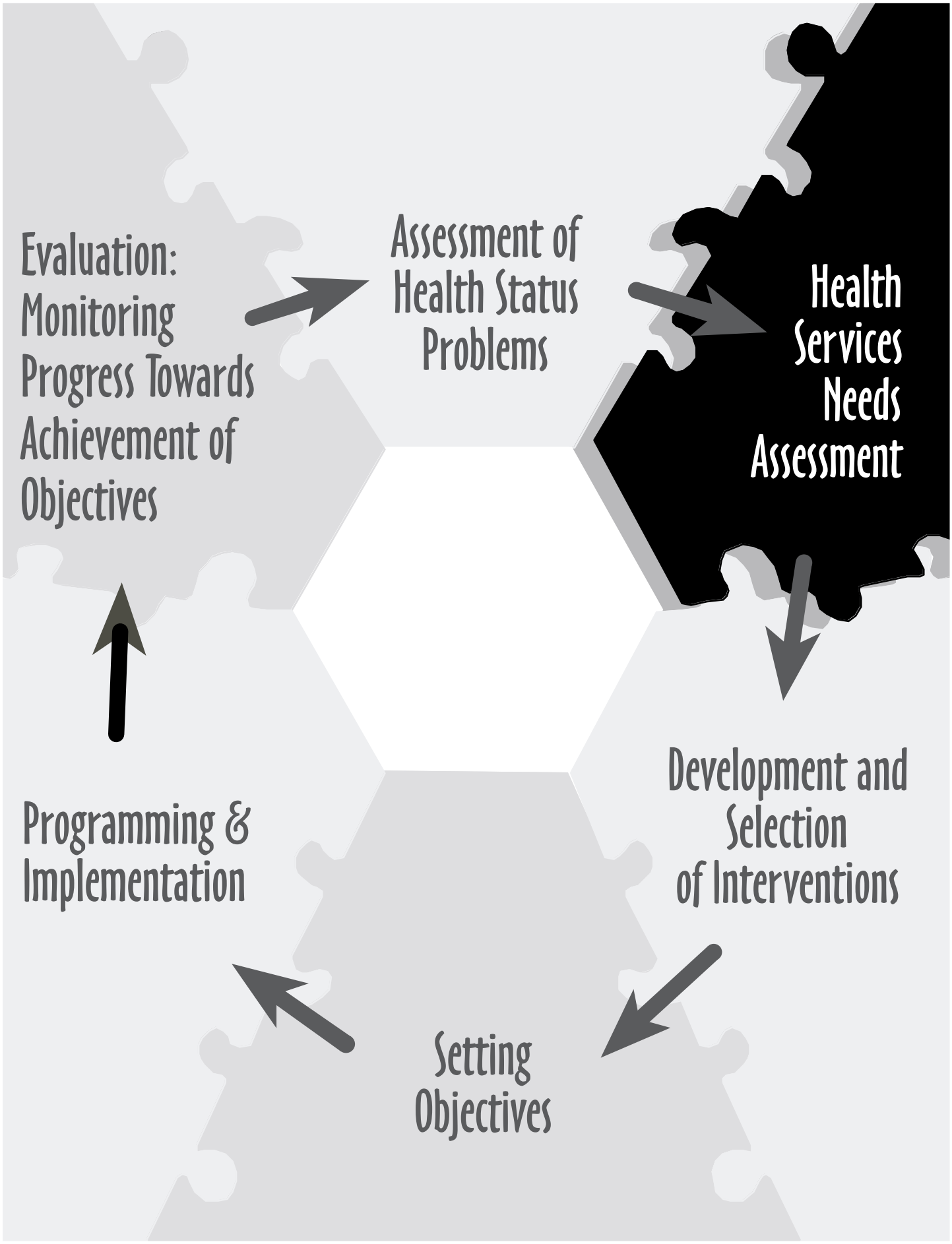
Health Services Needs Assessment
Assessment of Health Status Problems
Development and Selection of Interventions
Setting Objectives
Programming & Implementation
Evaluation: Monitoring Progress Towards Achievement of Objectives

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MCHB

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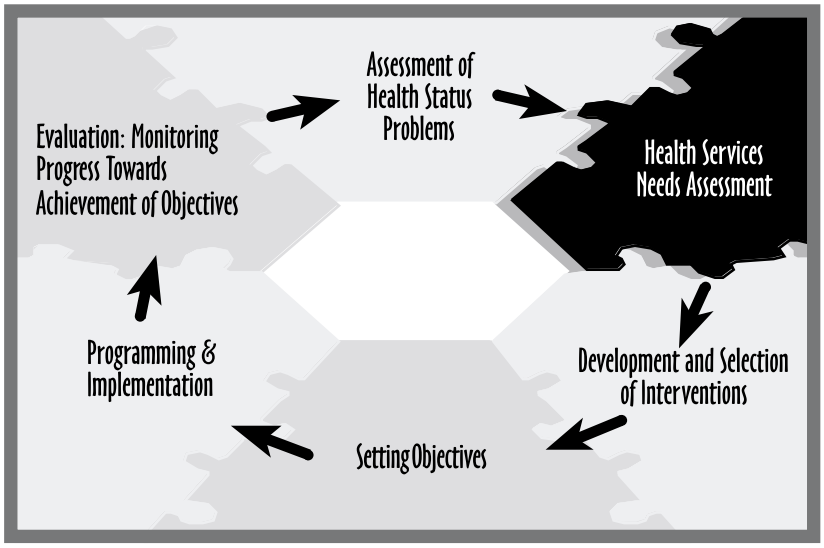
The BIG Picture...

Figure 1.



You are about to proceed through a self-instructional manual that was designed to help you develop skills in one of the steps of the rational planning process. There are six manuals in this series, each of which explains a step in the process and how to accomplish it:

1. Assessment of Health Status Problems
2. Health Services Needs Assessment
3. Development and Selection of Interventions
4. Setting Objectives
5. Programming and Implementation
6. Evaluation: Monitoring Progress Towards Achievement of Objectives

Each of the steps builds on the ones that precede it and contributes to the ones that follow. This circular process is diagrammed in *Figure 1*.

Assessment of health status problems is the foundation step for the entire planning process. This step involves careful specification of the dimensions of a problem and analysis of its precursors. In the second step, the focus shifts from the health problem to health services. A health services needs assessment examines the adequacy of existing services to prevent the problem by attacking its precursors or compensating for their effects. Where existing services fall short, unmet needs for service become apparent. Step three involves development of interventions to meet these unmet needs. This is the step that links needs and interventions and constitutes the essential rationality of the

planning process. Step three also involves a deliberate selection process, in which each alternative intervention is compared to a set of relevant criteria to identify the most appropriate one to be implemented. Once an intervention has been selected, it is possible to develop measurable objectives (step four) which, as a whole, constitute one or more hypotheses regarding how the program's activities are expected to contribute to an improvement in the problem. The objectives form a blueprint of the program, which is further elaborated in step five, including placement in the organization, job descriptions, budgeting, and implementation activities.

Step six in the cycle of program planning is evaluation. Evaluation involves comparisons between actual experience and standards. There are two major ways of thinking about evaluation. One is a research activity, called evaluation research. The second is an administrative function called monitoring. Monitoring involves assessment of progress towards achievement of the objectives of a program. By monitoring the extent to which targets are achieved, you can determine whether the program has fallen short on some objectives. If it has, this information should trigger an in-depth search for the reasons the targets were not achieved. This search, in turn, is part of the health status problem and service needs assessments in the next round of planning. Monitoring progress towards achievement of objectives is the last self-instructional manual in this series. We did not develop a manual on evaluation research because these methods are discussed extensively in other sources.

These six manuals present a framework for program planning that encourages development of creative, responsive, and comprehensive interventions. The framework is useful for addressing problems that range from the very simple to the most complex. It allows for movement back and forth to revise earlier steps based on information that may emerge later in the process. The circular planning cycle may be entered at any point, and rational progress can be made as long as the sequence of steps is understood and followed. An emerging problem, for example, may require careful attention to every step in the process, starting with assessment of the health status problem, and ending with an evaluation of the selected intervention. Planning in the context of well-understood problems and ongoing programs, however, may require emphasizing the objectives and programming steps which need frequent adjustments to stay on track. The framework is also flexible enough to be used at any jurisdictional level. While the relative emphasis on particular steps is likely to vary across jurisdictions, the framework provides a common frame of reference.

Program planning serves as a bridge between and among theories, measurement sciences, substantive content, and actual practice of public health. These manuals offer you technical guidance for carrying out the six steps in the planning process. Your planning skills will be enhanced further by training in such analytic areas as epidemiology, biostatistics, decision analysis and evaluation research, and in interactive domains like community development, group process, and leadership. Your greatest challenge as a program planner is to use the rational planning framework to apply each of these skills in the right amount and at the right time to combat public health problems effectively.

Table of Contents

What is this manual about?

This is a self-instructional manual designed to teach you to assess needs for health services. You will learn:

- How to use five different types of measures to estimate needs for availability and use of health services;
- How to integrate assessments of other characteristics of health services into your assessment of availability and use of services; and
- How to reconcile results of the assessments so that a single list of unmet needs for service can be compiled by level of priority.

This manual also includes an appendix which will teach you:

- How to generate standards to assess availability of health services.

The concepts in this manual are illustrated by several examples. You may wish to supplement these examples by applying assessment techniques to specific health services of importance to you or your agency. For greatest benefit, read through the entire manual before you decide what services to assess.

Prerequisite skills and knowledge

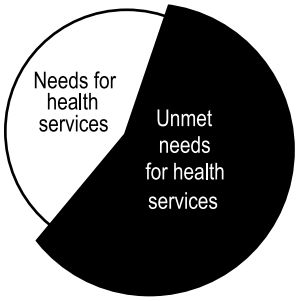
- Ability to assess health status problems
- Ability to use basic methods of epidemiology, biostatistics, and database management
- Familiarity with health service delivery systems

Introduction

Health services needs assessment is the second step in the rational program planning process illustrated in *Figure 1.* It is a process for identifying a community's or population's needs for services that address specific precursors of a health problem. This step is tightly linked to the first step in the planning process, assessment of health status problems. In fact, these two steps are often combined and called "needs assessment." A distinction is made between them here because the two concepts and their corresponding assessment methods differ considerably. Also, if they are not clearly differentiated, one step may be given precedence at the expense of the other.

A health status problem reflects the gap between the level of a health condition that exists (what is) and the level that is acceptable (what should be). An assessment of a health status problem includes a problem analysis which identifies the precursors of the problem. A health services needs assessment examines the adequacy of existing services to prevent the problem by attacking its precursors or compensating for their effects. If services that address the precursors are available and used, **needs for health services** are considered **met**. When services are unavailable or not used, **unmet needs** become apparent and interventions can then be developed to address them.

Figure 2. Relationship of unmet needs to needs for health services



Unmet needs are a subset of all needs for services, as shown in *Figure 2*, and they serve as the basis for the rest of the rational planning process. So, identifying them is the goal of this step. But they are very difficult to measure because there is no universally accepted measure of need. As a result, it is rare that we know precisely how great a need is and how well it is being met by various services. Since there is no single way to identify needs, the only reasonable approach is to use several different measures. The idea is that none of the measures by itself will yield a true picture of unmet needs but, in combination, the major distortions of each measure will be minimized and a more realistic estimate of unmet need will emerge. Five ways of measuring need and estimating unmet need (adapted from Bradshaw, 1972) are:

- **Professional and consensus-based standards:** Needs for services are represented by standards, developed by professional groups and/or derived by consensus, for services that should be available to address precursors of the health problem. Unmet needs are the subset of services that should be, but are not, available.
- **Demand for services:** Needs are represented by those who seek relevant services. Unmet needs are reflected in waiting lists of people who sought but did not receive the services.
- **Use of services by populations at risk:** Needs are represented by populations at risk for the health problem. Unmet needs are represented by those who are at risk but do not receive appropriate services.
- **Relative availability and use of services:** Needs are represented by the services available to and used by other population groups. Unmet need is the difference between the level of services in the comparison population and the level in the population of concern.
- **Perceptions:** Needs are the services knowledgeable people (*i.e.*, those at risk or with the health condition, providers, *etc.*) say they need to prevent the problem. Needs are unmet if the people are not getting the services they say they need.

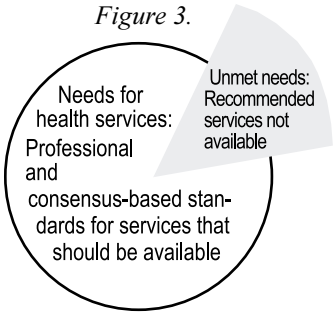
The primary focus of this manual is on these five ways to measure **availability and use of services** to determine whether needs in these two areas are unmet. With an understanding of how to use these measures, you may want to apply the same techniques to assess additional characteristics of services (*e.g.*, accessibility, affordability) that are important to your needs assessment.

Measuring needs for services

Professional and consensus-based standards

Using standards as measures, services are assessed by comparing actual services available to prevent precursors of the problem to standards indicating what services should be available. Three steps are involved: 1) finding or developing the standards for comparison; 2) identifying services available in the area, and; 3) comparing the two sets of data to identify standards that are not met by available services (*Figure 3*).

Figure 3.



Standards

Standards may be established by custom, authority, or general consensus (Kettner, *et. al*., 1990). In the health field, standards are ordinarily identified by professional organizations and/or through a consensus-building process, both of which are described briefly below.

Professional standards. For many MCH problems, formal standards for service delivery have been developed. These standards for services are often promulgated by professional organizations and public health groups to foster adequacy and quality of care. Good examples of standards are in *Healthy Communities 2000: Model Standards*, which includes hundreds of standards and was developed to complement *Healthy People 2000.*

The search for professional standards begins with a detailed understanding of the health problem, especially the strength and prevalence of the precursors associated with it. Then standards for services that are expected to address each precursor are sought. *Table 1* is an example of selected professional standards for services to prevent low birth weight. These were derived from *Healthy Communities 2000: Model Standards* and they are grouped according to selected precursors in the diagram in *Figure 4*, which represents low birth weight in York County.* A description of how the standards were actually derived from *Healthy Communities 2000: Model Standards* is in the Appendix.

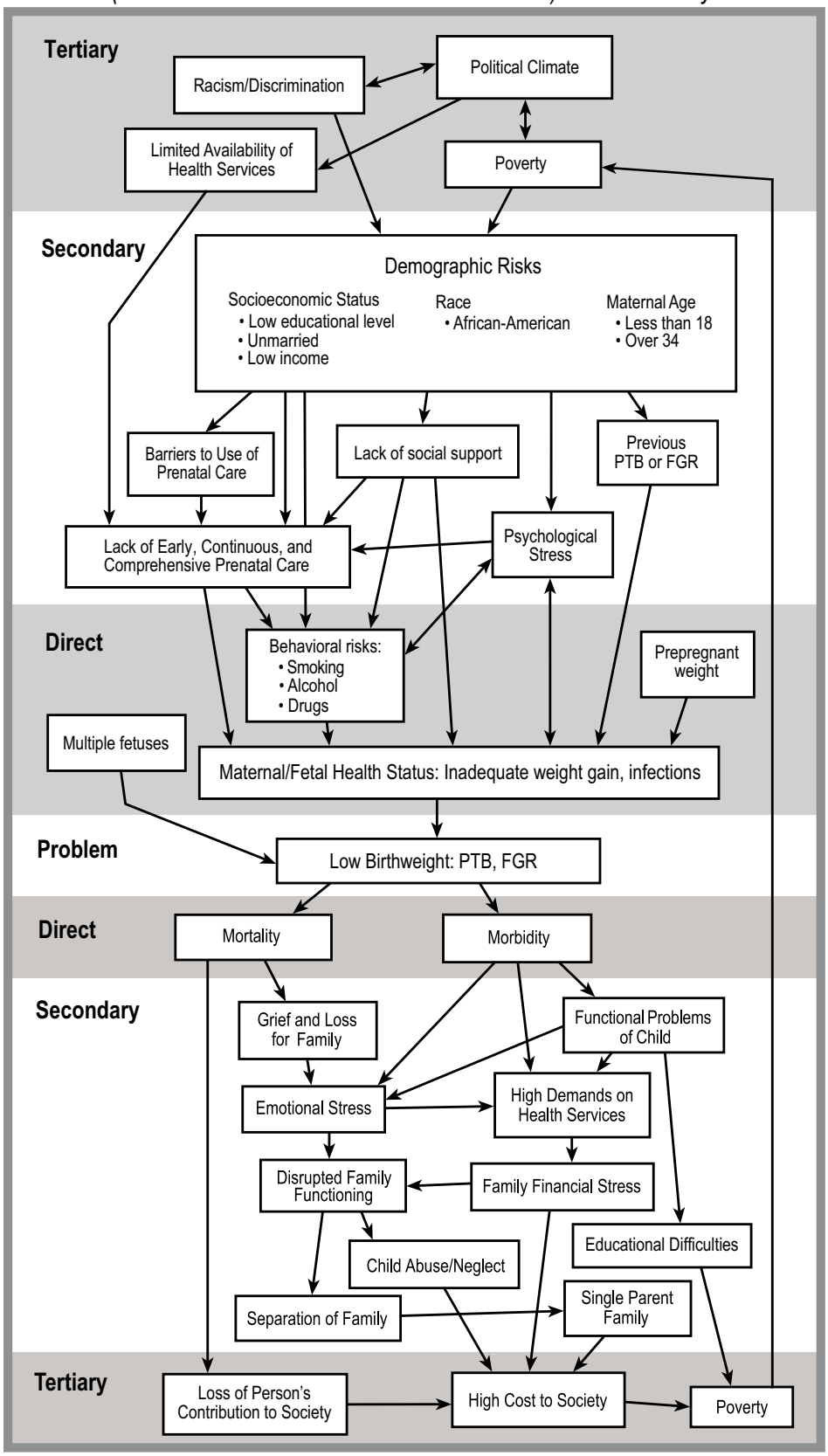
**Low birthweight (preterm birth and fetal growth restriction) in York County is used as an example throughout this series of manuals. For guidance on how to develop and interpret a problem diagram, see the manual* Assessing Health Status Problems*.*

Table 1. Selected Professional Standards for Services to Prevent Low Birthweight

Precursor	Standard*
Barriers to use of prenatal care	Community is served by an identifiable organized program of health care directed toward women, including necessary financial assistance for eligible individuals (246/41)
	Access within 30 minutes to family planning, preconception and prenatal care (247/42, 72/13)
	Paid leave for prenatal care (249/51)
	Family life and sex education in overall health education curriculum in grades K–12 (73/19 & 20)
	Resource directory of current services related to pregnancy (75/26)
Lack of social support	None
Lack of early, continuous, and comprehensive prenatal care	Community is served by an identifiable organized program of health care directed toward women, including necessary financial assistance for eligible individuals (246/41)
	Confidential pregnancy testing and counseling for all women who wish such services (247/44)
	Risk-appropriate prenatal care services available to all pregnant women (247 & 248/45, 46)
	Prenatal care includes opportunities for screening and counseling on detection of fetal abnormalities (248/47)
Behavioral risks	Primary care providers provide age-appropriate preconception care and counseling (247/43, 74/23)
	Risk reduction programs are available for voluntary participation (248/48)

**Source:* Healthy Communities 2000: Model Standards*. The page number/objective number for each standard is given in parentheses.*

Figure 4. Problem Diagram for Low Birthweight (Preterm Birth and Fetal Growth Restriction) in York County



The standards in *Table 1* could be further developed by incorporating those of other relevant professional groups, like the American College of Obstetricians and Gynecologists. For low birthweight (LBW) and its two components, preterm birth (PTB) and fetal growth restriction (FGR), many standards for services to address known precursors have been developed. In spite of so much attention, however, rates of low birthweight have been difficult to change, leading to intensive research that, in turn, continues to yield information on which new standards for services are based. Thus, it is important to use the most up-to-date standards for this step in the planning process.

For some other health problems, especially new and emerging ones, formal service standards may not be established. In cases like this, it may be possible to draw from standards for services to address a similar problem. For example, violence between dating couples is an emerging problem for which there are as yet no standards for services. However, other forms of physical abuse, like family violence, have been recognized for a long time. Standards for interventions to prevent family violence, then, may be adapted for dating violence until more specific standards are developed.

All measures of service needs have limitations. Standards derived from professional judgment may reflect the biases of the individuals who developed them by overemphasizing some criteria at the expense of others. For example, they may overemphasize the interventions that their profession has to offer, such as more medical interventions and fewer social services recommended in standards created by medical professional organizations. This bias in professional standards can be offset by supplementing them with standards developed by consensus.

Consensus standards. For our purposes, consensus means that there is general agreement about what kinds of services or interventions should be available to address a particular problem. Development of consensus on standards for services is a process which begins with a review of the problem, especially the precursors that are prevalent in the geographic area or population group in which the problem exists. Potential interventions should be identified systematically to minimize the possibility of overlooking a particularly effective option. A systematic approach involves three activities: 1) listing precursors that are amenable to intervention and prevalent in the population of concern; 2) brainstorming interventions that correspond to each precursor, and; 3) assessing each possible intervention for feasibility.

Table 2 is an example of selected standards derived by consensus.* Note that this table shows the same precursors as *Table 1*, but the standards are quite different. The standards in *Table 2* were developed by a planning group which brought many different perspectives to the discussion.

**See the appendix for a detailed description of a process for generating standards by consensus.*

Table 2. Selected Consensus-Based Standards for Services to Prevent Low Birthweight

Precursor	Consensus-Based Standards
Barriers to use of prenatal care:	
Limited understanding of the importance of prenatal care	Education about prenatal care through mass media, in schools, and in clinics
	Individual counseling about prenatal care at the time of a positive pregnancy test
Lack of transportation	Van service to and from sites of prenatal care
	Vouchers for public transportation
	Individual counseling about transportation during prenatal care visits
	Prenatal care provided in neighborhoods, worksites, and homes
Inability to pay	Counseling and assistance to obtain financial assistance
	Counseling and assistance to budget effectively
Lack of social support	Patients with common interests and needs grouped in clinic sessions
	Regular visiting in homes by trained nurses or lay visitors
	Linkage with Big Sisters program
	Significant family members and friends involved in care
	Individual counseling and assistance to remain in school

(Table continued on next page.)

Table 2 (cont'd.). Selected Consensus-Based Standards for Services to Prevent Low Birthweight

Precursor	Consensus-Based Standards
Lack of early, continuous, and comprehensive prenatal care	Sufficient time slots to schedule first appointments within 2 weeks of requests
	Formal linkage and referral mechanisms across services
	Neighborhood outreach to identify early pregnancies and follow-up missed appointments
	Financial or gift incentives for keeping prenatal appointments
	Mail or telephone follow-up of missed appointments
Behavioral risks	Literature about smoking in pregnancy actively distributed
	Education in schools, in clinics, and through mass media
	Individual counseling by providers of prenatal care
	Group behavior modification programs
	Combination programs (individual counseling, group support, and mail and telephone reminders)
	Education in schools, in clinics, and through mass media
	Drug treatment programs for pregnant women
	Nutrition counseling
	Assistance to obtain food stamps
	Active promotion of WIC enrollment

Identifying interventions is one of the most creative parts of the planning process. It challenges the planner not only to think about what has been done in the past to alleviate the problem, but also to create interventions that have not yet been tried but could, conceivably, address precursors of the problem. This is an especially productive process when people with different perspectives and backgrounds in different disciplines are involved. Each participant has a responsibility to bring ideas for interventions from his or her experience to this task.

When interventions to address each precursor of a health problem are systematically identified, the options need not be limited to health services. Services that might be considered health-related (*e.g.*, violence prevention, adoption) are likely to be included, as are interventions at the policy level. It is important to have such breadth at this stage of the planning process so that the problem and efforts to resolve it can be fully understood.

Integrating professional and consensus standards. The two separate lists of standards must be integrated before they can be used for assessment. This step primarily involves eliminating redundancies and assuring that the words used are consistent.

Services available in the area

Standards represent the services that should be available to address the precursors of a health problem. The next challenge is to inventory services that are actually available to the population of concern. With an understanding of service standards, narrowing the options to the types of services (*e.g.*, social, pediatric) is not difficult. Most communities have produced some type of guide to community services that provides an overview of what is available in the area and indicates major restrictions on availability (*e.g.*, only for residents of a certain neighborhood). If a guide is not available, this information will have to be collected. Interviews of carefully selected "key informants," like the director of the local health department, can facilitate this process.

Since service guides often provide only brief descriptions of the services available, and since some standards are quite detailed, it may be necessary to collect additional information about services directly from the service delivery programs, in order to make comparisons. For example, some of the first standards in *Table 2* specify modalities and timing of education/counseling about prenatal care. Most service guides will only indicate that education is available, so it may be necessary to contact the service provider directly to get more details about the content of educational services.

Direct contacts with the agencies may also be required to assure that the services are what you think they are. The same words (*e.g.*, counseling, behavior modification) may be used to describe different services in different agencies. In the York County situation, a good example is "risk-appropriate" prenatal care. On the surface, the meaning of this phrase is intuitive: services match specific risks of

individual patients. However, what we know about risk factors changes over time as new research findings enrich our knowledge base. At present, identification of vaginal infections so they can be treated before the end of the second trimester of pregnancy is becoming a key element of risk-appropriate prenatal care (Goldenberg and Andrews, 1996). Before this risk factor for PTB was recognized, however, screening for infections did not receive the same emphasis. Thus, an agency or provider who is offering the most up-to-date care is likely to attach a different meaning to risk-appropriate prenatal care than one who is not doing so. As a planner, you must be able to define the standards so that an accurate assessment of services can be generated. Experts in the content area, prenatal care in this case, can help with such subtleties.

Comparing available services to the standards

Once you have standards and a service inventory, you can proceed with the assessment of needs for services by comparing the services that are actually available with those recommended in the standards. Thus, this assessment results in a statement about whether or not the interventions available to the population of concern are consistent with the recommendations of professional organizations and with the ideal interventions that the planning group has developed by consensus. The interventions that are not available, or are available only in part, represent unmet needs using standards for services as a measure.

Table 3 is an example of how this assessment might be carried out. Standards integrated from *Tables 1* and *2* are in the first (left) column. Each of the headings of the remaining columns represents one agency or organization in the community that serves women of childbearing age and might provide one or more of the services. The "x"s indicate that a particular service is provided while the blank cells indicate that it is not provided. The services in *Table 3* were assessed for York County. A review of the table quickly reveals that some interventions (*e.g.*, family life education, home visiting, outreach, and drug treatment programs for pregnant women) are not available at all in York County. Other services (*e.g.*, linkage with Big Sisters program, risk-appropriate prenatal care, behavior modification programs for smoking and nutrition) are available only from some agencies or organizations, which in effect limits the populations who can receive them. In both cases (*i.e.*, not available and limited availability), these shortcomings represent unmet needs for services.

On the other hand, *Table 3* also shows clearly the services that are available. In York County, there is special concern about the availability of prenatal care services for adolescents. *Table 3* shows that the facilities where teenagers are most likely to go, school services, health department, and primary care center, meet standards for care, including such key elements for preventing preterm birth and fetal growth restriction as risk appropriate prenatal care and interventions for smoking and nutrition.

*Table 3. Assessment of Needs for Services, Based on Selected Standards for Services to Prevent Low Birthweight in York County**

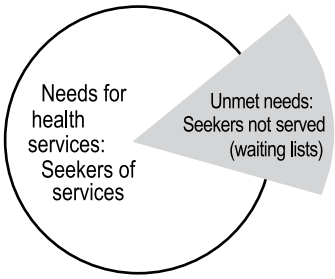
Standard	Specific Agencies/Organizations									
	School System	Health Dept.	Primary Care Cntr.	HMO 1	HMO 2	HMHB	Dept. Social Serv.	Employer 1	Employer 2	Smuff County
Interventions to reduce barriers to care										
Family life and sex education in health education curriculum in grades K–12										
Education about prenatal care through mass media, in schools and in clinics	x	x	x	x	x	x				x
Individual counseling about prenatal care at the time of a positive pregnancy test	x	x	x							x
Resource directory of services related to pregnancy	x	x	x	x	x	x	x			x
Van service to and from sites of prenatal care		x	x							x
Vouchers for public transportation										x
Individual counseling about transportation during prenatal care visits		x								x
Prenatal care provided in neighborhoods, worksites, or homes		x (n'hoods)	x (n'hoods)					x		x
Counseling and assistance to obtain financial assistance	x	x	x				x			x
Counseling and assistance to budget effectively		x	x							x
Paid leave for prenatal care									x	x
Interventions to assure social support										
Patients with common interests and needs grouped in clinic sessions	x	x	x	x						x
Regular visiting in homes by trained nurses or lay visitors										x
Linkage with Big Sisters program	x	x					x			x
Significant family members and friends involved in care		x	x							x
Individual counseling and assistance to remain in school	x	x					x			x
Interventions to promote early, continuous, and comprehensive prenatal care										
Confidential pregnancy testing and counseling	x	x	x	x	x			x	x	x
Sufficient time slots to schedule first appointments within 2 weeks of requests	x			x				x	x	x
Formal linkage and referral patterns across services	x	x	x			x	x			x
Neighborhood outreach to identify early pregnancies, follow-up missed appointments										x
Financial or gift incentives for keeping prenatal appointments			x							x
Mail or telephone follow-up of missed appointments	x	x		x	x			x		x
Risk-appropriate prenatal care	x	x	x					x		x
Screening and counseling on detection of fetal abnormalities		x	x	x	x			x	x	x
Interventions to reduce behavioral risks										
Age-appropriate preconception care and counseling	x									x
Literature about smoking in pregnancy actively distributed	x	x	x	x	x	x	x	x	x	x
Education about nutrition, smoking, and use of drugs during pregnancy in schools, in clinics, and through mass media	x	x	x			x				x
Individual counseling by providers of prenatal care about nutrition, smoking, and use of drugs during pregnancy	x	x	x	x	x			x	x	x
Group behavior modification programs			x	x	x					x
Combination programs (individual counseling, group support, and mail and telephone reminders)		x								
Drug treatment programs for pregnant women										x
Assistance to obtain food stamps		x					x			x
Active promotion of WIC enrollment	x	x	x			x	x			x

**This table is based on a subset of standards for services to prevent low birthweight.*

Demand for services

When needs are measured by demand for services, needs are represented by those who seek relevant services. Unmet needs are reflected in waiting lists of people who sought but did not receive the same services (*Figure 5*). This approach to measuring need is particularly limited in the health field because few health services maintain waiting (sometimes called pending) lists, since health problems often need immediate attention or appointments are made long in advance. However, as social and behavioral interventions (*e.g.*, smoking cessation programs) become more integral to public health programs, the use of waiting lists may increase.

Figure 5.

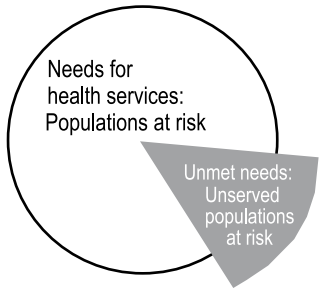


In the absence of waiting lists, unmet needs are sometimes estimated by comparing actual use of services to the maximum capacity of the service. If services are consistently booked to capacity, for example, you might assume that additional services would be used, if they were available. The temptation to make this assumption should be tempered by years of observations that the greater the number of services available to a community, the more likely it is that they will be used. Use, in this case, does not necessarily mean that the recipients *need* the services; rather, it suggests that they want (or demand) them

Use of services by populations at risk

This approach to measuring need is one of the most intuitively useful. Needs are represented by populations at risk for a health problem. Unmet needs are reflected in the number of people at risk who do not receive appropriate services (*Figure 6)*. *Table 4*, a summary of data collected using the population-at-risk measure of needs in the York County low birth weight example, is a useful illustration. For each service provided by the school system, estimates of the characteristics and sizes of target (or risk) groups are shown, and then the corresponding data for the population served is given. This is followed by the percent of the target group actually served. The last column, labeled "Notes," provides an opportunity to record information that does not warrant a dedicated column but is likely to provide insight when interpreting the other data.

Figure 6.



A great deal of useful information can be derived from this table. The percent of the target population served varies from 5% to 80%. Eighty percent may be a very good utilization rate, depending on the service, but 50% and lower suggests service delivery problems. A closer look suggests that sexually active girls in school are not using the school system's pre-conception or pregnancy testing services at expected (targeted) levels. As a result, few of those who become pregnant receive the counseling and prenatal care services offered by the school. The school system provides prenatal care for 1/3 of the girls who become pregnant each year, and the system refers a few of the others to outside services. What happens to the rest? Also, as recorded in the "Notes" column, most services

Table 4. Assessment of Needs for Services to Prevent Low Birthweight in York County—Population at Risk Approach*

Agency or Organization/Service	Target Population		Served Population		
School System	**Characteristics**	**Number**	**Characteristics**	**Number—%**	**Notes**
Health classes on use of prenatal care, nutrition, smoking, and use of drugs during pregnancy	Girls in 11th and 12th grade	1000	Same	800—80% attended all classes	Not available to girls in 9th and 10th grades who contribute 50% of pregnancies in the high school
Preconceptional care and counseling	Sexually active girls	1000	Same	50—5%	Difficult to encourage use of service due to sociopolitical connotations
Confidential pregnancy testing	Sexually active girls with suspected pregnancies	500	Same	Total = 200—40%; 11th–12th grades = 150	75% of population served is in 11th and 12th grades
Referral to Big Sisters	All who request a pregnancy test	200	Same	15—7.5%	Many refusals. 90% of population served is in 9th and 10th grades
Counseling about prenatal care, completing school, and financial assistance when pregnancy test is positive	All girls with positive tests	80 (pregnancies/ year)	Same	40—50%	80% of population served is in 11th and 12th grades
Risk appropriate prenatal care, with 1st visit within 2 weeks of positive pregnancy test, and counseling on nutrition, smoking, and drug use	All girls with positive pregnancy tests who want to carry the pregnancy to term	25	Same	20—80%	
Referrals to other services:					
Health Dept.	High risk		Same	7	Referrals are made as needed or requested. Close links with health dept. (shared staff).
Private physicians	Upon request		Same	4	
Managed Care Org.	Upon request		Same	1	
Dept. Social Services	Social/financial need		Same	10	
WIC	All prenatals	20	Same	15—75%	

**This table describes use of services in one organization (School System) in York County. A complete assessment would include all agencies and their services.*

are used by girls in 11th and 12th grades, even though half the pregnancies in the school system are to girls in 9th and 10th grades. This disproportionate distribution of service utilization may be related to the school system's policy decision to offer relevant health classes exclusively to 11th and 12th graders. These girls may have been taught how to access services while the younger girls remained uninformed.

A systematic assessment of services used by populations at risk involves collecting utilization data from each agency and organization that provides the relevant services identified in your resource inventory. Within each agency, data about each specific service (*e.g.*, prenatal care, WIC) should be collected, since utilization will be different for each one. Service utilization data are relatively inexpensive but accessing them can be a major challenge. Each agency collects data on categories of services and characteristics of recipients that meet its own needs. The data needs of services in the private sector, in managed care organizations, and in public health tend to differ considerably. This situation is further complicated by differences in data collection and storage within each agency and organization. And only some of those systems are capable of producing data consistent with the requirements of your needs assessment. Variations in data across agencies also limit opportunities to sum utilization estimates across agencies. Another problem is obtaining permission to use data. Health services that are not in the public sector, like private practitioners and managed care organizations, may be reluctant to part with their data. Or, in any health service, there may not be a person with the specific responsibility to retrieve the required information upon request. These stumbling blocks can slow the planning process considerably.* Look for the most efficient and unobtrusive ways to collect service data. One approach is to think through exactly what you need and submit a list of the data items or tables in writing in advance of a contact with the health service agency or organization.

When assessments of all agencies and organizations in the community are completed, a summary table showing the extent to which populations at risk are served overall should be developed. Because of data limitations noted above, this table can usually be developed for only a few broad categories of services. For example, a summary table of needs by populations at risk for LBW in York County would include the number of pregnant women ≤17 (*i.e.*, the number at risk), the number of them who received risk appropriate prenatal care summed across all agencies and organizations, and the percent of those at risk who were served. So, if there were 2000 pregnant girls ≤17 in York County last year, and 940 of them received prenatal care that was tailored to individual risks, you would conclude that 47% of this population in need of risk appropriate prenatal care had their needs met, while 53% had unmet needs.

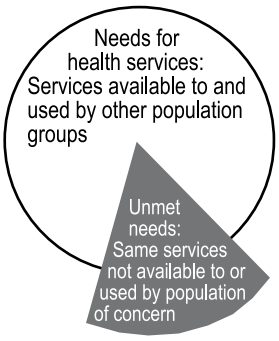
Relative availability and use of services

The focus of measuring needs for services from a relative perspective is on equity (Kettner, *et. al.*, 1990). Relative availability and use is assessed by comparing the services available to and/or used by a comparison population to those of

**Unfortunately they are typical in public health (Alciati and Glanz, 1996) where they serve as startling reminders of the importance of developing comprehensive monitoring systems for the programs we develop.*

the population of concern. The assumption underlying this method of measuring need is that the services of the comparison population represent a desirable level. Unmet need is reflected in the difference between the level of services available to and/or used by the two populations (*Figure 7*).

Figure 7.



In order for a relative assessment of needs to be meaningful, the comparison group must be selected with great care. Meaningful comparisons can sometimes be made with the population of a similar jurisdiction, or between population subgroups with different characteristics. To assess the needs of your population relative to that of another jurisdiction (*e.g.*, town, county, state), identify one or more jurisdictions or geographic areas with similar populations to the one in your area, and inventory the services available in those areas. You are looking for new or different services that may be available to these similar populations. To assess the needs of one subgroup in comparison to another within your population, compare the services available to and used by each subgroup. In many cases, services are available but the people who are using them are not the ones for whom they are intended.

To make comparisons between two population groups, it is important to collect the same types of information about services for each population. An assessment of availability of services in two counties should use the same service standards for both, while data to compare service use by different population subgroups should be built into the assessment of populations at risk. Following are examples of how the York County planners examined the same information across populations, with some enlightening results

In the York County example, the planners used the same inventory of services shown in *Table 3* to assess availability in Smuff County. They chose Smuff County because it has a similar distribution of relevant risk factors for low birth weight (*e.g.*, age, education, income, use of prenatal care). As *Table 3* shows, they found that Smuff County has almost all of the services that York County has, but it also has home visiting, outreach, and drug treatment programs for pregnant women. In addition, the planning group attempted to determine whether or not there were any interventions (available in Smuff County, that were not in the list of standards for services in *Table 3*) intended to reduce low birth weight or to attack any of its precursors. They could not identify any additional interventions in this way.

The planners also examined use of services by age since ≤17 years is a risk factor for low birth weight in York County. Some of their findings are listed as "Notes" in *Table 4*. The planners continued to stratify by age whenever possible and found unequal use of services for different age groups. Specifically, they found that adult women (≥18), who are at relatively less risk, were clearly the greatest users of services, while adolescents (≤17) lagged behind.

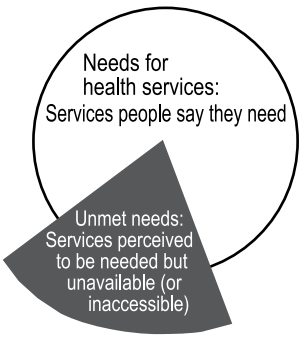
Assessing needs from a relative perspective can be productive, but it may also turn into a fruitless search. When the health problem of concern is emerging, there may be few or no services available to address it anywhere. You should be

sensitive to this possibility. Assess the probability of success before you begin. Also, when new services are identified through an assessment of relative needs, they should be discussed thoroughly by the planning team, to be certain that there is a defensible rationale for using them to address the precursors of the problem.

Perceptions

Perceived or felt needs are the services people say they need to prevent a health problem. Needs are unmet if the people are not receiving those services (*Figure 8*). There are several dimensions that can be tapped through an assessment of perceived needs. People at risk, people with the health problem, and providers of services can identify needs for services that you may not have considered at all. They may also provide insight regarding the importance of some unmet needs in comparison to others. For example, in York County, a series of interviews with a cross-section of service users, non-users, and providers revealed that many services were needed to prevent low birth weight in the county. But the biggest perceived needs were in the areas of services for adolescents. Most of the people interviewed indicated that there were very few services specifically for adolescents, and that, by and large, the teenagers were so concerned about other aspects of their lives (*e.g.*, relationships with parents and boyfriends) that they rarely gave priority to seeking necessary health care.

Figure 8.



Another area in which assessment of perceived needs is very informative is in identification of barriers to use of services (see *Assessing other characteristics of services* below). Barriers may be related to how the services are delivered or to cultural beliefs or expectations that inhibit use of services by the individuals at risk. In York County, the assessment of perceived needs produced many perspectives on service needs, but the most revealing to the planners is a prevalent belief that people should not go to the doctor unless they feel very sick for a period of time. When applied in pregnancy, this belief means that some of the pregnant women, especially teenagers, do not seek prenatal care if they do not feel sick.

Information about perceived need can be gathered through a variety of means, many of them qualitative: from people at risk, from people who have experienced the problem, and/or from service providers. Data collection methods include individual interviews, focus groups, public hearings, and population-based surveys. While each of these approaches involves different sets of methods, well described in other sources (Patton, 1987; Soriano, 1995; Witkin and Altschuld, 1995), all of them require careful detailing of the information needed in order to construct productive questions and to identify knowledgeable informants. Also, the validity of the data generated by these methods is very dependent on the representativeness of the people whose perceptions are explored.

Measuring perceptions of need yields a critical perspective that cannot be tapped through the other measures. Unfortunately, it is often omitted because it requires primary data collection, which is time-consuming and can be expensive.

The major shortcoming of identifying service needs from perceptions is that the accuracy of perceptions can be distorted. Perceived needs may be underestimated: 1) if subjects are unaware of service options available to them; 2) if they do not know they are in need, or; 3) if they choose not to admit that they are in need. The needs may be overestimated if the perceptions are based on unreasonable expectations.

Assessing other characteristics of services

Knowing whether needs for services are met or unmet usually raises additional questions that require more detailed investigations. An examination of several characteristics of services (Keppel & Freedman, 1995) helps to explain why services may or may not be available or used. Some of the most important characteristics are:

Proximity:	Geographic distance to the health service.
Accessibility:	Ease with which the service can be approached or obtained.
Cost:	Actual cost of the service to relevant parties (*e.g.*, consumer, taxpayer).
Affordability:	Ability of the population to pay for the service.
Acceptability:	Cultural willingness of the population to use the service.
Appropriateness:	Proper and accepted application of the service to the health problem (*i.e.*, quality of care).
Effectiveness:	Ability of the service to prevent the health problem.
Coordination:	Extent to which the services are linked to other health and health-related services.

With information about these characteristics, impressions of unmet needs may be modified to reflect the reasons why services are unavailable or underutilized. For example, according to standards, most of the appropriate services were available in York County, but some of them were underutilized, according to the assessment of use of services by populations at risk. When information on proximity and accessibility was collected, the planners discovered that most of the services were in the only town in the county, and people who lived outside the town, especially adolescents, could not easily access them. This new information helped them to identify where efforts should be directed to correct the utilization problem. The unmet need was not just that services were underutilized, but that some populations could not access them. This, in turn, suggests that transporta-

tion to services and relocating services in more accessible areas are two interventions that might be considered to address this unmet need.

The five ways of measuring needs that we described above for assessing availability and use of services can also be applied when examining these other characteristics. Here are some examples:

- Use the standards approach whenever standards for a characteristic (*e.g.*, proximity, coordination, quality) exist or can be developed. Sometimes standards for availability are difficult to differentiate from standards for other characteristics. Note that the second standard in *Table 1* might be considered a standard for proximity as well as availability.
- When collecting perceived data on availability and use of services, piggy-back questions about such other characteristics as acceptability, affordability, and accessibility onto your interview schedule or survey form.
- Use a relative approach by comparing specific measures of quality of care—like percent of children whose developmental screening tests were conducted with the most sensitive instrument—across services available to different populations.

As these examples suggest, some information about other characteristics of services can be collected while data on availability and use of services is obtained. For most of the characteristics, information can be generated from existing databases or by eliciting perceptions of key informants. Measuring costs and effectiveness precisely, however, requires not only accessible data, but also more specialized research skills. This level of precision is usually not necessary for a needs assessment, although it will be helpful later in the program planning process.

Summary of unmet needs

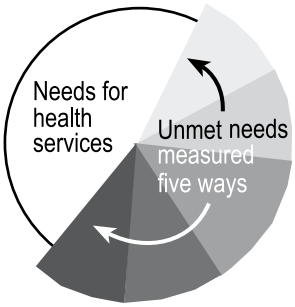
Each of the five main ways of measuring needs has such serious limitations that none of them can independently identify all service needs that are not met by existing interventions in a community. But, with estimates from each measure, a list with the following unmet needs can be developed:

- Interventions that do not exist in the community at all (based on standards);
- Interventions that exist in the community but need to be modified to meet standards completely;
- Interventions for people who cannot or do not utilize services (based on demand for services, populations at risk, and other characteristics of services);

- Interventions that equalize the level of services across population groups and geographic areas (based on relative availability and use); and
- Interventions that address perceived needs for services.

Table 5 is a summary of unmet needs for service based only on the information presented in the previous sections. This is just a portion of an assessment, but it produced a useful list of unmet needs for the York County planners. A complete assessment would generate a great deal more information, but most likely, the information would become increasingly redundant across measures, as suggested by *Figure 9*. The more frequently a particular need surfaces, however, the stronger the evidence that it represents an area where intervention is not only needed, but perhaps would be well received.

Figure 9.



It is not unusual for the list of unmet needs to include contradictory information. For example, by measuring needs via standards (*Table 3*), it appears that behavior modification programs for smokers are available for pregnant women in some facilities in York County. But, the assessment of perceptions suggests that pregnant women think that the need for smoking cessation interventions is not being met. Contradictions like this provide an opportunity to explore unmet needs for service in greater depth. In this case, the true shortcoming may be knowledge about available programs, referrals to them, and/or financial coverage of those services.

Setting priorities among unmet needs

With the discrepancies in the list resolved and redundancies across categories removed, the final activity, prioritizing the services on the list, can be undertaken. This is a short step that involves considering the relative priority of each service on the list according to: 1) the prevalence of the precursor to which the service is addressed; 2) the strength of the relationship between the precursor and the problem; 3) the extent of unmet need for the service, and; 4) other relevant service characteristics, such as effectiveness and acceptability to target groups.

The York County planners in our example combined key information from the problem assessment with their findings from the health service assessment to prioritize the needs in *Table 5.* They recognized that pre-conceptional care is a critical entry point for identification and modification of the risks that lead to preterm birth and fetal growth restriction. If this entry point is missed, the next option is prenatal care (Alexander, 1998), although the link between prenatal care and low birthweight is controversial (Alexander and Korenbrot, 1995). From the problem assessment, the planners knew that adolescents in the county tended to avoid pre-conceptional care, to start prenatal care late, and to have an inadequate number of prenatal visits. The rate of teens with no care at all was more than twice

Table 5. Partial Summary of Unmet Needs for Services to Prevent Low Birthweight in York County

Interventions that do not exist in the community at all (based on standards)

- Family life and sex education in K–12
- Vouchers for public transportation
- Home visits by nurses or lay home visitors
- Outreach to identify early pregnancies and follow-up missed appointments
- Drug treatment programs for pregnant women

Interventions that exist in the community but need to be modified to meet standards completely

- Age-appropriate pre-conceptional care and counseling
- Education regarding behavioral risks in prenatal care programs of HMOs and Employer 1
- Behavior modification programs in schools, the health department, and Employer 1
- Risk-appropriate prenatal care in HMOs and Employer 2
- Formal linkages between HMOs and other services
- Incentives to use prenatal care
- Shorter waiting times for an appointment in HMO 2, the health department, and the primary care center

Interventions for people who cannot or do not utilize services

- Health education about prenatal care in high school for 9th and 10th graders
- Incentives to use pre-conceptional care and counseling in the high schools
- Environment that encourages young adolescents to use pregnancy testing services if they need them

Interventions that equalize the level of services across population groups and geographic areas

- Prenatal home visiting
- Outreach to identify new pregnancies
- Drug treatment programs for pregnant women
- Improved use of all services by adolescents

Interventions that address perceived needs for services

- More services specifically targeted to adolescents
- Educational initiative to promote acceptance of the value of preventive health care
- Smoking cessation (behavior modification) programs

as great as all pregnant women in the county. A number of barriers to receiving prenatal care were identified. Teenagers were also more likely to smoke and to experience inadequate weight gain during pregnancy. From the assessment of health services, the planners discovered that prenatal services were available in facilities most likely to be used by adolescents. They also found that these facilities had revamped their programs within the past year to offer the most up-to-date medical care and services with known efficacy to modify behaviors, like smoking, alcohol and drug use, and nutritional practices. Thus, it appeared that the major unmet needs of adolescents were for services that connected teenagers in need of care with the care itself. Unmet needs for services that could minimize barriers to receiving care for adolescents, like home visiting, education, and outreach services, were given highest priority.

Setting priorities among unmet needs may require as much artistic skill as scientific capability. Clearly, it depends on a good understanding of the health problem, the nature of the service needs, and the context in which they operate. Completion of this step brings the health services needs assessment to a close by generating the information required for the next stage in the planning process: development and selection of interventions.

Differences between local and state level assessment

The framework presented in this manual is useful for health services needs assessments conducted at all jurisdictional levels. However, there are differences across jurisdictional levels with regard to the ways in which service standards are used, the amounts and types of data assessed, participants in the process, and data capacity and resources (Sappenfield, 1995). The examples given throughout this manual are derived from local level assessments of health services. Some examples of differences you might encounter at the state level are presented below.

The standards given in *Table 3* would be used differently. State-level planners would be most interested in percentages of agencies of each type that provide each service. They would be looking for the extent to which school systems across the state have a family life curriculum in place, or health departments have home visiting services for pregnant women, or employers provide paid leave for prenatal care.

Needs assessed by measures of 1) demand, and 2) use of services by populations at risk can be much more difficult to identify at the state level than they are at the local level because virtually every agency and organization that provides services has its own database, and these databases are not readily accessible to outside agencies. As a result, these assessments at the state level often rely on a few data items that are reported for the entire population (*e.g.*, in vital record

data), and on their own databases, which are usually limited to state supported services. This leaves out the services provided by the private sector, including the growing managed care industry.

In many ways, relative need has much greater meaning at the state level than it does at the local level. State level planners are interested in the extent to which service availability and use, and the distributions of providers, differ across jurisdictions within the state. Through these analyses, often conducted with geographic mapping techniques, inequities in service delivery can be detected readily.

Assessment of perceived needs at the state level focuses on categories of services, rather than individual services in a single community. Also, from the state level, it is usually a much bigger job to obtain perceptions of needs from diverse populations throughout the state.

A final note

In this manual, we have reviewed the basic principles underlying health services needs assessment. With some practice, you will soon feel comfortable with your ability to:

- Use five different types of measures to estimate needs for availability and use of health services;
- Integrate assessments of other characteristics of health services into your assessment of availability and use of services; and
- Reconcile results of the assessments so that a single list of unmet needs for service can be compiled by level of priority.

Conducting a complete health services needs assessment, using all five types of measures of availability and use and examining other characteristics as well, can be time-consuming and costly. Many times, the resources necessary to do it all are not adequate, so choices must be made. Some factors to consider when deciding which parts of an assessment to conduct are: (1) the relative importance of the questions to be answered, (2) costs of each part of the assessment, (3) the human and other resources available to do the job, and (4) availability of data.

Practice

In this manual, we made a number of suggestions for identifying and accessing data to conduct an assessment of needs for health services. Since there are five different ways of measuring availability and use of services and, for each of them, the data may be combined into several different formulas to measure needs, it is important to think through exactly which data are essential for your assessment before you begin. Specifically, you need to know what you want to measure, how you will measure it, and where to get the necessary data. This is no small task. Each assessment is different because health problems, population groups, data capabilities, and other aspects differ. As a result, you need to plan this part of the planning process. If it is done well, you will realize considerable savings of your team's time and energy.

This Practice session is a simulation of the planning you would do if you were actually conducting an assessment. It is an opportunity to practice organizing the information in the previous pages so that you can use it easily, while at the same time reviewing many of the key points.

Respond to each question below. If you would like to have a context for developing your responses, choose one of the four health problems that we used for Practice in the manual, *Assessing Health Status Problems.* Diagrams and descriptions of each of them are on the following pages.

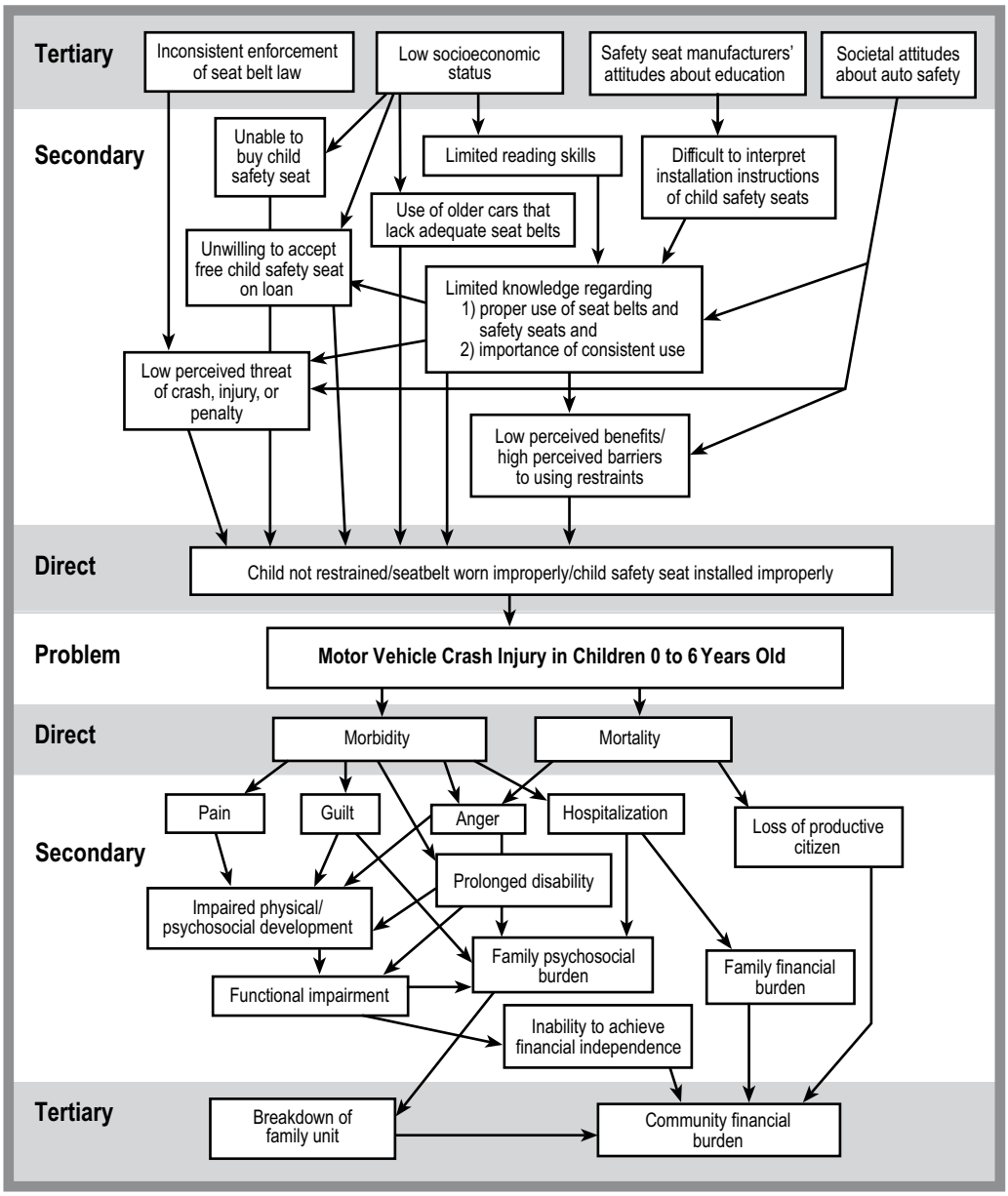
1. What data or information do you need to measure needs for health services in each of the five ways described in this manual?

2. Where would you expect to find each type of data or information you identified in response to question 1?

3. How would you use the data and/or information (question 1) to identify unmet needs for health services in each of the five ways described in this manual? Give some specific examples of how you would measure needs for health services to prevent the health problem you selected.

Practice

Motor vehicle crash injuries in children 0–6 years



Motor vehicle crash injuries in children 0–6 years

Description of the Problem

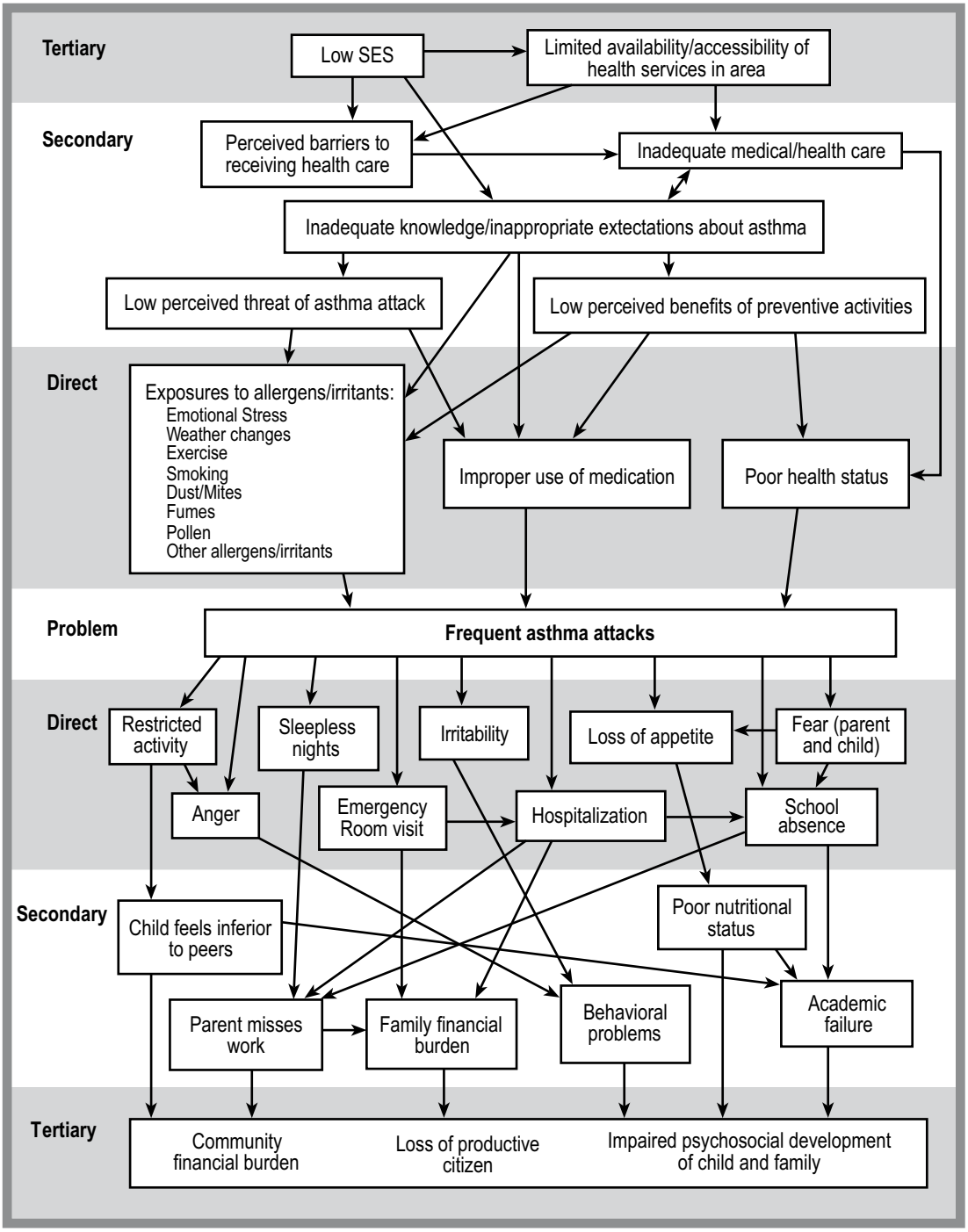
In our city, the motor vehicle crash injury rate for children between the ages of birth and six years is more than twice as high as that of the state. This differential holds for all racial groups, educational levels, and income levels, and it signals a significant problem for us. At the present time, we do not have trend data on this phenomenon, but we are in the process of conducting those analyses. The population groups most affected by this high rate are African Americans and Hispanics, children of mothers with low education, and children in low income families.

A recent statewide survey of a representative sample of families with children under six suggested that larger proportions of families in our area did not restrain their children at all, used seats belts improperly, and installed child safety seats improperly. In addition, we have larger percentages of parents with limited reading skills, using CSSs with difficult-to-read installation instructions, and with limited knowledge of the proper use of seat belts and CSSs. Unfortunately, the statewide survey did not address perceptions of the threat of crash, injury or penalty, or perceptions about benefits and barriers associated with using restraints. We collected data on these items in a local survey. The percentages of parents with incorrect and unhealthy perceptions are high enough for concern, even though we have no suitable standard to which they can be compared. We are about to search the literature to determine whether any general standards for such perceptions have been defined.

While additional analyses are clearly warranted, we can say with conviction that motor vehicle crash injuries among children between birth and six years are a problem in the city. Moreover, it appears that we should address the problem by improving the knowledge and behavior of parents of children in this age range.

Practice

Frequent asthma attacks among children with asthma



Frequent asthma attacks among children with asthma

Description of the Problem

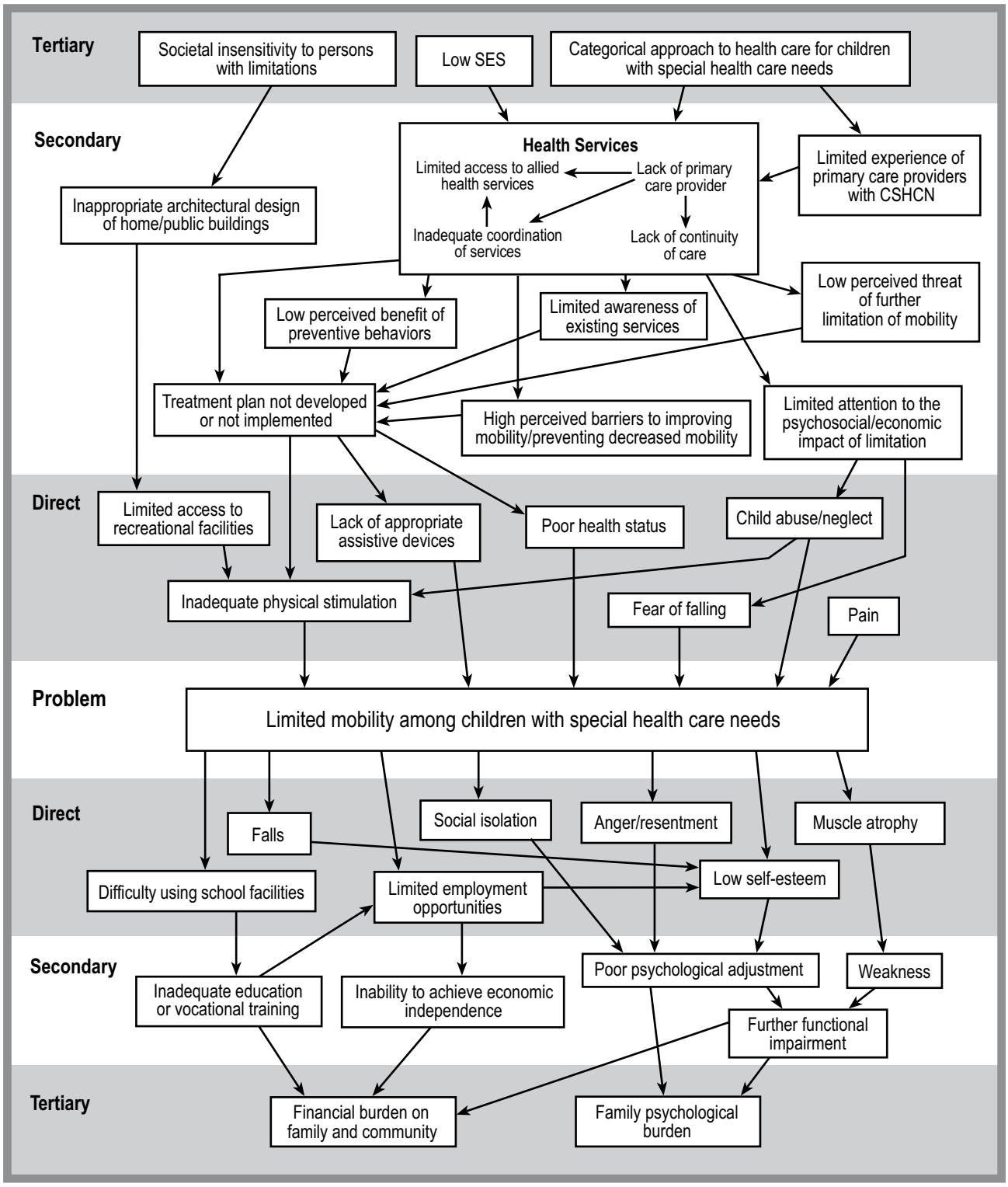
While only 10% of the children in our elementary school have asthma, they accounted for over 60% of the school's absences last year. This group averaged 7.6 days absent, compared with a 2.5 day average for children without asthma. Males, minorities, low income, and children of mothers with low educational levels have particulary high absentee rates. These rates are exacerbated when the children have asthma. Our records indicate that the usual reason for excess school absence among children with asthma is asthma attack. Attacks which cannot be managed easily at home with medications involve a visit to a health care provider, and may require missing school for one or more days.

Many of the precursors of frequent asthma attacks can be prevented. Our survey of the families of children with asthma indicates that the families with more frequent attacks (as measured by 5 or more absences last year) are those characterized by improper use of medication, poor health status, perceived barriers to receiving health care, inadequate medical/health care, inadequate knowledge and/or inappropriate expectations about asthma, low perceived threat of an asthma attack, and low perceived benefit of preventive activities.

Our analysis suggests that an intervention to improve knowledge and attitudes about asthma, targeted to children with asthma and their families, should reduce the frequency of attacks and, hence, lower their rate of school absenteeism.

Practice

Limited mobility among children with special health care needs (CSHCN)



Revised 2001

Limited mobility among children with special health care needs (CSHCN)

Description of the problem

Limited mobility among children with special health care needs is a significant problem in our state. While some children, possibly as many as 6.6% of CSHCN, have primary conditions that limit their mobility, these children and others can develop further limitations if they do not receive appropriate interventions. These mobility limitations are preventable and they lead to numerous consequences. Limited mobility among CSHCN is three times as high in our state as it is in our neighboring state, and that relationship is consistent across selected subgroups. The problem is also more prevalent among low socioeconomic groups; however, the difference between the prevalence in our state and that in our neighbor is much larger than the difference between low and high SES groups.

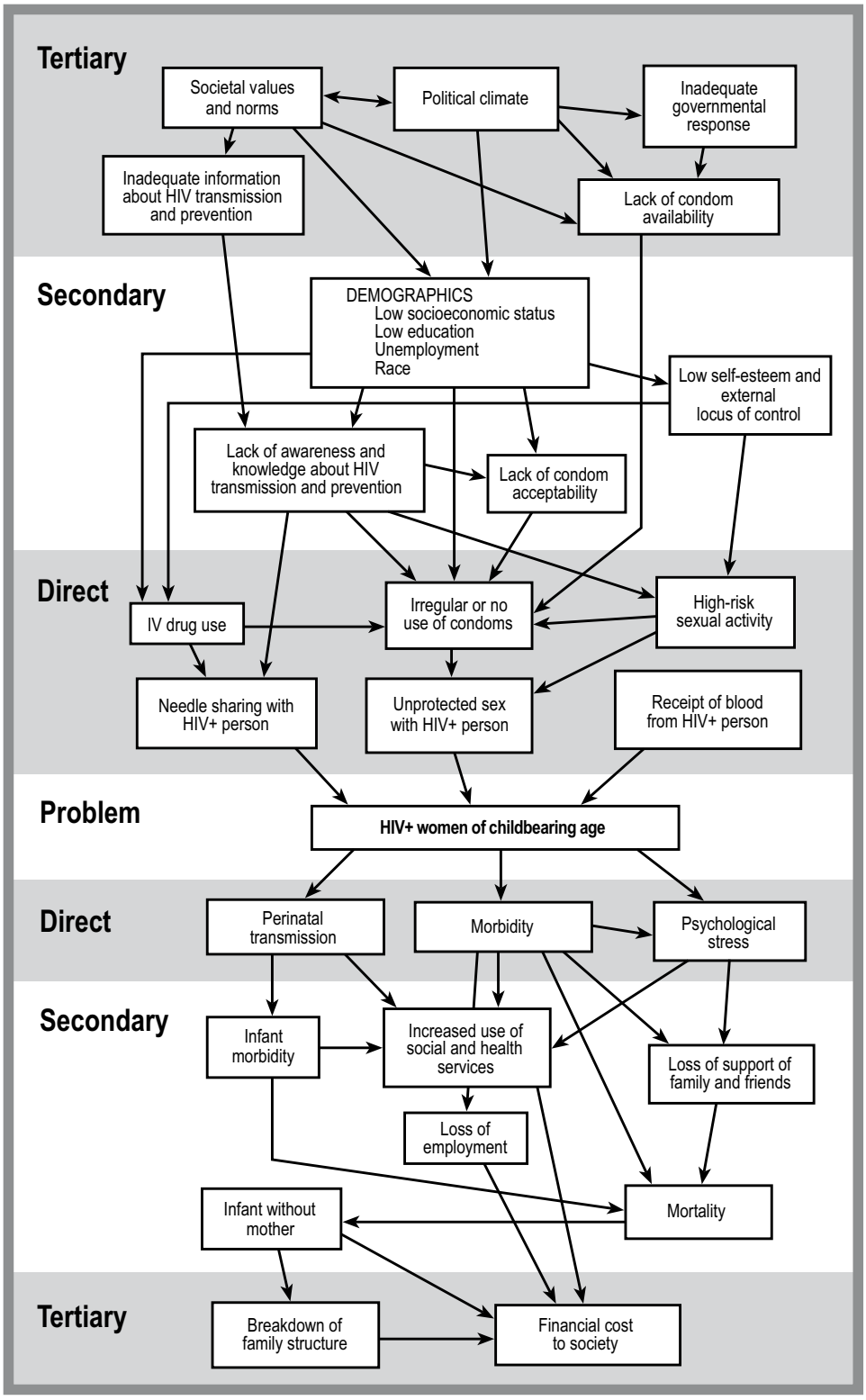
While acknowledging that the research is slim and our data sources are limited, we have been able to piece together a comparison of the precursors of limited mobility between the two states. For some of the precursors, there is very little difference, but for others, the magnitude of difference is striking. Each of the health service precursors (lack of primary care provider, lack of continuity of care, inadequate coordination of services, and limited access to allied health services) is more prevalent here at home than in the other state. This is also true of the following precursors, each of which is linked to the health service box either directly or indirectly in the problem diagram: low perceived threat of further limitation of mobility, limited awareness of existing services, low perceived benefits of preventive behaviors, undeveloped or not implemented treatment plan, lack of appropriate assistive devices, and inadequate physical stimulation.

During the past few years, our neighboring state has implemented several strategies to increase the use of primary care providers by children with special health care needs. We know that the use of primary care providers in that state was similar to ours four years ago. While our data were not collected for research purposes, they suggest that our neighbor has been successful not only in increasing the number of children with primary care providers, but in improving several other precursors of limited mobility.

In conclusion, this analysis suggests that a program which improves any of the precursors in the health services box in the problem diagram will also reduce the prevalence of limited mobility among children with special health care needs. The program should give special emphasis and assistance to children in low income families.

Practice

HIV+ status in women of childbearing age



HIV+ status in women of childbearing age

Description of the problem

While the number is still relatively small, there is some evidence that the number of HIV positive women of childbearing age in this county is excessive, suggesting that we have a problem with potentially major implications. When compared with a county of similar size and population characteristics, approximately three times as many women of childbearing age are HIV+. This holds across all population subgroups for whom data are available; however, in both counties African Americans, women between the ages of 20 and 39 years, and urban residents are disproportionately affected.

HIV positivity has several known precursors (shown in the diagram of the problem), some of which are particularly prevalent in the childbearing age population in the county, when compared with a similar population in the comparison county. Specifically, we have greater percentages of IV drug users, women who use condoms irregularly or not at all, women with negative attitudes about condom use and limited knowledge about HIV transmission and prevention, and women characterized by poverty, low education, unemployment, and who are African American. Among women who are HIV+, the most frequent cause in our county is needle-sharing.

It appears from this analysis, then, that an intervention to address both needle-sharing and unprotected sexual activity holds great promise for reducing the number of women of childbearing age in our county who are HIV+. Interventions could be directed at one or more of several other precursors, in order to influence these behaviors. The intervention selected is likely to be most effective if it is targeted at women 20–39 years of age, those who are living in poverty in urban areas, and African Americans.

Practice answers

Answers to each of the three practice questions are presented below for each of the five approaches to measuring needs. Responses to questions 1 and 2 are in tabular form, followed by the corresponding response to question 3. Examples derived from the specific health problems are integrated into the responses to question 3.

Standards for services

Information needed	Possible sources
Professional standards for services that address the precursors of the problem	Publications of professional organizations
Consensus-based standards for services that address the precursors of the problem	Self-developed by planning team Other planning or advocacy groups to determine whether consensus standards already exist
Inventory of services in the community that address the precursors of the problem	Community resource guide prepared by a community organization like the Chamber of Commerce Interviews of key informants

To use the information to identify unmet needs for services, create a matrix like the one in *Table 3* and compare the services actually available to the standards for services. Identify which of the recommended services are not available at all or have limited availability. Identify the population groups to whom the services are not available. This same process applies to all of the *Practice* problems.

Demand for services

Information needed	Possible Sources
List of services available in the community	Service inventory
Maximum number of people who can be served by each service	Interviews of key informants at each service
Number of people, categorized by relevant factors (*e.g.*, age, other demographic characteristics that are precursors to the problem) who seek each service	Information system maintained by each service
Number of people, categorized by demographic risk factors, who sought the service and did or did not receive it	Lists maintained by each service of individuals waiting for services, pending use of services, or turned away because services were fully occupied

To use the data to estimate unmet needs according to demand, calculate percentages of seekers of services who were not served by each service. Calculate this percentage for each relevant precursor (*e.g.*, age group) and, if desired, for the total population. The formula for one age group (adolescents) is:

$$\frac{\text{\# adolescents not served}}{\text{\# adolescents who sought the service}} \times 100$$

To determine whether demand for services meets capacity for services, calculate the percent of people who could be served who are actually served. That is:

$$\frac{\text{\# served}}{\text{\# who could be served}} \times 100$$

Examples:

$$\frac{\text{\# parents on waiting list for child safety seats}}{\text{\# parents who applied for child safety seats}} \times 100$$

$$\frac{\text{\# child safety seats on loan}}{\text{\# child safety seats available for distribution}} \times 100$$

$$\frac{\text{\# women 15–44 on waiting list for drug treatment}}{\text{\# women 15–44 who applied for drug treatment services}} \times 100$$

Use of services by populations at risk

Information needed	Possible sources
List of services available in the community	Service inventory
Number of people at risk for the problem in the community, categorized by demographic risk factors	Prevalence of each precursor (data from the problem assessment)
Number of people targeted to receive the service, categorized by demographic risk factors	Interviews of key informants in each service
Number of people actually using the service, categorized by demographic risk factors	Information maintained by each service

The primary indicator of unmet needs using a population at risk measure is the percent at risk who did not receive services. It should be calculated for as many of the risk categories (age, race, *etc*.) as possible. If a target group (presumably defined by risk status) has been identified by an agency, knowing what percent of that target is not being served can also be helpful. If comparable data can be obtained from all agencies that provide the same types of services (*e.g.*, all providers of child safety seats for cars), the same percentages should be calculated using the pooled data.

Examples:

$$\frac{\text{\# families with infants <1 month and reside in census tract 765 who have not received a child safety seat}}{\text{\# families with infants <1 month and reside in census tract 765 (target group)}} \times 100$$

$$\frac{\text{\# parents of children with asthma who have not had education about how to avoid allergens/irritants}}{\text{\# parents of children with asthma (population at risk)}} \times 100$$

$$\frac{\text{\# CSHCN without a primary care provider}}{\text{\# CSHCN (population at risk)}} \times 100$$

$$\frac{\text{\# chemically dependent women 15–44 years who have not been counseled regarding protection from HIV}}{\text{\# chemically dependent women 15–44 years}} \times 100$$

Relative availability and use

Information needed	Possible sources
List of services available in the community	Service inventory
List of services available to the comparison group	Service inventory for comparison area or population
	Key informant interviews
Number of people at risk for the problem in the comparison group, categorized by demographic risk factors	Prevalence of each precursor (data sources for comparison group similar to those used in problem assessment for population of concern)
Number of people in the comparison group targeted to receive the service, categorized by demographic risk factors	Interviews of key informants in each service
Number of people in the comparison group actually using the service, categorized by demographic risk factors	Information system maintained by each service

One way to estimate unmet relative need is to: (1) consider the services available to the comparison group a standard, and then (2) determine which of those services are not available, or have limited availability, to the population of concern. Another way is to: (1) calculate the indicators of use of services by populations at risk for the comparison group, and then (2) compare the results with the values already calculated above for the population of concern. Again, the comparison group would be considered the standard. If use of services in that group is considerably greater than in the population of concern, relative needs are unmet.

Perceptions

Information needed	Possible sources
Detailed list of services people say they need to prevent the health problem	Primary data collected from individuals at risk, people who have experienced the problem, and health and health-related service providers Interviews of key informants in each service Information maintained by each service

Strictly speaking, whatever individuals perceive to be unmet needs for services are unmet needs for services. However, to better understand perceptions, the results of an assessment of perceived needs should be compared with the four other types of measures to determine whether the perceptions are consistent with objective information. If consistent, they are considered unmet needs. If they are not consistent (*e.g.*, services are available but they are not perceived to be), further investigation is warranted. This may lead to identification of a slightly different unmet need (*e.g.*, education about what services are available).

Appendix: Generating standards for comparison with existing services

Standards for services to prevent health problems are ordinarily identified by professional organizations and/or through a consensus-building process. Using both approaches yields a more complete list of interventions than either one alone. If both approaches are used, however, the resulting two lists must be merged into a single one. Suggestions for generating each type of standard and for integrating the two resulting lists are presented in this Appendix, using the examples in the main section of this manual.

Professional standards

Professional standards are developed and usually published by professional organizations. There are many different ways that standards are presented, and it is sometimes a challenge to planners to extract the most relevant kernels of information from highly detailed, clinically-oriented, or very complex lists of standards. For example, *Healthy Communities 2000: Model Standards* is an ideal source of standards for services. However, there are two important characteristics of that document that require special attention in this context. First, the entries in *Healthy Communities 2000: Model Standards* are stated as objectives with targets, rather than as simple statements of services needed. For our purposes in this phase of service assessment, only the type and characteristics (*e.g.*, location, components, *etc.*) of services are needed, not indications of desire for change in a certain direction and amount. By way of illustration, consider *Healthy Communities 2000: Model Standards,* objectives 19 and 20:

19. By [date], expand to [x%] the proportion of school districts which provide school-based family life and sex education.

20. By [date], family life education within the overall health education curriculum K–12 will be available to [x] percent of children of school age, including out-of-school youth.

The essential components of these objectives were combined into one service standard in for *Table 1*, stated as follows:

Family life and sex education in overall health education curriculum in grades K–12.

In the context of *Table 1*, this means that these services should be available in communities to prevent low birth weight by decreasing knowledge barriers (and perhaps attitudinal barriers) to receiving prenatal care.

Consensus standards

Consensus means that there is general agreement about what kinds of services or interventions should be available to address a particular problem. Development of consensus on standards for services is a process which begins with a review of the problem, especially the precursors that are prevalent in the geographic area or population group in which the problem exists. Potential interventions should be identified systematically to minimize the possibility of overlooking a particularly effective option. A systematic approach involves three activities:

1. **Listing precursors that are amenable to intervention and prevalent in the population of concern.** With some obvious exceptions (*e.g.*, race, ethnicity), the precursors of the problem are factors that can be altered by interventions, although some of the precursors may have such low prevalence that they should not be considered seriously. After these are removed from consideration, the remaining precursors should be organized in a format that will encourage recording of a broad spectrum of intervention possibilities. One approach is to develop a continuum of precursors that more or less follows the order of the precursors in the problem diagram (*e.g.*, tertiary, secondary, direct precursors). *Table 2* shows this approach using a subset of the precursors from *Figure 4.*

2. **Brainstorming interventions that correspond to each precursor.** All members of the planning group should identify interventions that are specific to each precursor. To do this systematically, it is helpful to record the interventions next to corresponding precursors as shown in *Table 2.* Avoid the temptation to list interventions that will affect a specific precursor through others. For example, in *Table 2*, interventions to improve knowledge and understanding about the importance of prenatal care correspond specifically to one barrier to use of prenatal care, *limited understanding of the importance of prenatal care.* The same interventions should have indirect effects on use of prenatal care but they should not be listed next to that precursor. As shown in *Table 2*, interventions should be stated as specifically as possible. Each one should consist of a substantive type (*e.g.*, educate) and a mode (*e.g.* via mass media) of intervention, if possible.

   The interventions should be drawn from a range of types (including direct delivery of health services, financial support for services, education, policy development, and regulation) and disciplines. Review articles about the problem, precursors, and interventions can be very helpful at this stage. They may include information and/or guidelines that are too new to be incorporated in formal standards of professional groups. In the case of low birth weight in York County, for example, a recent comprehensive review of the literature suggests that any improvements in low birth weight are likely occur through reductions in prenatal smoking, improved nutrition, and targeted medical/

obstetrical care (Alexander and Korenbrot, 1995). This information tells the York County planners that they should be certain to have standards for services that reflect interventions in these areas (assuming the corresponding precursors are prevalent in York County).

The interventions identified through this brainstorming exercise should go well beyond the frequently used health sciences to such fields as anthropology, psychology, political science, and journalism, to name a few. The breadth of knowledge required in this step is largely provided by the planning group members. The team should consist of knowledgeable individuals, each with an essential point of view and/or analytic or interactive skill (including professionals from agencies that may be called upon to contribute to the solution of the health problem), and those with a personal knowledge of the problem. If there are important gaps in the group's expertise, these gaps should be recognized and addressed.

3. **Assessing each possible intervention for feasibility.** The concept of consensus drives this process. Identification of potential interventions begins as a brainstorming exercise, because this is an excellent way to generate numerous ideas, uninhibited by real world constraints. Before any final decisions about which interventions might serve as consensus-based standards are made, however, each of the interventions should be thoroughly discussed and agreed upon by the assembled planning group. Even after the list is believed to be complete, review it carefully for feasibility. Some interventions may be removed at this stage because they are completely unacceptable. They could be illegal, politically insensitive, outrageously expensive, or the authority to implement them may lie outside the boundaries of your agency (*e.g.*, a service agency may not be authorized to engage in efforts to change government policies). Make decisions to remove interventions from the list with care. Sometimes an intervention that appears inappropriate at first will appear more feasible after further consideration.

Integrating professional and consensus standards

Tables 1 and *2* are lists of standards for intervention, each of which includes overlapping standards, as well as many that are exclusive. Before the standards can be used for an assessment of service needs, the two lists of standards must be integrated. The left column in *Table 3* is the result of integrating *Tables 1* and *2*, and removing redundant standards. The integration process provides an opportunity for iteration through both lists (*i.e.*, *Tables 1* and *2*) that results in very clear and specific statements of standards. For example, one of the standards in *Table 1* derived from *Healthy Communities 2000: Model Standards* is:

> The community is served by an identifiable organized program of health care directed toward women, including necessary financial assistance for eligible individuals.

In *Table 2*, there are two standards that capture the same concepts, but they are stated more specifically:

Counseling and assistance to obtain financial assistance; and

Formal linkage and referral mechanisms across services.

In *Table 3*, the latter two standards were used to represent the concepts in the standards from *Table 1.*

As indicated in the manual, once the two lists of standards are integrated, the resulting list is compared with existing services in order to identify unmet needs.

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