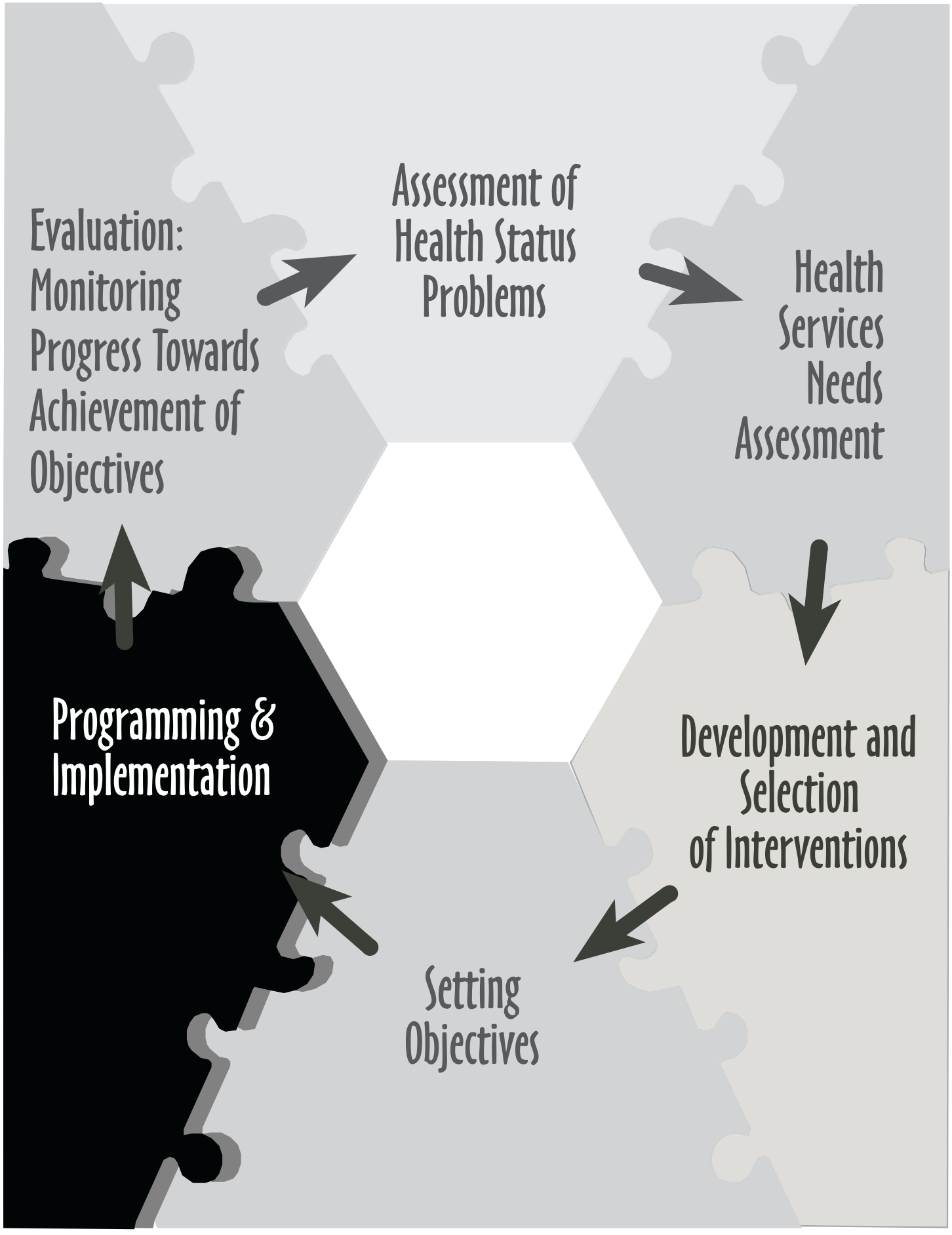
Assessment of Health Status Problems
Health Services Needs Assessment
Development and Selection of Interventions
Setting Objectives
Programming & Implementation
Evaluation: Monitoring Progress Towards Achievement of Objectives

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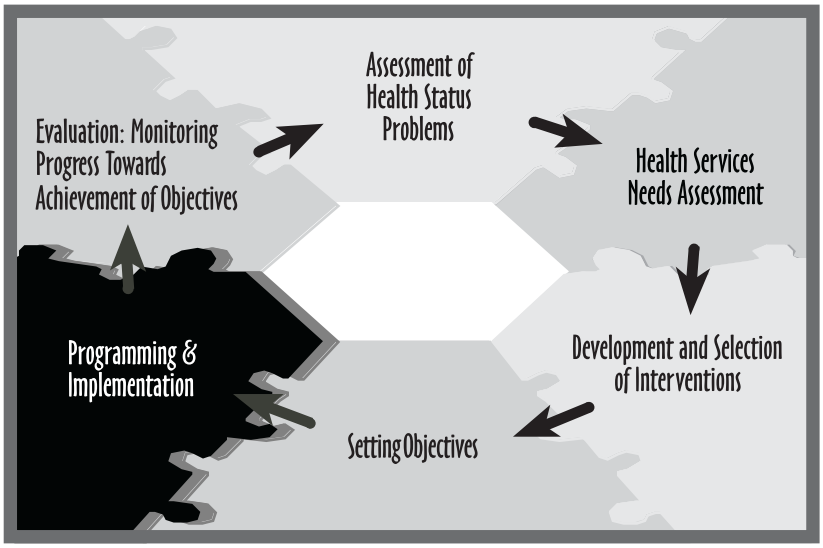
The BIG Picture...

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 carry out a series of tasks collectively known as programming and implementation. In this manual, you will learn how to develop a fully operational public health program from a brief outline and a small set of operational objectives. Specifically, you will learn how to:

- Use theories to guide program design;
- Expand the design to include operational details;
- Describe how the program will actually function;
- Pan for implementation; and
- Develop a proposal budget.

These concepts are illustrated by several examples. In this series of manuals, additional examples are usually presented after the main lesson in a format intended to encourage application of skills. However, this manual differs from the others in that it covers a larger number of discreet tasks. Also, applying the skills in this manual correctly depends on the circumstances surrounding each new program (*e.g.*, the organization, types of clients, *etc.*). So, the practice experience recommended for *Programming and Implementation* is to use the skills in a *real-life* situation of your choice. Read through the entire manual carefully before you begin.

Prerequisite skills

- Familiarity with public health theories
- Knowledge about health service delivery systems and infrastructure
- Familiarity with basic principles and tools of management

A working knowledge of spreadsheet and project scheduling software is also very helpful.

Introduction

As described in *The Big Picture,* your journey through the program planning process has taken you from recognition of a health problem to selecting an intervention. You enter the programming step with a brief outline of the intervention that you developed to help you choose among a set of options and an equally brief list of specific operational objectives. Embedded in these objectives are the main activities of your chosen program. In other words, you have a blueprint. Now you have to build the house! Your program must be designed and developed in sufficient detail that reviewers can understand what you are asking them to support, and your staff members can bring it to life as an operating program. In this fifth step of the planning process, you will create an operational program, in three distinct, yet closely connected, parts:

- Program design and description
- Implementation planning
- Budgeting

Program design and description

Many factors are taken into account when designing a program. First, the activities of the program must be carefully thought out. Major activities, of course, have already been identified in the operational objectives. But they are just the "tip of the iceberg," the activities you will monitor to be sure the program goes as planned. To implement the program, you must consider a myriad of other details. The place to start is with the theory or theories underlying your intervention. Then, when you have fully developed the activities of the program, you can further elaborate when, where, and how they will be accomplished. You will also need to think about characteristics of the clients that will affect service delivery (*e.g.* disability, language), as well as organizational and human resource issues. This step is completed when all of these details are described in a written narrative.

Individuals with working knowledge of practice standards and the skills to design the chosen intervention in accordance with relevant theory should undertake the task of program design. Health educators, for example, may be best qualified to design a prevention intervention because of their training in this area. Health administrators would be especially valuable when designing a program intended to modify organizational behavior. If the appropriate experts are not already working with the planning team, they should be brought onto the team as members or consultants at this time.

How are theories used in program planning?

Theories are useful tools throughout the planning process because they describe how factors influence health conditions. Sometimes they are viewed as daunting, but practitioners actually use them all the time in planning, often without even realizing it. Here are some examples:

Identifying precursors to a health problem:* When analyzing the problem of adolescent cigarette smoking, one of the first precursors to come to mind may be parental cigarette smoking because of the commonly held belief that children model the behavior of people who are important to them. This is one of the basic tenants of Bandura's Social Learning Theory (1977).

Specifying the relationships between precursors:* In a problem diagram of sexually transmitted diseases, condom use would be listed as a primary precursor. Intuitively, we may think that some of the important precursors to condom use would be the perceived consequences of using a condom (*i.e.*, disruptive, not pleasurable), the value placed on those consequences, and beliefs about what important others, like partners, think the person should do. These are elements of the Theory of Reasoned Action (Ajzen & Fishbein, 1980) used to specify relationships among precursors.

Developing the specific activities of a program: When developing an exercise program for the elderly to prevent obesity, we may decide to include activities designed to boost participants' confidence that they can exercise. One of the basic tenants of the Theory of Self-Sufficiency (Strecher, *et. al.*, 1986) is that a person's confidence in performing a particular behavior will determine future behavior.

Sometimes theories seem like formalized statements describing the obvious. But this is not always the case. Theories can prompt us to consider issues that were not previously considered. They can guide us in planning when little empirical data are available. This is especially the case when planning programs to address little studied areas.

For example, a number of theories have been used to help us understand and address domestic violence. These theories suggest that perceptions of the seriousness of violence, how one labels the violence in their relationship, and the attributions that people make for the causes of the violence are precursors to leaving a violent relationship (*e.g.*, Cohen and Lazarus, 1979; Weiner, 1986). People who do not recognize the serious consequences, both physically and psychologically, of remaining in a violent relationship may not leave a violent relationship; people who are in a violent relationship, but who do not label what

**See* Assessment of Health Status Problems *for a discussion of these aspects of problem assessment.*

is happening to them as abusive, are not likely to leave that relationship; and people who attribute the violence that is happening to them as being their fault, normal, or a sign of love are not likely to leave a violent relationship. Each of these factors could be addressed in an educational program designed for adolescents who are in violent dating relationships. Although these factors have never been empirically tested in the context of adolescent dating violence, we can use them to develop a diagram for that problem and to detail program activities because they are based on theories that have been empirically tested in similar contexts.

Using theory to design program activities

Designing program activities involves using theory to further elaborate the activities specified in the operational objectives. To explain how to do this, we will use the Low Birthweight Prevention Program (LBWPP) of the York County Health Department. Background information on the program, which has served as an ongoing example throughout this series of manuals, is in *Exhibit 1.*

The planners used a theory, the Health Belief Model (Rosenstock, 1974), to develop the specific content of one of the operational objectives, the education component to be delivered to pregnant teens by resource mothers. The purpose of the education component was to encourage teenagers to seek prenatal care early and to return for care as recommended for their individual needs. Developing the content of this message may seem like a pretty straightforward task: indicate where prenatal care is offered in the community, give the times and days of prenatal services, mention that it is inexpensive, and explain that transportation is available for those who need it. However, many studies have shown that making prenatal care convenient and inexpensive is not enough to motivate people, especially adolescents, to seek care. The Health Belief Model is a theory that describes five factors that influence a person's decision to take a preventive action like seeking prenatal care. The five factors are:

Perceived susceptibility: A person has to believe the she is susceptible to getting a health problem (like preterm birth) before taking a preventive action.

Perceived severity: A person has to believe that the health condition and its sequellae are serious before taking a preventive action.

Perceived benefits: A person has to believe that the preventive action will reduce the risk and seriousness of the health problem.

Perceived barriers: A person has to perceive few tangible and psychological costs to taking the preventive action.

Cues to action: Once motivated, "cues to action" may be needed to prompt action.

Exhibit 1. York County Low Birthweight Prevention Program (LBWPP)

Background Information

The program involves a home visiting intervention for pregnant girls 18 years and younger delivered by lay health workers, who are called Resource Mothers. The purpose of the program is to reduce the incidence of low birthweight (LBW), and its components, preterm birth (PTB) and fetal growth restriction (FGR), since these conditions put infants at risk for medical and developmental complications and even death. Through their problem assessment, the planners found that adolescents had disproportionately high rates of these problems. Their assessment also revealed that these neonatal conditions have been very resistant to interventions.

Nevertheless, with the emergence of new directions for interventions in recent years, prenatal services, especially those likely to be used by adolescents, had been revised in York County to focus on recognition and treatment of vaginal infections, modification of behavioral risks like smoking, drinking alcohol, and drug use, and improvement of maternal nutrition. Yet a large percentage of teenagers were not beginning prenatal care early enough or receiving it in sufficient quantity and depth to realize the potential benefits of these services.

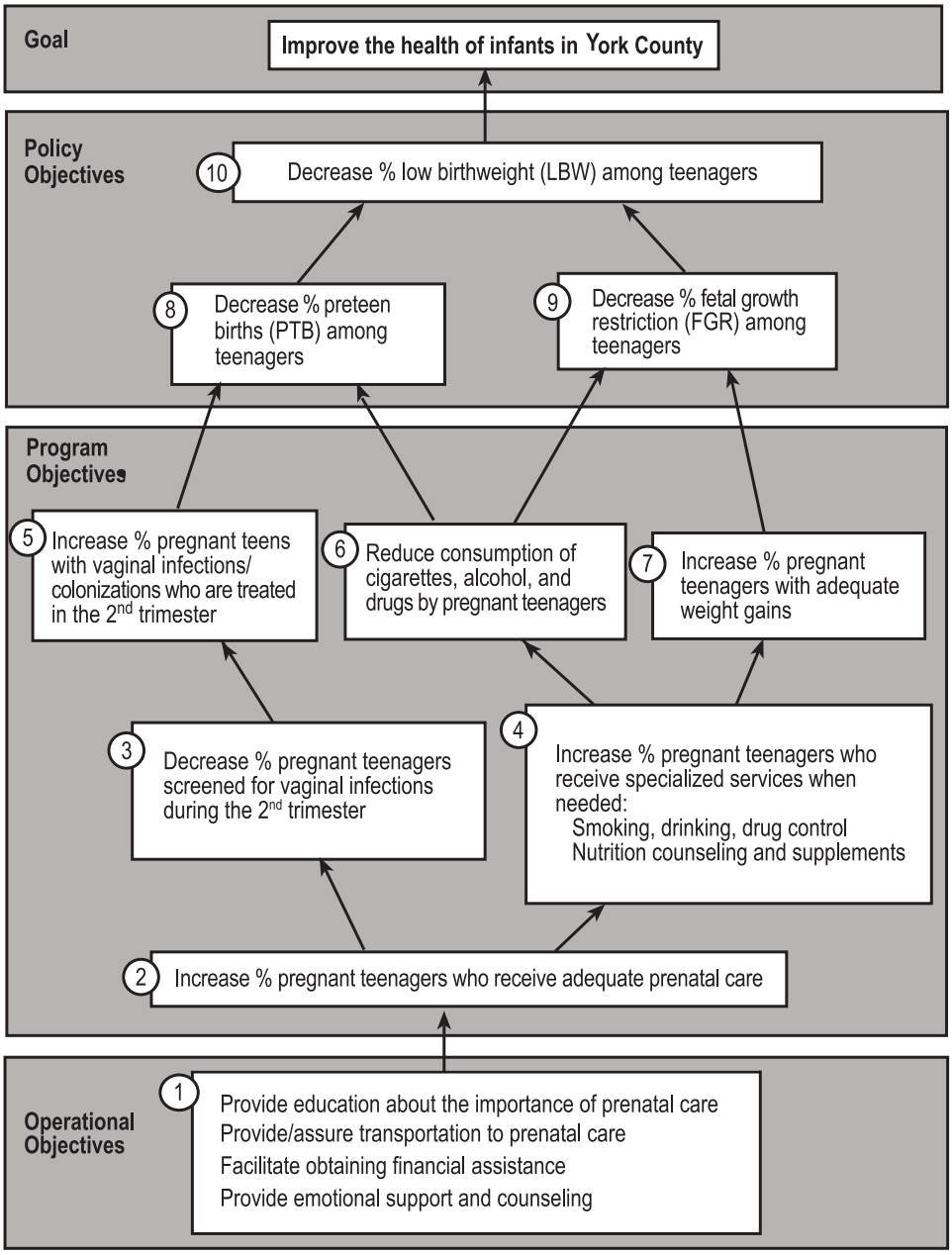
Further analysis of the problem and services revealed that many pregnant teenagers:

- Felt it was unimportant to seek prenatal care early or to continue regularly once they started it;
- Had no transportation to prenatal services;
- Had difficulty paying for prenatal care; and
- Were often single and without emotional support from families.

The York County LBWPP emerged after completing all the steps in the planning process. It is intended to link teenagers to prenatal care so that the interventions available through that care can have an opportunity to be effective. The program hypotheses are diagrammed in *Figure 2.* The program's four operational objectives are to:

- Provide education about the importance of prenatal care;
- Provide/assure transportation to prenatal care;
- Facilitate financial assistance; and
- Provide emotional support and counseling.

Figure 2. York County Low Birthweight Prevention Program



According to the Health Belief Model, the program's educational component needed to address each of these factors in order to motivate adolescents to seek prenatal care. The written materials distributed by resource mothers and their discussions with the teens could address perceived susceptibility by describing the characteristics of people at risk for low birthweight, preterm birth, and fetal growth restriction. Perceived severity could be addressed by describing the serious short and long-term consequences of these conditions on the babies and on their parents. They could also point out how difficult it has been to reduce the magnitude of these problems on a population level. To address the benefits of prenatal care, the resource mothers can point out that some interven-

tions (like early identification and treatment of vaginal infections, and nutritional supplementation) are promising, but they cannot be undertaken unless individuals begin prenatal care early and use the care as frequently as recommended by their providers. Perceived barriers could be addressed by pointing out the convenient hours, low cost, and availability of transportation. "Cues to action" may include posters in various places frequented by teenagers, reminder postcards, and the regular home visits of the resource mothers. While each of these points may seem like common sense, the planners may not have considered them specifically without theory to prompt their thinking.

Often, program design is guided by more than one theory. In the process of detailing the activities of the York County program, the planners also relied on social support theory to build the role of the resource mother as a lay health advisor. In their curricula for training the resource mothers, they included role playing to demonstrate applications of several other theories that resource mothers could use to encourage prenatal care (Eng & Young, 1992). Of course, theories of adolescent development helped to modify program activities to fit the developmental stages of program participants.

Having sketched the action details of a program with the help of a theory, some new operational objectives that speak specifically to the theoretical constructs may emerge. In the example given above, objectives that seek to increase perceptions of susceptibility or decrease perceptions of barriers to care could be added to the current set of operational objectives.

How do you know which theory to choose?

There are many theories that can be helpful in the planning process. Fortunately, most can be summarized in the four categories in *Exhibit 2.* Obviously, no one can be familiar with all of them, but the experts on your team can help you select the ones most consistent with your situation and figure out how to apply it appropriately. Anthologies, such as *Health Behavior and Health Education: Theory, Research, and Practice,* 2nd edition (Glanz, Lewis & Rimer, 1997) are also valuable resources.

Exhibit 2. Major Categories of Theories

Intrapersonal	Explain how beliefs, attitudes, perceptions, skills, attributions and cognitions influence behavior and, ultimately, health
Interpersonal	Describe how interactions and dynamics with others influence health
Community organization	Describe processes of social change, steps in community development, and factors promoting community empowerment
Organizational change	Describe factors that influence organizational culture and climate, and communication between organizations.

Further development of program activities

The activities of the program appear in skeletal form in the operational objectives, and they are elaborated through application of theory. In designing the program, however, an even fuller description of these activities is necessary, with special attention to when, where, and how the activities will be carried out. Here are some of the questions you will need to consider:

- **WHEN** and how often will each activity be performed? Are there days and times when activities cannot be done? How many times is staff training to be given? At what intervals?
- **WHERE** will the activities be performed? Is there space in the principal facility? Is space in another facility necessary? Appropriate? What other sites can you use? A church? A meeting hall? A participant's home?
- **HOW** will services be delivered? If medical or psychological screening is involved, what test methods/instruments will you use? If transportation is offered, how will you schedule it to maximize availability of vehicles and staff? How will you link your services to existing services?

Helpful tools

Two tools that can help you think through the *when*, *where,* and *how* of your program are written procedures and flow charts. Written procedures are clear and concise statements about activities to be done, including exactly what tasks are involved, the sequence they should follow, and who is responsible for them. They can be very simple, like the transportation procedure for the York County program in *Exhibit 3*, or much more complex. They are especially helpful for documenting how units that must work together (for example, the personnel department and professional departments, or maternal health and child health units) will assure unimpeded interactions. Procedures for referral from one unit to another, for example, will serve as documentation of such coordination across units. Flow charts offer a graphic presentation of what is to be done. As a flow chart is put together, the logic of the steps can be mentally checked for both sequence and completeness. Flow Charts with decision nodes, like the example in *Figure 3* for resource mothers' initial visits with pregnant teenagers, are appropriate when there are optional courses of action. By convention, decisions are represented by the diamond-shaped boxes; events are placed in the rectangles. Flow charts and procedures may be used to describe a sequence of steps to be taken by a staff person before implementation of an activity, or they may describe the sequence of steps which a client or patient must take to receive the package of services offered by the program.

In addition to routine procedures, a good program design will have a plan for atypical problems or exceptions to routine procedures. It may be as simple as

Exhibit 3. York County Low Birthweight Prevention Program
Sample Procedure

Transportation to Prenatal Services

If patient attends a Health Department Clinic:

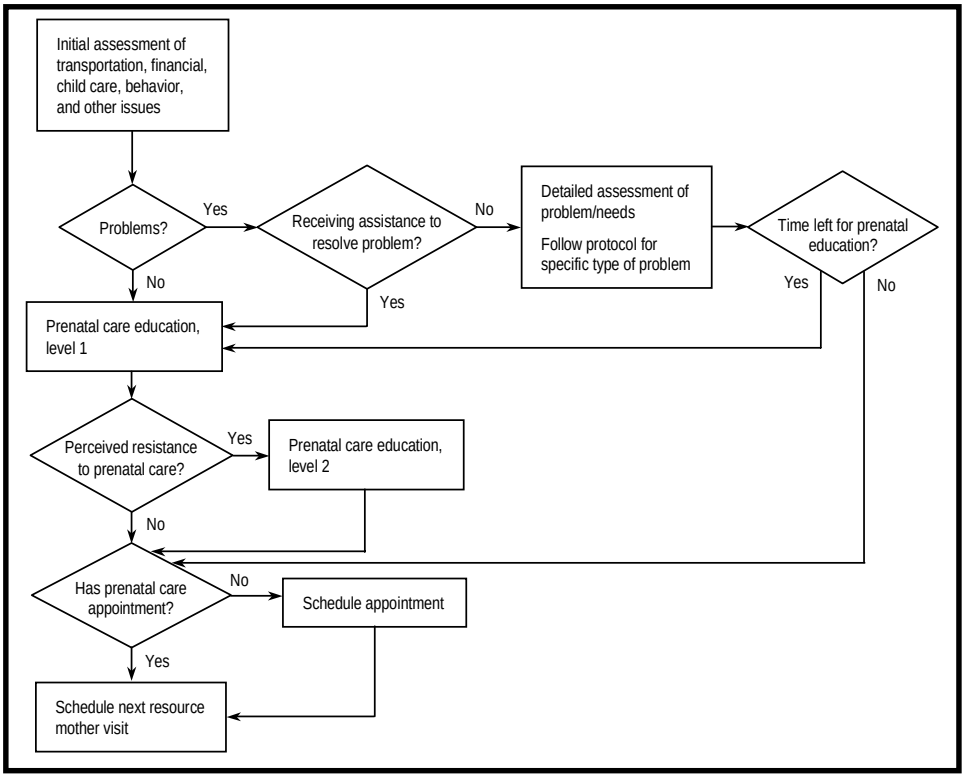
1. Complete transportation request form (name of patient, address where she will be picked up, directions to address if necessary, date, time, and location of clinic appointment, number of people in party).
2. Submit form to the central transportation office via fax or hand delivery by 4 PM of the day preceding the appointment.
3. Inform patient to be ready to go 1½ hours before the scheduled appointment time. If the van arrives and the patient is not ready, the driver will have to move on.

If patient receives prenatal care at another location:

1. Consult with nurse supervisor regarding whether a taxi or bus is more appropriate.
2. If the patient will take the bus, give her tokens.
3. If the patient will take a taxi, give a voucher.

Note: Resource Mothers maintain a transportation log indicating which patients received each type of transportation assistance. For bus an taxi assistance, Resource Mothers should ascertain whether the prenatal care appointment was kept.

Figure 3. York County Low Birthweight Prevention Program
Flow Chart for Resource Mother's 1st Contact



"call the director," or in situations where the director is likely to be off-site (in the case of a part-time director) or does not have the skills (in the case of a technical or clinical emergency), responsible staff should know who to consult or what alternative process they are expected to follow. Simple examples of non-routine (but frequently occurring) events for which procedures ought to be in place include persons who arrive requesting a service who are under age; people who have not received the service they had anticipated and are disgruntled; or a computer network which goes down and leaves you unable to make or change appointments.

Who will be served?

Every public health program is designed for a specific population group, which may range from the entire population in a geographic area to a small subgroup defined by age or ethnic origin. In order for the program to serve its intended audience effectively, the relevant characteristics of the target group must be considered explicitly. How is the population defined? By age, gender, geography or other characteristics? Once the clients are characterized, special needs of that group can be anticipated. If the first language of the client population is Spanish, either bilingual staff or interpreters should be hired. Provisions for childcare should be part of the program design if the intervention is directed to mothers of small children. Literacy-level adapted materials, gender considerations in staffing, and transportation are other adaptations frequently found in special population groups.

In addition to client characteristics, the number of individuals expected to be served in a given period of time must be estimated. This number is important, as it will guide decisions about staffing requirements and needs for other resources. To estimate this number, consider the number of individuals in need of the program, your confidence in the ability of the program to recruit them, external and organizational factors that may encourage or discourage participation in the program, and any other factors relevant to your circumstances.

Organization

Public Health programs are normally set up within existing organizations. Placement of the program within the organization can facilitate or impede day-to-day operations. An important issue for planners to consider is whether the new initiative should be integrated into an existing organizational unit. There is an economic advantage to this approach if the new program comes with resources, but there is also a risk that the program will become indistinguishable from the other programs in the unit. An alternative is to structure the program as a demonstration project, by setting it up as an organizationally distinct, short-term initiative. One reason to take a demonstration project approach is to retain the totality of the intervention so that it can be rigorously evaluated. From an administrative

perspective, demonstration projects often have high visibility, are not tied to the peculiarities of an ongoing bureaucracy, and are allowed considerable organizational autonomy. All of these characteristics tend to encourage creativity within the project. On the other hand, there are disadvantages of demonstration projects. Since they may require the same types of staff as ongoing units, duplicating functions may be wasteful and inefficient. High visibility may bring negative attention. Also, demonstration projects sometimes become elitist and entrenched in their own institutional culture, thus losing the creativity and flexibility for which they are best known.

An organizational chart, which depicts how employees are organized into work groups and divisions, is an important tool for representing where the program will fit within the organization. The placement of your program within the organization's set of formally designated relationships will enable you to describe what those relationships are and how they affect day-to-day operations in that organization. There are many ways to show relationships among units in organizations. Some basic examples are shown in *Figures 4, 5, 6,* and *7. Figure 4* is an organizational chart for the York County Health Department, showing only direct lines of authority. There are also many indirect relationships in an organization like this that are usually depicted by dotted lines, as *Figure 5* shows. The Low Birthweight Prevention Program is in *Figure 4* as a program of the Nursing Department, with resource mothers under the supervision of public health

Figure 4. York County Health Department Organizational Chart

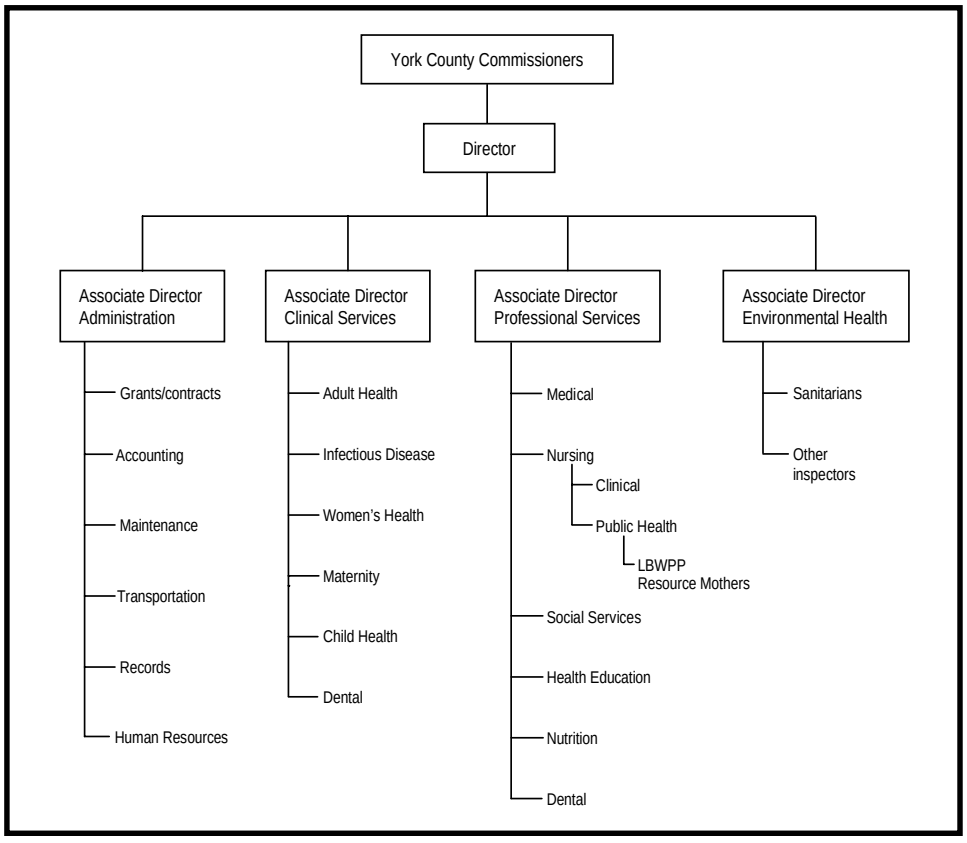


Figure 5. Indirect (Staff) Relationships in an Organizational Chart

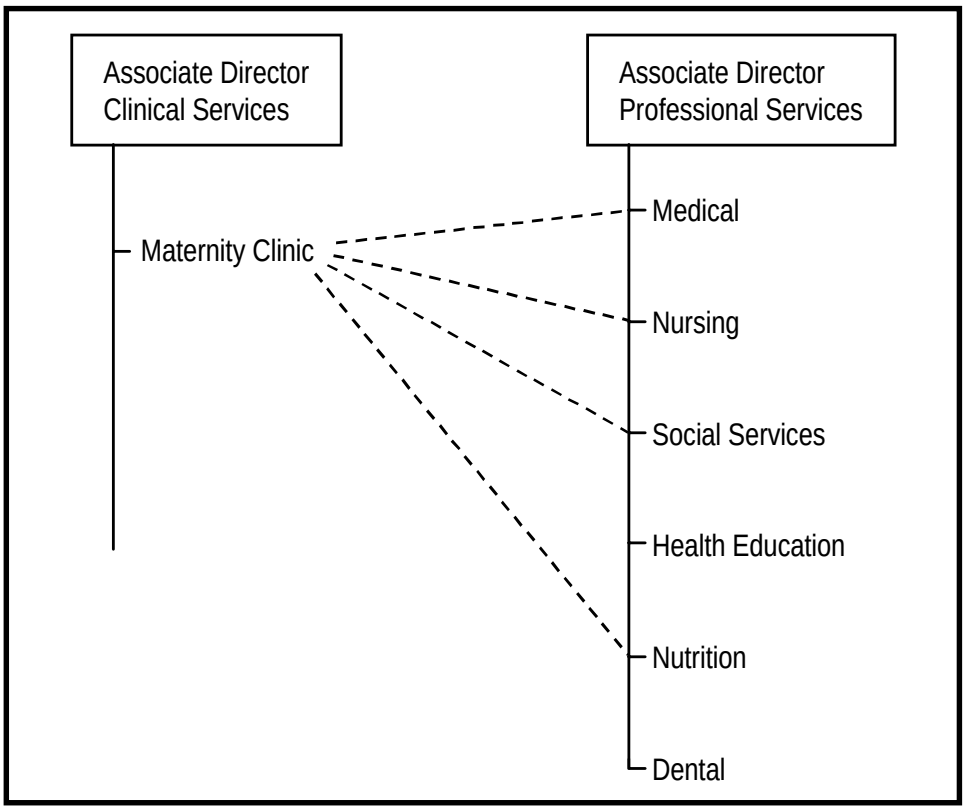


Figure 6. York County Low Birthweight Prevention Program Organizational Chart

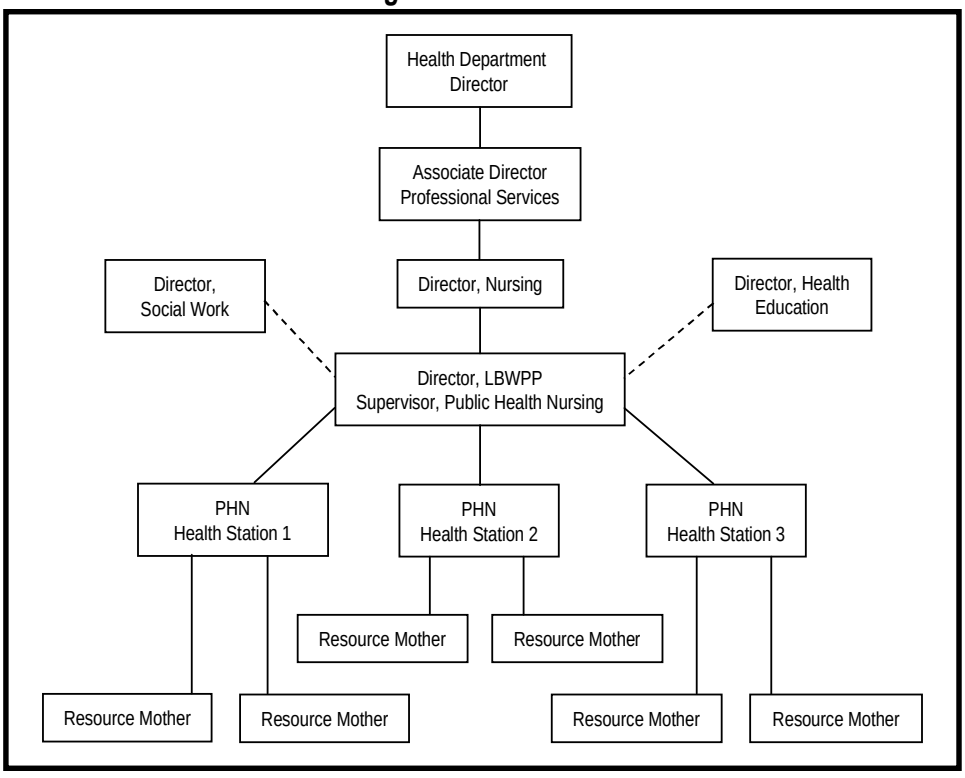
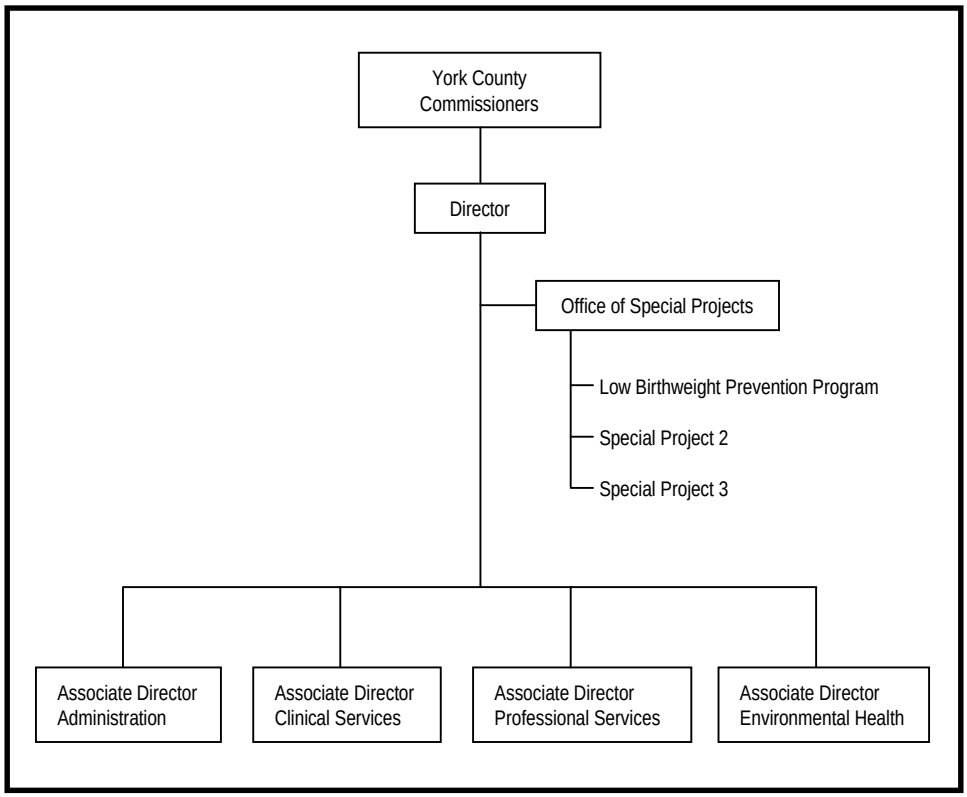


Figure 7. York County Health Department
Alternative Organizational Chart with Office of Special Projects



nurses. A more detailed diagram of the program is in *Figure 6.* This program could also have been set up as a demonstration project. In that case, it would probably have a more prominent location in the organizational chart, possibly in an office of special projects directly responsible to the director, as *Figure 7* shows.

Traditionally, public health programs have been offered primarily in the public sector. As new types of health care organizational designs begin to dominate the field and public-private partnerships are encouraged from many sides, new challenges for organizational structure have emerged. In situations where staff members are shared by partnering organizations, chains of authority and responsibility as well as the percent effort to be devoted to the program must be made explicit.

Human resources

With the program's activities and organizational structure known and the size of the client group estimated, the numbers and types of personnel needed to staff the program can be determined. The planning team should discuss alternative types of providers so that the final selection represents the best fit between provider training and experience and the job to be done. The number of person-

nel required should be estimated by determining how much of the service each staff member can provide vis-à-vis the total amount that needs to be done.

If you decide to use current staff, an accurate assessment of the amount of time they have available to give to your program will need to be made. If your program is funded, will the agency be able to relieve a particular individual of a portion of his/her current responsibility so that adequate time can be dedicated to your program's activities? If you choose to hire new staff persons, you will need to be familiar with the agency's procedures for job design and classification as well as time lines for selection and hiring. These policies will affect the type of individual you are able to recruit, and determine the advance timeline necessary for hiring. The job description (or position description) is the universal tool for linking staff members to program activities (and through them to operational objectives) and to the organization's structure. Most organizations and agencies have standard formats for position descriptions, which usually include job title, minimum and desired qualifications, chain of command, and job tasks and responsibilities. *Exhibit 4* is the position description for resource mothers in the York County program.

Supervisory responsibilities and time commitments are taken into account when estimating expected productivity of staff members. These estimates should be calculated as carefully as possible since underestimates could cause serious delays in the achievement of operational objectives. These delays, in turn, will have adverse effects on achievement of program and policy objectives.

Describing the program

Describing the program involves writing about the design in a persuasive manner that demonstrates the capability of your organization to deliver the program efficiently and effectively. A program description also creates a context for the program by referring to the ideals or values that the program embodies. Writing the program description requires reflecting on the program in its entirety in addition to focusing on the details of each component. Too often, plans appear disjointed because this task is given inadequate attention.

In the process of selecting the intervention,* consideration was given to both administrative and technical feasibility. The issue at that stage was the extent to which administrative structure and technical capability to conduct the program existed or could be developed. Now, as you describe the program you designed, these capabilities must be operationalized. If you are applying for external funding, it is important to demonstrate the organization's administrative and technical capacity to carry out the program. In other words, you want to place your program in its specific organizational context, and give specific examples as to how that context will facilitate successful implementation of a

See Development and Selection of Interventions *for guidance on how to select intervention programs.*

Exhibit 4. York County Health Department
Position Description

Title: Resource Mother (Lay Health Advisor)

Program/Department: Low Birthweight Prevention Program/Nursing

Qualifications:

Minimum: High School diploma
Record of at least five years of active community service
At least five years since last pregnancy

Desired: All of above plus experience as a lay health advisor

Supervised by: Public Health Nurse II

Position responsibilities:

1. Manage a caseload of 25–30 pregnant adolescents.
2. Visit each client weekly per schedule developed with client and supervisor.
3. Assess needs for transportation, financial aid, child care, behavioral intervention (smoking, alcohol, drugs).
4. Provide assistance or make referrals, as necessary.
5. Provide education and support regarding receipt of prenatal care according to LBWPP procedures.
6. Phase out formal relationship over three months after delivery.
7. Establish contacts with schools, churches, and medical facilities to encourage referrals of pregnant teens as early as possible during pregnancy.
8. Maintain records on each client.
9. Participate in Health Department team conferences as necessary.
10. Advise providers outside the Health Department of their patients' progress every 2 months.
11. Participate in regular in-service education programs.

project of the scale, duration, intensity, and/or technical complexity that you have designed.

You will need to show that there is a good fit between your program and the organization within which it is housed. You may choose to make reference to key documents prepared by the organization, such as the *Mission Statement* and/or the strategic plan, possibly including them as appendices. A mission statement is a broadly defined statement of purpose, which usually embodies the vision of the organization and provides a statement of its goals and objectives. A strategic plan is the result of a planning process intended to identify the desired future direction of the organization, and to develop guidelines for making organizational decisions consistent with that direction.

You will also need to present a clear and convincing statement of the capability of the agency to provide the equipment, techniques, information, and processes necessary to carry out the program as described. For instance, if your program requires tracking of patients through a series of services over time, you may need to indicate that the agency has adequate hardware, software, and trained personnel to design a data entry and linking system appropriate to your project. If outreach activities, including home visits, are part of the intervention you have chosen, you will want to demonstrate that agency personnel are professionally equipped to conduct such visits effectively. If you have chosen to hire new staff members, you will want to indicate how the agency's environment will be supportive of those individuals' work requirements.

Program termination

While it may at first seem out of place, planning for program termination is also a part of program design and description. In fact, some funding agencies require explicit details about termination. And for good reason. If your program will address important needs of a population group, and it has a limited funding cycle, you must consider the consequences of termination of those funds. Will the patients lose services? Will your agency pick up the program? Will you apply for a subsequent grant or contract?

How much detail??????

The amount of detail you choose to provide about your program depends on the intervention's complexity and the intended audience for the plan. In general, the greater the complexity, the greater the detail required to describe the program adequately. With regard to the audience, if you are writing the program description for a funding agency, you may be limited to only a few pages, so you need to present the program succinctly, but in enough detail to be convincing to a review committee. If you are developing the plan for internal use, and you intend for the program description to educate staff about the program, you may want to include a great deal of detail.

Implementation planning

Implementation refers to a set of activities conducted in the time period between formal approval of the program and the program's actual start date. *Implementation planning* is the process of identifying what needs to be done during that period of time, and scheduling those activities so that the program can be launched smoothly. On the surface, this is fairly straightforward. However, there is a hidden challenge in implementation planning: assuring adequate

flexibility to accommodate unanticipated shifts in policy, organizational structure, or other critical elements that occur between completion of the plan and its subsequent approval and must be dealt with before the program begins. Recognizing that programs are rarely implemented exactly as planned will take you a long way towards successful launching of your carefully designed venture.

Resources and implementation activities

Resources and activities required to implement a program are distinct from the design elements of an operating program (that is, program activities, clients, organization and personnel). Resources are the equipment, personnel, arrangements, and other items that must be purchased, procured, or produced in order to begin and maintain program operations. Implementation activities are the tasks that must be done in order to have the resources available to carry out the program. For example, the Low Birthweight Prevention Program in York County involves delivery of services by resource mothers; therefore, the necessary number of qualified resource mothers must be ready to start when the program gets off the ground. Similarly, since the program provides transportation to clinical sites, vehicles must be ready to roll when they are needed. Determining exactly which resources you need and what must be done to obtain them involves two distinct activities:

- Identifying the requirements to launch each operational objective; and
- Considering resources and activities necessary for the program as a whole.

Identifying requirements for each operational objective is straightforward. As an example, refer to the LBWPP operational objectives in *Exhibit 5.* The first operational objective involves providing in-person visits between resource mothers and their teenage clients on a weekly basis. The program description would specify how many clients are expected to be in the program at any time, and how many resource mothers will be needed to work with them. To make those contacts happen, the resources must be in place: clients recruited, resource mothers hired and trained, and various procedures developed for the two groups to come together. To recruit clients, the program will have to make contacts in the community, perhaps with schools, churches, medical facilities, and health department clinics, to establish referral mechanisms. Perhaps some widespread advertising to promote name recognition also would be in order. In addition, procedures for receiving and processing referrals will have to be developed. On the provider side, the resource mothers position will have to be established; advertising and interviewing will occur; and, finally, hiring will be done. This will be followed by a period of training specifically for the resource mother role. To do that, a training curriculum will have to be developed. And, given the nature of the task, the curriculum will require input from a variety of health professions.

Another operational objective may suggest a totally different set of resources and implementation activities. For example, the third operational objective in *Exhibit 5* involves transportation to a clinical service. In designing the program, decisions regarding when to offer transportation and the number of people who would have to be transported when the program is operating were made. This is the information needed to determine the resources to launch the program. Resources in this case include vehicles, insurance, drivers, and schedules for the service. Implementation activities are the tasks required to have these resources when they are needed. Vehicles will have to be purchased or leased, or perhaps a contract with a transportation service could be arranged. Drivers must be hired and insurance obtained. A schedule must be developed. Accomplishment of each of these tasks will require other tasks, all of which must be consistent with the policies of the organization.

A careful examination of the operational objectives will yield an extensive list of things "to do" before the program can be implemented. Usually, however, this list is not complete. There are some activities that cut across objectives and refer to general management issues that may not emerge easily from a review of program operations. Here are some commonly encountered ones:

Determine which authorizations you will need for your program and how to obtain them. Formal arrangements for the program may be letters of approval or

Exhibit 5. York County Low Birthweight Prevention Program Operational Objectives,* Year 1

Activity	Target
% who receive one in-person encounter with a Resource Mother per week during pregnancy	90%
% visits during which education about the importance of prenatal care is provided	70%
% in need for whom transportation to prenatal services is provided	95%
% eligible who receive assistance obtaining financial support	85%
% assessed for issues that would benefit from counseling and support	100%
% who receive appropriate counseling and support for issues identified in the assessment	85%
*Activities refer to all pregnant adolescents $\leq$ 18 years who participate in the program.	

contracts that you will need in order to initiate the flow of funds, authorize hiring of personnel, approve transfer of resources, and many other activities.

Identify parties that can assist or hinder implementation and the best ways to communicate with them. Communication of program plans should be made with these groups or individuals to promote a smooth implementation and unimpeded operations. Relevant parties might include those working on or overseeing the project, individuals whose work may be affected by the programs' operations or outcomes, and other authorities such as county commissioners, housing authority management, or administrators of other agencies with similar goals or programs in the geographic area.

Identify potential side effects of the program. During the implementation period, efforts to address potential side effects should be specified. For instance, in the LBWPP, increasing use of prenatal services is likely to result in an increase in requests for well baby care because clients have become educated in the value of preventive services. Acquainting the pediatric staff with the objectives of the LBWPP before they are confronted with a flood of unanticipated requests for services increases the likelihood that these individuals will be your allies in later difficult moments.

It is impossible to anticipate all of the activities that must be done between approval of the program and the start-up date. During the time elapsed between completion of the plan and a formal "go-ahead," many organizational policies, relationships, or other elements that your program depends on may have changed. Also, approval of the plan may have carried requirements for modifications, such as budget reductions or expansion of advisory groups, which will require action during the implementation period. While it is impossible to anticipate the exact nature of these potential implementation activities, the wise planner will allow a reasonable amount of slack time to deal with whatever needs to be addressed.

Scheduling

Once you know what the implementation activities for your program are, the next challenge is to schedule them so that you can be ready to start regular program operations as soon after program approval as possible. This can be a simple task or a major challenge. For each activity, the length of time required to accomplish it and its sequence relative to other activities must be determined. In addition, responsibilities for each activity should be assigned. If many people are working on implementation, several sets of related activities can be scheduled concurrently. Slack time should always be incorporated to accommodate unexpected implementation hurdles.

Typically, one of several types of implementation schedules is presented in a program plan. If the number of implementation activities is relatively small (about 20–40), they can be easily organized in a table that shows at a glance when each should start and be completed. *Exhibit 6* is an example of a simple implementation schedule for the York County Low Birthweight Prevention Program. The same information is also presented in the form of a timeline, or Gantt chart, in *Exhibit 7.* Ordering the activities may be considerably more difficult when there is a large number, especially if many of them should be undertaken concurrently. In this case, a computer-based project management tool will facilitate the task. These tools are based on the Program Evaluation Review Technique (PERT) (Spiegel and Hyman, 1991), which can also be accomplished by manual calculations.

Whichever approach is used, the end result is a schedule that shows what needs to be done, when to start and stop, and who is responsible. These implementation schedules provide useful roadmaps for you or anyone imple-

Exhibit 6. York County Low Birthweight Prevention Program Implementation Schedule

Task	Start Date	End date	Responsibility*
Implementation Period	**12/15/01** Expected approval	**6/3/02** LBWPP start date	
Hire and train resource mothers			
Establish positions	1/7/02	2/1/02	Director, PHN
Advertise	2/4/02	3/1/02	Director
Interview	2/15/02	3/15/02	Director, PHN
Hire 6 resource mothers	3/18/02	3/29/02	Director
Develop curriculum geared to teenagers regarding prenatal care education	1/7/02	2/8/02	PHN, Health Ed
Develop assessment protocol	2/4/02	3/1/02	PHN, Health Ed, SW, Nutritionist
Develop resource mothers training curriculum	1/7/02	3/29/02	PHN, Health Ed, SW, Nutritionist
Deliver first training session	4/15/02	5/10/02	PHN, Health Ed, SW, Nutritionist
Establish referral and consultation procedures with relevant providers (*e.g.*, medical, social work, nutrition, health education, public health nurse)	3/4/02	3/29/02	Director
Recruit teenagers			
Contact all high schools, churches, medical facilities, and health department clinics	1/7/02	2/15/02	Director
Establish referral procedures for them	2/18/02	3/8/02	Director
Develop procedures for receiving and processing referrals	2/18/02	3/8/02	Director, PHN
Receive first 30 referrals and assign to resource mothers	5/13/02	5/31/02	Director. PHN

(Continued on next page.)

Exhibit 6. (cont.) Task	Start Date (cont.)	End date (cont.)	Responsibility* (cont.)
Transportation			
Arrange contract with health department transportation for 20% service of van and driver	1/7/02	2/1/02	Director
Arrange for back-up coverage for driver when absent	2/4/02	2/28/02	Director
Create schedule	5/13/02	5/31/02	Secretary
Purchase insurance	5/20/02	5/24/02	Secretary
Financial support			
Contact financial assistance office	3/4/02	3/8/02	Director
Establish referral procedure	3/11/02	3/21/02	Director
General advertising			
Design and print posters and brochures	3/4/02	4/4/02	Director, art dept.
Distribute posters and brochures	5/1/02	6/1/02	Director, PHNs, RMs
Meetings			
Meet with relevant staff of health department and other medical facilities to acquaint them with the program	1/7/02	3/8/02	Director, PHN
Meet with pediatric clinic staff to discuss potential increase in well child appointments	3/4/02	3/8/02	PHN
Provide supervision workshop to public health nurses	5/6/02	5/10/02	Human resources dept.
Meet with health educators, social workers, and nutritionists to discuss consultation role	5/6/02	5/10/02	Director, Human resources dept.
Review policy framework/revise as necessary	12/15/01	1/18/02	Director
Revise budget as necessary	12/15/01	1/18/02	Director

* Director: LBWPP Director PHN: Public Health Nurse Health Ed: Health Educator
SW: Social Worker RM: Resource Mother

menting a program to follow. With them, you will always have a sense of where you are and where you are headed. Developing an implementation schedule helps you set a realistic start date for the program. It also shows how activities must be sequenced in order to reach the start date as planned. If one or more activities are delayed, you can estimate the implications on the scheduling of other activities and make adjustments, as necessary, so that the overall implementation plan stays on schedule.

Exhibit 7. York County Low Birthweight Prevention Program Implementation Timeline (Gannt Chart)

Task	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Hire and train resource mothers																								
Establish positions				x	x	x	x																	
Advertise								x	x	x	x													
Interview										x	x	x	x											
Hire 6 resource mothers														x	x									
Develop curriculum geared to teenagers regarding prenatal care education				x	x	x	x	x																
Develop assessment protocol							x	x	x	x														
Develop resource mothers training curriculum				x	x	x	x	x	x	x	x	x	x	x	x									
Deliver first training session																		x	x	x	x			
Establish referral and consultation procedures with relevant providers												x	x	x	x									
Recruit teenagers																								
Contact all high schools, churches, medical facilities and health department clinics				x	x	x	x	x	x															
Establish referral procedures for them										x	x	x												
Develop procedures for receiving and processing referrals										x	x	x												
Receive first 30 referrals and assign to resource mothers																						x	x	x
Transportation																								
Arrange contract with health department transportation for 20% service of van and driver				x	x	x	x																	
Arrange for back-up coverage for driver when absent								x	x	x	x													
Create schedule																						x	x	x
Arrange insurance coverage																							x	
Financial support																								
Contact with financial assistance office												x												
Establish referral procedure													x	x										
General advertising																								
Design and print posters and brochures												x	x	x	x									
Distribute posters and brochures																					x	x	x	x
Meetings																								
Meet with relevant staff of health department and other medical facilities to acquaint them with the program				x	x	x	x	x	x	x	x	x												
Meet with pediatric clinic staff to discuss potential increase in well child appointments												x												
Provide supervision workshop to public health nurses																					x			
Meet with health educators, social workers and nutritionists to discuss consultation role																					x			
Review policy framework/revise as necessary	x	x	x	x																				
Revise budget as necessary	x	x	x	x																				

Budgeting

Having determined exactly what the program will do when it is operating, and what is needed to get it off the ground, you are now in a position to develop a proposal budget, or estimate of expected costs. Your budget is one of the most important components of the program plan. In fact, you might think of it as a plan expressed in dollars and cents. If the budget is omitted or poorly executed, all of the preceding work amounts to no more than wishful thinking.

Components of a proposal budget

Most organizations have required formats for budgets, but they all include the same basic content. A budget has at least two primary sections, personnel and non-personnel. A third section, indirect costs, is sometimes required. *Exhibit 8* is a sample budget illustrating each of these parts for the York County Low Birthweight Prevention Program.

The personnel section has entries for the name and number of each position, percent time devoted by each one to the program, annual salary and benefits. Within many public health organizations, individual employees may be paid from several funding sources, with their time divided according to the percentage of salary compensated by each source. For example, the director of the LBWPP will devote 25% of her time to that program. She is a full-time employee who directs two other programs. Resource mothers, on the other hand, are half-time employees. Types and amounts of benefits vary across agencies and over time, but social security, retirement, and hospitalization insurance are fairly standard. Benefits are usually not paid for consultants.

Non-personnel items include travel, equipment, supplies, communication, contractual arrangements, and other items specific to the program. To identify the specific items that fall within each category for your program, you need to review program and implementation activities. Also, keep in mind that some costs may not be immediately obvious, like items that will be needed later in the budget period for phased-in services and the costs associated with evaluation. Precision and specificity are critical in the budget process. While budgets are somewhat elastic, it is difficult to compensate for the omission of an essential item after the budget has been approved. And while it may be tempting to try to cover your potential mistakes with a large *Miscellaneous* category, this may backfire as experienced reviewers have seen this ploy before.

Estimating the costs of each item is fairly straightforward. The key is to obtain costs from the correct source; for example, the personnel department of the organization is usually the best source for salaries and benefits, while distributors are more reliable sources for non-personnel items. Cost estimates for each

Exhibit 8. York County Low Birthweight Prevention Program
Line Item Budget, Year 1

Item						Amount		
Personnel			**No.**	**% Effort**	**Annual Salary**			
	Position							
	Director		1	25	36,000	9,000		
	Secretary		1	50	22,600	11,300		
	Resource Mothers		6	50	22,000	66,000		
	Subtotal						86,300	
	Benefits							
		Social Security:	@ 7.65%			6,602		
		Retirement:	@ 10.83%			9,346		
		Hospitalization:	@ $1735.20/FTE x 3.75 FTE			6,507		
	Subtotal						22,455	
	Consultants							
		Evaluator:	25 days @ $250/day			6,250		
		Artist/designer	40 hours @ $15/hour			600		
	Subtotal						6,850	
Subtotal Personnel							**115,605**	
Non-Personnel								
	Travel							
		Resource Mothers:	100 mi/mo x 12 mo x .32/mi x 6 RMs			2,304		
		Director:	1 round trip to national meeting			1,000		
	Equipment							
		Personal computer and monitor				3,000		
		Printer				800		
		VCR:	@ $500 x 3			1,500		
	Supplies							
		Educational tapes and printed material				1,000		
		Desk-top supplies	@ $200/mo x 12 mo			2,400		
		Picnic/party supplies				300		
	Printing and duplicating		@ $200/mo x 12 mo			2,400		
	Communications							
		Telephone:	@ $50/mo x 12 mo			6,000		
		Postage:	@ $30/mo x 12 mo			360		
	Training:		@ $500 x 6 RMs			3,000		
	Advertising for Resource Mothers					500		
Contracts								
	Driver and Van (20% of health department cost)					5,000		
Subtotal Non-Personnel							**29,564**	
Total Direct								**145,169**
Indirect: @ 20% of all items except consultants, contracts, and equipment					($128,019)			**25,604**
Total Direct + Indirect								**170,773**

item are then multiplied by the quantity required of that item. Changes in costs over the budget period, such as salary raises and airfare increases must be built into the estimates.

The costs identified above are called direct costs. They represent the out-of-pocket expenses anticipated for implementing and conducting the program, but they may not represent all of its costs. In large organizations, facilities, utilities, and equipment are often used by several programs and may not be included in the direct costs of any of them. Some funding agencies will pay a percentage of direct costs to compensate for the indirect costs incurred by a new program. Formulas for calculating indirect costs vary across agencies and should be obtained from them directly when needed.

Types of budgets

The budget in *Exhibit 8* is called a *line item budget*. This is the most common type of proposal budget. Often, a *program* budget, a composite of line-item budgets, is developed for each operational objective in a complex program. The cost of each program component can be identified easily in a program budget, which sometimes facilitates cost trimming. That is, if a budget smaller than requested is approved, the best course of action might be to delete an entire operational objective rather than reduce the budgets of all objectives.

Sources of funds

In addition to cost estimates, it is sometimes necessary to distinguish between requested funds and donated funds. This distinction is used when a proposal for the program is being submitted to an outside funding source for consideration. Funding sources are often interested in the extent to which the applicant organization will support the program. The term *donated* refers to the applicant's contributions. *Requested* funds are those sought from the funding source. *Exhibit 7* does not make this distinction but it could easily do so. Note that *Figure 6* shows public health nurses supervising resource mothers. These PHNs are not in the budget. If it were necessary to document the contributions of the health department to the program, however, they would appear in the *Donated* column. Since this budget format did not require a *Donated* column, the contribution of PHN time and expertise should be mentioned in the budget narrative.

Multiple-year budgets

Usually, a detailed line item budget is developed for the first year of a multi-year program. To provide an overview of cost estimates for the entire program period, a budget summary is usually provided as well. *Exhibit 9* is a sample budget summary for the three years of the LBWPP in York County. The summary, of course, reflects increases in costs; in this case, a 5% increase in salaries,

benefits and some other recurring expenses. It also shows where costs will decrease due to changes in program needs and activities. The LBWPP will require less involvement of the consulting evaluator in Year 2, but a greater commitment in Year 3. Equipment, on the other hand, will be purchased in Year 1 and no further purchases are anticipated. Training, which is included in the *Other* category in the budget summary, will be more expensive in Year 1 than in either of the subsequent years.

Budget justification

In addition to presenting your budget in tabular form like *Exhibits 8* and *9*, a budget justification narrative is also required for most plans, and certainly for grant applications. A budget justification succinctly describes your rationale for including each item in the budget. It should be written in a matter-of-fact, yet persuasive style, since it is important to convince reviewers that you need everything you are requesting.

Exhibit 9. York County Low Birthweight Prevention Program
Three Year Budget Summary

Item	Year		
	1	2	3
Personnel			
Salary	86,300	90,615	95,146
Benefits	22,455	23,578	24,757
Consultants	6,850	3,750	8,750
Non-Personnel			
Travel	3,304	3,469	3,642
Equipment	5,300	0	0
Supplies	3,700	3,200	3,360
Printing	2,400	2,520	2,646
Communications	6,360	6,678	7,012
Other	3,500	1,500	1,500
Contracts	5,000	5,250	5,513
Total Direct	**145,169**	**140,560**	**152,326**
3 Year Total: $438,055			

Benefits, pitfalls, and strategies

For planners, budgeting is one of the most essential components of the planning process. It can help to clarify roles and responsibilities as proportions of effort are estimated. It can contribute to collaboration and cost awareness among the participants in the process. Working through budget details can also produce some fresh ideas or new perspectives on other parts of the plan, thus offering opportunities for iteration.

For reviewers, the budget is the financial summary of your plan. Experienced reviewers begin a proposal review with the objectives and the budget. It is essential that these two documents communicate the inherent rationality of the plan and the competence of the planners. Here are some strategies you can use to assure that this happens:

- Be certain that your operational objectives, program description, implementation plans, and budget correspond exactly. There should be no surprises in the budget, nor should there be any program activities that appear to have no source of funds.
- Be certain your calculations are correct. Since the budget is such a visible document, simple errors of addition or subtraction can take on much greater significance than they ordinarily would.
- Be sure your cost estimates are reasonable. This usually means that they fall in a medium range. If they are all very low, you are not allowing enough flexibility for unexpected increases. If too high, it may appear that you are "padding" your estimates.
- Compare this year's budget with those of previous years, if any. If the new budget is considerably different, be sure that those differences are explained. If all of the funds from the previous year have not been spent, and you are asking for the same amount this year, justify your request.
- Calculate an overall cost per client served ratio and address in the narrative why it is reasonable. If you do not do this, there is a good chance that a reviewer will!

A plan is born

In this manual, you learned how to turn a brief outline of an intervention with a few specific operational objectives into a fully developed program. You examined how to use public health theories to guide program design. And, you learned to supplement a narrative program description with several tools, like flow charts, procedures, organizational charts, position descriptions, project schedules/timelines, and budgets to communicate answers to the basic journalistic questions: who will do what, to whom, when, where, how, and how much will it cost?

The focus of this manual is on developing and implementing an operating program within an existing organization. It assumes that support systems (*e.g.*, records and information systems, accounting and billing) required to enable a new program are functional and can accommodate its demands. Of course, when this is not the case, the planning process must also include development of, or modifications to, support systems. For public health programs, particular attention should be given to development and maintenance of information systems that will provide the data to track the extent to which the program is implemented as planned. This is addressed in *Evaluation: Monitoring Progress Towards Achievement of Objectives,* the next manual in this series.

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