A PRACTICAL GUIDE TO ROI ANALYSIS

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Table of Contents

UNDERSTANDING RETURN ON INVESTMENT

"What is the return on investment for this program?"
"We really need to see an ROI before we can make any funding decisions."
"Show us the economic value of your program."

Chances are you have heard something along these lines before from decision-makers, funding sources, government officials, or politicians. If not, it's just a matter of time before the topic of return on investment (ROI) comes up. In the past, ROI was typically reserved for the business world. Today, ROI is becoming more common within the public health community.

The term "ROI" may elicits a negative response from many public health professionals. ROI may seem like an insurmountable task, and something that does not add value. The truth is that ROI can be extremely beneficial in documenting the value of chronic disease programs, especially when determining how to best utilize limited resources. ROI is the ultimate measure of accountability. It answers the question "Is there a financial return for investing in this program?" Since there are many more activities and initiatives to promote health than there are resources available, this documented financial return may lead to more money accessible for valuable initiatives.

With the right tools and knowledge, ROI is not as difficult as it seems. Proper planning from the very beginning in the key to success. ROI is far more than a single measure or number. Instead, ROI allows program staff to gather and analyze a wide range of important data. In addition to assessing a program's impact, an ROI analysis can reveal those factors which inhibit or promote success.

However, ROI is not appropriate for all programs. In reality, only about 5 % to 10 % of chronic disease programs have the components necessary to determine an accurate return on investment. It is important for public health professionals to recognize which programs are good candidates for ROI and which ones are not. For those that are not a good fit for an ROI analysis, it is critical to understand how to best communicate their value to stakeholders and decision-makers as well.

The need for ROI and other rigorous methods of determining program value is becoming increasingly important in supporting chronic disease prevention and control programs. There are literally dozens of ways to evaluate and measure the value of public health programs, including web-based assessment tools, clinical guidelines, health risk assessments, best practices, and surveys. Still, it is difficult to know which data to ultimately include and how to best utilize this information to clearly show the overall impact of the investment.

This guide provides public health professionals with the resources and tools needed to understand the concepts and processes involved with ROI, conduct an effective ROI, and determine other methods to assess a program's economic impact when ROI is not possible or appropriate.

FREQUENTLY ASKED QUESTIONS ABOUT ROI

What is ROI?

ROI is short for "return on investment." ROI is the ultimate measure of accountability that answers the question: Is there a financial return for investing in a program, process, initiative, or performance improvement solution? ROI is the economic indicator—meaning, you are dealing with money and costs. Basically, return on investment shows the financial benefits derived from having spent money on developing or revising a system or program. The intent of ROI is to measure how effectively the organization or program is using its money.

How is ROI calculated?

While there are a few slight variations of the ROI formula, they all involve the return divided by the investment. This result can be expressed as a percentage or a ratio.

$$\text{ROI} = \frac{\text{RETURN}}{\text{INVESTMENT}} \times 100$$

Does ROI in public health initiatives differ from ROI used by the business community?

The classic definition of "return on investment" is the return divided by the investment—no matter what the application. When calculating the return on investment for public health programs, the return becomes the *value of the program's benefits* and the investment is the *total program costs*.

$$\text{ROI} = \frac{\text{RETURN (VALUE OF BENEFITS)}}{\text{INVESTMENT (COST OF PROGRAMS)}} \times 100$$

The difficulty lies in figuring out the actual monetary values for all the benefits associated with public health programs in a credible way. For example, when evaluating the ROI of a diversity awareness program, consider <u>*all*</u> the financial benefits that can be measured, such as reaching more people from diverse communities, more effective programming targeting different audiences, increased access to care for higher-risk groups, and lower morbidity and mortality among higher-risk groups.

Why are ROI measurements being requested by decision-makers?

The ROI methodology is comprehensive, consistent, and credible. ROI has been an evaluation tool for 300 years. Although ROI has only recently begun to be used to evaluate public health programs, its significance as the benchmark in measurement and evaluation is well-established and well-documented. Expressing value in monetary terms puts public health on a better track to meet the growing demand for accountability.

What is the connection between chronic disease prevention and control and ROI?

Chronic illness accounts for more than 75 % of total U.S health care spending. Employer groups, health care organizations, funders, and policy-makers are turning to chronic disease prevention and control programs not only to foster self-management and improve quality of care, but also to curb costs. Despite rapid expansion of chronic disease prevention and control programs, their net fiscal impact is not clear. The use of ROI can provide evidence to support the continuation and expansion of chronic disease programs.

How does ROI for disease management relate to chronic disease prevention and control?

Within the chronic disease community, ROI is seen more often with disease management programs as opposed to chronic disease prevention and control initiatives. Disease management is closely related to chronic disease prevention and control in that it is an integrated system of healthcare interventions to patients, providers, and funders aimed at improving overall health. Disease management programs are guided by patient management guidelines designed to optimize clinical outcome, quality of life, and total costs. Disease management focuses on large patient populations with a variety of health care needs. Chronic disease prevention and control is rising up the agenda of health systems as they realize:

- Chronic disease management is a major cost of system total spending
- People with chronic disease are some of the highest risk, and most expensive of all patients served by health systems
- Providers are not particularly well-motivated by existing payment or funding systems to provide the types of services best suited to high utilization patients, including prevention services. For example,
    - Providers are often reimbursed for activity, not impact or outcome
    - Providers are rarely funded to 'manage" patients, only to treat episodes of illness
    - Patients with chronic disease are often the best placed to better manage their own health care, but clinic practice or organizational inertia excludes such people from their care and decision-making around their care needs.

Will ROI tell us everything we need to know?

No, it is not possible to determine a program's value with just one number. The ROI methodology develops several different types of data, with the actual ROI calculation being just one of them. ROI must be reported with other performance measures taking into consideration all the tangible (those that can be assigned a monetary value) and intangible (those that cannot be assigned a monetary value) benefits associated with the program. These other levels of evaluation allow more opportunities to document and utilize other measures to establish program value.

The five levels of data collected and utilized during an ROI analysis include:

Level 1: Participant satisfaction with the program
Level 2: Actual learning acquired from the program

Level 3: Changes in behavior as a result of the program
Level 4: Business impact of the program
Level 5: ROI

How does ROI fit with the rest of my evaluation efforts?

Fortunately, as public health practitioners, you are probably already collecting much of the lower levels of data upon which ROI is built. For instance, public health programs routinely collect data on satisfaction (i.e., questionnaires, surveys); learning (i.e., pre/post tests); and behavior change (i.e., action plans). ROI adds one more critical step—placing an actual *value* on these outcomes.

What are the challenges associated with conducting an ROI?

- A lack of ROI expertise, as well as inappropriate measurement tools, time constraints, and decentralized or fragmented data, particularly regarding benefits and costs.

- The inability to isolate the impact of the program in order to determine whether or not the actual program cause the change

- The inaccurate evaluation of the benefits since many program benefits are difficult to measure or tend to accrue over a longer time period than what is measured during the ROI analysis.

- Not being able to determine the total program cost across all areas, including direct and indirect costs.

If you get a low ROI, does this mean the program was bad?

Not necessarily. A low ROI can not always be attributed to an ineffective program. There can be many factors in the environment having an impact on ROI, such as support provided by supervisors and colleagues, the culture of the target community, or competing messages. This is why it is critical to collect as much data as possible in order to be able to isolate the impact of the program and see the "big" picture of all the factors that could influence the program and the ROI analysis.

How does ROI provide recommendations for improvement?

The various types of data captured by methodology also capture deficiencies or weaknesses in the process. The ROI process requires collecting a wide range of data about the barriers (which inhibit success) and enablers (which help success). Each ROI methodology contains an opportunity to discuss recommendations for improvement. ROI should never be considered the sole criteria for a final decision about a program. Instead, it must be used as a process-improvement tool, even when studies have reflected a very successful project or a good ROI.

Is ROI really as difficult as it seems?

No. The key to an effective and low-stress ROI analysis is proper planning. An effective ROI follows several specific criteria.

1. *Simple*

The ROI methodology must be simple—void of any complex formulas, lengthy equations, and complicated methodologies.

2. *Economical*

The ROI methodology must be economical and easily implemented. While the initial implementation of any new methodology can be costly, once the methodology is integrated into the organization and has become routine part of the program, minimal additional resources will be required.

3. *Credible*

The assumptions, methodology, and outcomes of the evaluation process must be credible.

4. *Theoretically Sound*

From a research perspective, the ROI methodology must be theoretically sound and based on generally accepted practices.

5. *Account for Other Factors*

An ROI methodology must account for other factors that influence output measures targeted by the program.

6. *Appropriate*

An ROI methodology should be able to establish value and suggest improvement for variety of programs.

7. *Flexible*

The ROI methodology must have the flexibility to be applied at any point during the program.

8. *Applicable*

The ROI methodology must be applicable a wide variety of data, including both hard and soft data.

9. *Considers All Costs*

The ROI methodology must include *all* the costs associated with the program.

10. *Successful Track Record*

The ROI methodology should withstand the wear and tear of implementation and prove valuable to users.

Do I need to know statistics in order to understand ROI?

Basic statistical processes are all that are necessary to develop most ROI impact studies. Rarely are statistics needed beyond simple averages, variance, and standard deviation. Sometimes, hypothesis testing and correlations are also necessary. These are very simple concepts, and by design, are simplified within ROI as much as possible.

When do I need to start planning for ROI?

Planning of project evaluation, up to and including ROI, should be done in the initial stages of project planning.

DEVELOPING AN ROI ANALYSIS

STEP ONE -- PREPARE FOR ROI

⇊

STEP TWO – PLAN YOUR WORK

⇊

STEP THREE – COLLECT YOUR DATA

⇊

STEP FOUR – ISOLATE PROGRAM IMPACT

⇊

STEP FIVE – DO THE MATH – CALCULATE THE ROI

⇊

STEP SIX – COMMUNICATE THE RESULTS

⇊

STEP SEVEN – MAKE ROI ROUTINE

STEP ONE:
PREPARE FOR ROI

Rationale: *ROI is a formal process that must be carefully planned in order to ensure success. ROI is not a method that can be conducted by a single person in a short period of time. ROI must be carefully thought out and built into the program from the very beginning. Not all programs are appropriate for ROI; therefore, it is important to know how to identify programs that best fit with the ROI methodology.*

Determining If ROI Is Appropriate

Measuring success and monitoring performance on a routine basis are critical for establishing results. *Still, routine evaluation does not mean ROI for all programs all the time.* The first step in planning your evaluation is to identify the overall purpose for the ROI and/or the motivations of the stakeholders or decision-makers requesting the ROI. The most common reasons include:

- Justifying an existing project
- Building support for past, current, or future expenditures
- Persuading decision-makers to take a specific course of action

In order to determine if ROI is appropriate or possible for your particular program, consider the following questions. If you are able to answer "yes" to many of these questions, ROI might be the right metric for you to evaluate your program or initiative.

1. Do you have clearly defined project goals and objectives? Without a clear set of goals or objectives, you won't know what resources you need, what changes need to be made, what costs to expect, or what metrics to use. Program objectives should be measurable and closely related to the organization's strategic goals.

EXAMPLES:

An effective project goal or objective for a smoking cession program would be "Reduce cigarette smoking by adults in your target group aged 18 years and older from 24 % to 12 %."

An ineffective goal for a smoking cessation program would be to simply "Decrease smoking."

2. Will your ROI analysis be performed objectively by using outside or unbiased staff that are knowledgeable about ROI? Will there be a careful audit (or at least periodic "quality checks") conducted throughout the project plan and implementation to ensure the ROI stays on course? Conducting an ROI can be complicated, and without proper expertise and oversight, it may be difficult to avoid pitfalls which can skew the data and not accurately represent a return on investment.

EXAMPLES:

An effective person to oversee and organize an ROI analysis would be an outside consultant specializing in ROI or an internal evaluator from your organization who is not intimately involved with the day-to-day workings of your specific program and who has received additional training in ROI.

An ineffective person to oversee and organize an ROI analysis would be the part-time evaluator who has been responsible for evaluating your program for the past three years and has very limited experience with ROI.

3. Do you have a strong internal "sponsor" for the project who can lead the ROI process and is accountable for the ROI outcome? This is especially important for multi-disciplinary projects that span multiple organizations, sites, or departments. For an ROI to be successful, it is important to maintain a high level of interest from management and stakeholders so that necessary resources (including appropriate staff, technical assistance, time and money) can be allocated to the ROI.

EXAMPLES:

An effective sponsor of an ROI process will meet with you regularly about the status of your ROI project and will work hard to provide you with the resources you need to effectively conduct the ROI.

An ineffective sponsor would simply require you to do an ROI with the understanding that you are pretty much on your own and should only report back with the final results.

4. Does your program meet the following criteria?

- Expected long project cycle (usually about 12-18 months).
- Expensive, requiring a lot of resources, time and money so that an overall impact can be noticed. Programs being evaluated with ROI should be in the top 20 percent of program budgets for an organization.
- Targeted to a large audience so a wide range of data can be collected and changes documented.
- Highly visible throughout the organization so appropriate support can be provided.
- Of interest to management or decision-makers so the necessary resources can be allocated.
- Intended to drive major change within the organization or agency so the ROI will be considered worthwhile.

EXAMPLES:

An effective program for an ROI analysis would include: a large-scale

comprehensive obesity prevention program being implemented in several elementary schools in your health district. One of the overall goals of this program is to increase the proportion of children who engage in moderate physical activity for at least 30 minutes on five or more of the previous seven days from 27 % (the baseline which was collected during the needs assessment) to 50%. This program is being sponsored by the local health department, the school system, and several community-based organizations interested in preventing obesity by increasing physical activity among school-aged children.

An ineffective program for an ROI analysis would include: a two-hour healthy cooking demonstration scheduled for three local area churches at the request of the pastors at those individual churches.

5. Can you get the information/data you need to determine if the objectives are being met? Will measures, including those related to benefits and costs, be monitored using appropriate metrics on a routine basis? If not, who or what is the best source of this information and how can you collect it?

EXAMPLES:

An effective ROI project would have significant unrestricted access to a wide range of data sources, such as participants, project staff, stakeholders, experts, databases, health records, and budgeting costs.

An ineffective situation for ROI would include very limited access to data sources or require special permission to access data at each step during the evaluation.

6. Can you measure actual program performance against the evaluation plan? Metrics must be collected throughout the project in a way that ensures all the data will be compatible and comparable. If this is not done, it does not allow for the program's effects to be isolated which is critical in determining a program's ROI.

EXAMPLES:

An effective ROI project will have established a comprehensive evaluation plan before the start of the program that fits with the overall goals of the program. Throughout the program, data will be collected regularly and consistently. Additionally, the data will be routinely checked, analyzed, and compared so that any problems can be identified and corrected.

An ineffective situation is for a program not to have a formal evaluation plan in place and to collect and analyze data only at the conclusion of the program, if at all.

Appendix 1

"Is Your Program or Organization Really Ready for ROI" Self-Assessment

Establishing Timetables

Once you have determined that ROI is an appropriate measure for your program, you should establish timetables for the process, making sure you have the time and resources needed to be successful. These timetables should include the complete ROI implementation process from beginning to end and become the master plan for completing the different elements.

Appendix 2

"Establishing a Timetable for ROI Analysis-- Key Steps" Worksheet

Laying the Groundwork

It is critical to gain buy-in from the very beginning of the ROI process. You will need to identify people that can aid your ROI implementation as well as those that will need more education and information.

1. Think about all the staff members that will have some sort of responsibility or involvement in the ROI analysis. Collect information both formally (through official meetings) and informally about their perceptions of problems and issues associated with conducting an ROI. These concerns can then be addressed before the ROI analysis is started. While ROI can be challenging, there are many positive outcomes, and it is important to educate other staff about these positive aspects. Involve staff throughout the entire process and provide them with the necessary knowledge and skills to be successful.

2. Next, go to the management team. Recognize that different levels of management have different concerns about ROI. Any outside partnerships or external groups involved with the program should be included as well. Once these concerns are identified, the next step is to collect feedback. Again, both formal and informal measures should be used to build on data collected from the staff. To get management on board, make sure you address their concerns and they have the appropriate information.

3. Sometimes policies, procedures and guidelines need to be reviewed, changed, or updated to ensure that measurement and evaluation are a top priority. This provides guidance and direction for staff and others who work closely with the ROI and keeps the process clearly focused. Without overall organizational support for evaluation, it will be difficult to obtain the resources necessary for an effective ROI.

4. It is important to look at the gap between reality and expectations. Is what you are planning to do going to meet the needs of individuals asking for the information? Are your plans for an ROI in line with what the stakeholders and decisions-makers want or need? It is important to clarify everyone's goals before an ROI evaluation is started.

5. Emphasize the fact that ROI should be used as a learning tool. Many staff resist ROI due to the fear that problems with the program will be exposed, placing their reputation on the line. To overcome this, the process should be clearly positioned as a tool for process improvement and not a tool to evaluate staff performance. If the program is not working, it is best to find this out quickly and understand the issues. If the weaknesses of the programs are identified and adjustments are made, not only will effective programs be developed, but the credibility of the staff can be enhanced.

Assembling the Project Team

It is also important that you put together the right ROI project team consisting of those people who will have the primary responsibility for leading and implementing various aspects of the ROI analysis. In order to maximize your ROI project team's success, there are several issues to consider as you put together you team:

Assess Project Team and Resources-- Do you have everything you need, in terms of project team members and other resources, to conduct an ROI analysis? Conduct a quick, informal gap analysis focusing on where things are currently compared to where they need to be in order to do an ROI analysis. Also, look at your project team's capabilities for ROI. If there is a gap between actual versus needed knowledge and understanding of ROI, specific actions must be taken in order to get everyone up to speed.

Involve People Who Are Knowledgeable about ROI--It is important to involve people (either internal staff or outside consultants) on your project team who are experts in evaluation and have experience with the ROI process. These team members can assist you in accurately explaining the components of ROI and ensuring everything is being done correctly and most efficiently.

Utilize an Objective Evaluator-- If possible, the person ultimately responsible for evaluation and analyzing the final program data should be independent of the program. It is important for the stakeholders to understand the person conducting the ROI analysis is objective and removed from certain parts of the program, such as data collection and the initial analysis.

Identify a Champion—Always designate a specific internal leader within your project team. This should be someone who is well-positioned and well-respected within your organization and who understands the vast potential for the contribution of the ROI. This leader must be willing to teach and coach others about the ROI process and support the team in obtaining necessary resources.

Roles of the ROI Champion	
▪ Technical expert ▪ Consultant ▪ Problem solver ▪ Initiator ▪ Designer ▪ Developer ▪ Coordinator	▪ Cheerleader ▪ Communicator ▪ Process monitor ▪ Planner ▪ Analyst ▪ Interpreter ▪ Teacher

Delegate Responsibilities to Ensure Success— Because there can be confusion when individuals are unclear about their specific assignments in the ROI process, determining specific responsibilities is a critical issues. Some of the important activities fall into the following key categories:

- Developing an evaluation strategy
- Coordinating a major evaluation project
- Designing data-collection instruments
- Analyzing data, including statistical analysis
- Interpreting results and making specific recommendations
- Developing an evaluation report to communicate overall results
- Presenting results to critical audiences
- Providing technical support to various aspects of the ROI process

While it may be inappropriate to have each member of the staff involved in all the ROI activities, each individual should have at least one or more responsibilities as part of their routine job duties. It may also be beneficial to have technical experts who provide assistance on the ROI methodology.

STEP TWO:
PLAN YOUR WORK

Rationale: *Without strong objectives and a comprehensive evaluation plan developed at the beginning of the project, it will be difficult for you to know where you are going and when you arrive. By developing a solid plan early on, you can select the most appropriate techniques to isolate the effects of the program on impact data and the most credible method for converting data to money which are both imperative for a successful ROI analysis.*

Describing Your Program through Strong Program Objectives

Once the need for a specific project or program has been established, appropriate objectives must be developed and refined. These program objectives give guidance to program facilitators; provide goals for participants; and establish a framework for evaluators. Program objectives will need to be developed for each of the five levels of the evaluation framework previously identified: Reaction/Satisfaction/Planned Action; Learning; Application/Implementation; Business Impact; and ROI.

Make sure you link each objective with a specific measure. Measures determine whether or not objectives have been met. Measures used in an ROI analysis should be:

- Accessible
- Clear
- Economic
- Relevant
- Results oriented
- Valid and reliable

If the objectives and measures already exist for the program you selected for evaluation, review them and decide whether they meet the following guidelines.

Guidelines for Developing Meaningful Objectives that Will Get You to ROI

- ❑ Develop appropriate objectives that match each evaluation level, from evaluating reaction and satisfaction all the way to business impact and eventually ROI.
- ❑ Involve stakeholders who have an interest in program improvement measures such as improving output, improving quality, saving time, decreasing costs, and improving satisfaction with program.
- ❑ Consult with appropriate stakeholders to identify the specific program measures that the program is supposed to influence. If possible, start to identify roughly what the problem is costing and how the delivery of the program will affect these costs.
- ❑ Work with stakeholders to identify the participant behaviors that will influence improvement in the specific program measures.
- ❑ Identify the knowledge and skill deficiencies that must be addressed through the program and show how this will be achieved through the appropriate measures.

Level 1: Reaction, Satisfaction, and Planned Action Objectives

Level 1 objectives are critical in that they describe the expected immediate and long-term satisfaction with the program. They describe issues that are important to the success of the program, including facilitation, relevance, importance of content, logistics, and intended use of knowledge and skills.

The best level 1 objectives are attitude-based, clearly worded and specific, and do not just assess overall or basic satisfaction levels of a program. Typical Level 1 objectives address:

- Overall instructor/facilitator skill
- Relevance of material
- Skill practices
- Success with objectives
- Usefulness of program

Example of Level 1 Objective and Measure of Success

Objective: At the end of the program, participants will describe program content as relevant to their lives.

Measure of Success: At the end of the program, 80% of participants rate program relevance a 4.5 out of 5 on a Likert scale.

While Level 1 objectives are helpful, the overuse of overall satisfaction measure has led many organizations to make funding decisions based on whether participants like a program, later realizing the data was misleading.

Level 2: Learning Objectives

Learning objectives look at the acquisition of knowledge and skills. These objectives should be well-defined and describe the competent performance that should be the result of learning. The best learning objectives describe behaviors that are both noticeable and measurable. These objectives should be clearly worded, specific, and should spell out what the participant must be able to do as at result of learning.

Examples of Level 2 Objective and Measures of Success

Objective: At the end of the program, participants will increase their knowledge about healthy eating.

Measures of Success:

--At the end of the program, 80 % of the participants will achieve a post-test score increase of 30 % over the pre-test.

--At the end of the program, 90 % of participants will be able to identify and discuss three healthy eating habits.

Level 3: Application and Implementation Objectives

Whereas Level 2 learning objectives and their specific measures of success tell you what participants can do at the end of the program, Level 3 objectives tell you what participants intend to do once they leave the learning environment. The emphasis is placed on applying what was learned. They describe competent performance that should be the result of the program and provide the basis for evaluating actual performance changes.

Examples of Level 3 Objectives and Measures of Success:

Objective: At the end of the program, participants will engage in more healthy activities and behaviors.

Measures of Success:
--At the end of the program, 80 % of participants will increase the level of exercise five out of seven days.
--At the end of the program, 80 % of participants will initiate at least three healthy eating habits.

Key questions to ask when developing Application and Implementation Objectives are:
- What new or improved *knowledge* will be applied?
- What is the *frequency* of skill application?
- What new *tasks* will be performed?
- What new *steps* will be implemented?
- What new *action items* will be implemented?
- What new *procedures* will be implemented?
- What new *guidelines* will be implemented?
- What new *processes* will be implemented?

Level 4: Business Impact Objectives

Success with Level 4 objectives is critical when you want to achieve a successful ROI. Level 4 objectives provide the basis for measuring the consequences of application of skills and knowledge and place emphasis on achieving bottom-line results.

Level 4 objectives are results-based, clearly worded, and specific. They spell out what the participant has accomplished in the specific unit that will be changed as a result of the program. The best business impact measures can be collected easily and link to the skills and knowledge gained from the program. Business impact objectives are not only limited to quantifiable hard data, but can also include "softer" measures of business impact as well.

Examples of Level 4 Objective and Measure of Success

Objectives: After the program, health care costs will decrease.

Measures of Success: One year after the program, asthma-related hospitalizations will decrease by 10 %.

The major categories of business impact objectives for *hard data* are:	**Common categories for business impact objectives for *soft data* include:**
❑ Output focused (i.e., How will program change something?) ❑ Quality focused (i.e., How will the program improve the quality of something?) ❑ Cost focused (i.e., How will the program encourage saving money?) ❑ Time focused (i.e., How will the program encourage saving time?)	❑ Customer/client satisfaction focused that reflect well on the overall program or organization (i.e., To what extent will participants view the program or organization in a good light?) ❑ Climate/environment focused that will contribute to a healthier community (i.e., How will the overall environment change as a result of the program?) ❑ Healthy habits focused that will make for a healthier population (i.e., How will the health of the overall community change as a result of the program?)

Level 5: ROI Objectives

The Level 5 ROI objectives target the specific economic return anticipated when an investment is made in a program. An acceptable ROI objective would be: This program will achieve $2 worth of benefits for every $1 spent on the program one year after the program implementation.

There are several options when considering the target ROI. If you have done an ROI analysis before or want to compare your ROI to an established value for a similar program elsewhere, you can:

- Set the ROI objective at the same level of past or other similar ROI evaluations
- Set the ROI objective at a higher standard compared to past or other similar ROI evaluations

If you have never done an ROI before, you can:

- Set the ROI objective at a break-even point so the cost of the program equals the monetary benefits
- Set the ROI objective based on stakeholder expectations

Appendix 3

"Objectives and Evaluation Measures" Worksheet

Designing Your Evaluation

Program objectives form the basis of the evaluation. They define the desired results and determine at which level the evaluation will take place. Once objectives and level of evaluation have been established, evaluation questions can be formulated for the participants completing the tools. Some examples of effective questions are provided in the following table:

LINKING PROGRAM OBJECTIVES TO EVALUATION			
Level of Objectives	**Focus of Objectives**	**Key Evaluation Questions**	**Target Audience/ Perspective**
Level 1: Reaction, Satisfaction, and Planned Action	Defines a specific level of satisfaction and reaction to the program as it is delivered to participants.	Was the program relevant to the participants' needs? Did the participants view the program as important? Did the program provide new information? Do the participants intend to use what they have learned? Would the participants recommend the program? Is there room for improvement in terms of facilitation, materials, and the learning environment?	CONSUMER
Level 2: Learning	Defines specific knowledge and skills to be developed/acquired by program participants.	Did the participants acquire the knowledge and skills presented in the program? Do the participants know how to apply what they learned? Are participants confident to apply what they learned?	
Level 3: Application and Implementation	Defines behavior that must change as the knowledge and skills are applied in real life following the delivery of the program.	How effective are participants at applying what they learned? How frequently are participants applying what they learned? If participants are applying what they learned, what is supporting them? If participants are not applying what they learned, why not?	SYSTEM
Level 4: Business Impact	Defines the specific business measures that will change or	So what if the application was successful—what does this mean?	

LINKING PROGRAM OBJECTIVES TO EVALUATION			
Level of Objectives	**Focus of Objectives**	**Key Evaluation Questions**	**Target Audience/ Perspective**
	improve as a result of the application of the program.	To what extent did the application of learning improve the measures the program intended to improve? How did the program affect output, quality, cost, time, participant satisfaction, and other measures? How did you know it was the program that improved these measures?	BUSINESS
Level 5: ROI	Defines the specific return on investment from the implementation of the program, comparing costs with benefits.	Do the monetary benefits of the improvement in business impact measures outweigh the cost of the program?	

Throughout the evaluation and reporting processes, you will also need to meet the expectations of many different stakeholders. Keep in mind what each group is interested in or looking for in terms of your final data and results. This will help you make sure your evaluation plan asks the appropriate questions to obtain data that will meet the stakeholders' specific needs.

EVALUATION PLANNING—KNOWING STAKEHOLDER EXPECTATIONS			
EVALUATION LEVEL	**EXECUTIVE EXPECTIONS**	**PROGRAM STAFF AND MANAGERS' EXPECTATIONS**	**PARTICIAPNTS' EXPECTATIONS**
Level 1. Reaction/Satisfaction Planned Action	What do you view as participant responsibilities when they participate in chronic disease programs?	What are your preferences (time, location, etc.) as your staff facilitates chronic disease programs?	What is important to you as you participate in our programs? What do you expect of the experience?
Level 2. Learning	What delivery channels will you support to achieve learning? What funding is available for the program? What funding is available for trying	What level of learning do you expect? How much time will you allocate for your staff to spend on this program? How can you be involved?	What do you need to learn? How will this benefit you? How would you like to learn? What learning methods work best for you?

EVALUATION PLANNING—KNOWING STAKEHOLDER EXPECTATIONS			
EVALUATION LEVEL	**EXECUTIVE EXPECTIONS**	**PROGRAM STAFF AND MANAGERS' EXPECTATIONS**	**PARTICIAPNTS' EXPECTATIONS**
	various delivery channels?		
Level 3. Application/ Implementation	What should people be doing to contribute to achieving strategic objectives? How can you demonstrate support for learning transfer? How can we assist in that? What funding is available to influence learning transfer?	What should the participants be able to do after attending the program? How can you become involved before and after the program to make this happen?	What do you need to be able to do? How can we best help you to do that? What enablers need to be in place to help you do these things?
Level 4. Business Impact	What problems or opportunities exist that we can influence with the program? What organizational measures does this program support? What evidence do you need that will demonstrate that results have been achieved?	If the participants apply what they have learned, how will it benefits the organization? What are other factors that can also influence the results you want?	When you apply the new skills/behavior identified, how will you benefit? What measures will improve?
Return on Investment	To what extent do you expect the benefits of the program to exceed the fully loaded cost of the program? What ROI is acceptable?	How will the program benefit your organization and provide a return on the staff and participant's tie and any other investment or lost opportunities?	How will the program personally benefit you and provide a return on your time and any other investment or lost opportunity?

Selecting Data Collection Methods

It is important to match the appropriate data collection method with the level of evaluation desired. Common data collection methods for chronic disease prevention and control programs include:

- Action planning

- Document reviews
- Focus groups
- Follow-ups
- Interviews
- Observations
- Performance contacting
- Performance monitoring
- Questionnaires
- Self-assessments
- Simulations/role-playing
- Surveys
- Tests

KEY POINT!

When evaluation is planned at the ROI level, you don't have to be as thorough or detailed in your data collection at the lower levels of evaluation. However, it is still important to include data from all levels of evaluation during the ROI process.

It is important to consider the following questions when deciding on appropriate data collection methods:

What do you ask? Evaluation should *always* be linked back to your objectives. What exactly are you trying to accomplish and which data will help you support this?

How do you ask it? This depends on a variety of issues, including the resources you have to collect data. You should be flexible and ensure that lack of data collection methods is not a barrier to following up on program application and impact.

Whom do you ask? Your source of data is critical. You should only go to the most credible sources, and sometimes this means multiple sources. The only condition is going to be the cost of going to those multiple sources.

CONSIDERATIONS WHEN ASSESSING POTENTIAL DATA AND DATA SOURCES

- ***Usefulness***
  -What information will be provided?
  -How will the data be used to answer the evaluation question?
  -Can the data be used to corroborate or strengthen data from other sources or fill gaps?

- ***Ease of collection***
  -What do you have to do to get this data?

-Is the data in a form that makes it easy to extract the necessary information?

- ***Cost***
  -Is there a cost for obtaining, handling or transforming the data?
  For example, collecting data from multiple sites, photocopying, data entry, and programming.

- ***Sensitivity***
  -Will permission be needed to obtain data or safeguards be needed for use by program staff?

- ***Credibility***
  -Is the data accurate and seen as credible by others, especially stakeholders?

When do you ask? Timing of data collection is critical and getting it right is sometimes a challenge. You want to wait long enough for new behaviors to have had time to become routine and impact occurred, but not so long that the participants forget how they developed the new behaviors or most stakeholders become impatient.

Who does the asking? You will need to decide early on who will be responsible for each step in the data collection process. Often the program facilitator, program staff, evaluation team are involved in different aspects of data collection.

Appendix 4 & 5

"Evaluation / Data Collection Plan" Worksheet and Sample

STEP THREE
GATHER CREDIBLE EVIDENCE

Rationale: *A variety of data collection techniques exist to assist you in collecting the right data from the right sources at the right time. It is important to carefully consider all the options and data sources in order to gather the best evidence for a successful ROI.*

Collecting the Data

Level 1 Data Collection –
Looking at Reactions, Satisfaction, and Planned Actions

Level 1 data (or data looking at reactions, satisfaction, and planned actions) are typically collected via questionnaires, focus groups, and/or interviews. Level 1 data are collected during the program or intervention.

Consider asking about the following during the Level 1 evaluation:

- Clarity of program objectives
- If what was learned will be useful to in the participant's work
- If the order of the programs topics and activities was logical
- If the pace of the program was good—neither too fast nor too slow
- If the program materials were easy to use
- If the program materials were relevant
- If the program exercises were relevant
- If participants would recommend the program to others
- Participant's confidence level before and after the program
- If skill practice was sufficient
- If facilitator was knowledgeable
- If facilitator was organized
- If facilitator adequately handled participant's questions
- If facilitator kept participants actively involved
- What specific actions will participants do differently
- The key performance areas for the contribution of actions
- What specific measures or outcomes will change as a result of the program

Level 2 Data Collection—
Looking at Learning

For Level 2 evaluation, data are collected to determine if learning occurred. Several data collection methods can be used including: testing, questionnaires/surveys, simulations/role-playing, and/or self-assessments. Testing and self-assessments are usually the most popular methods for collecting these data. Pre/post tests can assess new knowledge learned while a self-assessment can be used by having the participant writes down what he or she thinks they learned and how they plan to utilize this new knowledge. Again, these data are collected during the program or intervention. Level 2 should assess:

- New knowledge and skills acquired
- Improvement in knowledge and skills
- Confidence to apply knowledge and skills

Level 3 Data Collection—
Looking at Application and Implementation

Level 3 data represents the extent to which participants apply the knowledge and skills they learned. For Level 3, data are collected through methods such as observations, follow-up surveys, follow-up interviews, follow-up focus groups, and action planning. Data at this level is primarily collected at the conclusion of the program or intervention or during follow-up. Fundamentally, this level of data address issues related to the participants':

- Effectiveness in applying knowledge and skills
- Frequency in applying knowledge and skills
- Barriers to applying knowledge and skills
- Enablers supporting the application of knowledge and skills

Level 4 Data Collection—
Looking at the Business Impact

Level 4 data address the consequences of the participants' application of the knowledge and skills. Common data collection methods for Level 4 or business impact data include: follow-up questionnaires, action planning, performance contracting, performance monitoring, and document monitoring. These data are collected after the program or intervention and report the results on the program measures using both hard and soft data.

The major categories of business impact for hard data are:	**Common categories for business impact for soft data include:**
❑ Output (How has the program changed something?) ❑ Quality (How has the program improved the quality of something?) ❑ Costs (How has the program saved money?) ❑ Time (How has the program saved time?)	❑ Responsiveness of participants to program ❑ Thoroughness of program ❑ Retention of participants in program ❑ Grievances/complaints by participants ❑ Absenteeism/ Presenteeism ❑ Unhealthy or unsafe behaviors

Level 5 Data Collection—
Looking at ROI

At Level 5, the new data collected is benefits and cost data. Benefits and cost data are derived from records, staff, and participants.

KEY POINT!

Extreme data and unsupported claims should not be used in ROI calculations.

Data Credibility Issues

One way to strengthen the credibility of an ROI is to consider the different factors that influence the credibility of the data. The representation of the data source is very critical. The most knowledgeable expert must provide input and be involved with the analysis. For example, a third party can facilitate the interviews or focus groups and the data should be collected in an objective way. The assumptions made in the analysis and the methodology of the evaluation should be clearly defined so that the decision-makers will understand the steps taken to increase the credibility. Data may be judged on the following criteria:

DATA CREDIBILITY	
CRITERIA	**ISSUE IN QUESTION**
Reputation of the source of data	What is the capability or reliability of the source of the data?
Reputation of the source of the analysis of information	What is the credibility of those involved with administering the program and analysis?
Motives of the program staff or analysts	What interest do these people have in the outcome of the analysis?
Methodology of the analysis	Is the methodology systematic, conservative, and thorough?
Assumptions made in the analysis	Are the assumptions stated, are they thorough, and given the situation, are they reasonable?
Realism of the outcome data	How realistic are the data; is it too complicated to draw reasonable conclusions; it is relevant to the organization's issues and needs?
Type of data	Is it hard data (objective in nature) or is it soft data (subjective in nature)?
Scope of analysis	Is the scope of the program and analysis narrow and therefore easier to see the cause and effect, or is it broad in scope with many variables and influences?

Ensure the Best Possible Data

The ROI process contains much data that can be used not only to explain what happened but also to help improve things in the future. It is important to consider the data at all levels and alter or adjust strategies throughout the process to keep the final results from being a surprise.

Look for data everywhere. As program evaluators, it is important to uncover all the data collected with the program—positive and negative, tangible and intangible.

Remain objective throughout. Ideally, the evaluator should be as objective or independent of the program as possible. This objectivity provides an arm's-length evaluation of its success. It is not only important to enter the project from an objective standpoint, but to remain objective throughout. Never become an advocate for or against the program. This helps alleviate the concern that the results may be biased.

Look for red flags. Indications of problems often pop up in the early stages of data collection—typically after reaction/satisfaction and learning data have been collected. Many signals can reveal insight into the success or lack of success of the program, such as participants perceiving the program as not relevant, not important, not realistic, or containing no new information.

Never alter the standards. When the data results are less than desired, it is tempting to lower the standards or change the assumptions about collecting, processing, analyzing, and reporting the data. This is not the time to change the measurement process. Changing the standards to make the data more positive renders the analysis virtually worthless.

Find out what went wrong. When results are disappointing, the first question is to ask "Why?" It is important to uncover the issues affecting success. In the evaluation process, specific questions about barriers, inhibitors, impediments, and obstacles are provided. Information is used to facilitate improvements. In worse-case scenarios, if the program cannot be modified or enhanced to add value, it may mean that it should be discontinued.

Drive improvement. Evaluation data are virtually useless unless used to drive action. If less than desirable outcome data are collected, areas can be changed to make the program more successful.

STEP FOUR
ISOLATE PROGRAM IMPACT AND JUSTIFY CONCLUSIONS

Rationale: *Isolating the effects of a program on business impact data is one of the most challenging, yet necessary steps, in the ROI methodology. This is an often overlooked step and answers the question, "How do you know it was your program that improved these measures?"*

Without isolating the program impact, there is no business linkage. There is only evidence that learning could have made a difference. Results have improved, although other factors may have influenced the data. The proof that the program has made a difference on the business comes from this step in the process—isolating the effects of the program.

Identifying "Other" Factors

It is important to identify other factors that could have contributed to the improvement in results or measures. This step recognizes that other factors are almost always present and that the credit for improvement is shared with other organizations, departments, and initiatives.

Several potential sources can help to identify these influencing factors. The sponsors, funders, or leaders of the project may be able to identify factors. Subject matter experts, process owners, and those most familiar with the situation may be able to indicate what has changed to influence the results. In many situations, participants know what other factors have influenced their performance as well.

Isolating the Program Impact

Consider the various techniques available for assessing all the factors that may have contributed to improvement.

KEY POINT!

For all ROI analyses, you MUST use at least one of these techniques for isolating the program impact.

Technique 1—Comparison Group Analysis

The most accurate and credible approach to isolating the effect of a program is to use a comparison group analysis, also known as a control group. This approach involves the use of an experimental group that attends the program and a control group that does not. The composition of both groups should be as similar as possible, and if feasible, the selection of participants for each group should be on a random basis.

There are a few challenges to using a comparison group, including:

1. For some types of programs, it is not acceptable to withhold a program or intervention from a certain group.
2. It is important to use similar groups for comparison since many factors can affect a participant's performance, some of them individual and others contextual.
3. Contamination occurs when participants in the program influence others in the control group.
4. Different groups function under different environmental influences.
5. Using comparison groups may be considered too research-oriented. Decision-makers may not want to take the time to "experiment" before proceeding with a program, or they might not want to withhold the program from a group just to measure the impact of an experimental program.

Technique 2—Trend-Line Analysis

Trend-line analysis uses pre-program performance as a base for extending the trend into the future. After the program is conducted, actual performance is compared to the projected value based on historical data, called the trend line or projected value. Any improvement of performance over what the trend line predicted can then be reasonably attributed to the program.

The primary advantage of this approach is that it is simple and inexpensive. Although not exact, it does provide a quick assessment of a program's potential results.

A primary disadvantage of the trend-line approach is that it is not always accurate. The use of this approach assumes that the events influencing the performance measured prior to the program are still in place after the program. Also, it assumes no new influences entered the situation at the time the program was conducted.

Technique 3—Estimation

An easily implemented method to isolate the effect of learning is to obtain information directly from experts, including program participants, stakeholders, funders/sponsors, organization or department staff, supervisors or decision-makers, subject matter experts, and consumers.

Through estimation, these types of experts can pinpoint the results linked to the program and provide data necessary to develop the ROI. This can be accomplished by using a focus group or a questionnaire.

Aren't estimates too subjective?

Estimates are used only when other methods are not readily available, or become too time consuming or expensive to obtain. When estimates are taken, they are adjusted for the error to improve their credibility. In essence, results are understated.

In nearly every case, there are alternatives to estimates, and they are recommended if possible. Estimates are used routinely in some situations because they become the preferred method and are acceptable by stakeholders or because they may be the only way to obtain the needed data.

Focus Group Approach to Estimations

Using a small group size (usually eight to 12 individuals), a focus group links learning to performance. The group is presented with the improvement data, and they provide input on isolating the effects of learning. The following steps are recommended to arrive at the most credible value for program impact:

1. *Explain the task.* The task of the focus group meeting is outlined.
2. *Discuss the rules.* Each participant should be encouraged to provide input.
3. *Explain the importance of the process.* The participant's role in the process is critical.
4. *Select the first measure and show the improvement.* Using actual data, show the level of performance prior to and following the program.
5. *Identify the different factors that have contributed to the performance.* Using input from people who are knowledgeable about the improvement identify the factors that have influenced the improvement.
6. *Identify "other" factors outside the program that have contributed to the performance change or improvement.* In some situations, there are other influencing factors that affected the results, and these various factors should surface at this time.
7. *Discuss the linkage.* Taking each factor one at a time, the participants individually describe the linkage between that factor and the results.
8. *Repeat the process for each factor.* Each factor is explored (using a time limit for each factor discussion) until all the participants have discussed the linkage between all the factors and the improvement.
9. *Allocate the improvement.* Participants are asked to allocate the percentage of improvement to each of the factors discussed.
10. *Provide a confidence estimate.* The participants are then asked to review the allocation percentages and for each one, estimate their level of confidence in the allocation estimate (0 % = no confidence; 100% = complete confidence).
11. *Multiply the two percentages.* For example, if an individual has allocated 35 % of the improvement to learning and is 80% confident, he or she would multiple 35 % X 80 % which is 28 %. In essence, the participant is suggesting that at least 28 % of the improvement they experienced is linked to the program. The confidence estimate serves as a conservative discount factor, adjusting for the error of the estimate. This can be done with the participants during the focus group or afterwards among program staff.
12. *Report results.* If possible, the averages of the adjusted values are calculated. These results are communicated to stakeholders and participants as soon as possible.

Questionnaire Approach to Estimation

Sometimes focus groups are not available or are considered unacceptable for use in data collection. The participants might not be available for a group meeting, or focus groups might be too expensive to facilitate. In these cases, it may be helpful to collect similar information via a questionnaire.

Recommended questions to include in a questionnaire aimed at isolating program results:

1. How have you changed as a result of participating in the program?
2. What effects do these changes bring to your everyday life or overall well-being?

3. How are these effects measured?
4. How much did this measure change after you participated in the program?
5. What is the value of this change (monetary or otherwise)?
6. What other factors may have influenced the results and changes in performance?
7. What percentage of this improvement can be attributed directly to the skills and knowledge gained in the program?
8. What confidence do you have in the above estimate and data, expressed as a percentage? (0 % = no confidence; 100% = complete confidence).

Technique 4—Using Multiple Techniques

Multiple techniques or sources of data should be considered. When multiple sources are used, you build acceptance and credibility. The stakeholders should always be provided with explanations of the process and the various subjective factors involved. Multiple sources allow an organization to try out different techniques and build confidence with a particular technique.

KEY POINT!

If no improvement data are available for a population or from a specific source, it is assumed that little or no improvement has occurred.

Deciding on a Technique

With several techniques available to isolate the impact of learning, selecting the most appropriate techniques for your specific program can be difficult. Estimates are simple and inexpensive while other methods are more time consuming and costly. When attempting to make the selection decision, several factors should be considered.

- Feasibility of the technique in terms of resources, access and support
- Accuracy provided with the technique, when compared to the accuracy needed
- Credibility of the technique with the target audience and stakeholders
- The amount of disruption in normal work activities as the technique is implemented
- Participant, staff, and management time needed with the particular technique

Isolating the Effects of a Program
Technique Usage

Method for Estimation	Percentage of Time Used
1. Comparison Group Analysis	35 %
2. Trend Line Analysis	20 %
3. Expert Estimation	50 %
4. Other	20 %

** Percentages exceed 100 % since many programs utilize multiple techniques*

STEP FIVE
DO THE MATH—CALCUATE THE ROI

Rationale: *The fundamental difference between ROI and other methods of establishing value begins with converting the benefits of the program to monetary value. For many public health practitioners, this can be a daunting task. However, if specific steps are followed for determining the values of the program's benefits as well as all the costs involved, an ROI can be calculated.*

The Basic ROI Formula

$$\textbf{ROI} = \frac{\text{RETURN (VALUE OF BENEFITS)}}{\text{INVESTMENT (TOTAL COST OF PROGRAM)}} \times 100$$

Part 1:
The Return or Value of Benefits

The overall return involves both tangible and intangible *improvements* as the result of your program. This includes using both hard and soft data. Hard data are often preferred to demonstrate results because of their distinct advantage and level of credibility. However, soft data can be of equal or greater value to an organization, even though it is more subjective in nature.

Start by listing all the improvements and possible benefits from program. Sort them out into tangible and intangible categories. Next, decide which benefits can be quantified. Rank these quantifiable benefits, starting with those that most closely support the objectives of the decision-makers and stakeholders as well as those that are most easily attributed to program.

KEY POINT!

In terms of conducting ROI for public health programs, determining the return or value of the benefits is the most difficult and time consuming component of the entire ROI analysis.

Tangible Benefits

Tangible benefits are determined through the use of hard data. Tangible benefits usually fall in one of four major categories: output, quality, time, and costs. Tangible benefits can include earnings, savings, and/or cost avoidances and can be found in all of these categories, such as:

BASIC CATEGORIES FOR TANGIBLE BENEFITS			
OUTPUT-RELATED BENEFITS	**QUALITY-RELATED BENEFITS**	**TIME-RELATED BENEFITS**	**COST-RELATED BENEFITS**
-What is produced -Money collected -Items sold -Forms processed -Patients visited -Applications processed -Tests run -Productivity -New participants recruited -Work backlog	-Waste -Errors -Repeat work -Failures -Number of accidents -Quality of life measures	-On-time -Overtime -Time to project completion -Processing time -Supervisory time -Training time -Meeting schedules -Efficiency -Late reporting -Lost-time (absenteeism or presenteeism)	-Budget variances -Costs by program -Variable costs -Fixed costs -Overhead costs -Operating costs -Project cost savings

Converting Tangible Benefits to Monetary Terms

For an ROI, you must attribute a specific monetary value to each benefit in order to plug into the ROI formula. This is done through five basic steps:

1. Focusing on a unit of measure
2. Determining the value (in monetary terms) for each unit of measure
3. Calculating the change in performance of the measure
4. Determining the annual amount of change
5. Calculating the total annual value of the improvement.

Appendix 6

"Steps to Covert Data to Monetary Value" Worksheet

There are many techniques available to assist public health professionals in converting a benefit to a quantifiable measure and attributing a monetary value. In order of credibility, they include:

Converting Output to Contribution

When a program has produced a change (or output), the value of the change must be assigned and quantified. For organizations operating on a profit basis, this value is usually the marginal profit contribution of an additional unit of production or unit of service. In not-for-profit organizations, this value is usually reflected in the savings accumulated when an additional unit of output is realized for the same input. For example, what is the contribution if someone quits smoking and what is the value of this contribution—such as avoided costs related to tobacco-related illnesses and death?

Calculating the Cost of Quality

The cost of quality is an important measure. Since many programs are designed to improve quality, a value must be placed on the improvement in certain quality measures. If a program has bad quality, the program will have to be repeated in order to elicit a change. For example, in a diabetes education program (which is required for all newly diagnosed diabetics), what would be the cost of having participants attend another program due to the poor quality of the first program? In other words, the cost of quality refers to the benefit of not having to do the program again in order to gain the desired response or change among the target population.

Historical Costs

The question is, "What has the problem cost in the past?" and "How does this new program compare to this overall cost in the past?" Using this technique requires more time and effort than desired. In the end, however, you can develop a credible value for a given measure.
For example, historical costs were calculated for a sexual harassment prevention program that was implemented in a large health care organization. The measure of the investigation was formal, internal complaints. The value of a complaint was determined by looking at the historical costs, including litigation complaints, legal fees and expenses, settlement losses, as well as investigation and defense of the organization. At the end of the new prevention program, it was discovered that the organization had prevented 14.8 complaints due to the program. The monetary value for one complaint based on historical costs was then multiplied by the number of complaints reduced for the year in order to calculate the monetary benefit of this new program.

Internal and External Experts

Another option is to go to internal or external experts. Using this approach, an expert quantifies value of one unit of improvement for the measure under investigation. For example, if your program focuses on childhood obesity prevention, you might want to talk to an expert on childhood obesity who understands the short and long-term medical care costs associated with childhood obesity and can help you come up with a specific measure influenced by your program. Internal experts have knowledge of the situation and the respect of program staff while external experts should be well published and have the respect of the larger community. In either case, keep in mind that these experts have their own methodologies to develop their values. As a result, it is important for the experts to understand your intent and the measure for which you want to develop the monetary value.

External Databases

If you have no resources to develop a monetary value using historical costs and you have no internal or external experts, go to external databases. The Internet can provide you with a wealth of information. For example, there are several chronic disease cost calculators that can assist you in determining monetary values and estimate the expenditures for chronic diseases. You can also compare your program with the benefits and costs of alternative programs contained in the databases.

CHRONIC DISEASE COST CALUULATORS

- ❑ CDC Chronic Disease Cost Calculator
  http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm
- ❑ AHIP ROI Calculator for Smoking Cessation Programs
  http://www.businesscaseroi.org
- ❑ American Cancer Society Cost Calculators (ROI, Tobacco, and Obesity)
  http://www.acsworkplacesolutions.com/resources.asp
- ❑ AHRQ Diabetes Cost Calculator for Employees
  http://www.ahrq.gov/populations/diabcostcalc/
- ❑ AHRQ Asthma ROI Calculator
  http://www.academyhealth.org/ahrq/qualitytools/AsthmaROISummary.pdf
- ❑ AHRQ Preventable Hospitalization Costs: A County-Level Mapping Tool
  http://www.academyhealth.org/ahrq/qualitytools/MappingToolSummary.pdf

Linking with Other Measures

Another technique used to convert a measure to monetary value is linking the value of that measure with other measures that have already been converted to monetary values. For example, the value of obesity prevention can be linked to values associated with preventing specific obesity-related illnesses such as high blood pressure and diabetes. Using this methodology is often sufficient in an ROI analysis.

Estimations

When previous methods are not possible and you still want to convert a measure to monetary value, you can use an estimation process that has been proven and is credible with stakeholders. The estimates of monetary value can come from participants, managers, or even the program staff. It is critical to determine who the most credible source for the data is and start from there.

The process of using estimation to convert a measure to monetary value is quite simple. The data can be gathered through focus groups, interviews, or questionnaires. For example, you can ask participants what they estimate the monetary value is for the results they saw by participating in your program. How did the program help them change and what do they think is the monetary value of this change? The key is clearly defining the measure so that those who are asked to provide the estimate have a clear understanding of that measure.

Intangible Benefits

In addition to tangible benefits, most public health programs derive intangible benefits (or benefits that are difficult or impossible to quantify). For some programs, intangible benefits have extreme value, often commanding as much (if not more) attention and influence as the hard data items. Intangible benefits can include items such as:

- Improved public image
- Increased satisfaction with program or organization
- Increased organizational commitment
- Enhanced leadership or visibility in the field
- Improved teamwork and partnership
- More efficient use of resources, effort, and time

Converting Soft Data to Monetary Terms

In general, hard data represents tangible measures while soft data represents intangibles. However, some soft data can be converted to monetary value. This is done by tying those soft measures to hard measures and then converting the measures to items like earnings, savings, or cost avoidance. Look through your list of intangible benefits and see how they relate to more tangible benefits like productivity, quality, time and costs. Some examples of intangible benefits that might be able to be linked back to "hard" data and given a monetary value include:

LINKING SOFT DATA TO HARD DATA					
CHANGES IN HABITS/ BEHAVIORS	**CHANGES IN FEELINGS/ ATTITUDES**	**GAINING NEW SKILLS**	**CHANGES IN DEVELOP-MENT**	**CHANGES IN ENVIROMENT/ CLIMATE**	**IMPROVEMENTS IN INITIATIVES**
-Absenteeism -Presenteeism -Visits to doctor -Hospital-izations -Medications prescribed -Unsafe or unhealthy actions -Follow-ups	-Favorable reactions -Attitude changes -Perceptions -Perceived changes in behavior -Increased confidence	-Decisions made -Problems solved -Intention to use new skills -Frequency of use of new skills -Conflicts avoided	-Number or programs attended -Increase behavior effectiveness	-Number of complaints/ grievances -Satisfaction	-Implementation of new ideas -Successful completion of program -Number of suggestions -Accomplishments -Setting goals and objectives

When You Can't Convert Benefits to Monetary Values

Not all soft data can or should be converted to monetary values—these are truly your intangible benefits. One factor to consider is the cost to convert the measure. You don't want to spend more on data conversion than the evaluation itself. Importance of the measure is another consideration. Some measures, such as satisfaction, stand alone quite well. Another consideration is credibility. While most decisions are made on somewhat subjective data, the source of the data, the perceived bias behind the data, and the motive in presenting the results are all concerns when data are seen as questionable.

Part 2:
The Investment or Cost of Program

The next step is to calculate the full cost of the program. What does this mean? Figuring out a fully-loaded cost means including everything-- development costs, delivery costs, evaluation costs, and analysis costs, including the overhead and administration costs associated with each category. The costs must be prorated to match the duration of the program. For instance, if the program lasted six months, then the costs should reflect what was spent during these six months. Some examples of costs include:

BASIC COST CATEGORIES	
Development Costs ❑ Salaries and Employee Benefits ❑ Meals, Travel, and Other Expenses ❑ Office Materials and Supplies ❑ Program Materials and Supplies ❑ Printing and Copying ❑ Outside Services ❑ Equipment Services	*Evaluation Costs* ❑ Salaries and Employee Benefits ❑ Meals, Travel, and Other Expenses ❑ Data Collection Costs ❑ Office Supplies and Copying ❑ Outside Services ❑ Equipment Expenses
Delivery Costs ❑ Salaries and Employee Benefits ❑ Meals, Travel, and Other Expenses ❑ Program Materials and Supplies ❑ Facilitator Costs ❑ Location Expenses ❑ Equipment Expenses	*Analysis Costs* ❑ Salaries and Employee Benefits ❑ Meals, Travel, and Other Expenses ❑ Office Supplies and Expenses ❑ Printing and Copying ❑ Outside Services ❑ Equipment Expenses ❑ Registration Fees

KEY POINT!

With public health programs, it is important to consider *all* costs, including recurring costs, which arise every time a program is offered, and nonrecurring costs, which are one-time expenses.

Appendix 7
"Fully-Loaded Cost Summary" Worksheet

Part 3:
Calculating the ROI

Once you have determined your return and your investment in monetary terms, you can calculate your ROI.

The basic formula to calculate the monetary value of the improvement is:

$$\frac{\text{RETURN (VALUE OF THE BENEFITS)}}{\text{INVESTMENT (TOTAL COST OF THE PROGRAM)}} \times 100$$

The ROI value is typically reported as a percentage. In order to get it into a percentage format, the final ROI is determined by calculating the value of the benefits divided by total cost of the program times 100.

This value can also be reported as a benefit-cost ratio (BCR). In simple terms, the benefit-cost ratio compares the economic benefits of the program with the cost of the program. A benefit-cost ratio of 3 to 1 (or 3:1) says that for every $1 you spend, you get back $3 in benefits.

KEY POINT!

Often, a net benefit is used as the numerator in the formula instead of only benefits. The net benefit is equal to the value of the benefits minus the total cost of the program. This value is then divided by the total cost of the program.

$$\text{ROI (\%)} = \frac{\text{(Value of the Benefits)} - \text{(Total Cost of the Program)}}{\text{(Total Cost of the Program)}} \times 100$$

With this formula, a benefit-cost ratio of 3:1 will translate to an ROI of 200 %. In other words, for every $1 you spend, you get $2 back in benefits after your costs are covered. Likewise, an ROI of 0 % is the break-even point when using net benefits.

Before you discuss any ROI values, make sure you fully understand how the ROI was calculated.

At What Point in the Program Should ROI Be Calculated?

ROI can be calculated at any point during the program. ROI can be forecasted before the program in order to determine whether it is indeed worth it to continue with the program. ROI can also be calculated after the program in order to determine the real costs and benefits of the program.

Calculating ROI *Before* the Program to Anticipate Value and Gain Support

When ROI is calculated before the program, it is called a pre-program forecast. Forecasting is a good idea when you are deciding between two programs designed to solve the same problem or trying to justify a program before it begins.

Pre-program forecasting is similar in process to post-program ROI. However, when conducting a pre-program ROI analysis, the step of isolating the effects of the program is omitted. It is assumed that the estimated results take into consideration all the other outside influences on the program.

STEPS FOR CONDUCTING A PRE-PROGRAM FORECAST OR ROI
Develop Program Objectives ⇊ Estimate Overall Business Impact ⇊ Convert Overall Business Impact Estimate to Monetary Values ⇊ Estimate Program Costs & Identify Intangible Benefits ⇊ Calculate ROI

Determining the Best Return on Investment

Different ROI values can be calculated depending on how you attribute value to the benefits. You should start out using only the top-ranked quantifiable benefits to see if their return is enough to support the overall investment of the program. Create an initial ROI model to demonstrate the return using only data from the top-ranked benefits. If this does not provide enough of a return for your program, add additional benefits from the list to show an even greater return on your investment.

It is not useful to demonstrate an ROI too large to be believed, even if the numbers indicate such results. It is more useful to justify the program with a solid return using only a few, easily attributed benefits. Most decision-makers look for a break-even point for an ROI, meaning the benefits equal the costs. While it is great to see a higher ROI impact, anything much over the break-even point becomes questionable unless extremely solid evidence is in place.

It is also useful to point out to the decision-makers all the benefits, including those that are not included in the ROI model as well as the intangible benefits that you choose not to convert to monetary value. Sometimes these intangible benefits are just as important as the actual ROI calculation. By discussing *all* the benefits associated with your program, you provide a complete picture of the actual return on investment as part of the program evaluation.

ROI Do's and Don'ts

Do Take a Conservative Approach When Developing Both Benefits and Costs

Conservatism in ROI analysis builds accuracy and credibility. What matters most in how the target audience perceives the value of the data. A conservative approach is always recommended for both a numerator of the ROI formula (the value of the benefits) and the denominator (program costs).

Do Use Caution When Comparing the ROI in Public Health Programs with ROI in Other Areas

Although the calculation for ROI in public health programs uses the same basic formula as in the business world, some decision-makers or stakeholders may not fully understand ROI within the context of public health. ROI in public health focuses on the value of the benefits and the total cost of the program instead of profits and investments. As a result, the ROI calculation method and meaning should be clearly communicated to decision-makers and stakeholders so that unreasonable assumptions or comparisons are not made.

Do Involve Management in Developing the ROI

Management ultimately makes the decision if an ROI value is acceptable. To the extent possible, management should be involved with setting the parameters for calculations and establishing targets by which the organizations considers programs acceptable or successful.

Do Fully Disclose Assumptions and Methodology

When discussing the ROI process and communicating data, it is very important to fully disclose all the steps and assumptions used. Strengths should be clearly communicated as well as weaknesses and short-comings. The audience should fully understand what is being presented and the assumptions on which it is based. Any adjustments made to the data should be highlighted. Be clear that the costs are comprehensive and accurate.

Do Approach Sensitive and Controversial Issues with Caution

Occasionally, sensitive and controversial issues arise when discussing an evaluation or an ROI value. It is best to avoid debates over what is measurable and what is not measurable unless there is clear evidence of the issue in question. Some programs are so fundamental to the survival of the organization that any attempt to measure them through an ROI is unnecessary.

Don't Show Decimals in the ROI Calculation

Always round the ROI calculation to the nearest whole number. For example, 203.4 % becomes 203 % and 203.5 % becomes 204 %. Showing a decimal place gives the impression that the ROI value is exact. This is rarely the case since even ROIs developed by engineering, operations, manufacturing, marketing, and finance functions will likely include estimations and are not exact. The important issues include what caused the results and what methods and assumptions were used to arrive at the conclusion and monetary values that drive the ROI.

Don't Try to Use ROI on Every Program

Some programs are difficult to quantify, and an ROI calculation may not be feasible. Other methods of presenting the benefits or value of a program might be more appropriate. Program staff should set targets for the percent and types of programs in which ROIs are developed. Also, specific criteria should be established to select programs for ROI analysis.

STEP SIX:
COMMUNICATING YOUR RESULTS

Rationale: *Communicating results is a critical component of the ROI process. Measurement and evaluation are worthless endeavors if the results are not effectively communicated. The ultimate use of the data generated through the ROI methodology is to show value of programs, specifically economic value, to stakeholders and other decision-makers.*

In order to be effective in your communication efforts, it is important to follow a specific communication plan throughout the ROI process. Keep in mind that communication is a sensitive issue. It is important to recognize that different audiences need different information. You will need to present the information in a variety of ways to ensure that the message comes across appropriately.

Keeping the Lines of Communication Open

As soon as the ROI process is underway, regular status meetings should be conducted to report progress and discuss critical issues with appropriate team members, as well as other key staff and managers. These meetings should have three major purposes:

- Reporting progress
- Learning
- Planning

The meetings should begin with a status report on the ROI project, describing what has been accomplished so far. During these discussions, new issues are introduced in terms of possible tactics, techniques, or tools in order to improve the process. If any red flags pop up or it appears that a less-than-desired outcome will be realized, it is best to prepare the team for the bad news early in the process. To minimize the negative impact, focus on recommendations for next steps, including developing specific plans for overcoming problems.

It is important to keep the management team up-to-date on your progress with the ROI as well. Data should be presented to the management team routinely so they understand the value of the program. In addition, managers can be asked to help make decisions about the fate of, or adjustments in, a particular program. They may need to be involved in collecting some of the data and supporting data collection efforts. Finally, managers need to understand the ROI methodology so they can help staff succeed.

Make sure the project team doesn't reveal or discuss the progress of the ROI program with others until it is time to do so. Even when early data are positive, it is best to keep the data confidential until all the data are collected. Also, when it appears that the ROI is going to be less than desirable, it is best to prepare a strategy to deal with the data before discussing it with others.

Informing Others about the ROI Results

Once the ROI analysis is completed, you need to ensure effective communication to the target audiences. The person(s) who requested the ROI should receive the detailed report, or at least a presentation that reflects the detailed information. The general population of the organization should receive the highlights. Ensuring that the appropriate audience receives the appropriate information is critical in achieving the desired response. Some key questions that you want to ask when planning to report your results to a variety of audiences are:

- Is the potential audience interested in the program and its results?
- Does the potential audience want to or need to receive this information?
- Has someone already made the commitment to this audience regarding communicating the results of this ROI?
- Is the timing right for this message to be presented to this audience?
- Is the potential audience familiar with the program?
- How does the audience prefer to have the results communicated to them?
- Is the audience likely to find the results threatening?
- Which communication method will be most convenient to the audience?

Reporting the ROI Results

It is important to consider the best means for informing others about the ROI results. There are many options for communication. Your choice of method is important, especially in the early stages of implementing the ROI methodology.

You want to make sure you select the appropriate medium for the particular communication need and target audience. The location or venue is important in terms of convenience and perception. Some methods to consider include:

- Brochures
- Electronic Media (i.e., website, group emailing)
- Formal Reports
- Internal Publications
- Meetings

As with most projects and evaluations, timing is critical in communicating results. Know before hand what information will be shared and when.

The messenger is another important issue to consider. Is it more appropriate for a manager to present the results? An independent third party? In any event, it is critical to consider the question when developing the overall communication strategy.

SAMPLE COMMUNICATION PLAN			
ROI/ Impact Analysis Report *What will be told?*	**Target Audience** *Whom do you tell?*	**Communication Needs** *Why is this being told?*	**Distribution Methods** *How will it be told?*
Complete Report (100+ pages)	Project Team and Program Staff	Build credibility for the staff	Special Meeting
Summary of Complete Report (approximately 10 pages)	Senior Management and Decision-Makers	Gain support for the program	Routine Meeting
General Interest Overview and Summary (approximately 5 pages)	Participants and Other Stakeholders	Demonstrate the value of program and/or organization	Mail with Introductory Letter
General Interest Article	Organization Staff	Explain current programs and processes	Organization Newsletter
Brochure highlighting project, objectives, and specific results	Other interested parties, organizations, and potential funders	Encourage participation in the program and/or organization	Marketing Materials

Acting on the ROI Results

The final consideration in developing the communication plan is determining what actions are required or desired as a result of the communication. When communicating results to staff, changes may be necessary to the program. Communication to stakeholders and decision-makers may be a call for altering priorities in funding and/or support. Clearly stating the desired outcomes of the communication is an important part of developing the overall strategy.

Not everyone will understand, appreciate, or accept the ROI calculation. Some individuals will not agree with the values assigned to the tangible and intangible benefits. Individuals may be highly emotional over the concept of showing accountability for improvement or value. They may feel that these initiatives should represent investments in people and the organization should not be concerned with the return on investment.

Appendix 8

"Formal ROI Report Format" Outline

STEP SEVEN:
MAKING ROI ROUTINE

Rationale: *Making ROI routine requires building it into the overall culture of the organization so that it becomes perceived as necessary, essential and almost effortless. This can be done by using previous ROI processes as templates and taking advantage of lessons learned.*

Establishing an Organizational Culture

While most organizations recognize the value of program evaluation, expanding that culture to include the complex ROI analysis process requires deliberate thought and action. Higher levels of evaluation, including ROI, need to be integrated into the overall organizational culture. By taking a proactive organizational approach to evaluation, using the highest levels appropriate for each program, you will be able to provide stakeholders and funders with factual responses to their requests, and will be in control of the timelines, resources, and processes.

ENCOURAGE A RESULTS-BASED PROGRAM CULTURE	
Organizational Characteristic	**What It Means**
The programs are initiated, developed, and delivered with the end result in mind	The program objectives are stated not only in terms of learning, but also what the participant is expected to do after the program and the impact it should have on their lives and overall health, expressed (if possible) in measurable terms.
A comprehensive measurement and evaluation system is in place for each program.	Measurements are defined when programs are designed or planned.
Higher levels of evaluation are regularly developed.	Throughout program planning, some programs are evaluated for application, business impact, and ROI.
Program participants understand their responsibility to obtain results as a result of the program.	Participants understand what is expected from them as a result of each program, even before they participate. They expect to be held accountable for learning and applying what they learn.
The entire department or organization (management, supervisors, co-workers, support staff, etc.) help achieve results from the program.	All stakeholders, and particularly supervisors/managers and team members, carry out their responsibilities in creating an evaluation culture that initiates and continues the learning process.

Making the Most of Existing Templates and Lessons Learned

As you continue to conduct ROI analyses, don't reinvent the wheel. One of the most significant barriers to implementing evaluation plans and ROI is the potential time and cost involved. The tasks, processes, and procedures of evaluation must be as painless of possible, increasing the odds that they will be used routinely. Some examples are:

Use Internal Resources—An organization does not necessarily have to employ consultants to develop ROI analyses. Internal capacity can be developed, eliminating the need to depend on outside consultants.

Use Standard Templates—Most organizations don't have the time and resources to customize each evaluation project. To the extent possible, develop standard instruments that can be used over and over again. If customization is needed, it is only a minor part. Standardize as much as possible so that evaluation forms and data collection tools are not reinvented for each application. As a result, tabulation is faster and often less expensive. When this is accomplished, evaluation will be routine.

Use Streamlined Reporting—Reporting data can be one of the most time-consuming parts of evaluation, taking away precious time from collecting, processing, and analyzing data. Yet, reporting is often the most critical part of the process. Build on what you have done in the past and use these shortcuts to supply the data necessary for the different audiences and manage the process in an efficient way.

Use Short-cuts and Estimates—Shortcuts and estimates, when provided by experts who know a process best, can sometimes be even more accurate than more sophisticated, detailed analyses. Use what you have learned from past experiences to help you streamline the ROI process.

Use Technology—Throughout ROI, technology can be used to ensure the measurement and evaluation are efficiently and effectively administered. This can range from simple, inexpensive software purchases to complete systems for managing large amounts of data. Appropriate use of technology reduces the amount of time needed to collect, tabulate, analyze, and report data. When time is minimized, implementation is much easier.

Appendix 9

Examples of ROI in Public Health and Chronic Disease

ALTERNATE FORMATS FOR REPORTING ECOMONIC IMPACT

Even under the best conditions, only a small percentage (roughly 5 % to 10 %) of programs across all disciplines meets the specific requirements for an ROI analysis. If your program is not appropriate for ROI, and you are still asked to provide economic data, it is important to be able to respond factually to this request by your stakeholders and funders.

ROI is not possible or appropriate for programs that typically fall into one of three major categories:

- Programs in which the effects of the program on a measure cannot be isolated from other influences. In other words, you do not know if it was your program that influenced the change.

- Programs that have the inability to convert measures to monetary values. For example, programs with only intangible, non-monetary benefits cannot complete an ROI analysis.

- A program that does not meet the specific criteria or profile for ROI. An inexpensive program offered one time, never to be offered again, is not suitable for ROI. Basic or introductory skill building programs, such as teaching basic health skills, are also not suitable for ROI. Program data for ROI needs to be valuable and ongoing. Likewise, programs with short life cycles, small budgets, limited resources, or low visibility are poor candidates for ROI analysis.

Establishing the Economic Value When ROI is Not Appropriate

Decision-makers do need to receive the best information possible related to the economic impact or value of a program. Economic evaluation helps to inform decisions and encourage support for a program. Basically, stakeholders and decision-makers want to know: Is your program worth the money spent?

In general, economic value includes data on both costs and benefits. While not as rigorous as following the entire ROI process, this important information gives insight as to your program's potential for financial success and addresses some of the concerns related to the value of the program. Some examples include:

Capturing Financial Data in Lower Levels of Evaluation

As part of your already established evaluation measures, a few critical questions can be added to an existing program survey, questionnaire, focus group, or action plan aimed at program participants, such as:

- How will you apply what you have learned during this program? What action steps do you plan to take as a result of this program?
- Indicate what specific measures, outcomes, activities, or behaviors that will change as a result of your action.

- As a result of these anticipated changes, estimate (in monetary values) the benefits to you over the next year [i.e., lower medical costs, fewer missed work days, spending less money on unhealthy activities (non-nutritious foods, tobacco, etc.)].
- What is the basis of this estimate? How did you come up with this estimate?
- What confidence, expressed in a percentage, can you put in your estimate (i.e. 0 % = no confidence; 100 % = complete confidence).

These data can then be used to estimate the program's potential for financial impact.

Drawing from the Literature

Changes in knowledge captured by the program evaluation can sometimes be compared to behavior change. In order to validate this relationship, you will need to review the literature for other programs that have had similar results involving increased knowledge or performance leading to healthier behaviors. Once this is done, you can convert the overall impact of these behavior changes to monetary values using the methods learned in the ROI analysis. When compared to projected costs for the program, the potential financial impact can be estimated.

Keeping Track of Costs

This involves the systematic collection, categorization, and analysis of all the costs associated with a program. This data can be used alone to simply illustrate what it costs to implement the program, or in conjunction with a general description of the benefits gained from the program to show gains.

Alternatively, these data can be used to conduct a cost analysis which compares the costs of the program with the overall cost of illness (or how much it costs to treat a disease). As a result, the amount an intervention costs per unit (i.e., person, episode, or screening) can be calculated. This helps identify and describe all the costs accrued and saved through the life of a program.

Using Other Methods to Show Business Impact

Cost-Effectiveness Analysis: Cost-effectiveness compares the relative expenditure (costs) to the outcomes (effects) of two or more courses of action designed to achieve the same or similar outcomes. A cost-effectiveness analysis is the ratio of the net cost of an investment (cost of the investment minus its cost-savings) to the benefit of a health outcome (such as a year of life saved). A cost-effectiveness analysis examines the long-term costs and savings and long-term outcomes. In other words, it represents the costs spent per outcome achieved.

In its most common form, a new strategy is compared with current practice in the calculation of the cost-effectiveness ratio. If a strategy is deemed "cost effective," it means that the new strategy is a good value. A cost-effectiveness ratio by itself (e.g., $25,000/year of life saved) does not tell you that an intervention is worthwhile; it must be compared to other ratios. The lowest ratio is the most cost-effective; in other words, it costs less to produce the same unit of health. A cost saving preventative services saves enough in future costs to offset the investment completely. Other preventative services avert future costs, but do not save more than they cost. Thus, a cost-effective preventive service simply has a lower cost-effectiveness ratio than other health care services, and it is not necessarily better.

How To: When the task for the administrator or stakeholder is to choose from several different ways to achieve the same goal, the method that is most cost-effective would be the best choice. Like ROI, cost-effectiveness analysis results in a ratio. However, the benefits side of ratio is not expressed in monetary terms. Instead, it is expressed as one unit of outcome that would be desired for the programs being compared. The outcome might be one additional year of life, one year's increase in reading ability, an employment or college placement, or one less violent crime. The ratio then shows the cost of each program per outcome achieved. Programs can then be easily compared for their cost-effectiveness in achieving the desired outcome.

Benefits: Cost-effectiveness analysis assists with the determining the allocation of resources and is often used when a full ROI analysis is inappropriate or not possible. Decision-makers can use it to compare different allocation options in like terms. If the benefits are difficult to translate to monetary terms and the program has two or three major outcomes, several cost-effectiveness ratios may be preferable.

Challenges: Cost-effectiveness analysis is a comparison tool. The very notion of cost-effective requires a value judgment—what you think is a good price for an additional outcome, someone else may not.

Example: In the case of health screening, it is often difficult to determine the most cost-effective frequency. Too frequent screening has high cost and possibly limited health benefits, while too infrequent screening has low cost, but poor health outcomes. Determining appropriate screening frequencies is a useful application of cost-effectiveness analysis.

The following table taken from an analysis on cervical cancer screening shows that life years are saved at a relatively low cost in the first comparison, but at the very high cost in the second comparison. Typically, an intervention that costs less than $30,000 per life year gained is considered cost-effective medicine. Based on this analysis, cervical cancer screening every four years is more cost-effective than screening every three years.

	Screen every four years vs. no screening	**Screen every three years vs. screen every four years**
Life expectancy increase, days	93.8	1.6
Life expectancy increase days (discounted 5 % due to adjustment for future costs and benefits to account for time preference and opportunity costs)	9.5	0.2
Cost increase, dollars (discounted 5 %)	$264	$91
Cost per life gained	$10,101	$184,528

Cost-Utility Analysis: Cost-utility analysis is primarily used to guide procurement decisions. It estimates the ratio of a health-related intervention and the benefit it produces in terms of the number of years lived in full health by the beneficiaries. As a result, it is considered a special case of cost-effectiveness analysis. Cost is measured in monetary units while the benefit needs to be expressed in a way that considers health states that are less preferable to full health which are given quantitative values, such as quality-adjusted life years (QALY) or disability-adjusted life years (DALY).

How To: Cost-utility analysis is used to analyze alternatives by comparing their costs and their utility as perceived by users. Utility can be measured by assessing users' preference for or satisfaction with each option. The results are ratios quite similar to cost-effectiveness ratios, except the ratio for cost-utility reflects cost for satisfaction, not effect.

Benefits: Cost is measured in monetary units. Benefit needs to be expressed in a way that allows health states that are considered less preferable to full health to be given quantitative values. However, unlike cost-benefit analysis, the benefits do not have to be expressed in monetary terms. Sometimes this is expressed in quality-adjusted life years (QALYs). Cost utility allows comparison across different health programs and policies by using a common unit of measure (money/QALYs gained). Cost utility analysis provides a more complete analysis of total benefits than simple cost-benefit analysis because cost-utility analysis takes into account the quality of life that an individual has, while cost benefit analysis does not.

Challenges: In cost-utility analysis, societal benefits and costs are often not taken into account. Furthermore, some economists believe that measuring QALYs is more difficult than measuring the monetary value of life through through health improvements, as is done with cost-benefit analysis, is because in cost-utility analysis you need to measure the health improvement effects for every remaining year of life after the program is initiated. While for cost-benefit analysis we have an approximate value of life, we do not have a QALY estimate for nearly every medical treatment or disease. Also, there are ethical problems with placing a value on human life.

Example: Cost-utility analyses have been used to demonstrate the value of a combined aspirin and statin medication protocol as a cost-effective method for preventing heart disease events. If, for example, intervention A allows a patient to live for three more years, but only with a quality of life weight of 0.6 then the intervention confers (3 * 0.6) = 1.8 QALYs to the patient. If intervention B confers two extra years of life at a quality of life weight of 0.75, then it confers an additional (2 * 0.75) = 1.5 QALYs to the patient. The net benefit of intervention A over intervention B is therefore (1.8 - 1.5) = 0.3 QALYs.

Appendix 10

Comparing Common Methods to Assess Business Impact

RESOURCES

GLOSSERY OF KEY ROI AND BUSINESS IMPACT TERMS

Because there are so few resources available for public health professionals interested in ROI, we have included this comprehensive glossary of terms often used when discussing ROI, economic evaluation, and business impact. Many of these terms are not mentioned elsewhere in this guide and are not necessary to effectively understand and conduct an ROI analysis for a chronic disease program, but are provided here as definitions of terms you may hear from business leaders or other stakeholders.

Absenteeism
Tendency to be absent without authorization, repeated absence.

Accountability
Responsibility to provide evidence to stakeholders and funders about the effectiveness or efficiency of programs.

Analysis
Separating something into its separate parts (disaggregation), examining these parts and then putting it back together again (aggregation); tracing a thing to its source and to discover the underlying principles; seeing how something works.

Annuitization
The allocation, on a constant annual basis, of the cost of a capital item over its lifetime.

Average cost
Total costs divided by the number of units of output, reported as the cost per unit of output.

Baseline
Information about the situation or condition prior to a program or intervention.

Benchmarks
Performance data that are used for comparative purposes.

Benefits
Something that a party was not previously entitled to or expected to receive.

Capital costs
Resources that have a useful life of one year or more, usually purchased only once or a few times during the lifespan of the intervention or program.

Contingent valuation
A method for assigning monetary values to the benefits of health promotion interventions so that the cost-benefit analyses can be carried out. The two main approaches are the willingness to pay and the individual choice experimentation. In the former, monetary values are elicited directly by asking people how much they would pay to secure the benefits of the intervention. In the latter, people are presented with a series of paired scenarios each describing a different configuration of the services being evaluated and asked to indicate which they prefer. If the cost

of the service is included as one of the attributes, then the willingness to pay values can be estimated statistically from the responses.

Cost analysis
Breaking down the costs of some operation and reporting on each factor separately.

Cost-benefit ratio
The net present value of an investment divided by the investment's initial cost. Also called the profitability index.

Cost accounting
An approach to evaluating the overall costs that are associated with conducting business. Cost accounting is part of management accounting which establishes a budget and actual costs of operations, processes, departments or product and the analysis of variances, profitability or social use of funds. Generally based on standard accounting practices, cost accounting is one of the tools that managers utilize to determine what type and how many expenses are involved with maintaining the current business model or project. At the same time, the principles of cost accounting can also be utilized to project changes to these costs in the event that specific changes are implemented.

Cost analysis
An economic evaluation technique that involves the systematic collection, categorization, and analysis of program costs.

Cost-effectiveness analysis
Cost-effectiveness analysis (CEA) is a form of economic analysis that compares the relative expenditure (costs) and outcomes (effects) of two or more courses of action. These effects are measured in naturally occurring units, such as life-years saved or cases prevented.

Cost-utility analysis
A form of economic evaluation in which health outcomes are expressed in a single index such as quality-adjusted life-years (QALYs). Cost-utility analysis (CUA) is often used to guide procurement decisions. The most common and well-known application of this analysis is in pharmacoeconomics, especially health technology assessment (HTA).

Costs (direct)
A cost directly attributable to the manufacturing of a product or development of a program; opposite of indirect cost.

Costs (indirect)
Costs that cannot be traced directly to a particular product; commonly called overheads; opposite of direct costs.

Credibility
Trustworthiness, dependability, especially with regard to evaluation methods, data collection and/or data analysis.

Data
Facts or information gathered in a marketing research study.

Disability-adjusted life year (DALY)
Disability-adjusted life years (DALY) is a measure for the overall "burden of disease." Originally developed by the World Health Organization in 1996, it is becoming increasingly common in the field of public health and health impact assessment (HIA). It is designed to quantify the impact of premature death and disability on a population by combining them into a single, comparable measure. In so doing, mortality and morbidity are combined into a single, common metric.

Disease burden
Disease burden is the impact of a health problem in an area measured by financial cost, mortality, morbidity, or other indicators. It is often quantified in terms of quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs), which combine the burden due to both death and morbidity into one index. This allows for the comparison of the disease burden due to various risk factors or diseases. It also makes it possible to predict the possible impact of health interventions.

Discounting
Refers to the adjustment of costs and benefits that occur at different points in time so that they can be compared as if they had all occurred in the same time period. This is important given the common assertion that people prefer to defer costs to the future and enjoy benefits today (time preference). The discount rate describes the rate at which future costs and benefits are discounted. The higher the rate the more the value of future costs and benefits are reduced.

Economic efficiency
Refers to the relationship between what goes into an intervention (the resources of costs) and what comes out (the benefits or outcomes). On the other hand, technical efficiency is concerned with doing something well without waste that is; and allocative efficiency is concerned with doing the right thing.

Economic evaluation
The comparative assessment of an intervention to improve health in terms of both their costs and their benefits. The different forms of economic evaluation (i.e., cost-benefit analysis, cost-effectiveness analysis, and cost-utility analysis) all share the same framework. Each evaluates cost in the same way, but they differ from each other in the way the outcomes or benefits of the interventions are included in the evaluation. This affects the types of questions that each technique can answer.

Equity
This is concerned with fairness in the way that the costs or benefits of an intervention are distributed. That is, it matters who pays the costs and who benefits from the intervention. We can distinguish horizontal equity from vertical equity. Horizontal equity refers to the fair treatment of people who are equal (i.e., equal allocation of resources between geographic locations.). Vertical equity refers to the fair treatment of people who are unequal (i.e., making sure any extra allocation of resources to people who are socially deprived is sufficient to compensate them for their greater needs).

Estimation
Estimation is the calculated approximation of a result which is usable even if input data may be incomplete, uncertain, or “noisy.”

Feasibility
Capability of being carried out, capability of being achieved; likelihood, probability.

Feasibility study
A study conducted to determine the probable success of a business venture or new initiative.

Fixed costs
Costs that do not vary in total as the volume of units of service changes.

Forecasting
The process of making projections about future performance based on existing data.

Health utility assessment
Refers to the process used to elicit the preference that people have over different dimensions of quality of life so quality-adjusted life-years (QALYs) can be derived.

Impact
The social, economic, civic, and/or environmental consequences of the program. Impacts tend to be longer-term and so may be equated with goals. Impacts may be positive, negative, and/or neutral. In addition, impacts can be intended or unintended.

Impact indicator
Expression or indication of impact. Evidence that the impact has/is being achieved.

Incremental cost
Refers to the difference in costs between the intervention and its comparator.

Incremental cost-effectiveness ratio
This is the difference in effectiveness between the intervention and the comparator divided by the difference in costs.

Inputs
Resources that go into a program including staff time, materials, money, equipment, facilities, volunteer time.

Intangible data
Something which cannot be seen or touched.

Issue brief
A short, neutral summary of what is known about a particular issue or problem.

Logic model
Graphic representation of a program showing the relationship between investments and results.

Marginal cost
This refers to the change in costs as the scale of an intervention is increased. For example, if it costs $1,000 to vaccinate 100 children and $1,050 to vaccinate 110 children, then the marginal cost of the additional vaccination is only $5 per child.

Marketing
The systematic planning, implementation and control of a mix of business activities intended to bring together buyers and sellers for the mutually advantageous exchange or transfer of products.

Measure
Either quantitative or qualitative information that expresses the phenomenon under study. In the past, the term measure or measurement carried a quantitative implication of precision and, in the field of education, was synonymous with testing and instrumentation. Today, the term measure is used broadly to include both quantitative and qualitative information.

Morbidity
Unhealthiness; state of being diseased.

Mortality
State of having a limited life span; rate of death.

Objectives
Specific, measurable outcomes or results that an organization plans to achieve in a given period.

Opportunity costs
This is a fundamental concept in economics. It refers to what must be given up to do something. The opportunity cost of a health promotion program is equal in value to the most highly valued alternative course of action that is forgone.

Outcomes
Results or changes from the program such as changes in knowledge, awareness, skills, attitudes, opinions, aspirations, motivation, behavior, practice, decision-making, policies, social action, condition, or status. Outcomes may be intended and/or unintended; positive or negative. Outcomes fall along a continuum from immediate (initial; short-term) to intermediate (medium-term) or final outcomes (long-term). Outcomes are often synonymous with impact.

Outputs
The activities, products, and participants generated through the investment of resources. Goods and services delivered.

Performance-based contracting
Designed to help organizations reap the benefits of innovation. Performance based contracting typically incorporates some or all of the following:

- Emphasizes results related to output, quality, and outcomes rather than how the work was performed
- Has outcome orientation and clearly defined objectives and timeframes
- Uses measurable performance standards and quality assurance plans
- Provides performance incentives and ties payment to outcomes

Performance standards
Performance standards are intended to help people answer the questions, "What are the activities and capacities of our program or organization?" and "How well are we providing our services?" The purpose for undertaking a performance assessment is to strengthen and improve the program

or organization. Standards are set at the optimal level. As a result, individual programs will likely see differences between their own performance and the "gold standard" by using specific assessment tools.

Pre and Post Testing
In order to assess changes in knowledge, a pre-test is given at the beginning of the program to assess knowledge before the program or intervention has taken place. After the conclusion of the program, the same test is given again to determine if there were any increases in knowledge as a result of the program.

Presenteeism
Presenteeism is the opposite of absenteeism. In contrast to absenteeism, when employees are absent from work illegitimately, presenteeism discusses the problems faced when employees come to work in spite of illness, which can have similar negative repercussions on business performance. It can also refer to the expectation of employers for their employees to be present at work regardless of whether any work is available or accomplished.

Prevalence
In epidemiology, the prevalence of a disease in a statistical population is defined as the total number of cases of the disease in the population at a given time, or the total number of cases in the population, divided by the number of individuals in the population. For example, the prevalence of obesity among American adults in 2001 was estimated by the U. S. Centers for Disease Control (CDC) at approximately 20.9 %. In plain English, "prevalence" simply means "proportion" (typically expressed as a percentage). Prevalence is useful because it is a measure of the commonality of disease. It helps physicians with the probability of certain diagnoses and is routinely used by epidemiologists, health care providers, government agencies, and insurance companies.

Process evaluation
Basically, process evaluation documents and analyzes the early development and implementation of an intervention or program, assessing whether strategies were implemented as planned and whether expected output was actually produced. It focuses on what services were provided to whom and how.

Program
An education program is a series of organized learning activities and resources aimed to help people make improvements in their lives.

Program evaluation
The systematic collection of information about activities, characteristics and outcomes of programs used to make judgements, improve effectiveness, add to knowledge, and/or inform decisions about programs in order to improve programs and be accountable for positive and equitable results and resources invested.

Performance measurement
The ongoing monitoring and reporting of accomplishments, particularly progress towards pre-established goals.

Qualitative data
Data in a narrative or text format

Quality-adjusted life years (QALY)
Quality-adjusted life years, or QALYs, are a way of measuring both the quality and the quantity of life lived, as a means of quantifying in benefit of a medical intervention. Pliskin, Shepard and Weinstein (1980, Operations Research) have shown that the QALY model requires utility independent, risk neutral, and constant proportional tradeoff behavior. QALYs are most often used in cost-utility analysis. The advantage of this approach is the ability it provides to compare effectiveness across interventions that would otherwise be incomparable because of the different of health that each affects.

Quality of life measures
The overall enjoyment of life. Many clinical trials assess the effects of a disease and its treatment on the quality of life. These studies measure aspects of an individual's sense of well-being and ability to carry out various activities while living with the disease.

Quantitative data
Data in numerical format.

Realistic evaluation
This approach to evaluation asks what it is about an intervention that makes it work and why it works for some people in some circumstances and not others. It is a process of uncovering the underlying theory that connects the context of the intervention, the intervention process, and the outcomes. This approach tries to account for the dynamics of social phenomena and develop micro-theories as better explanations of how and why the observed changes take pace when a given intervention is implemented in a certain context.

Recurrent costs
Resources purchased regularly, at least once per year (i.e., personnel, supplies, vehicle insurance)

Reliability
The degree to which a measurement instrument is consistent in what it measures; we can set statistical values.

Risk factor
Something that helps or increases risk to disease or infection.

Sensitivity analysis
Refers to the process of reworking the estimate of economic efficiency after substituting high and low values for many of their variables in evaluation. The idea here is to push the estimation as far as one can to see just how robust are the conclusions to crucial values of key assumptions. Thus, one might use the recommended discount rate of 3 % in the base case, but rework the evaluation using values of 0 % and 10 % to see how sensitive the results are to different assumptions about the best discount rate to use.

Social marketing
Seeks to influence social behaviors not to benefit the marketer, but to benefit the target audience and society in general.

Social return on investment (SROI)
An attempt to measure the social and financial value created by a non-profit, NGO, or business. It has not been proven to drive increased investment, but it's popular with academics and some consultancies. SROI is an approach to understanding and managing the impacts of a project, organization or policy. It puts financial values on the important impacts identified by stakeholders which do not have market values.

Standard gamble
This is one of a number of methods that can be used to elicit the value that people place on different dimensions of health (mobility versus being pain-free for example). The respondent is presented with a series of choices, where the options are either to remain in a particular state of (ill-) health (for example, being in moderate pain that limits one's ability to work) for a certain period of time or a risky option in which with given probabilities the outcomes are either full health or death. The probability of full health is adjusted according to the preference of the respondent until he or she is unable to decide which of the two options is best. At this point, the probability provides an indication of the value of the specified health state relative to full health.

Systemization
This is an intentional effort to understand and transform practice: understanding what was done and how it was carried out, recognizing different stages of the process, the determining factors and why they occurred, the reason the experience or practice was carried out in one particular way and not in another, which changes occurred and if these changes were expected in the process of transformation.

Tangible data
Something that can be touched or felt, something real or substantial; tangible property, something that has monetary value.

Time trade-off
This method can be used to elicit the value of what people place on different dimensions of health (mobility versus being pain-free for example). The respondent is presented with a series of choices in which the options are either to live for a specified period of time in a given health state (for example, living 20 years in moderate pain that limits one's ability to work) versus a shorter time period of time in full health. The number of years in full health is adjusted according to the preferences of the respondent until he or she is unable to say which of the two options is best. At this point, the years in full health expressed as a fraction of the years in the specified health state, providers an indication of the value of that state.

Validity
The degree to which a measurement instrument accurately reflects what it is designed to measure.

Variable costs
Costs that vary in direct proportion to the level of activity.

WHERE TO GO FOR MORE INFORMATION: HELPFUL PUBLICATIONS, WEBSITES, AND OTHER RESOURCES REGARDING ROI

Articles and Reports

Centers for Disease Control and Prevention. 1999. "Framework for Program Evaluation in Public Health." MMWR, 48(RR11): 1-40. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm

Diabetes Initiative. 2008. *Building the Business Case for Diabetes Self-Management: A Handbook for Program Managers.* http://www.diabetesinitiative.org/lessons/documents/BusinessCasePrimerFINAL.pdf

Goetzel, Ron Z., Ronald J. Oziminkowski, Victor G. Villagra, and Jennifer Duffy. 2005. "Return on Investment in Disease Management: A Review." *Health Care Financing Review*. 26(4): 1- 19.

Holmes, Ann M., Ronald D. Ackerman, Alan J. Zillich, Barry P. Katz. Stephen M. Downs, and Thomas S. Inui. 2008. "The Net Fiscal Impact of a Chronic Disease Management Program: Indiana Medicaid." *Health Affairs*. 27(3): 855-864.

MacKay, Judith and Michael Eriksen. 2002. *The Tobacco Atlas.* Geneva, Switzerland: World Health Organization. http://www.who.int/tobacco/media/en/title.pdf

Pan American Health Organization. 2007. *Guide to Economic Evaluation in Health Promotion*. http://www.cepis.ops-oms.org/bvsacd/cd65/finalecoeva.pdf

Partnership for Prevention. 2007. *Why Invest? Recommendations for Improving Your Prevention Investment.* http://www.prevent.org/images/stories/PDF/whyinvest_web_small.pdf

Partnership for Prevention. 2001. *Guide to Smart Prevention Investments*. http://www.prevent.org/images/stories/Files/publications/Invest_Final.pdf

Partnership for Prevention. 2001. *What Policymakers Need to Know about Cost Effectiveness.* http://www.prevent.org/images/stories/Files/publications/Cost_Effectivness.pdf

Trust for American's Health. 2008. *Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities.* http://healthyamericans.org/reports/prevention08/Prevention08.pdf

Books

Phillips, Patricia Pulliam and Jack J. Phillips. 2005. *Return on Investment (ROI) Basics. Baltimore,* MD: ASTD Press.

Rasler, Tom. 2007. *ROI for Nonprofits.* New York: John Wiley & Sons.

Online Resources

AHIP. Provides a ROI calculator for smoking cessation programs. This tool is for health insurance plans and employers to estimate the ROI to cover, promote, and encourage smoking cessation.
http://www.businesscaseroi.org

AHRQ. Provides a diabetes cost calculator for employers. This is an evidenced-based tool that employers can use to estimate how much diabetes costs them and the potential savings that would result from better management of diabetes. http://www.ahrq.gov/populations/diabcostcalc/

AHRQ. Provides an asthma ROI calculator. This tool helps state leaders estimate the financial benefits of asthma quality improvement programs in their state.
http://www.academyhealth.org/ahrq/qualitytools/AsthmaROISummary.pdf

AHRQ. Provides a Preventable Hospitalization Costs: A County-Level Mapping Tool. This tool is a software program that maps selected indicators for a state and estimates the potential cost savings associated with reducing the level of potentially avoidable hospitalizations.
http://www.academyhealth.org/ahrq/qualitytools/MappingToolSummary.pdf

American Cancer Society. Information about wellness, tobacco, obesity/nutrition, physical activity, and cancer prevention. Also, includes ROI Calculator, Tobacco Calculator, and Obesity Calculator. http://www.acsworkplacesolutions.com/resources.asp

American Heart Association. Information and statistics about diabetes, high blood cholesterol, high blood pressure, metabolic syndrome, overweight/obesity, physical inactivity, and tobacco.
http://www.americanheart.org

Centers for Disease Control and Prevention. Chronic Disease Prevention and Health Promotion—State Profiles. Includes fact sheets, funding, legislation, reports, state-based programs, statistics and data. http://www.cdc.gov/nccdphp/states/

Centers for Disease Control and Prevention. Chronic Disease Prevention and Health Promotion—Statistics and Tracking. Contains CDC's major chronic disease surveillance systems, including prevalence data, trends data, SMART Data, BRFSS Maps, Annual Survey Data, WEAT, Chronic Disease Indicators, Health-Related Quality of Life, National Diabetes Surveillance System, National Health Interview Survey, National Health and Nutrition Examination Survey, National Oral Health Surveillance System, National Program of Cancer Registries, National Youth Tobacco Survey, State Tobacco Activities Tracking and Evaluation, Youth Risk Behavior Surveillance System, and Pediatric and Pregnancy Nutrition Surveillance System. http://www.cdc.gov/NCCDPHP/ttacking.htm

Centers for Disease Control and Prevention. Introduction to Economic Evaluation. This educational series is designed as an introductory course on applying economic evaluation techniques to public health preparedness and response strategies.
http://www.cdc.gov/owcd/eet/SeriesIntroduction/1.html

Centers for Disease Control and Prevention. Overweight and Obesity—Obesity Trends. Includes state-based programs, health consequences, and economic consequences. http://www.cdc.gov/nccdphp/dnpa/obesity/

Centers for Disease Control and Prevention. Smoking and Tobacco use—Data and Statistics. Includes state-level data, surveys, tables, charts, and graphs. http://www.cdc.gov/tobacco/data_statistics/index.htm

Centers for Disease Control and Prevention. Provides a **C**hronic Disease Cost Calculator**.** The goal of this took is to help states estimate the burden and financial impact with regard to Medicaid expenditures for six chronic diseases: congestive heart failure, heart disease, stroke, hypertension, cancer, and diabetes. http://www.cdc.gov/nccdphp/resources/calculator.htm

Center for Health Care Strategies. ROI calculator for quality initiatives, including intervention, target population, utilization, and program costs (mainly focuses on programs that affect Medicare and Medicaid). http://www.chcroi.org

Healthy People. Provides national objectives designed to identify the most significant preventable threats to health and establish national goals to reduce these threats. http://www.healthypeople.gov

Medline Plus. A health information database maintained by the National Institute of Health's Library of Medicine. http://www.nih.gov/medlineplus.com

National Center for Health Statistics. A very large collection of statistical information that can be used to guide actions and policies to improve the health of our people. http://www.cdc.gov/nchs

Partnership for Prevention. A downloadable archive of prevention-related tools and resources focusing on action guides, clinical prevention services, cost of prevention, implementation tools, Medicare, obesity, activity and nutrition, policy recommendations, prevention-centered health reform, tobacco use, and worksite health. http://www.prevent.org/content/view/12/6/

RAND Compare. This site provides information and tools to help policymakers, the media, and other interested parties understand, design, and evaluate health policies. http://www.randcompare.org

Wellsteps. An ROI calculator that projects the impact of health promotion programs on health care costs, productivity and absenteeism. Compares these projects with the cost of doing nothing. http://www.wellsteps.com/resources/resources_tools.php

World Health Organization. Data warehouse that collects, stores, and displays information on chronic disease and their risk factors, including alcohol, blood pressure, cholesterol, diet, overweight/obesity, physical activity, tobacco, diabetes, nutrition, oral health, and visual impairment. http://www.who.int/infobase/report.aspx

APPENDICES

IS YOUR PROGRAM OR ORGANIZATION READY FOR ROI? SELF-ASSESSMENT

Read each question and check off the most appropriate level of agreement on a scale of 1 to 5 (1 = Total Disagreement; 5 = Total Agreement)

	1	2	3	4	5
My program is considered high profile or is seen as an important part of my organization.					
My program is considered large with a wide variety of components and initiatives.					
My program has a specific purpose and objectives with measurable results that can be assessed.					
The program budget is relatively large and reflects the interest of senior management or priorities of our organization.					
My program/organization has a culture of measurement and evaluation and is focused on establishing a variety of measures including program improvement.					
My stakeholders/funders are demanding that programs or organizations show bottom-line results and outcomes.					
My program/organization competes with other programs and organizations for resources.					
There is increased focus on linking programs to the overall strategic direction of the organization.					
My team would like to be leaders in measurement, evaluation, and improvement processes.					
TOTAL SCORE:					

If you scored:

9-17 Your program or organization is probably not yet ready for ROI.

18-26 Your program or organization is probably not completely ready for ROI. However, it is time to start pursing some type of measurement process improvements.

27-35 Your program or organization is probably ready for building skills to implement the ROI methodology. At this point, there may be no real pressure to show the ROI so now is the best time to start the ROI process within your organization.

36-45 Your program or organization should already be implementing a comprehensive measurement and evaluation process, including ROI.

Appendix 2

ESTABLISHING A TIMETABLE FOR ROI ANALYSIS
KEY STEPS WORKSHEET

ACTIVITY	MONTH															
Prepare for ROI																
▪ Develop & review project plan & timetables																
▪ Gain buy-in																
▪ Develop project team																
Plan Work																
▪ Develop & review project objectives																
▪ Develop evaluation plan																
▪ Select data collection methods																
Data Collection																
▪ Level 1 data																
▪ Level 2 data																
▪ Level 3 data																
▪ Level 4 data																
▪ Level 5 data																
Isolate Program Impact																
Do the Math																
▪ Assess the return/value																

ACTIVITY	MONTH															
of the benefits																
▪ Determine the investments or costs of program																
▪ Calculate ROI																
Communication																
▪ Ongoing status meetings																
▪ Final results reports & communi-cation																

Appendix 3

OBJECTIVES AND EVLUATION MEASURES WORKSHEET

NAME OF PROGRAM:_____

PROJECT TEAM:_____

PROGRAM DATES:_____

Overall Purpose of Program:

What are the program objectives at each level of evaluation?

Level 1:

Level 2:

Level 3:

Level 4:

Level 5:

What are your measures of success for each objective?

Level 1:

Level 2:

Level 3:

Level 4:

Level 5:

EVALUATION / DATA COLLECTION PLAN WORKSHEET

PROGRAM NAME:_____

PROJECT TEAM:_____

DATE:_____

Level	Broad Program Objectives	Measures	Data Collection Method/ Instruments	Data Sources	Time Frame	Who is Responsible?
1	Reaction/ satisfaction and Planned Actions					
2	Learning					
3	Application/ implementation					
4	Business Impact					
5	ROI	Comments:				

Appendix 5

EVALUATION / DATA COLLECTION PLAN WORKSHEET
SAMPLE

PROGRAM NAME: Healthy Eating / Obesity Prevention Program

PROJECT TEAM:

DATE:

Eval. Level	Broad Program Objectives	Measures of Success	Data Collection Methods Instruments	Data Sources	Time Frame	Who is Responsible?
1	Reaction/ satisfaction and Planned Actions -Positive reaction - Recommended improvements -Action items	-Average rating of at least 4.2 on a 5.0 on quality, usefulness, and achieve-ment of program objectives -100 % submission of planned actions	- Reaction/satisfaction questionnaire	-Participants	-Last day of program	-Program Facilitator -Evaluation Team
2	Learning -Acquisition of skills -Selection of skills	-Through live role-play scenarios, demonstrate appropriate selection and use of 5 healthy eating habits	-Skill Practice	-Participants	-During program	-Program Facilitator -Evaluation Team
3	Application/ implementation	-Reported frequency and skill application	-Questionnaire -Follow-up session	-Participants	-3 weeks after program	-Program Coordinator

	-Use of skills -Frequency of skill use -Identify barriers	-Reported barriers to implementing healthy eating habits			-3 months after program	-Program Director -Evaluation Team
4	Business Impact -Less medical problems associated with obesity	-Lower hospitalizations -Lower costs due to obesity related illnesses -Improved quality of life	-Chart reviews -Questionnaires	-Participants -Healthcare	-3 months, 6 months, and 1 year	-Program Coordinator -Program Director -Evaluation Team
5	ROI	Comments: We would like to see an ROI 5 % higher than it was last year.				

STEPS TO CONVERT BENEFITS TO MONETARY VALUE WORKSHEET

		YOUR DATA	EXAMPLE
Step 1	Focus on unit of measure		The unit of measure is a doctor's visit.
Step 2	Determine the value of the unit of measure		The value of a single doctor's visit, based on external experts, is $1,000.
Step 3	Determine/calculate the change in performance of the measure		It was determined through the follow-up, data collection, an average of 5 doctor's visits per month that were avoided.
Step 4	Calculate the annual change		Because the program reduced the number of doctor's visits by an average of five per month, the annual change equaled 60 (12 X 5).
Step 5	Calculate the total annual value of improvement		In this case, the annual change in improvement was 60 times the value of $1,000 for a doctor's visit. As a result, this gives us an annual value improvement of $60,000 due to the program.

FULLY-LOADED COST SUMMARY WORKSHEET

Development Costs

Salaries and employee benefits _____
(# of people X average salary
X employee benefits X # of hours on project)
Meals, travel, incidental expenses _____
Office supplies and expenses _____
Program materials and supplies _____
Videos
Overhead transparencies
Artwork, posters, etc.
Manuals and materials
Other
Printing and copying _____
Outside services _____
Equipment expenses _____
General overhead & administrative expenses _____
Other miscellaneous expenses _____

TOTAL DEVELOPMENT COSTS _____

Delivery Costs

Participant costs _____
(# of participants X costs
associated with travel, registration,
incentives, etc.)
Facilitator costs _____
Salaries and benefits
Meals, travel, and incidental expenses
Outside services
Program materials and supplies _____
Lost production (from staff not participating
in other responsibilities)
Facility costs _____
Rental; Food; Other expenses
Equipment expenses _____
General overhead & administrative expenses _____
Other miscellaneous expenses _____

TOTAL DELIVERY COSTS _____

(Continued)
FULLY-LOADED COST SUMMARY WORKSHEET

Evaluation Costs

Salaries and employee benefits (# of people X average salary X employee benefits X hours on project)	_____
Meals, travel, and incidental expenses	_____
Participant involvement costs	_____
Office supplies and expenses	_____
Printing and copying	_____
Outside services	_____
Equipment expenses	_____
General overhead & administrative expenses	_____
Other miscellaneous expenses	_____
TOTAL EVALUATION COSTS	_____

Analysis Costs

Salaries and employee benefits (# of people X average salary X employee benefits X # of hours on project)	_____
Meals, travel, incidental expenses	_____
Office supplies and expenses	_____
Outside services	_____
Equipment expenses	_____
Registration fees	_____
General overhead & administrative expenses	_____
Other miscellaneous expenses	_____
TOTAL ANALYSIS COSTS	_____

TOTAL PROGRAM COSTS:	_____

Appendix 8

FORMAL ROI REPORT FORMAT OUTLINE

If you decide to present a comprehensive formal report, it is also important to include the following explaining the ROI methodology:

- ❑ Statement of Need: Why is This Particular Program Needed?
  - Background and Historical Significance
  - Program Objectives
  - Purpose of Evaluation and ROI
- ❑ Methodology for Evaluation and ROI (Builds credibility for the process)
  - Levels of Evaluation
  - ROI Process
  - Collecting the Data
  - Isolating the Effects of the Program
  - Converting Data to Monetary Values
  - Costs
  - Any Assumptions or Overall Guiding Principles
- ❑ Results
  - General Information
  - Participant Reaction and Satisfaction with Program
  - Learning Results
  - Application of Skills and Knowledge
  - Business Impact
  - ROI Calculation
  - Intangible Benefits
- ❑ Barriers and Enablers and any Suggestions from Participants
- ❑ Conclusions and Recommendations for Next Steps
- ❑ Appendices/Exhibits *(important considerations)*:
  - Show Data
  - Induce the audience to think about the substance rather than the technology or the graphic
  - Avoid distorting the story that the data has to tell
  - Make data coherent
  - Compare different pieces of data
  - Reveal data in layers pf detail
  - Maintain a clear purpose for ROI analysis
  - Integrate statistical and verbal descriptions of the data

(Continued)
FORMAL ROI REPORT FORMAT
OUTLINE

These components make up the major parts of a complete evaluation report. It is important to keep the report to a minimum amount of information that will satisfy the audience. In addition, the appropriate use of media should be considered. For example, some possible media include a newsletter, a special meeting, a PowerPoint presentation, and even Web conferencing when multiple locations and timeliness are issues.

Background information. The background information provides a general description of the chronic disease program. If applicable, the needs assessment that led to the implementation of the program is summarized. The solution is fully described, including the events that led to the program and the overall objectives. A full description of the program is provided, including features of the program design. The required level of detail and extent of this information depends on the audience.

Program objectives. The report details the program objectives so that the audiences clearly understand its purpose and desired accomplishments.

Evaluation methodology and strategy. The evaluation strategy outlines all the components of the evaluation process. The evaluation design and methodology are explained. The instruments used in the data collection are also described and presented in the appendices. Finally, other useful information related to the design, timing, and execution of the evaluation is included.

Data collection and analysis. This section explains the specific methods used to collect data (particularly, how and when). The data collected are usually presented in the report summary form. Next, the methods used to analyze data are presenting. Finally, the resulting interpretations are presented.

Program costs. All program costs are presented and summarized by category. For example, development, delivery, evaluation, and analysis costs are some recommended categories for the presentation of costs. The assumptions made in developing and classifying costs are discussed in this section as well.

Reaction and satisfaction. This section details that data collected from key stakeholders, particularly the participants involved in the program process, to measure the reaction to the program and the level of satisfaction with various issues and parts of the process. Other input from the consumer/participant group is included to show the level of satisfaction. If planned applications are part of the data, they are presented here as well.

Learning. This section shows a brief summary of the formal and informal methods for measuring learning. It explains how participants have learned new behaviors, procedures, processes, tasks, and skills from the program.

(Continued)
FORMAL ROI REPORT FORMAT OUTLINE

Application and implementation. This section shows how the program was actually applied or implemented and the success of the application of the new knowledge and skills. Implementation issues are addressed, including any major successes and/or lack of success.

Business impact. This section shows the actual business impact measures and how they relate to the business needs that drove the initiative. This section shows the extent to which performance/behavior has changed as a result of the implementation of the program.

Return on investment. This section shows the ROI calculation along with the benefits-cost ratio. It compares the value to what was expected and provides an interpretation of the actual calculation. It also briefly reinforces the key strengths of the methodology that was used to arrive at the calculation. For example, it mentions that the analysis used conservative approaches, that extreme data and unsupported data were not used in the calculation, and that the costs were fully loaded.

Intangible measures. This section shows that various intangible measures directly linked to the program. Intangibles are those measures not converted to monetary values and not included in the ROI calculation.

Barriers and enablers. The various factors or influences that had a positive effect on the implementation of the program (enablers) are identified. Any problems or obstacles that are adversely affected the implementation of the program (barriers) also are detailed. This section of the report can provide tremendous insight into what can enhance or hinder programs and initiatives in the future.

Conclusions and recommendations. This section presents conclusions based on all the results. If appropriate, a brief explanation is presented of how each conclusion was reached. Also, if appropriate, a list of recommended changes in the program also is provided, with a brief explanation of each recommendation. It is important that the conclusions and recommendations be consistent with one another and with the findings described in the previous sections of the report.

EXAMPLES OF ROI IN PUBLIC HEALTH AND CHRONIC DISEASE

ROI Case #1 -- ROI of Health Education Methods among Adults with Asthma

This project provided patients with a special health education program aimed at increasing medication adherence among adults with asthma. In order to isolate the impact of the project, 135 adult asthma patients were randomized into a control group which did not receive the special health education intervention and 132 patients to an experimental group which received the special health education intervention.

During the 12-month educational intervention and follow-up period, data were collected using three adherence measures: correct inhaler use, other medication usage, and a total adherence rating.

The cost of routinely delivering this intervention was found to be about $32 per patient. Experimental group patients exhibited a significantly higher level of improvement in medication adherence (44 %) compared to the control group patients (2 %). As a result, for an investment of about $32 per patient, medication adherence rates among adult asthma increased by 2100 % [{(44-2)/2}*100].

Reference: Windsor, RA, WC Bailey, JM Richards, B Manzella, SJ Soong, and M Brooks. 1990. Evaluation of the efficacy and cost effectiveness of health education methods to increase medication adherence among adults with asthma. *American Journal of Public Health*. 80(12): 1519-1521.

ROI Case #2 -- ROI of a National Health Management Program for Employees

This project included initial health screening, computerized triage of employees into higher and lower risk intervention programs, extensive follow-up with higher risk employees, and general health education and awareness programs. The goal of the ROI analysis was to estimate the financial impact of this program on overall medical expenditures.

A quasi-experimental design was used comparing medication expenditures before the program versus medical expenditures after the programs. Overall, 22,838 employees were followed. This included 11,194 who were participating in the program (experimental group) and 11,644 who were not participating in the program (control group). They were followed for about 38 months.

Once the costs of the program were calculated, the ROI was estimated to be between $4 and $5 saved per dollar spent on the program. This strong ROI suggests that a well-designed health management program which focused interventions on high risk populations can result in monetary savings of an organization.

Reference: Ozminkowski, RJ, RL Dunn, RZ Goetzel, RI Cantor, J Murname, and M Harrison. 1999. A return on investment evaluation of the Citibank, N.A., health management program. *American Journal of Health Promotion.* 14(1): 31-43.

ROI Case #3 -- Measuring ROI for Community Health Workers

This project was interested in determining whether or not Community Health Workers were effective in improving access to health care, promoting client knowledge and behavior changes, and contributing to improved health status of 590 underserved individuals.

Changes among the program participants were measured repeatedly over the course of 9 months with regard to access to care, health knowledge and behavior change and health status. In addition, data were collected focusing on service utilization, health care charges, and reimbursements.

Overall, primary and specialty care visits increased and urgent care, inpatient and outpatient behavioral health decreased. This resulted in a reduction of monthly uncompensated costs by $14,244. Program costs were $6,229 per month. As a result, the ROI was about 2:1. In other words, for every $1 spent, $2 worth of benefits was achieved. This resulted in a savings of $95,941 annually. These data provide evidence that Community Health Workers are financially beneficial and should be considered when informing policy making regarding the program.

Reference: Whitley, EM, RM Everhart, and RA Wright. 2006. Measuring return on investment of outreach by Community Health Workers. *Journal of Health Care for the Poor and Underserved.* 17(1): 6-15.

ROI Case #4 -- ROI and Workplace Health Promotion

This comprehensive workplace health promotion program consisted of proving health education programs and services to full-time employees in a large, multi-location, diversified industrial company.

There were a total of 41 intervention sites and 19 control sites resulting in 29,315 employees in the experimental group and 14,573 in the control group. Data were collected through a pre-test and post-test evaluation of all the employees over a period of two years.

Overall, a 14 % decline in disability days occurred at the intervention sites compared to the control sites. This resulted in a net difference of 11,726 fewer disability days over two years. As a result, this ROI analysis found that for every dollar invested in the program, a return of about $2 was provided due to the decrease in disability days. These results suggest that a

comprehensive workplace health promotion program can reduce disability days among blue collar employees and provide a good return on investment.

Reference: Bertera, RL. 1990. The effects of workplace health promotion on absenteeism and employment costs in a large industrial population. *American Journal of Public Health*. 80(9): 1101-1105

ROI Case #5 -- ROI and Childhood Obesity

This program consists of a 12-week activity program for families with children. The overall premise of this program was that obese children cost a certain percentage more in the health care spending. Another huge factor is that if the parents have sick kids, their productivity is impacted. The parents are going to lose time, and their going to be concerned about their children.

This program included three months of regular activities have to be completed, including a self-assessment of nutrition in the household. During the 12 weeks, families eat meals together, cook together, and exercise together, using an online program to map their progress. Data were collected through the online monitoring systems as well as the self-assessments.

Total program costs were calculated, including a $150 incentive for participating families. Once everything was added up in terms of benefits—including the lost work/school days that are saved and reduced medical costs—this program was estimated to gain back $3 worth of benefits for every $1 spent on the program.

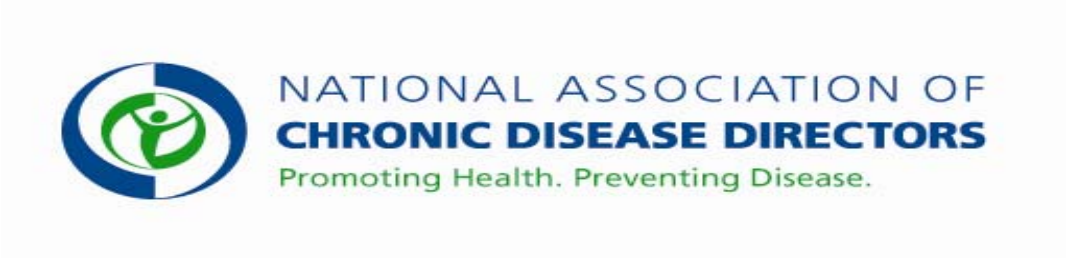
Reference: Carroll, J. 2008. What's the ROI on wellness? *Managed Care*, February.

Appendix 10

COMPARING COMMON METHODS TO ASSESS BUSINESS IMPACT

Type of Analysis	Assessment of Costs	Assessment of Benefits	Characteristics	Strengths	Challenges
ROI and Cost-Benefit Analysis	Monetary Units	Monetary Units	A method designed to value and compare all the costs and benefits of interventions in equivalent monetary terms It provides an absolute indicator of "goodness" of the intervention. An intervention should be implemented if Benefits – Costs >0 or Benefits / Costs >1	Makes it possible to compare programs that generate different types of outcomes—within the health sector and outside of it.	Difficult to assign a monetary value of outcomes of the intervention Ethical issues about assigning a monetary value to improvements in well-being of individuals must be resolved by the evaluation team.
Cost-Effectiveness Analysis	Monetary Units	Natural health units (health outcomes)	This method values the costs in monetary value, while the benefits are expressed in natural health unites or outcome of effectiveness. It allows comparisons among options with the same indicators of effectiveness. An intervention with a lower Cost-Effectiveness ratio is usually preferable to one with a higher Cost-Effectiveness ratio.	Comparison of health outcomes is helpful for health decision-makers. Interventions of same type competing for same resources can be compared.	Only interventions that have outcomes in the same measuring units can be compared. Limited to single dimension of effectiveness so that it cannot capture the multidimensional

Type of Analysis	Assessment of Costs	Assessment of Benefits	Characteristics	Strengths	Challenges
					outcomes of most health promotion programs.
Cost-Utility Analysis	Monetary Units	QALYs (Quality-adjusted life-years) DALYs (Disability-adjusted life years)	This method estimates costs in monetary terms and the benefits are expressed as QALYs (units that incorporate length of life and quality of life) or DALYs (units that quantify the impact of premature death and disability)	Can compare interventions with broad ranges of outcomes and from different sectors. Provides a common outcome measure so that different interventions can be compared. Can compare new programs with other programs that were evaluated with this method.	No consensus of the best method to evaluate quality of life. Many health promotion programs have additional benefits beyond health gain. QALYs and DALYs can be insensitive to small changes at the individual level even though those changes may be substantial at the population level.



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