

## **Stage 1: Conducting a Community Assessment**

Identify Targeted Community  
Conduct a Community Assessment  
    Obtain User Input  
        Methods of data collection  
Utilize Results

*Figure 1* Sample Focus Group Questions

### **Toolkit**

References and Additional Resources  
Tips for Questionnaire Development

## Stage One

### Conduct Community Assessment

Identify Target Community

#### What to Find Out

What populations do you serve?  
Which communities are most in need?  
Which communities can you best reach and influence?  
Etc...

#### How to Find Out

Analyze demographics, health status, patterns of health care.  
Use secondary sources.  
Use national and local data sources.  
Ask stakeholders.

Conduct Community Assessment

#### What to Find Out

Who are users of health information?  
What health information is needed and used?  
What are the barriers to getting the information?  
Can outreach help? How?  
Etc...

#### How to Find Out

##### Consult the Literature

##### Work with the community

- Get feedback from key contacts, leaders.
- Ask users directly.
- Conduct exploratory interview or focus groups.
- Distribute questionnaires.

##### Considerations for questionnaires

- Can you adopt questions from tested surveys?
- If a new survey is needed, how will you use the results?
- Will you want to generalize? If so, consider developing a valid and reliable survey instrument.

#### Analyze Results

Set information need and access priorities

Although the term "outreach" is used frequently in the library and information science literature, it is difficult to find a concise, agreed upon definition. Instead, outreach tends to be defined by the specific activities undertaken by librarians as they attempt to reach beyond or surpass the boundaries of their traditional on-site services and address the problems or needs of a targeted clientele (1).

With the growing capability of libraries to deliver information to remote sites using electronic information storage and retrieval technologies, an increasing proportion of outreach activities promote, train, and facilitate online health information access, exchange, and use.

A basic assumption of this guide is that outreach activities are most effectively planned and conducted when based on an overall outreach program. That means that specific outreach efforts are parts in a "package" of activities that together are intended to produce a specific result. To be successful, outreach programs require goals and objectives combined with methods for satisfying the objectives and thereby reaching the goals (2). The methods selected to reach outreach objectives might include some types of the following activities:

- Promoting biomedical information resources developed by the National Library of Medicine, such as MEDLINE and MEDLINEPlus, to a state association of school nurses, podiatrists, optometrists or other health professional group;
- Staffing an exhibit to promote biomedical information resources at an annual meeting of environmental health officers, public health nurses, or veterinarians;
- Training county health department workers to use the Internet and then

assisting them in developing a home page;

- Assisting with Internet connectivity and training for a migrant worker clinic, long term care facility, or community agency;
- Assisting American Indian or Alaska Native communities to improve technology infrastructure and learn self-sustaining health information skills.

The activities listed above have the common goal of facilitating effective access, use and exchange of health information for health providers and the public. Reaching this goal does require objectives to develop or improve information seeking skills by individuals. Theories that help reach these types of objectives are described in Stage 3. But, skills will not be adopted as information seeking behavior unless accompanied by conditions that help sustain or support their use, such as convenient access to relevant and valued information resources and the support or influence of gatekeepers, opinion leaders, or peers in the work or community environment.

Outreach programs thus are more effective if objectives to effect information seeking skills of individuals are accompanied by objectives to effect social or environmental factors in their community that may facilitate or impede access. For example, conducting training classes for an audience without understanding the value that their social or work environment places on computerized resources or without building a foundation of technical capability (e.g. adequate hardware or connectivity with onsite or local expertise) will introduce search skills that are unlikely to be sustained. The outreach planning process thus begins with a community assessment to understand the context of the group being reached, and to develop mutual goals for ways that outreach can help.

Stage One of outreach program development includes the process of identifying and

discovering the needs of a targeted community; referred to as a *community assessment*. This process is a critical beginning to planning and evaluating a health information program as it sets the stage for developing overall program goals and objectives. A community assessment provides answers to questions such as:

- What will be the target community?
- What are the health information needs of that community ?
- What are their access problems and needs?
- What problems should have the highest priorities?
- What groups within the community can outreach best reach and influence?

For the health information outreach planner, a community assessment helps test, revise, or refine assumptions about the need for and priorities of the program. Outreach programs that do not conduct community assessments are basing their activities on what is assumed to be needed, not necessarily on what is most needed.

Note to the reader: Another form of assessment, the *audience assessment*, is discussed in Stage 3. The difference between a community and audience assessment is purpose and scope. The community assessment helps set the stage for determining the goals and objectives of an overall program that might include any number of outreach activities. An audience assessment, conducted prior to a specific outreach activity, gathers data about the specific information needs, behaviors and attitudes of the activity participants (e.g., registrants for a training workshop). Data from the audience assessment helps refine the content and strategies used in promoting and conducting that activity.

### **Identify the Target Community**

Before developing a community assessment, a decision needs to be made about what community will receive outreach. A community represents a group of individuals

who share functional or structural characteristics. Functional characteristics are non-geographic, such as age, occupation, culture, or special interest (e.g. health condition). Structural communities are organized by spatial boundaries, such as an inpatient hospital setting, neighborhood, parish, or ghetto; or legally established communities, such as a village, town, city, county, state, or nation (3).

Before narrowing to a community, first consider the population your library serves, which will vary by type of library or parent organization. For example, the populations served by a public library can be defined by the demographics of the library service area. Clientele served by a hospital library may be limited to the hospital staff and patients, but the hospital board may want outreach to target the population of the entire county. Library organizations with state or regional responsibilities will cover a wide range of populations within a large geographic area.

Given the probability that the population(s) served by your library are numerous or large, the next step is prioritize populations by need for outreach. Populations that would likely benefit from improved access to and use of health information resource include those experiencing a disproportionate lack of access to health services or those at risk of health disparities, such as AIDS. You can identify populations lacking access to health services by minority or socioeconomic status (e.g. American Indian/ Alaska Natives; rural or urban poor) or by locating federally designated Medically Underserved Areas. Health status indicators allow you to compare national with state averages to obtain an overall picture of the health disparities most prevalent in your state or region.

To discover populations most in need, you can avoid wasting time and resources on an extensive data collection efforts by finding out what is already known. Depending on the scope of population your library serves, socioeconomic data and health status might

be found in city, county, regional, state, or Federal health sources. National health data sources provide a general idea of the extent and pattern of healthcare, including the availability of manpower and the organization of service delivery.

Once you have identified the populations you serve that will likely benefit from outreach, establish candidate community(ies) you might target. As defined above, the term “community” is broad and can be defined by common interests or by spatial or legal boundaries. If your library targets its services to health intermediaries, the communities you choose for outreach may be the social and health occupations that target underserved populations or populations with health disparities. If you include the public as part of your service responsibility, the communities you choose may be health consumers in underserved neighborhoods or rural areas, or those individuals that have or are at risk for the health disparities prevalent in your state or regional populations.

Thus, communities targeted by outreach might be:

- Rural primary care settings [addressing low income populations]
- Public health workers in [Name] county [addressing health disparities]
- American Indian/Alaska Native tribes or villages
- K-12 school nurses, librarians, teachers [who work with youth at risk]
- Groups of health professionals sharing specific health concerns, such as AIDS
- Urban neighborhoods of youth at risk
- Urban neighborhoods of low income seniors

With a list of candidate communities, consider which of these can you most effectively reach. Think about your potential strengths and weaknesses of working with each community. What do you have to offer that will be relevant to

their situation and need? What are the types of health providers and health settings (e.g. local health departments, clinics, hospitals, social service agencies) that address the communities’ health concerns. What key intermediaries, public libraries, community-based health organizations, or professional associations will be important targets or partners in your efforts? For each candidate community, are there local chapters of professional or non-profit health associations that make sense to approach?

Selecting the community(ies) for your outreach efforts is an important first step in planning your outreach efforts. A reasonable and rationale approach does not mean extensive research, but will require some thinking about where you are both most needed and can be most effective. Part of the final selection of the community will include matching available time, resources and staff with the level of outreach effort that is needed. Another consideration will be whether you want to work with the community’s public at large or with the intermediaries that create the public’s social and health network. What is the audience served by your library or its parent organization?

**Example:** *The medical library at a large state university received funding to extend its outreach to health providers throughout the state. Realizing a systematic approach toward planning and evaluating this effort would benefit the program, the library decided to prioritize the candidate communities for outreach. First, they reviewed the goals of the funding agency which were to bring all health professional within easy reach of health information resources, especially those that do not currently have direct access. With this in mind, outreach staff reviewed population areas in the state that have low socioeconomic status and are designated Medically Underserved Areas (MUA). Several parts of the state are considered MUA, and the library needed to select among them. Staff then consulted*

*morbidity/mortality rates for indicators of poor health status and narrowed down their choice by the underserved area containing the county with the highest incidence in the state of several poor health status indicators, including AIDS and tuberculosis. Health provider communities who address these health issues were identified as primary care providers, local public health workers, and school nurses. With these candidate communities narrowed by health issue and geographic location, staff selected primary care providers in clinics designated as Community Health Centers under public law 330 of the Public Health Services (PHS) Act.*

### **Conduct a Community Assessment**

With a community identified for outreach, a community assessment will provide a deeper understanding of the needs and problems an outreach program might address and the intermediaries to work with. A primary objective in conducting a community assessment is to develop a mutual agreement with the community about the types of outreach activities needed and the hoped for outcomes.

To begin, establish a broad understanding about the targeted group of health information users and their environment, including:

- Type of health information needed and for what purpose
- Numbers and types of health providers
- Sources of information used
- Availability, adequacy of information technology and infrastructure
- Availability, adequacy of information services
- Environmental, political, or social barriers to technology or information use

The literature is an excellent resource when researching a community's information needs. Chimoskey studied rural physicians in the state of Washington to determine use of Medline (4). Dorsch cites several studies

that specifically address the information needs of rural health professionals (5). Marshall lists studies of the information needs of a variety of health professionals including nurses in the work environment, physicians in office practice, and primary care physicians and their opinion leaders (1), (6). Baird et al. published an annotated bibliography about the needs assessments of health professionals (7). Rambo published a report on a study to understand the varied use and need for information resources and technology by different segments of the public health workforce (8).

### **The Environment of Local Public Health Departments**

*Adopted from Dragonfly, the newsletter of the NN/LM PNR*

So you want to work with your local public health department? As with reaching out to serve and collaborate with any group, it pays to know something about who they are and what they do.

What do you know about your local public health department? Who are their "customers?" Who funds them? To whom do they report?

What does a local health department do? Many health departments do provide some patient care (e.g., immunizations, STD clinics, prenatal screening, and nutrition counseling). But local public health has become much more than that. It is a mix of services designed to meet the needs of communities in preventing the spread of disease, protecting people from unsafe drinking water, air, and hazardous waste, and ensuring that people have the information and resources needed to live healthy lives.

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Who are the health professionals on staff? You may find physicians and nurses who also care for patients at the hospital or clinic. There are public health nurses who work in a variety of roles with childcare centers and school districts, mental health and drug and alcohol treatment programs, and law enforcement agencies. There are environmental health specialists who inspect drinking water, who work with solid waste programs, who inspect restaurants and train food workers. In larger jurisdictions there will be epidemiologists and others trained in tracking infectious disease outbreaks. The list is a long one and it depends on local needs and programs.

Information needs are very broad and overlap with subject areas that we don't usually think of as being health-related. Local health departments are strongly oriented toward the state health department. It's a good idea to spend some time combing through the state department's web site to get an idea of what resources and data are there. This will be a limited view because it's only what is publicly available; nevertheless, the web site will give you a glimpse of what's happening and some of that will be reflected at the local level.

### ***Obtain User Input***

After reading the literature, it is helpful to conduct some sort of study particular to your community. You might confirm or reject the needs identified in other studies, and identify needs unique to your targeted community.

Direct user input is preferred when trying to establish a basic understanding about problems, satisfaction, and unmet information access needs of a community. If possible, get feedback from key contacts and leadership within the community to help gather facts and establish a mutual agreement about the need for outreach.

### ***Methods of Data Collection***

The methodology you use to gather data will vary according to the purpose of your assessment and how you want to apply the results. See Stage 5 for additional

discussion of evaluation methodology, which will be introduced here.

There are two basic approaches to data collection, including:

- Extensive data collection
- Intensive data collection

These two approaches vary quite a bit and their choice will depend on the purpose of your research and how you intend to use the results. With *extensive data collection*, much is already known about the situation and the possible variables or factors involved. The purpose is to collect data about a community that can be considered truly representative of the entire user population. Data collected can be both qualitative and quantitative (described below). Statistical validity and reliability are key criteria, meaning that the research instrument measures exactly what was intended and, if repeated, results would be the same or very similar. Random sampling is also important, so that all people being researched have an equal chance of responding. (For more discussion of random sampling, see Appendix C).

In situations where little is known about the audience, it may be helpful to use a more exploratory data gathering approach called *intensive data collection*. The purpose here is to understand patterns of behavior or identify particular impacts or problems impeding desired results. With intensive data collection, you want a practical understanding of what is happening, but not to make generalizations. You can get both qualitative and quantitative feedback that does not strive for statistical validity, but does provide data to help understand your audience.

Each approach mixes two methods of data collection traditionally termed quantitative and qualitative. *Quantitative* methods provide systematic and standardized way of gathering data, through the use of predetermined categories into which all

responses must fit. Written questionnaires are typically used to gather quantitative data, whether informally via a feedback questionnaire, or through a statistically valid survey. Quantitative methods produce hard data expressed in numbers, such as numbers of computers in a worksite, percentage of respondents with Internet experiences, or scores about attitudes towards computers.

*Qualitative* methods are concerned with recording feelings, experiences, and impressions according to the subjects' own words, either spoken or written. To understand users from their own perspectives, qualitative methods use open ended questioning techniques such as:

- Focus groups
- Open-ended survey questions
- Critical incident surveys
- Internal staff feedback
- User interviews

Other qualitative methods include observations, diaries, or a review of records and documents.

As mentioned earlier, the approach you choose for data collection will depend on the purposes of your assessment. If you have worked with a user population and have noticed patterns of behaviors and needs that you hope to confirm or disprove through statistically valid research, the extensive data collection approach should be considered. A study by Bowden et al, 1990, is an example of extensive data collection in a community assessment. A questionnaire was mailed to all physicians in five Texas counties to determine differences between those with access to medical libraries and those practicing in remote areas without local access to medical information. Demographic variables, professional practice characteristics, and patient characteristics were compared. Information resource use, particularly reasons for use and non-use of MEDLINE, was explored. Questions also were asked about the availability of various types of information

technology. The results indicated that statistically significant differences did exist between the two groups in the use of MEDLINE and libraries (9).

Should you decide to conduct extensive data collection using statistically valid methods, there is greater assurance that other outreach programs can rely on your results.

However, developing a well-designed data collection instrument requires considerable training and skill. If possible, seek assistance from survey research experts within your institution or local area. For a classic resource on survey development, please refer to Dillman (11).

You may prefer methods of intensive data collection to gain a practical understanding of the community needs your program will address. There are several ways to do this, including developing and distributing informal questionnaires. Following principles of question development (see Appendix B), feedback can be collected that may not be generalizable (statistically valid), but will provide a thoughtful understanding of the community's needs. Informal pre-testing of the questionnaire will help to improve its reliability, as described on page 58 of Stage 5. Or, adopt questions from already developed questionnaires. Selected needs assessment studies with published questionnaires, standard sources for identifying needs assessment, and tips on question development are described in the Toolkit at the end of this chapter. Also, see the "Computers and Electronic Communications" survey in Appendix A, assessing a local public health department's access to computers and electronic communications and the need for training.

According to Biblarz, user interviews with major stakeholders are frequently the simplest and most effective way to gather information (11). Stakeholders are those with a vested interest in the availability of health information resources. Depending on your community, stakeholders might be:

- Health providers
- Health care administrators
- Continuing education officers
- Public or rural health officials
- Faculty
- Consumers

Local medical societies, public health associations, and other associations or collegial networks can help identify major stakeholders and opinion leaders. In American Indian communities, it is especially important to identify tribal leaders directly or through an individual who has established contact with tribal leadership.

By just asking stakeholders how they use information, what are the information resources they believe they need, what type of outreach activities are needed, or similar questions, issues and assumptions can be quickly discovered, though the results are not generalizable to the whole population.

Another intensive data collection technique is the focus group. According to Biblarz, focus groups have the advantage of obtaining perceptions in a permissive, non-threatening atmosphere. Questions are asked in a non-directive way, allowing information to surface that a structured interview might block. For those readers interested in a detailed explanation of conducting focus groups, you are referred to the text by Glitz (12).

For a practical example of focus group research to discover health professionals' information needs, see Mullaly-Quijas et al. (13). Selected questions from this text are shown in Figure 1.

**Figure 1: Sample Focus Group Questions**

***Specific services***

1. Are you familiar with the National Library of Medicine and the services it provides?
2. For those familiar with the services, how familiar are you with them? How did you come to learn about them?
3. How frequently do you utilize the service(s)?
4. What are your perceptions regarding the service(s)?

***Information-seeking behavior***

1. What sources do you use to obtain medical information?
2. Do you utilize a library? For what percent of information needs? What are your perceptions of this source?
3. What factors play a role in your decision to use various sources of information?
4. What are the biggest barriers to gaining access to this information? (Probe for time, money, equipment and knowledge/skills)
5. How do you use the information? How do you determine the quality of the information?
6. Describe the ideal information system. How would it work and what information should it contain? Where would it exist and how would you access it?

**Utilize Results**

To be useful, the information gathered from interviews, focus groups, or questionnaires in a community assessment should be analyzed to help set an agenda for outreach goals and objectives. To know what the results mean might not be a straightforward matter. Identifying “what is” in a community assessment does not automatically make clear “what should be.”

When examining results, organize the data to fill in answers to the following questions:

1. What is the targeted community (as specific as possible)?  
\_\_\_\_\_  
\_\_\_\_\_
2. What does this community need (or what are they lacking) according to your perspective?  
\_\_\_\_\_  
\_\_\_\_\_
3. What does the community need (or what are they lacking) according to their perspective?  
\_\_\_\_\_  
\_\_\_\_\_
4. What does the community need (or what are they lacking) according to (NLM, funding source, management, etc) perspective?  
\_\_\_\_\_  
\_\_\_\_\_
5. Are outreach resources adequate to deal with the problem?  
\_\_\_\_\_  
\_\_\_\_\_
6. Will outreach make a difference in the problem?  
\_\_\_\_\_  
\_\_\_\_\_

7. Is the group responsive to solutions or ready for change?  
\_\_\_\_\_  
\_\_\_\_\_
8. What work is already underway?  
\_\_\_\_\_  
\_\_\_\_\_
9. What is the political landscape of the problem in this group?  
\_\_\_\_\_  
\_\_\_\_\_

If planners focus on describing a community’s information seeking problems and then examine a) the types of changes that outreach can facilitate and b) information resources and services that offer solutions relevant to the needs of the population, community assessment becomes a very useful tool for planning.

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12. Glitz B. Focus Groups for Libraries and Librarians. New York: Forbes, 1998.
13. Mullaly-Quijas P, Ward DH, Woelfl N. Using focus groups to discover health professionals' information needs: a regional marketing study. *Bulletin of the Medical Library Association* 1994;82(3):305-11.

**Selected library research articles with published questionnaires**

Bowden, V. M. e. a. (1994). "Assessment of physicians' information needs in five Texas counties." *Bulletin of the Medical Library Association* **82**(2): 189-96.

Burnham, J. F., et al (1996). "Promotion of health information access via Grateful Med and Loansome Doc: why isn't it working?" *Bulletin of the Medical Library Association* **84**(4): 498-506.

D'Alessandro, D., et al (1998). "Barriers to rural physician use of a digital health sciences library." *Bulletin of the Medical Library Association* **86**(4): 583-93.

Dorsch, J. L. (1997). "Equalizing rural health professionals' information access: lessons from a follow-up outreach project." *Bulletin of the Medical Library Association* **85**(1): 39-47.

Hall, E. F. (1995). "Physical therapists in private practice: information sources and information needs." *Bulletin of the Medical Library Association* **83**(2): 196-201.

Haug, J. D. (1997). "Physicians' preferences for information sources: a meta-analytic study." Bulletin of the Medical Library Association **85**(3): 223-32.

Huber, J. T., et al (1995). "Assessing the information needs of non-institutionally affiliated AIDS service organizations in Texas." Bulletin of the Medical Library Association **83**(2): 240-3.

Lundeen, G. W., et al (1994). "Information needs of rural health care practitioners in Hawaii." Bulletin of the Medical Library Association **82**(2): 197-205.

Obst, O. (1998). "Use of Internet resources by German medical professionals." Bulletin of the Medical Library Association **86**(4): 523-33.

Pifalo, V. (1997). "The impact of consumer health information provided by libraries: the Delaware experience." Bulletin of the Medical Library Association **85**(1): 16-22.

Shelstad, K. R., et al (1996). "Information retrieval patterns and needs among practicing general surgeons: a statewide experience." Bulletin of the Medical Library Association **84**(4): 490-7.

Urquhart, C. J., et al (1996). "Comparing and using assessments of the value of information to clinical decision-making." Bulletin of the Medical Library Association **84**(4): 482-9.

Verhoeven, A. A., et al (1995). "Use of information sources by family physicians: a literature survey." Bulletin of the Medical Library Association **83**(1): 85-90.

Wood, F. B., et al (1997). "Transitioning to the Internet: results of a National Library of Medicine user survey." Bulletin of the Medical Library Association **85**(4): 331-40.

#### **Additional Sources for Needs Assessments:**

##### *Databases*

Health and Psychosocial Instruments Database (HaPI)

Cumulative Index to Nursing and Allied Health Literature (CINAHL)

##### *Print Sources*

Anderson, J. G., Aydin, Carolyn E., Jay, Stephen J. (1994). Evaluating health care information systems: methods and applications. Thousand Oaks, Sage Publications.

Cork, R. D., W. M. Detmer, et al. (1998). "Development and initial validation of an instrument to measure physicians' use of, knowledge about, and attitudes toward computers." Journal of the American Medical Informatics Association **5**: 164-176. (copy of survey instrument: [www.med.virginia.edu/~wmd4n/medsurvey.html](http://www.med.virginia.edu/~wmd4n/medsurvey.html))

Marshall, J. G. (1990). *Evaluation instruments for health sciences libraries*. Chicago, Medical Library Association (MLA Docket #2).

*The Bulletin of the Medical Library Association* publishes questionnaires with some articles reporting survey results

The following tips provide some general guidelines for presenting, sequencing, and choosing types of questions.

- The questionnaire or interview should begin by explaining the purpose of the study and why the individual’s responses are important.
- Include a cover letter and stamped, addressed return envelope with mailed questionnaires, explaining the need for the information and how to supply it. Udinsky, Osterlind, and Lynch (1981) have developed the following guidelines for writing a cover letter:
  1. The letter should contain a clear, brief, yet adequate statement of the purpose and value of the questionnaire.
  2. It should be addressed to the respondent specifically.
  3. It should provide good reason for the respondent to reply.
  4. It should involve the respondent in a constructive and appealing way.
  5. The respondent’s professional responsibility, intellectual curiosity, personal worth, etc., are typical of response appeals.
  6. The letter should establish a reasonable but firm return date.
  7. An offer to send the respondent a report of the findings is often effective, though it carries with it the ethical responsibility to honor such a pledge.
  8. The use of a letterhead, signature, and organizational endorsements lends prestige and official status to the letter.
  9. The letter should guarantee anonymity and confidentiality.
  10. Each letter should be signed individually by the researcher.
  11. The researcher should include a stamped, self-addressed envelope for the return of the instrument.

From *Evaluation Resource Handbook: Gathering, Analyzing, Reporting Data* (p. 120), by B.F. Udinsky, S.J. Osterlind, and S.W. Lynch, 1981, San Diego, CA: EdITS Publishers. Reprinted by permission of EdITS Publishers.

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- For telephone or face-to-face interviews, the introduction about the purpose of the study can be followed by general questions to put the respondent at ease or to develop a rapport between the interviewer and the respondent.
- For written questionnaires, start with interesting questions that will draw the respondent in. Leave questions about demographics for the end.
- The response rate for written questionnaires is typically low. Short questionnaires and those that clearly explain the need for the information are more likely to be returned. Questionnaires should be attractive, easy to read, and offer ample space for the respondent’s answers.
- Write clear and unbiased questions. Avoid leading questions (“How have you enjoyed the class?”) that might guide the answer.
- Keep a question close to direct experience (i.e., avoid the need for extensive recall). Give a specific time frame whenever possible.
- Avoid two-part (double-barreled) questions. For example, “Using PubMed is easy and fun” – Strongly disagree to Strongly agree – is a double-barreled question because it assesses (1) if

PubMed is easy and (2) if PubMed is fun. What happens if the respondent thinks PubMed is fun but not easy? S/he cannot accurately answer the question.

- The most structured or closed types of questions have yes-no or multiple-choice responses, typically used for knowledge questions. These are the easiest to tabulate, but also force the respondent into a choice that may not reflect his or her own perceptions. Use an “other” category to give the person another option. Involve several targeted audience members in the testing and formation of the questions to ensure that the most common responses to questions are included in the multiple choices.
- Attitude questions generally use less structured formats. Scales, such as Likert or semantic differentials, are often used. The respondent chooses a response along a continuum, generally ranging from a five- to a seven-point scale.

*Likert scale example:*

I am at risk for falling behind current medical knowledge

Strongly 1 2 3 4 5 6 7 Strongly  
Disagree Agree

*Semantic differential example:*

PubMed is:

Undesirable 1 2 3 4 5 6 7 Desirable

- Unstructured or open-ended questions, such as short-answer questions, journals or logs, may be used to gain descriptive information. They are generally not used for quantitative data because the response categories are not specific and may be difficult to code for analysis. However, they can provide impressions, in-depth information, and outcomes that you may not have anticipated.