services research projects funded by government and state agencies, foundations, and private organizations. HSRProj provides access to information about ongoing health services research projects before the results are available in a published form.

For example, the database makes available the names of, and contact information for, investigators and performing organizations; government agencies, private organizations, and foundations that sponsor research; abstracts of ongoing research projects, such as those that examine racial disparities in health care, medical errors/patient safety, and small-area analysis; and terms from NLM’s Medical Subject Headings (MeSH) that describe the focus of the projects.

HSRProj is available free of charge and can be accessed at <http://www.nlm.nih.gov/hsrproj>; it also can be accessed through the NLM Gateway<sup>7</sup> at <http://gateway.nlm.nih.gov> as part of the “Other Collections” category of resources in the Gateway. New records are added to the database on a quarterly basis. To allow time

for principal investigators to complete their projects and publish their findings, records remain in HSRProj for a period of 4 years after each project's end date.

The database also has information on projects that investigate

disease and health hazards and projects that analyze the determinants of health needs. For example, in May 2004, 21 separate Turning Point<sup>8</sup> projects were in the HSRProj database. Turning Point is a multistate public health

initiative funded by the Robert Wood Johnson Foundation in collaboration with the Kellogg Foundation. It helps states improve the performance of their public health functions via a state-level strategic assessment of the states'

public health goals and the states' relationships with the private sector. According to the Turning Point Web site, "Its mission is to transform and strengthen the public health system in the United States by making it more community-based and collaborative."<sup>8</sup> An example of the breadth and the depth of information included in the HSRProj database is shown in Figure 1.

In May 2004, HSRProj had 582 records related to community assessment and 140 projects on public health assurance. These records included studies of public health efforts that vary in scope, methodologies, and targeted outcomes, such as Vermont's Comprehensive, Community-based System of Care for Children and Adolescents, Central Harlem Healthy Start (CHHS), Improving Genetic Health Outcomes in Michigan through Education, Early Identification, and Enhanced Integration of Newborn Screening Information Systems, and New York State Safety Improvement Demonstration Project.

Preparing health systems' response to bioterrorism falls within the responsibility of public health practitioners. In May 2004, HSRProj had 22 records of bioterrorism research. One record, Partnership for Advancing Quality Together (PAQT), described how the PAQT will build on Agency for Healthcare Research and Quality (AHRQ)-funded quality improvement and bioterrorism research to "contribute to the knowledge base about successfully implementing initiatives to improve quality, enhance safety and security, and expand understanding of how best to take research and knowledge into everyday practice." The Centers for Dis-

The screenshot shows the HSRProj Gateway interface. At the top, it says "Gateway your entrance to the knowledge resources of the National Library of Medicine". A search bar contains the query "public health" AND "obesity". Below the search bar are buttons for "Search" and "Clear Search". Navigation tabs include "Find Terms", "Limits", "Results", "History", "Locker", and "Preferences".

The main content area is titled "Expanded Item" and shows "Item 1 displayed (out of 9 found)". It includes a "Page 1 of 9" indicator and a "Jump to Page" field with the number "2" entered. There are also "Download or Display", "Order Documents", and "Put in Locker" buttons.

The item title is "Research on the impact of politics on the public health issue of obesity." The author is "Morone, James A." and the location is "Box 1929, Providence, RI 02912-1929". The phone number is "(411) 863-1573".

The performing organization is "Brown University Department of Political Science" and the supporting agency is "Robert Wood Johnson Foundation (RWJF)". The initial year is 200211 and the final year is 200405. The grant support is 047098 and the award type is "Grant".

The abstract text reads: "Obesity has recently become an issue that is receiving considerable media attention. The unprecedented growth in obesity over the last two decades raises a set of questions about how the country will address this public health issue. This grant supports a research project that will draw on previous scholarly work that examined the politics of public health." (The text is partially cut off at the bottom).

FIGURE 1—Sample HSRProj Record from January 2004.

ease Control and Prevention's (CDC) Public Health Practice Program Office also submits records that can be found in the HSRProj database.

In May 2004, HSRProj had 77 records of informatics-related projects, for example, Health Technology Improvement: Testing the Acceptability of Using Electronic Data Interchange Among Traditional and Safety Net Providers in Los Angeles County and Public Health Informatics Institute: Modifying Information Systems to Improve Bioterrorism Readiness and Laboratory Management.

HSRProj includes information on likely funding sources. For example, if an investigator wants to submit a proposal on racial disparities, a quick HSRProj search will show that the AHRQ and the Robert Wood Johnson Foundation have already funded projects in this area. In addition to gathering ideas about potential funders, researchers can see whether and how other investigators have addressed similar problems.

## HEALTH SERVICES AND SCIENCES RESEARCH RESOURCES

HSRR<sup>9</sup> is a searchable database of information about research datasets and instruments/indexes. Users can examine and compare characteristics of some of the resources used in health services research and the behavioral and social sciences. The database includes brief descriptions of research resources and links to citations in the MEDLINE/PubMed database for articles on studies that made use of the research sources. HSRR also offers a section on software that may be useful or

even required to manipulate the datasets. This software section includes familiar packages, such as Epi Info (Centers for Disease Control and Prevention, Atlanta, Ga) and CDC EZ-Text (Centers for Disease Control and Prevention, Atlanta, Ga); statistical software from Excel (Microsoft Inc, Redmond, Wash) to SAS (SAS Institute Inc, Cary, NC) to Stata (Stata Corp, College Station, Tex); and mapping software, such as Epi Map (Centers for Disease Control and Prevention, Atlanta, Ga) and Map Maker Pro (Map Maker Ltd, Carradale, Kintyre, Scotland). Each entry includes a short description, contact information, and a universal resource locator (URL) when available. Datasets and instruments are added and updated as material becomes available.

HSRR has other useful links. For example, there are links to providers of additional information and to sites that describe online seminars, training sessions, and large data gateways,

including AcademyHealth Seminars in Health Services Research Methods; Finding and Using Health Statistics: A Self-Study Course; Health Data in Action: A Series on Using Data and Information for State Health Policy; Health and Human Services Data Council Gateway to Data and Statistics; NICHSR Introduction to Health Services Research: Class Manual; ResDAC (Research Data Assistance Center) Training on Center for Medicare and Medicaid Services databases; and State Health Access Data Assistance Center (SHADAC): Revisions to the Current Population Survey.

In May 2004, HSRR had 189 records related to public health: 179 datasets, 7 survey instruments, and 3 software titles. Survey instruments included the American Legacy Longitudinal Tobacco Use Reduction Study questionnaire, the Medical Errors Physician Study, and Medical Errors: Public Views; the software packages included Epi

Info and Epi Map, which are well known to public health practitioners.

The 179 datasets covered a wide variety of topics that ranged from disease surveillance to knowledge, attitude, and practice responses from providers and patients. Federal datasets and university study results were among the many types of data.

Public health assessment data were available at the city level in the Columbus Oral Health Survey, at the state level in the Dental Assessment of Mississippi Head Start Children and the North Carolina Center for Health Statistics—which offers access to numerous datasets—and at the national level in the Quality Care Medicare Provider Analysis and Review File. A record from HSRR is shown in Figure 2.

In May 2004, HSRR had 5 datasets related to public health policy development, including Development Report Card for the States, a dynamic tool from

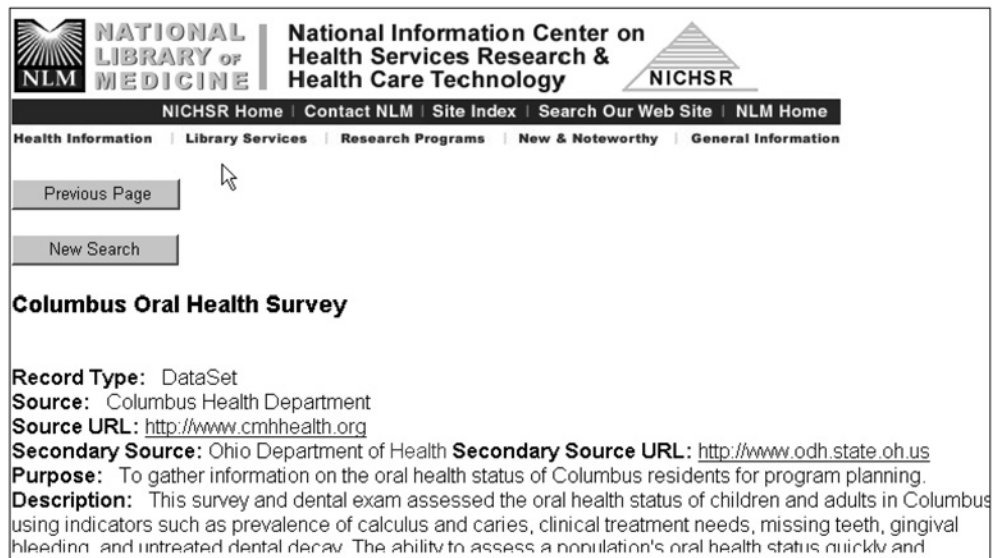


FIGURE 2—Sample HSRR Record from May 2004.

the Corporation for Enterprise development,<sup>10</sup> which uses 71 measures to provide a state-by-state assessment of economic development. The comparative datasets lend themselves to the analysis of targeted issues.

In May 2004, HSRR had only 1 public health assurance dataset, the Community Service Assurance Reporting System, which describes a dataset for assessing compliance with the Hill-Burton Act.

## IMPROVED MESH HEADINGS FOR PUBLIC HEALTH

NLM has undertaken a joint project with the Midcontinental Regional Medical Library (RML) to improve MeSH headings for public health. Staff at the University of Utah's Spencer S. Eccles Library have worked closely with health professionals at the Utah Department of Health, the CDC staff based in Utah, and local public health practitioners to devise and implement a systematic approach to public health vocabulary enhancements. The goal is to better meet the needs of public health practitioners and students, particularly those who work in community and academic settings, and to expand the coverage of public health concepts in the MeSH vocabulary, which is used to index journal articles for MEDLINE. Initial efforts resulted in the addition of 10 new main headings during 2003: social marketing; harm reduction; behavior risk factors surveillance system; healthy people programs; geographic information systems; American Public Health Association; education, public health; health educators; public health informatics; and students, public health.

As a result of new ethnic classifications on surveys and a heightened awareness of keeping public health terms updated, the following changes/additions were made during 2004: adolescent development, adolescent behavior, sexology, refusal to participate, reproductive behavior, toxicogenetics, regenerative medicine, human rights abuses, population groups, African Continental Ancestry Group, American Native Continental Ancestry Group, Asian Continental Ancestry Group, Continental Population Groups, European Continental Ancestry Group, and Oceanic Ancestry Group.

## PILOT MEDLINE/PUBMED HEALTH SERVICES RESEARCH FILTERS PROJECT

MEDLINE/PubMed<sup>11</sup> offers filters that help users focus their search strategies on particular types of evidence or particular aspects of topics. The filters are based largely on the work of N.L. Wilczynski et al.<sup>12</sup> Two new filters relevant to public health have recently been developed. The HSR Quality-Related Queries Using Research Methodology filter allows users to search for appropriateness, process assessment, outcomes assessment, or clinical practice guidelines; the HSR Cost-Related Queries Using Research Methodology filter allows users to search for costs or economics.

Four health care quality categories and 2 health care cost categories (economics is a subset of the more general costs category) are provided. With these filters, users can choose a broader focus—mostly relevant articles, but probably some less relevant ones, too—or a narrower focus—

highly relevant articles, but probably omitting some others that also would be relevant. These filters are currently accessible through the NICHSR Web site at <http://www.nlm.nih.gov/nichsr/hedges/search.html>.

## CONCLUSIONS

NLM resources that have been developed for the health services research community are useful to the public health community as well. The enhancements to MeSH and to the MEDLINE/PubMed health services research filters provide enhanced precision when using familiar NLM resources. HSRProj offers access to information about ongoing projects and funding organizations, and HSRR has information about secondary datasets for analysis and information on validated questionnaires for survey research. These resources developed by the NLM will prove useful to the public health community. ■

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*This article was accepted May 12, 2004.*

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B.L. Whitener led the writing with the assistance of V.V. Van Horne. A.K. Gauthier provided insight and guidance. All the authors originated ideas and reviewed drafts of the article.

## Acknowledgments

The health services research tools mentioned in this article are funded by the Na-

tional Library of Medicine (NLM). The National Information Center on Health Services Research and Health Care Technology coordinates the continued development of HSRProj and HSRR for the NLM.

## Human Participant Protection

No protocol approval was needed for this study.

## References

1. National Library of Medicine. MeSH database [terminology]. Available at: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=mesh>. Accessed May 2004.
2. AcademyHealth. Academy Health 2000. Available at: <http://www.academyhealth.org/hsrproj/definitionofhsr.htm>. Accessed May 2004.
3. National Library of Medicine. NICHSR Mission. Available at: <http://www.nlm.nih.gov/nichsr/nichsr.html>. Accessed May 2004.
4. National Information Center on Health Services Research and Health Care Technology. NICHSR mission. Available at: <http://www.nlm.nih.gov/nichsr/nichsr.html>. Accessed December 2004.
5. National Library of Medicine. MEDLINE Fact Sheet. Available at: <http://www.nlm.nih.gov/pubs/factsheets/medline.html>. Accessed May 2004.
6. Academy Health. Health Services Research Projects in Progress (HSRProj). Available at: <http://www.academyhealth.org/hsrproj>. Accessed May 2004.
7. National Library of Medicine. NLM Gateway Fact Sheet. Available at: <http://gateway.nlm.nih.gov>. Accessed May 2004.
8. Turning Point home page. Available at: <http://www.turningpointprogram.org>. Accessed May 2004.
9. National Library of Medicine. National Information Center on Health Services Research and Health Care Technology (NICHSR). Available at: [http://www.nlm.nih.gov/nichsr/hsrr\\_search/](http://www.nlm.nih.gov/nichsr/hsrr_search/) for additional information. Accessed May 2004.
10. cfed. Welcome to cfed. Available at: <http://cfed.org/> for additional information. Accessed May 2004.
11. National Library of Medicine. NICHSR Pilot Health Services (HSR) Filters Project. Available at: <http://www.nlm.nih.gov/nichsr/hedges/search.html>. Accessed May 2004.
12. Wilczynski NL, Haynes RB, Lavis JN, Ramkissoon Singh R, Arnold-Oatley AE. Optimal search strategies for detecting health services research studies in MEDLINE. *Can Med Assoc J*. 2004; 171:1179–1185.