LIBRARIANS IMPROVING CLINICIANS’ QUERY
FOR PUBLIC HEALTH INFORMATIONAL NEEDS

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Abstract

Clinicians are frequently very busy and don’t have time to formulate complete explanations of their information requests. Thus, these clinicians may be left with limited resources. As the medical librarian in a mid-size expanding teaching hospital, I see an increasing need to obtain additional details from clinicians’ search requests as well as providing training for the utilization of online website databases for clinicians requesting public health information. There is a need for clinical, medical, or health science librarians to prepare for the inclusion the Institute of Medicine’s (IOM’s) core functions of public health practice (assessment, assurance, and policy development) into reference services for the targeted population of clinicians with public health questions. Some specific suggestions for librarians to become very equipped for assisting clinicians with assessment, assurance, and policy development queries include librarians offering training and/or orientation to clinicians on electronic systems, enrolling in continuing education courses, utilizing Really Simple Syndication (RSS), using online communication in various formats, working with Web 2.0 technologies, and marketing library research services (particularly noting public health domains). Librarians really need to ask key questions pertinent to a patron’s query related to assessment of a given health concern in a community, assurance of a certain healthcare plan, and/or the development of a health policy. It would also be beneficial for librarians to ask clinicians what searching format would be most workable for training and/or providing information for their specific information needs. With thorough preparation, librarians can be instrumental in helping clinicians obtain and effectively utilize assessment, assurance, and policy development information, which can be used to serve community health. In
contacting their local or “virtual” clinical, medical, or health science librarians, clinicians can gain a greater understanding of the skills needed to acquire and utilize public health information. Also, a mutually beneficial relationship can develop among librarians and clinicians. And locating public health information has the potential to lead to benefiting community health.

Introduction

Clinicians are often very busy and do not have time to fully explain the detailed nature of their true request! Thus, gaps often remain between the information clinicians say they want and what they actually need. Clinical or health sciences librarians can help to bridge this gap. Kronenfeld, et al. (2007) note librarians’ searches for and evaluations of information can increase development of evidence based practices in nursing and other allied health professions. Zipperer (2004) also noted that a librarian’s proficiency in locating evidence based information could increase “safety and appropriateness of care” in a clinical setting. Coumou and Meijman (2006) noted that even with the greatly enhanced electronic resource accessibility, primary care physicians still tend to limit the number of queries they have when searching for answers, often first conferring with colleagues and paper resources. Coumou and Meijman site the time it takes to seek information is a significant barrier while other deterrents include not being able to develop the needed search question or locate the best search strategy.

Public Health Informational Needs

Focusing on public health informational needs, as the medical librarian in a mid-size growing teaching hospital, I see an increasing need to elicit further details from
clinicians’ search requests as well as offering training for the use of online website databases as necessary for clinicians requesting public health information. This paper will concentrate on the necessity of clinical, medical, or health science librarians to prepare for incorporation of the Institute of Medicine’s (IOM’s) core functions of public health practice (assessment, assurance, and policy development) into reference services for the targeted population of clinicians with public health queries. Turnock (2004, p. 9) notes that the IOM has distinguished public health by defining three core functions in the public health domain: assessment, policy development, and assurance. Turnock (2004, p. 9) offers analogies of these core functions to the medical care system: likening assessment to diagnosis (in public health domain, diagnosis or problem identified being for a population of individuals), assurance to treatment (inferring that needed interventions be set in motion), policy development to creation of a treatment plan (intermediate role that decides what interventions are best suited for problems identified).

**Background Literature on Public Health Informational Needs**

A recent publication detailed the importance of a librarians’ roles in providing information literacy and IOM's eight competencies (informatics, genomics, health communication, cultural competence, community-based participatory research, global health, policy and law, and ethics) for public health professionals' informational needs (Cobus, 2008). Interestingly, Cobus pointed out library science is actually not referenced by IOM as effecting public health activity. Banks, Cogdill, Selden, and Cahn (2005) point out that currently both the public health arena in its detailing of public health core competencies and health science library domain in its defining essential...
areas of knowledge have both made similar steps, which aim toward achieving successful public health practice. Banks, et al. (2005) stated “Exciting correspondences exist between many of these public health informatics competencies and the skills essential to being a successful health sciences librarian.” Notably, Banks et al. cites the National Library of Medicine (NLM, as cited in Banks, et al., 2005) as emphasizing a number of ties between health sciences librarians and the public health workforce: health science librarians offering expert search support to the public health community. Also, health science librarians have often received Master of Public Health degrees and/or are actively involved in the American Public Health Association (NLM’s information, as cited in Banks, et al., 2005).

**Assessment: Background**

Turnock (2004, p. 182) notes that assessment in public health entails the importance of thoroughly collecting, analyzing, and making community health information available. Such information includes community health and needs statistics and epidemiological studies (Turnock, 2004, p. 182).

**Why Clinicians Find Assessment of Community Needs Important and how Librarians can Help**

A library search request for assessment may come in the form of a clinician interested in the overall public health status/needs of his/her community in order to better understand his/her patient population. A clinical librarian could serve to assist this patron in finding information germane to the community’s health. Assessing a given community’s health statistics and health needs as well as studies of health problems would be an important step that would serve to identify the most optimally needed information that would ultimately help assist clinicians’ diagnosing patients. Assessing
overall health status information for a given community would entail the medical librarian asking probing questions of the patron. Information found by the librarian will be most optimally useful if the requesting patron clearly articulates reasoning for attaining this information (i.e. why/how he/she will utilize information concerning his/her patient population).

Through thorough assessment information, physicians could utilize the information to increase the quality of healthcare for their patient population. In a study where patient focus groups were utilized to assess various aspects of patients' information needs, it was indicated that by physicians offering “high-quality” evidence-based information, patients can be appropriately involved in their medical decision making (Raats, van Veenendaal, Versluijs, & Burgers, 2008). Ratts et al. (2008) also maintained this approach was notable in adding to “patients' satisfaction and better patient outcomes.” Other assessment tools, such as the Lung Information Needs Questionnaire was noted to serve as a very useful tool for general practitioners in understanding patients’ informational needs (Jones, Wang, Harding, Bott, & Hyland 2008). Perley, Gentry, Fleming, and Sen (2007) noted a study that revealed the need for clinicians to have "just-in-time" information available to them at the time of patient care - the point of care, findings emphasized the important role hospital librarians could play to assist with such needs. A study showed that collaboration between clinical librarians and clinicians, actually raised clinicians’ motivation to search for information (Urquhart, Turner, Durbin, & Ryan, 2007).

Kurup and Hersey (2007) noted the increasing need for medical librarians in hospital settings to assist clinicians in improving their information searching skills. Kurup
and Hersey specifically cited the example of a librarian’s potential role in assisting anesthesiologists’ current informational needs for clinical practices, awareness of current treatments, procedures, and existing practice standards and guidelines. A study revealed that the information searching methods and needs of speech-language pathologists (SLPs) could greatly benefit from librarians providing information on methods of evidence-based practice for SLPs’ clinical decision making (Nail-Chiwetalu & Bernstein Ratner, 2007).

**Policy Development: Background**

Turnock (2004, p. 182) states that policy development in public health can “serve the public interest in the development of comprehensive public health policies by promoting the use of scientific knowledge base in decision making about public health and by leading in developing public health policy.” Clinicians requesting information on public health policy development may require multiple reference questions from a medical librarian in order to determine the level of background material, potential stakeholder and coalition information, and legal knowledge needed.

**Why Clinicians Find Policy Development Important and How Librarians can Help**

Droese and Peterson (2006) detailed a story of two medical librarians working as “information specialists in context (ISICs)” for the state of Massachusetts Medicaid programs: in this setting, library services were beneficial in supplying Medicaid staff information for the development of evidence-based health policy that centered on quality and delivery of healthcare to persons belonging to the Medicaid program. Droese and Peterson (2006) maintain librarians’ searching expertise and knowledge are
crucial for working with health policy professionals and partners, helping them to incorporate evidence-based practices within their programs.

Banks, et al. (2005) cites a reference (Humphreys, 1998 from Banks, et al., 2005) that notes the results of a New York Academy of Medicine survey, which revealed challenges public health workers experienced in acquiring information that would assist their work in public health and public health policy. Such challenges consisted of difficulty associated with locating pertinent information and assessing the value of information. Among possible solutions it was noted to train the public health/health policy workforce to effectively utilize information as well as to provisions for skilled librarians and information specialists provide assistance (Humphreys, 1998 from Banks, et al. (2005).

Cobus, et al. (2008) agree with the IOM report, which they note references a challenge of public health policy as development of policy research being much slower than scientific research. Thus, Cobus, et al. note that in order to lessen potential negative outcomes from such “information gaps” public health professionals ought to be trained to optimally utilize research for informing policy and practice. Cobus, et al. cite Alpi’s work, which maintains that librarians could assist public health professionals in this process by offering instruction on how to utilize controlled vocabulary and keyword terms in database searches in order to retrieve the most current research, by informing public health practitioners of the most current databases available to search pertinent policy information (Alpi’s work, as cited in Cobus, et al. 2008), and by teaching the need for evaluation of government versus nongovernment health information sources (critically examining agendas in various publications) (Ivanitskaya, O'Boyle, & Casey’s
work, as cited in Cobus, et al., 2008). Cobus, et al. also cite a reference that notes research revealed including evidence from health sciences literature could serve to persuade health policy (Roos, Menec, & Currie’s work, as cited in Cobus, et al., 2008).

Librarians need to know how the scope of information required for the patron’s information request relate to policy development. Upon conferring with patrons, librarians may find it appropriate to help locate organizations and/or other interested parties who have some kind of a stake in the given policy by using Kingdon’s five categories of interest groups (*business and industry* category, *professional* category: *professional* groups, *labor* category: *labor* groups, *public interest* category: *public interest* groups, and *government* category: *government* groups) (Kingdon, 2003, p. 47). The librarian may assist the patron in finding all interested parties, whether they be for or against a given policy position. By researching the organizations against the desired policy, the patron may be able to perhaps make compromises as necessary. Perhaps the librarian would help the patron find information on steps to form a coalition, which may offer a way to make steps toward implementation of the a policy as such formations could allow for organizations of various kinds of interest groups to work together for the combining of resources as well as being able to get the attention of a wider area in communities (Turnock, 2004, p. 245). Also, the librarian may offer the patron information on how to gain media coverage as this could serve to spread news to a broad population.

**Assurance: Background**

Turnock (2004, p. 186) noted that while assessment and policy development are functions that “set interventions in motion,” the assurance role serves to maintain these via the following processes:
Implementing of laws/regulations, which serve as health protection and safety

Connecting persons with health services; making certain of healthcare provisions (“when otherwise unavailable”)

Making certain there is a competent public health workforce

Assessing the “effectiveness, accessibility, and quality” of personal and community health

Researching solutions to health concerns

**Why Clinicians Find Assurance Queries Important and how Librarians can Help**

Clinicians having need to develop quality improvement and project management for public health issues as they relate to patient care necessitate a medical librarian probing such patrons for their desired goals of assurance.

For assurance queries, librarians could offer information to clinicians that best suited the need of the particular subject. For example, when avian influenza was a potential concern in for certain communities, Gruwell (2007) noted that even though information for professionals and the public was relatively easy to access, librarians could be instrumental in pointing out specific websites containing the most reliable information as well as additional high quality resources. Taylor (2008) points out the importance of librarians providing key websites along with instruction of proper evaluation of Internet resources (i.e. critically assessing currency, accuracy, watching for bias) for subjects such as food terrorism, which is a “very real threat.”) Additionally, Hochstein, Arnesen, Goshorn, and Szczur (2008) point out those patrons in need of information on the way in which the environment could affect human health and development would appreciate the NLM’s Toxicology and Environmental Health Information Program website, which contains reliable information on potential
environmental hazards and ways to safeguard health (NLM’s Toxicology and Environmental Health Information website, as cited in Hochstein, et al. 2008). Fitzpatrick (2007) notes an “Online Updates” column that frequently offers bibliographic databases that could be licensed by commercial vendors or offered free via a federal government agency. Fitzpatrick also notes that HazLit is an inclusive resource of natural disasters literature. McKnight (2006) notes librarians’ professional reference and information services that proved helpful when South Louisiana faced the horrific Hurricane Katrina in September of 2005.

Given the information above, librarians can indeed be valuable assisting clinicians in locating answers to public health queries. I have compiled specific suggestions that librarians could choose to utilize to best serve the population of clinicians seeking information on assessment, policy development, and assurance.
Specific Suggestions for Librarians to Help Clinicians with Assessment, Assurance, and Policy Development Queries

- Librarians could Offer Training and/or Orientation to Clinicians on Electronic Systems
- Librarians could Enroll in Continuing Education Courses
- Librarians could Utilize Really Simple Syndication (RSS)
- Librarians could Utilize Online Communication in Various Formats
- Librarians could Utilize Web 2.0 Technologies, Particularly Wikis in their Library as well as Offer Information on Optimal Use of Web 2.0 Technologies to Patron Specific Needs
- Librarians could Market Library Research Services (Noting Public Health Domains)
Specific Suggestions for Librarians to Help Clinicians with Assessment, Assurance, and Policy Development Queries

How can medical librarians best assist clinicians’ informational needs associated with healthcare related to assessment, assurance, and policy development?

Librarians could Offer Training and/or Orientation to Clinicians on Electronic Systems

Hung, Johnson, Kaufman, and Mendonça (2008) noted that clinicians frequently have trouble understanding how to utilize strategies to find answers for their information needs. Using data from a study that indicated clinical nurses being willing to utilize health related databases if they were instructed on access and use, Wozar and Worona (2003) stressed the important role health sciences librarians play in the educating of this patron population on online medical information resources. Alpi (2005) maintains that librarians’ experience with multiple searching databases is very important to meet the diversity of informational needs of the public health workforce. Additionally, librarians conducting public health searches will find it necessary to be willing to adapt to the development of new topic expertise and resources to meet the demands of the changing priorities of public health workers (Alpi, 2005). Alpi recommends being familiar with the excellent Internet resource structured by the Partners in Information Access for the Public Health Workforce, a partnership of U.S. government agencies, public health organizations, and health sciences libraries offers an annotated list with links to Internet resources on public health.

Depending on the subject matter of the informational request there are a wide variety of databases that could prove beneficial to locate answers. For assessment and assurance queries involving the need to locate health status information related to a
specific community, government reports may be appropriate. Specifically, Centers for Disease Control and Prevention’s (CDC) government websites such as the National Center for Health Statistics website notes that it contains principal health statistics in the U.S. (National Center for Health Statistics, 2008). Also, the CDC’s Behavioral Risk Factor Surveillance System (BRFSS) website notes its function for containing a system of health surveys that gathers information on health risk behaviors, prevention in health practices, and access to health care mainly related to chronic disease and injury (Behavioral Risk Factor Surveillance System [BRFSS], 2008). BRFSS (2008) specifically noted that for many states, the BRFSS is the sole source containing timely, accurate data pertinent to health-related behaviors.

For policy development queries, librarians may direct patrons toward resources such as the Brookings Institute and the Cato Institute Websites. The Brookings Institute is a nonprofit public policy organization having a nonpartisan position conducting independent research (Brookings Institute, 2008) and/or Cato Institute is another non-profit public policy research foundation yet does have a political orientation. (Cato Institute, 2008). Librarians could be very useful in pointing out and providing instruction for the most effective navigation through websites and databases.

Additionally, librarians would find that training patrons to use Medical Literature Analysis and Retrieval System Online (MEDLINE®) to obtain literature searches on information pertinent to assessments and/or assurance and/or policy development functions may also extremely valuable. MEDLINE®, developed by the NLM, is noted to be the most comprehensive bibliographic information source on life sciences and biomedical subject matter, containing over 18 million journal article references –
indexed via the National Library of Information Medical Subject Headings (MeSH®) (NLM Fact Sheet on MEDLINE®, 2008). PubMed, noted to be a service of the U.S. NLM provides free access to MEDLINE® (NLM, PubMed, 2009).

An example of an assessment query utilizing MEDLINE®: MEDLINE® searches brought forth information on the problematic public health issues of asthma and obstructive sleep apnea syndrome (OSAS) (Alkhalil, Schulman, & Getsy, 2008). Alkhalil, et al. (2008) noted that online searches provided information on published studies conducted that offer evidence that OSAS is associated as a risk factor in asthma exacerbations.

An example for an assurance query utilizing MEDLINE®: The World Health Organization (WHO) and the CDC found extensively drug-resistant tuberculosis (XDR-TB) to be a real public health threat and thus are requiring heightened control measures for tuberculosis (Mitrzyk, 2008). Mitrzyk noted that MEDLINE® searches from the time frame of January 1968 to March 2008 were conducted in order to provide a deeper knowledge of the disease and the how pharmacists could be instrumental in the public health awareness of tuberculosis as well as patient care for those with and at risk for this illness.

An example of a policy development query attempting to utilize MEDLINE®: Ballard, et al. (2008) note that MEDLINE® was utilized to obtain articles related to inpatient suicides occurring in a general hospital. However, in this case, information on this particular public health concern was limited and thus will require further data collection to be optimally useful for the prevention of and development for policies related to hospital-based suicides (Ballard, et al., 2008).
Librarians could Enroll in Continuing Education Courses

Alpi (2005) emphasizes that for health sciences librarians to be expert searches in public health, they need to have a good understanding of a wide range of databases and public health terminology.

In order to maintain and/or enhance skills necessary to provide reliable public health information to patrons, medical librarians must continually seek education pertinent to health topics. There are a number of education programs such as continuing education courses listed on the Medical Library Association Course Search website that provide best current information methods for optimal provision of information (Medical Library Association [MLA], Course Search, 2008). For example, on the MLA Course Search was a course entitled “Evidenced-Based Public Health,” which consisted of a lecture, discussion, and hands-on exercises appropriate for learning basic concepts and tools of evidence based public health nursing and methods for locating and evaluating public health information making use of PubMed and other databases such as Cochrane Database of Systematic Reviews, Agency for Health Care Quality and Research (AHRQ), the CDC, PHP partners, etc. to offer search strategies in seeking best evidence and means to remain current in public health nursing (MLA, Course Search, 2008). Another course noted on the MLA Course Search Website, “Public Health Information on the Web” (presented by the National Network of Libraries of Medicine) included a discussion on the vital part health information has in public health as well as the resources available on the Internet for a broad range of subjects such as health education, evidence-based practice, and statistics (MLA, Course Search, 2008).
Also, the continuing education program, “Mini Medical School for Medical Librarians” offers an effective way for medical librarians to gain a more complete knowledge of medicine and how to most optimally reach clinician patrons (Dunn, et al., 2006). It was noted that as the planning committee for this course recognized potential gaps in knowledge in new librarians one of their five knowledge areas included public health (Dunn, et al., 2006).

The American Medical Informatics Association [AMIA] (2008) notes that biomedical and health informatics serves to integrate the “health sciences (such as medicine, dentistry, nursing, pharmacy and allied health) with computer science, management and decision science, biostatistics, engineering and information technology.” Bridges, Miller, and Kipnis (2006) note that there is a Biomedical Informatics week-long course sponsored by the NLM, offered since 1992. Participants (librarians, clinicians, educators, and administrators) receive 23 lectures (over 40 hours) that includes hands-on instruction on Web page design, development of Web-based interfaces for databases, and decision trees. Blumenthal, Mays, Weinfeld, Banks, and Shaffer (2005) noted that academic health sciences libraries are also needing to take on augmented positions in the area of informatics instruction in medical school curricula; in fact, these librarians are needing to formulate measures to assess effectiveness of instructional methods. Informatics, being one of IOM’s competencies, could certainly benefit medical librarians in their search for information pertinent to assessment, assurance, and/or policy development.

Some courses offered by NLM that could assist librarians in specifically preparing for assessment queries may include several self-guided training modules on topics such
as “Health Services Research Methodology Core Library” (NLM, Health Services, 2008) and “Introduction to Health Technology Assessment” (NLM, Introduction, 2008). As far as policy development, the AcademyHealth offers a directory of training programs for health services and health research policy (AcademyHealth, 2008).

Additionally, Banks et al. (2005) referenced Humphrey's (1998) work (as cited in Banks, et al., 2005) as noting the NLM offering 27 outreach projects aimed to train public health workers on how to efficiently search for information.

**Librarians could Utilize Journal Clubs**

Journal clubs can serve as an excellent means to keep abreast with librarian searching skills necessary for providing effective information on assessment of community health. For example, Akhund and Kadir (2006) maintain that journal clubs are a widely acknowledged teaching tool in most postgraduate medical education fields. Pearce-Smith (2006) specifically notes that journal clubs could be an effective means for librarians developing appraisal skills for various medical topics patrons may present. Scherrer and Dorsch (1999) noted that professional development courses for librarians at the Library of the Health Sciences at the University of Illinois at Chicago (UIC) was created to raise librarians' skill sets in order to provide support to the EBM curricular plan at the UIC College of Medicine: the success of this program was measured in part by the increasing participation librarians had in journal clubs (Scherrer & Dorsch, 1999).

**Librarians could Utilize Really Simple Syndication (RSS)**

Wu and Li (2007) explain Really Simple Syndication (RSS), which makes use of extensive markup language (XML) for continual scanning of website content for updates on selected subjects, which can then be distributed to subscribers' desktops via an RSS feed as a very helpful tool for librarians to use and teach their patrons to use in order to
keep updated on chosen material. Cooke (2006) also emphasized the importance of librarians and their patrons keeping up-to-date on relevant subject matter in an organized fashion by using RSS. Bergeron (2006) contends that RSS allows clinicians to preview headlines and journal article titles hundreds of websites – all set up on a desktop aggregator to easily display RSS feeds. Whether the subject matter of interest is assessment, assurance, or policy development, librarians could recommend and/or instruct clinician patrons on how to most effectively utilize the RSS, which can serve to keep clinicians current on requested topics. There are thousands of RSSs one could subscribe to. Perhaps for the interest in assessment there is the CDC’s National Center for Health Statistics RSS (National Center for Health Statistics RSS, 2008). For specific assurance queries for chronic disease, one may want to subscribe to the CDC’s “Preventing Chronic Disease” RSS (CDC, RSS Feeds, Preventing, 2008). And perhaps for interest in policy development there is the CDC Health and Law RSS (CDC, RSS Feeds, Health and Law, 2008).

**Librarians could Utilize Online Communication in Various Formats**

Frisby, Kipnis, and Mikita (2006) note the importance of libraries having communication with patrons online (i.e. distributing a library electronic newsletter). Wu and Li (2007) note the trend of libraries increasingly adding electronic resources, including online tutorials, to their systems. Kelly (2006) maintains the importance of patrons having user-friendly electronic full-text articles access from their desktops. Kelly further notes the helpful NLM’s LinkOut capability that librarians can set up within their libraries that would serve to offer patrons instantaneous access to a given library’s online journal full-text collection through hyperlinks. Giglia (2008) notes that the
librarians have been increasingly utilizing virtual reference desks in order to offer reliable health information in a user-friendly manner.

De Groote (2005) states that queries brought to the physical reference desk in libraries are declining but questions posed to the virtual reference desk are rising. For all functions, (assessment, assurance, or policy development), librarians utilizing electronic communication can serve to more widely open connection with their patrons.

**Librarians could Utilize Web 2.0 Technologies, Particularly Wikis in their Library as well as Offer Information on Optimal Use of Web 2.0 Technologies to Patron Specific Needs**

Scotch, Yip, and Cheung (2008) note that generally Web 2.0 technologies are new internet services promoting information sharing and collaboration. Lombardo, Mower, and McFarland (2008) note that wikis, which are included in the suite of Web 2.0 technologies, can be used for collaboration and communication. Ciesielka (2008) notes that wikis (webpage or collection of Web pages) allow the developing, editing, and distributing information via an online format.

Lombardo et al. (2008) noted that to be very effective in using wikis, training is necessary. Recognizing the need for health science libraries to be informed the library’s collaborative communication needs as well as training patrons in the benefits of such technologies, the MLA has recently developed several courses for librarians devoted to the topic of Web 2.0 Technologies, which include the use of wikis. For example, the class “Introduction to Blogs and Wikis” offers information on how librarians can create blogs for communication with library patrons and to how to utilize wikis appropriately in health sciences library environments (MLA, Course Search, 2008). It is very important for librarians to create a wiki that contains useful and reliable information, targeted to their patron audience (Robertson, Burnham, Li, & Sayed, 2008). Robertson, et al.,
(2008) note that the wiki has great promise of becoming the information resource area as patrons and librarians utilize this as a collaborative tool for essential resources.

Librarians who are knowledgeable on Web 2.0 technologies could be great assets to patrons in the collaborative field of public health field who want to learn how to most appropriately use wikis. It was noted that biomedical research projects can be collaborative in nature and often require special management of information and communication needs (Desai, O'Hara, & White, 2007). Desai, et al., (2007) note the use of a wiki solution to enable group correspondence, with secure file sharing, and collaborative writing at a pediatric hospital and research center.

Lombardo, et al. (2008) cite collaborative uses of wikis to include grant writing, planning, documentation, and committee work. In the collaborative process of policy development, librarians could offer instruction to patrons on wikis, which could assist in specific planning and grant writing as necessary. These Web 2.0 Technologies are not limited to policy development, however. Public health workforce patrons seeking information on assessment and assurance could benefit from collaboration with colleagues concerning specific queries.

Beyond wikis, increasingly innovative uses of Web 2.0 technologies will allow broader communication in the future. Scotch, et al. (2008) cite Zou, Miller, and Schmidtmann (2007) (as cited in Scotch, et al., 2008) as utilizing Web 2.0 technologies as a possible solution to challenging application development that supports public health surveillance tasks such as assessment functions involving the surveillance of West Nile Virus risk areas by using temperature data from environmental sensors when monitoring infections in humans, birds, and mosquitoes to predict high risk WNV areas.
Web 2.0 technologies can enhance assurance of healthcare quality. For example Kamel Boulos and Wheeler (2007) note the especially valuable use of instant messaging and virtual meeting software being utilized by clinicians in remote areas to confer with colleagues regarding healthcare.

**Librarians could Market Library Research Services (Noting Public Health Domains)**

In order for clinicians with public health reference questions to take full advantage of the searching skills of librarians and resources from the library available to them, marketing these library services is key! Dutcher and Hamasu (2005) note the necessity for librarians to conduct outreach efforts in their community, seeking to understand to needs of the community in order to best present and promote health information resources. The NLM notes the importance of health science librarians providing handouts that inform patrons of resources and services being offered by the library as well as holding workshops to train patrons on the use of these resources (NLM: Marketing to Hospital Health Professionals, 2008). The MLA also stresses the importance of marketing library services; in fact the MLA offers courses that instruct health science librarians how to best market the library (MLA: Distance Education, 2008). Perhaps librarians with a public health patron population, may provide examples of how library research can assist with assessment, assurance, and/or policy development questions.
## Questions Librarians could Ask Clinician Patrons

- **Librarians could Ask Pertinent Questions to Locate Answers from Specific Resources for Specific Questions**

  See Appendixes A, B, and C for sample reference queries for assessment, assurance, and policy

- **Librarians could Ask what Searching Format will be Most Workable to Training and/or Providing Information to their Specific Patron’s Information Need**

  
  - Electronic access and in-person reference services.
  
  - Enhanced content organization on websites.
  
  - Librarians’ searching for EBM.
Questions Librarians could Ask Clinician Patrons

Librarians could Ask Pertinent Questions to Locate Answers from Specific Resources for Specific Questions

Librarians need to ask key questions pertinent to the patron’s query related to assessment of a given health concern in a community, assurance of a healthcare plan, and/or the development of a health policy. Librarians need to assess the most optimal resource to answer the request. Cobus (2008) stresses the importance of public health professionals assessing various information resources (i.e. the Web, scholarly databases, mass media) in order to be “effective communicators.” Cobus referenced Hardesty’s work (as cited in Cobus, et al., 2008) as maintaining that librarians can assist patrons in understanding the art to assessing information in various formats. For specific needs, specific resources are available.

For example, if a patron has a query related to the assessment of an e-coli outbreak, a librarian may offer multiple sources to attain relevant information. For example, a librarian may offer the patron information from the CDC’s “About e-coli” website, which offers information on current and past outbreaks, resources targeted toward clinicians, etc. (CDC, About e-coli, 2008). A librarian could also offer the patron information from library purchased databases such as MD Consult and Up-To-Date, which could provide more extensive research on e-coli. Additionally, a librarian could promote the MEDLINE® database as a searching tool to obtain studies on e-coli outbreaks.

In considering queries related to health policy development, Humphreys (1998), referenced in Banks, et al. (2005) who maintained that persons searching for health policy and public health information tended to face barriers such as limited awareness.
of available access to health policy and public health information and lack of access to information technology or to knowledgeable librarians. However, health policy information is certainly available. And over time it was noted that the NLM and the National Network of Libraries of Medicine were instrumental in improving Internet access and offering training to the public health workforce (Humphreys, Ruffin, Cahn, & Rambo, 1999). The NLM, Partners (as cited in Humphreys, et al., 1999). notes that the National Network of Libraries of Medicine has vital resources that can be utilized to locate a vast amount of public health literature – via the MEDLINE® database and many other electronic resources.

**Librarians could Ask what Searching Format will be Most Workable to Training and/or Providing Information to their Specific Patron’s Information Need**

Whether a patron is searching for assessment, assurance, or policy development functions, the most workable searching format when training and/or providing information patrons is very important to consider. Some patrons (i.e. physicians) may find it relatively convenient to enter a physical library (located in their hospital) to access databases while some patrons may find it most optimal to access all information online via remote access to library databases from their homes and/or offices. Some patrons prefer librarians to conduct searches while others want to learn how to locate material on their own.

**Electronic access and in-person reference services.**

Some library patrons will prefer to access resources electronically, thereby not needing physically come to the library. However, even in this age of increasing electronic availability, some library patrons will still prefer in person reference. For example, a study was conducted at the University of Illinois at Chicago (UIC) Library of
the Health Sciences (LHS) offered a provided data that revealed both online and offline library services are usual (De Groote, Hitchcock, & McGowan, 2007). Tu (2007) noted that with rise of electronic resources and advances in technology, librarians can effectively offer resources to health professionals in electronic venues as well as the traditional in person reference. When patrons choose to utilize online resources to search for medical information, the interface must be workable to those using it. A study revealed that handheld computers having Internet access serve as beneficial tools to clinicians for quickly locating “point-of-care” information – particularly noting MEDLINE® citations being very valuable (Hauser, et al., 2007). Noted that by evaluating server logs of PubMed for Handhelds portal for a month, it was established that the volume of data indicated that wireless Web access could be valuable to the mobile clinician (Ducut, Liu, & Fontelo, 2008). Recognizing that in order to practice EBM, physicians have to obtain medical information quickly yet residents were noted to receive limited formalized training on electronic database searching, an inpatient EBM searching tutorial was implemented, which revealed improved searching techniques and a raise in comfort level in using MEDLINE® in internal medicine residents (Stark, et al., 2007).

Enhanced content organization on websites.

Having a user friendly library Website that is tailored toward the needs of the patron population is essential. Might it be appropriate for the given library to have a link to virtual reference on their Website? MacDonald (2003) noted that virtual reference services can be a valuable tool for libraries if there is an expressed need for such a service by the library users as well as being workable for the library. In a new live reference service at the Health Sciences Library, University of Saskatchewan, it was
noted that having a “user-centered design methodology” was helpful for assuring reference services was noticeable, usable, and effective for users accessing this library’s Website (Duncan & Fichter, 2004). Turner, Stavri, Revere, and Altamore (2008) note that information gleaned from extensive interviews from seventeen public health nurses from a local health department in a rural portion of Oregon revealed a need for librarians to enhance content organization and interface design for Websites that were utilized regularly.

**Librarians’ searching for EBM.**

Since clinicians are often too busy to conduct information searches, the medical librarian could assist in this process. Schwartz and Millam (2006) stress that for clinicians to effectively utilize evidence based medicine (EBM) attained from literature searches to apply to patient-related care may necessitate time not available to practicing physicians; thus clinical librarians could serve to help clinicians in this process. Revere, et al. (2007) stress the vital information support needed for public health professionals and note that public health librarians have the opportunity to provide the much needed developing of “evidence-based decision support systems” and searching and training for the optimal utilization of information retrieval systems for public health professionals. In fact, a case from residents’ morning report showed that a combination of timely results obtained via an online literature search by assisted by librarians actually resulted in a lessened length of stay and reduced hospital charges (Banks, et al., 2007). Brandes (2007) noted that case reports have revealed that increased care of patients by having a medical librarian on Rounds. Jerome, Giuse, Rosenbloom, and Arbogast (2008) noted that research studies revealed physicians...
noting the importance of librarians summarizing EBM via literature searches to the clinical workflow.

Dobbins, Jack, Thomas, and Kothari (2007) note results of a study revealed public health administrators’ preferences for obtaining decision-making evidenced based public health research was both electronic and hard copy formats.

**Conclusion**

**Implications**

In conclusion, there are several important implications of clinical, medical, or health sciences librarians incorporating IOM’s core functions of assessment, assurance, and policy development into reference services for the population of clinicians in search of public health questions. Whether public health queries involve assessment of a given health concern in a community, assurance of a healthcare plan, and/or the development of a health policy, through thorough preparation, librarians can be instrumental in helping clinicians to obtain and effectively utilize such information to serve community health. Also, a mutually beneficial relationship can be formed between librarians and clinicians. For example, clinicians requesting assistance in locating public health information could serve as motivation for librarians to continue enhancing skills necessary to provide optimal reference help to the population of clinicians with public health queries. Finding such information leads to benefiting community health.

**Recommendations**

In order to fully appreciate the skills necessary to obtain and utilize public health information, clinicians could very much benefit from contacting their local or “virtual” clinical, medical, or health science librarians. Through preparation in the development of
training (tailored toward the patron as appropriate), continuing their own education, utilizing the growing Web 2.0 technologies, and effectively marketing their library services, librarians could greatly benefit the clinician population in seeking answers to assessment, assurance, and policy development questions. In partnering with librarians, clinicians could learn how to more effectively seek public health information, leading to the optimal use of such information to promote in health in various populations.
References


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Appendix A

Sample Reference Query for Assessment

Clinician A comes to the library and requests information on West Nile Virus (WNV). The librarian needs to ask probing questions to understand what particular information on WNV would be of most interest to Clinician A. Following a brief consultation, the librarian learns this patron has seen a few potential cases of WNV in his practice and wants to 1) learn more about the current distribution of cases throughout the community and the US and 2) gain a solid understanding of the symptoms, mode of transmission, and potential treatment associated with WNV and 3) gather information in the form of literature searches (both current and historic) in order to collect information suitable to present as a Continuing Medical Education (CME) course at his medical center.

Clinician A’s query demonstrates an informational need that includes the collecting, analyzing, making community health information accessible – part of IOM’s definition of assessment (Institute of Medicine [IOM], 1988, p. 7; Turnock, 2004, p. 182).

Where to find this information?

1) To locate the current distribution of WNV, the CDC Website is a resource http://www.cdc.gov/ncidod/dvbid/westnile/ as it contains very current updates on the number of human cases by state. This site provides a WNV activity map for the current year as well as the past years (2005-2007), which can be especially helpful when viewing movement trends of this virus. The U.S. Geological Survey Website http://diseasemaps.usgs.gov/wnv_us_human.html contains WNV activity maps for human cases by individual county!

2) To gain a good understanding of symptoms, transmission methods, and possible treatments associated with WNV, the CDC Website http://www.cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm. Other helpful resources (if available) include databases such as Up-To-Date and MD Consult.

3) Collecting additional information on WNV via a literature search would entail using specific keywords in MEDLINE, limiting the searches as appropriate to Clinician A’s request (i.e. review articles, clinical control articles on potential vaccines)
Appendix B

Sample Reference Query for Assurance

Clinician B comes to the library requesting information on assurance of Clean Air enforcement in California. To narrow this topic after the librarian questions the reasoning behind the request, Clinician B expresses concern that a local railway yard is emitting pollutants into the air – a particular concern since this is located near a school yard. Clinician B wants to know 1) steps to take to enforce clean air provisions and 2) a clearer understanding of health conditions that can arise from exposure to such pollutants.

Clinician B’s query shows a reference query that entails gaining an understanding of implementation of regulations concerning health safety (Institute of Medicine [IOM], 1988, p. 8; Turnock, 2004, p. 186) – in this case, specifically focusing on health safety of the children.

1) The librarian could refer Clinician B to an organization such as the Air Resources Board in California http://www.arb.ca.gov/msprog/aqip/aqip.htm, which contains information on laws and regulations on clean air and specific sections that address railway yard air pollution concerns http://www.arb.ca.gov/msprog/offroad/loco/loco.htm.

2) To gain a better understanding of the actual effect exposure to rail yard emissions, the librarian could refer Clinician B to searching the TOXNET database, which can provide detailed information on various pollutants association with railways as well as reviewing MEDLINE for relevant literature searches.
**Appendix C**

**Sample Reference Query for Policy Development**

Clinician C comes to the library wanting to implement a public health policy XYZ. The librarian could ask Clinician C what he has already accomplished in this quest and what still needs to be done. The librarian could point Clinician C to appropriate resources such as those pertinent to potentially interested parties who have an interest in this policy using Kingdom’s five categories of interest groups (business and industry category, professional category: professional groups, labor category: labor groups, public interest category: public interest groups, and government category: government groups). Additionally, the librarian could help the patron locate information on coalition formation, avenues to possible media coverage, etc.

Some Potential Resources as Offered on the National Library of Medicine website

**Online Notification Services**


Medscape (Medscape eMed journals), http://www.medscape.com

**Journals**

Health Policy, http://www.elsevier.com/wps/find/journaldescription.cws_home/505962/description#description

Health Policy and Planning, http://heapol.oupjournals.org

HSR Health Services Research, http://www.hsr.org/

