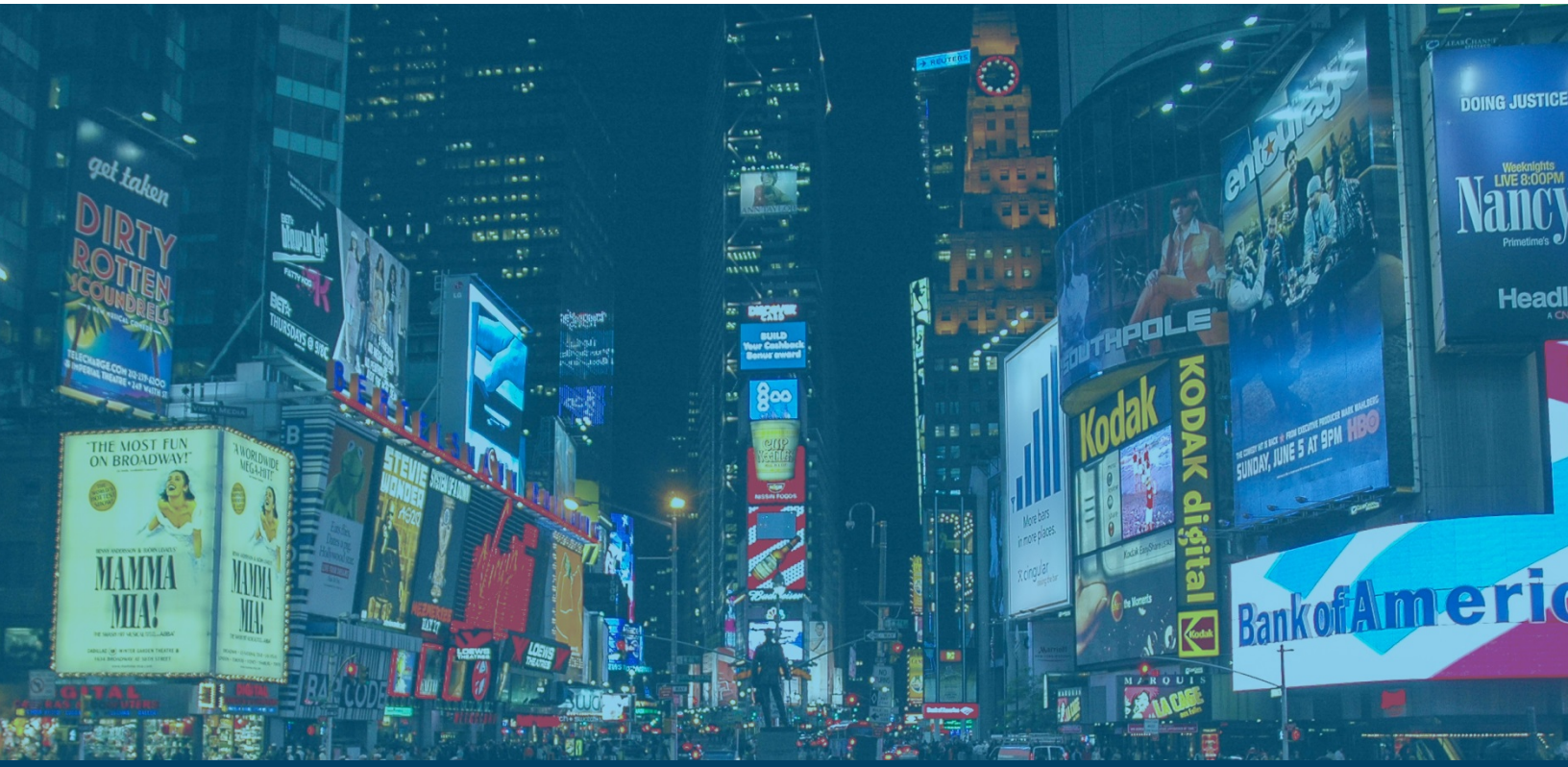
Communication Training for Comprehensive Cancer Control Professionals 102

Guide to Making Communication Campaigns Evidence-Based



THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

GW Cancer Center

GW Cancer Center
CANCER CONTROL TAP
Tap into resources to control cancer

WELCOME

The Institute for Patient-Centered Initiatives and Health Equity at the George Washington University (GW) Cancer Center is committed to fostering responsive health care professionals through applied cancer research, education, advocacy and translation of evidence to practice.

When we were awarded the cooperative agreement from the Centers for Disease Control and Prevention (CDC) in September 2013 to provide technical assistance for Comprehensive Cancer Control (CCC) Programs, the first thing we did was conduct a needs assessment to guide our project activities. One key finding from our assessment was the need for online training on developing communication plans. This Guide and accompanying training were created in response to those needs.

In August 2015, we published the first of two communication trainings, *Communication Training for Comprehensive Cancer Control Professionals 101: Media Planning and Media Relations (Communication Training 101)* for participants purely interested in understanding the process and requirements for creating a media plan and developing media relations to fulfill their CDC deliverable.

This training is the second part of the communication training (102) on *Making Communication Campaigns Evidence-Based*, and is designed for participants who desire more in-depth training about the process of organizing a communication campaign.

These trainings are most appropriate for cancer control professionals with little to no communication experience or support from experienced communication staff, but may offer a good reference for review of key concepts for more experienced individuals as well. We recommend that learners take the 101 training or read the *Communication Training 101 Guide* before beginning 102 to master competencies on health communication strategies and media planning.

This *Guide to Making Communication Campaigns Evidence-Based* was developed to walk you through the process of taking an evidence-based approach to planning, implementing and evaluating a health communication campaign. We have included background information, case examples, tools and resources, including customizable templates.

The competencies in this training are based on content from the National Cancer Institute's publication *Making Health Communication Programs Work: A Planner's Guide* and the Seven Areas of Responsibility for Health Education Specialists, revised by the National Commission for Health Education Credentialing in 2015.

We hope that you find this training and corresponding *Guide* beneficial as you develop your communication campaign, ultimately seeking to improve health outcomes in your community.

Sincerely,

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HOW TO USE THIS GUIDE

The GW Cancer Center developed the no-cost, web-based *Communication Training for Comprehensive Cancer Control Professionals 102: Making Communication Campaigns Evidence-Based*. The training contains three main components:

1. Interactive learning modules walk you through important concepts related to an evidence-based approach to health communication campaigns.
2. This *Guide to Making Communication Campaigns Evidence-Based* provides an overview of important content for planning, implementing and evaluating a health communication campaign—it is intended to serve as the textbook for the online course. The *Guide* can be used alone, but is optimally used with the online training.
3. The *Appendices* include customizable templates that can help you plan, implement and evaluate your communication campaign more effectively.

The **bold** words throughout the *Guide* are defined in the *Glossary*. The underlined words throughout the *Guide* are hyperlinks to sources.

To give you a concrete understanding of how information presented in this training applies in the real world, we will follow a media campaign on radon awareness adapted from the Utah Comprehensive Cancer Control Program from planning to implementation and evaluation. Portions of the case study will be found in green boxes throughout the chapters.

Based on your experience, we recommend starting at the beginning of the *Guide* and looking through each section, even if you do not think it is relevant to your program.

If you have suggestions or comments about the *Guide*, please email us at CancerControl@gwu.edu. Our goal is to make this training as useful as possible for cancer control professionals, and we welcome your feedback.

Permission is granted to use this *Guide* and the corresponding templates for non-commercial and U.S. government purposes only.

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Electronic copies of the most recent version of this toolkit can be downloaded at http://smhs.gwu.edu/gwci/reports

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ABOUT THE GW CANCER CENTER

The mission of the Institute for Patient-Centered Initiatives and Health Equity at the GW Cancer Center is to foster healthy communities, prepared patients, responsive health care professionals and supportive health care systems through applied cancer research, education, advocacy and translation of evidence to practice. Our vision is a cancer-free world and health care that is patient-centered, accessible and equitable.

The GW Cancer Center is a collaboration between the GW Hospital, the GW Medical Faculty Associates, and the GW School of Medicine and Health Sciences to expand GW's efforts in the fight against cancer. The GW Cancer Center also partners with the Milken Institute School of Public Health at GW, and incorporates all existing cancer-related activities at GW, serving as a platform for future cancer services and research development.

ABOUT THE COMPREHENSIVE CANCER CONTROL PROJECT

In 2013, the Institute for Patient-Centered Initiatives and Health Equity at the GW Cancer Center (formerly the GW Cancer Institute) was awarded a 5-year cooperative agreement to work with the Centers for Disease Control and Prevention (CDC) to design and implement comprehensive, high-quality training and technical assistance to CCC programs and their partners to implement cancer control activities. To learn more, visit www.CancerControlTAP.org.

DISCLAIMER

This work was supported by Cooperative Agreement #1U38DP004972-03 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

Resources used in this *Guide* were publicly available or permission was granted to use the templates/tools incorporated in the *Guide* solely for educational and training purposes. We thank those organizations for their contributions.

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INTRODUCTION: USING A COMMUNICATION/MEDIA PLAN TO LAUNCH A CAMPAIGN

By the end of this lesson, you should be able to:

- Describe the role of communication campaigns in chronic disease and cancer prevention and control
- Define a communication/media plan
- Explain CDC's requirements for a media plan

This guide on *Making Communication Campaigns Evidence-Based* is designed for professionals who have completed *Communication Training for Comprehensive Cancer Control Professionals 101: Media Planning and Media Relations* (*Communication Training 101*) and/or who have a CDC-approved media or communication plan. This introduction will summarize what was outlined in Lesson 3 of *Communication Training 101*.

0.1 Describe the Role of Communication Campaigns in Chronic Disease and Cancer Prevention and Control

People have defined health communication in various ways. Both the Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI) define **health communication** as: "The study and use of communication strategies to inform and influence individual and community decisions that enhance health" (National Cancer Institute, 2004, p. 13). Thus, communication is an important tool in Comprehensive Cancer Control. It can influence your constituents' health behaviors to decrease their risk of cancer and ultimately improve cancer outcomes in your state, region or community.

There are some key points to note on the definition of health communication:

1. The purpose of health communication is "to inform or to influence" (National Cancer Institute, 2004, p. 2). Certainly, there are times when health communicators merely want their audience (individuals or groups) to become more educated about a particular health issue. Perhaps you want people to understand the risks of a product (e.g., prescription medication) or the relationship between nutrition and colorectal cancer. Other times, health communicators want to influence or persuade their audience(s), such as convincing women over age 50 to get mammograms or to be more physically active each day.
2. Communication is just one of many tools for triggering change and is most effective when combined with other strategies. Review what communication can and cannot do from *Communication Training 101.*
3. Health communication audiences may be an individual (e.g. a patient); groups (e.g. teenagers targeted by an anti-smoking **public service announcement (PSA)**); organizations, communities or societies. Often, when health communicators are attempting to influence large groups of people, they are using **social marketing**, an approach that uses elements of commercial marketing to influence behaviors for the

benefit of individuals and society. Review the different levels of social communication and influence from *Communication Training 101*.

4. Health communication is an entire field or academic discipline that helps us to understand the best ways to use communication theory and insights to inform or influence audiences. Communication can come in various forms: doctor to patient, nutritionist to client, PSAs, family communication, support groups or even social marketing.

Social marketing is a type of mass communication strategy that practitioners often use to impact behavior change in **intended audiences** and **secondary audiences**. Social marketers use the theories, strategies and practices of commercial marketers in order to affect social, or in this case, **public health** behaviors. Commercial marketers think about the **4 P's of marketing**: product, price, place and promotion. Review the 4 P's of marketing from *Communication Training 101*.

Sometimes, the goal of health communication is to change the way an issue is thought about or framed in society. This is where **media advocacy** can be useful. For example, there was a time when lung cancer was only viewed from an **"individual responsibility" frame**, which argues that people are solely responsible for their cancer because of poor behavior choices (Brownell et al., 2010). Many public health experts found this to be objectionable and reframed the issue around tobacco industry practices, the power of tobacco advertising, the addictive nature of the substance, and even the power of pricing strategies (providing coupons, lowering prices, etc.).

Public health communication experts used media advocacy to get these kinds of stories in the news to reshape how people in the United States think about tobacco, the tobacco industry and lung cancer, as well as other tobacco-related diseases. Media advocacy, then, is the strategic use of mass media to advance a social or public policy initiative or environmental change (National Cancer Institute, 1989). In this example, strategic communication was used for the purpose of policy change. When society at large looks at public health issues differently ("Maybe tobacco addiction isn't all on the individuals' shoulders; maybe tobacco advertising is unethical"), public opinion begins to support policy change ("We need to change the regulations"). Media advocacy has been critical in affecting tobacco regulations and is now being used to affect other public health causes such as food and nutrition regulations (e.g., the amount of allowable sodium in foods; listing calories on restaurant menus, etc.) to make the healthy choice the easy choice.

Whether your campaign takes a social marketing or media advocacy approach, health communication has an important role to play in changing the knowledge, attitudes, beliefs,

confidence and behaviors of your constituents and ultimately improving cancer outcomes in your community.

0.2 Define a Communication/Media Plan

The CDC requires all National Comprehensive Cancer Control Programs to submit a media or communication plan. A media plan is part of a communication plan (Figure 0A). If your program has a communication plan that includes a media plan, you have satisfied that deliverable.

The CDC defines a **media plan** as "a subset of a communication plan" that:

1. "Focuses on and describes strategies using media to reach, engage, inform and create awareness
2. Includes print (newspapers, magazines), broadcast (TV, radio) and social media (Twitter, Facebook)
3. Identifies **goals**, target audiences, **objectives**, **strategies**, **tactics**, activities and outcome measures for evaluation purposes" (Centers for Disease Control and Prevention, 2014, p. 4).

Simply put, the media plan addresses efforts on **paid, earned** and **shared media**, while the communication plan addresses paid, earned, shared and **owned media** (Figure 0A). Review the four different types of media in *Communication Training 101*.

"A media plan provides a strategic roadmap for media activities, along with increased chances of programmatic success" (Centers for Disease Control and Prevention, 2014, p. 4). It will also "deepen existing partnerships and develop new ones. In addition, the plan will make the most of your team's limited time and resources" (Centers for Disease Control and Prevention, 2014, p.5).

0.3 Explain CDC's Requirements for a Media Plan

Significant planning, time and thought go into creating a media plan. Considering each section of the media plan (Background and Justification; Health, Behavioral and Communication Objectives; Audience; Media Plan Tactics and Timeline; and Evaluation) and populating the sections with data, evidence- and theory-based **S.M.A.R.T. objectives** and activities will not only fulfill media plan obligations to the CDC, but

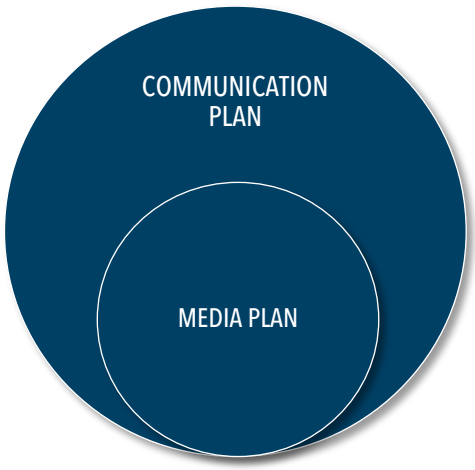


Figure 0A: A media plan as a component of a communication plan

also serve as a crucial foundation when it comes to implementing and evaluating a health communication campaign.

The first section of the media plan is the Background and Justification. It is an opportunity to describe the current status of cancer control in your state, region or community. Here, it is important to refer back to your state's Comprehensive Cancer Control Plan and its high-level goal(s). This may include morbidity, mortality, severity of outcomes, populations affected and prevalence rates among sub-groups, risk and protective factors, and more.

The CDC encourages that the Background and Justification section also include a "**SWOT analysis**, environmental scan and/or literature reviews as needed" (Centers for Disease Control and Prevention, 2014, p. 5).

After carefully identifying and assessing the health issue or problem, you can move on to writing objectives. First, your objectives need to be S.M.A.R.T. objectives: Specific, measurable, achievable, realistic, and time-bound.

Given that you are developing a communication program, think about what communication can achieve in the second section of the media plan on Health, Behavioral and Communication Objectives. What can you expect to change because of your communication program? Keep in mind that communication is only one of many tools for promoting or improving health and "changes in health care services, technology, regulations, and policy are often necessary to completely address a health problem" (National Cancer Institute, 2004, p. 3).

Health objectives are the goals that outline desired changes in the audience's health status (**health outcomes**). This could include reducing cancer and chronic disease in the population of interest and should align with the state's cancer plan. Health objectives should correspond to your state Comprehensive Cancer Control Plan goals.

Behavioral objectives are goals that outline desired changes in your audiences' behaviors. Behaviors can be actions you want people to engage in or actions you want them to stop. Behaviors might include getting screened or tested for a risk factor or disease, increasing physical activity, eating vegetables, talking to one's doctor or quitting smoking. Behavioral objectives should align with and contribute to meeting your health objectives.

Communication objectives outline the desired changes in awareness, knowledge, perceptions, beliefs and confidence/self-efficacy related to risk factors, diseases or behaviors that can be expected as a result of the communication campaign. The belief is that if you can create changes in knowledge, attitudes, beliefs, perceptions, self-efficacy, norms and emotions, you can begin to change behaviors of the audience. Communication objectives should align with and contribute to meeting your behavioral objectives.

The secret to effective communication comes from knowing your audience and this section of the media plan helps you to think through this process. Selection of the intended audience (also commonly referred to as target audience or priority population) should be driven by population needs and supported by data. Perhaps there is data that reveal that African American or Black populations in your region have disproportionately high rates of death from cervical cancer. This may prompt you to refine your audience from women in general to African American or Black women.

Using **primary data** (data collected from your own research such as surveys, focus groups or town hall meetings) or **secondary data** (literature review, existing data sets), health communicators must be able to answer questions about their target audience such as:

- Why do they have this health problem?
- How severely do they experience the health problem?
- What is their knowledge level about the health problem?
- Do they know they experience the health problem (i.e., do they perceive they are vulnerable)?
- Are there cultural or personality-based traits that perpetuate this health problem (e.g., fatalism, machismo, groupthink, low health literacy, etc.)

Understanding these kinds of audience characteristics will help you develop goals and objectives that are realistic and tailored to your audience. The communication team should also understand and know the audience to develop key messages and activities that will reach and have the biggest impact on the intended audience; these are listed in the media plan tactics and timeline section.

For example, research shows that intense and sensational messages are very effective for people who score high on a trait called "sensation seeking," but, those same messages are less effective for people scoring low on that trait (Everett & Palmgreen, 1995). Other research shows that messages that appeal to guilt are very effective for middle-aged women (especially mothers), but cause negative effects in teenagers (Turner, 2011). As you can see, researching and understanding your audience is crucial to developing messages that resonate with them, seem authentic and inspire change. This is the key benefit of involving audience or community members in the formative research and planning process.

Aligning your media plan with your state cancer plan and conducting basic research to inform your plan will help you in executing and implementing the plan, as well as evaluating specific communication campaigns.

As illustrated by NCI's Health Communication Program Cycle (Figure 0B), tracking and evaluating your campaign is helpful to not only assess how effective your campaign was, but also to find ways the campaign can be improved in the future (National Cancer Institute, 2004). For the purposes of completing your media plan, planning and tracking process evaluation at a minimum is crucial.

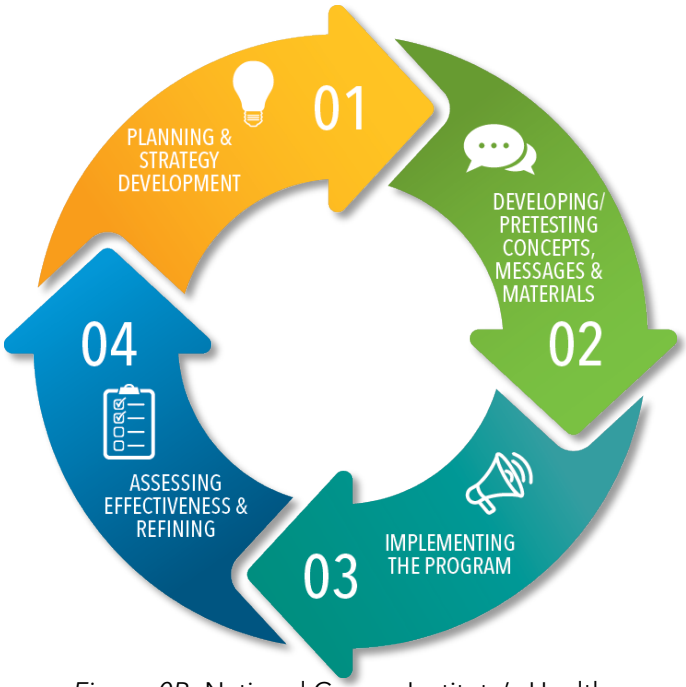


Figure 0B: National Cancer Institute's Health Communication Program Cycle

According to a CDC Evaluation Brief, process evaluation assesses program operations, namely the who, what, when and how many of program activities and program outputs were met (Centers for Disease Control and Prevention, 2009).

By tracking and analyzing these data, you can adjust your campaign in the future. For example, if you find that you are not reaching the right people by using one media channel, you may regroup and explore other channels that would be more effective. In addition to process outputs, measuring outcomes, satisfaction and impact is important and will be discussed in depth in Lesson 4.

LESSON 1: EVIDENCE-BASED HEALTH COMMUNICATION CAMPAIGNS

By the end of this lesson, you should be able to:

- Define "evidence" and its role in public health
- Explain the importance of evidence-based approaches in communication campaigns
- Describe methods to collect evidence
- Describe behavioral and communication theories to inform evidence-based communication campaigns

1.1 Defining "Evidence" and its Role in Public Health

Evidence can be used to establish proof or to confirm the existence of a particular phenomenon. The New Oxford American Dictionary defines evidence simply as "the available body of facts or information indicating whether a belief is true or valid" (Jewell & Abate, 2001). By establishing evidence, health care delivery and public health programs can enhance their potential for achieving desired outcomes by building on what others have done. Evidence adds credibility to your work and can be used to guide decision-making about public health practice.

Some forms of evidence in public health include (Chambers & Kerner, 2007):

- Media/marketing data
- Personal experience
- Policy analysis
- Program evaluation
- Public health surveillance data
- Qualitative data from community members or other stakeholders
- Systematic reviews of multiple intervention evaluations

The evidence-based movement in public health is closely related to evidence-based practice in clinical medicine. In public health, the primary focus is populations and the emphasis is on prevention, health promotion and the whole community (Fineberg, 2003). Public health is an interdisciplinary effort "that addresses the physical, mental and environmental health concerns of communities and populations at risk for disease and injury. Public health's mission is achieved through the application of health promotion and disease prevention technologies and interventions designed to improve and enhance quality of life..." (Lewis & Chisolm, 2007, p. 339). From a systems perspective, public health calls for significant movement in "building a new generation of intersectoral partnerships that also draw on the perspectives and resources of diverse communities and actively engage them in health action" (Institute of Medicine, 2002, p. 4).

Evidence-based public health is defined as the "process of integrating science-based interventions with community preferences to improve the health of populations" (Kohatsu, Robinson, & Torner, 2004, p. 419). Making use of evidence-based public health in health

communication campaigns is imperative to achieving sustainable, population-level health outcomes.

1.1A Types of Evidence-Based Approaches

Decisions regarding public health policies, programs and practice should be informed by the best available evidence. Public health evidence can be based on personal experience with past institutional or programmatic efforts, word-of-mouth, program evaluation, intervention research studies, systematic reviews or surveillance data, and each source should be weighed differently.

Evidence used to make decisions can either be **subjective evidence**, derived from direct experience with smaller populations in variable conditions, or **objective evidence**, derived under highly controlled conditions that may not exist in reality but are essential for measuring cause and effect (Cancer Prevention and Control Research Network, 2014a). The Cancer Prevention and Control Research Network (CPCRN) defines three main categories of **evidence-based approaches (EBAs)** that can be used to promote public health:

1. **Evidence-based programs** (also often called **evidence-based interventions** (EBIs)) are judged to be evidence-based if "(a) evaluation research shows that the program produces the expected positive results; (b) the results can be attributed to the program itself, rather than to other extraneous factors or events; (c) the evaluation is peer-reviewed by experts in the field; and (d) the program is "endorsed" by a federal agency or respected research organization and included in their list of effective programs" (Cooney, Huser, Small, & O'Connor, 2007, p. 2). Programs are typically available with detailed implementation instructions and programmatic materials. An example is the Body & Soul program designed to increase fruit and vegetable consumption among African Americans through education in faith-based group settings.
2. **Evidence-based policies** include public and organizational policies that are informed by "the best available quantitative and qualitative evidence...in order to improve public health outcomes" (Brownson, Chriqui, & Stamatakis, 2009, p. 1580). Evidence-based policies rely on appropriate and effective packaging of evidence aimed at specific policy elements that are likely to effectively impact public health (Brownson, Chriqui, & Stamatakis, 2009). All levels of policy can affect public health, including public policy and organizational policy. An example of public policy is the Family Smoking Prevention and Tobacco Control Act (Tobacco Control Act), which gives the Food and Drug Administration (FDA) "broad authority to regulate the manufacture, distribution, and marketing of tobacco products to help all Americans…live longer, healthier lives" (U.S. Food and Drug Administration, 2015). Organizational policies include smoke-free workplace initiatives to decrease the dangers of smoking in the workplace.

3. **Evidence-based strategies** are recommended actions based on evidence of effectiveness from multiple studies. Strategies are not prescriptive and therefore do not include precise implementation details. An example evidence-based strategy is provider reminder and recall systems to promote cancer screenings. If you select an evidence-based strategy, you will need to build in time and expertise to develop the intervention materials and protocols (discussed in more detail in Lesson 2).

All evidence is not created equal. We make no judgements about what type of evidence is better than another; practice-based evidence related to feasibility or cultural appropriateness is just as important as research-based evidence of intervention efficacy when planning a campaign or program.

1.1B Types of Evidence

In public health, three different types of evidence can be used to guide cancer control work. **Type one evidence** justifies that something should be done about a particular public health problem (Brownson, Fielding, & Maylahn, 2009). Type one evidence "defines the causes of diseases as well as the magnitude, severity, and preventability of risk factors and diseases" (Brownson, Fielding, & Maylahn, 2009, p. 179). For example, the Surgeon General and U.S. Preventive Services Task Force (USPSTF) may recommend the use of broad-spectrum sunscreen with a sun-protection factor of 15 or greater to prevent skin damage and cancer based on type one evidence from randomized controlled-trials showing the physiological benefits of sunscreen application.

Type two evidence justifies reasons why a particular intervention should be implemented (Brownson, Fielding, & Maylahn, 2009). Type two evidence "describes the relative impact of specific interventions that do or do not improve health" (Brownson, Fielding, & Maylahn, 2009, p. 179). For example, a study with multiple **study arms** found that the proportion of tourists with at least one sunburn during their stay at a beach resort decreased among the intervention group that received both education about sunscreen and free sunscreen compared to a control group that received free sunscreen only (Saraiya et al., 2004).

Type three evidence shows "how and under which contextual conditions interventions were implemented and how they were received" (Brownson, Fielding, & Maylahn, 2009, p. 179). For example, in a study of the Go Sun Smart communication program, the researchers concluded that signage produced the greatest increase in exposure to sun-safety messages yet exposure to signage alone did not produce desired sun-safety improvements (Walkosz et al., 2008).

Comparatively, there is more type one evidence than there is type two or three. This means that often we know that something should be done but maybe do not know exactly what to do to guarantee its success. As you create your communication campaign, evidence will be critical to making sure your plan will be as effective as possible.

Selecting an evidence-based approach and adapting it for your context requires adherence to a strategic decision making process incorporating a) evidence from the best available research; b) resources, such as practitioner expertise; and c) the attributes of the community or population's values, preferences and characteristics (Satterfield et al., 2009; Jacobs, Jones, Gabella, Spring, & Brownson, 2012).When searching for an evidence-based solution to an identified health problem, you will likely encounter intervention programs, policies and strategies with varying types and amounts of evidence behind them.

Table 1A demonstrates a typology for classifying evidence-based approaches by level of scientific rigor and highlights some of the considerations that contribute to an approach being truly evidence-based (Brownson, Fielding & Maylahn, 2009). Table 1A also provides some common sources for evidence-based approaches that you might wish to explore when developing your campaign.

Table 1A: Typology for Classifying Approaches by Rigor of Scientific Evidence (Brownson, Fielding & Maylahn, 2009)

Category	How Established	Considerations for the Level of Scientific Evidence	Data Source Examples	Rigor Level
Evidence-Based	Peer review via systematic or narrative review	• Based on study design and execution • External validity • Potential side benefits or harms • Costs and cost-effectiveness	• *Community Guide* • Cochrane reviews • Narrative reviews based on published literature	
Effective	Peer review	• Based on study design and execution • External validity • Potential side benefits or harms • Costs and cost-effectiveness	• Articles in the scientific literature • Research-tested intervention programs (123) • Technical reports with peer review	
Promising	Written program evaluation without formal peer review	• Summative evidence of effectiveness • Formative evaluation data • Theory-consistent, plausible, potentially high-reach, low-cost and replicable	• State or federal government reports (without peer review) • Conference presentations	
Emerging	Ongoing work, practice-based summaries or evaluation works in progress	• Formative evaluation data • Theory-consistent, plausible, potentially high-reaching, low-cost and replicable • Face validity	• Evaluability assessments • Pilot studies • NIH RePORT database • Projects funded by health foundations	

1.2 Explain the Importance of Evidence-Based Approaches in Communication Campaigns

Because it is an interdisciplinary field of applied science that requires integration of research from multiple fields, public health depends on evidence-based approaches to make progress. In public health, evidence can be used as a tool to make judgements or decisions on how to make health campaigns most effective (Brownson, Fielding & Maylahn, 2009). Insight derived from evidence can be used to most effectively utilize limited resources. The purpose of using an evidence-based approach is to add value to your campaign proposal, save time and resources during planning and implementation, help narrow the focus of the evaluation and increase the overall likelihood of success.

As with health behavior change interventions, communication campaign strategies should be rooted in evidence, not speculation. An evidence-based approach ensures systematic use of existing data and tools, and should be used in developing, monitoring and measuring health communication campaigns. Brownson, Fielding and Maylahn (2009) explain that using evidence for public health communication campaigns is important for the following (p. 177):

- "Making decisions using the best available peer-reviewed evidence (both quantitative and qualitative research),
- Using data and information systems systematically,
- Applying program planning frameworks (that often have a foundation in behavioral science theory),
- Engaging the community in assessment and decision-making,
- Conducting sound evaluation and
- Disseminating what is learned to key stakeholders and decision-makers"

The emphasis on experimental evidence should not override practice-based evidence. Each community, whether defined by geography, race or ethnicity, or some other demographic, has its own context, history and cultural behaviors and beliefs that will likely require you to adapt an evidence-based approach to fit your situation. For this reason, it is important to consider different types and levels of evidence to get the most comprehensive understanding of how the health issue impacts a specific group and what techniques would be most effective in eliciting change. Success of the communication campaign will depend on local feasibility, acceptability and fit with context, which can all be assessed through integrating evidence, expertise and prior experience.

Evidence-based approaches are often underutilized in practice. To reverse this trend, it is important to know how to find evidence, how to assess the strength of the evidence, how to assess the fit of this evidence with your intended audience, how to assess your organizational capacity to implement evidence, how to adapt it to a population or setting and how to implement with fidelity (Escoffery et al., 2015).

1.3 Describe Methods to Collect Evidence

Evidence for a communication campaign may be located in various places. Evidence can be data that you collect (primary data) or data that have been collected and published (secondary data). These data can be used to inform planning, implementation, evaluation and grant writing. The advantage of using primary data is that the data can be collected using methods that are specific to the subject matter and audience of the communication campaign. For example, if you wanted to determine whether women 50 years and older who received mammograms from your clinic were comfortable accessing health information using social media platforms, you could conduct a focus group or brief survey at intake to collect primary data on that audience. This would be evidence that could determine whether using social media platforms to promote mammography screenings to women of this age group had the potential to be successful.

Common Methods for Collecting Primary Data:

- Qualitative data
    - Unstructured or semi-structured interviews
    - Focus groups or small group discussions
    - Public meetings or forums
    - Direct observation of communities or groups of people
- Quantitative Data
    - Structured interviews
    - Surveys

Compared to primary data, secondary data are typically inexpensive to obtain, because they do not require field-work. These data can also be assessed over time, for example quarterly reports documenting the number of mammography referrals that were made to your intended audience in the last 18 months. However, because secondary data were not obtained explicitly for your specific purposes, it may be difficult to apply the findings to your unique scenario.

Many state and local resources, such as state health departments or hospitals, may have relevant community data available to help inform your campaign. Questions that are not addressed through assessing secondary data can be addressed through primary data collection. These two data sources can provide a more comprehensive picture of how your campaign might be most impactful. The combination of primary data, secondary data and past experience will facilitate planning of the communication campaign. See Appendix B for

a list of free public health guidelines, journals and databases that can be used to find evidence.

Common Sources for Obtaining Secondary Data:

- Demographics and Health Trends:
  - CDC's Morbidity and Mortality Weekly reports
  - Demographics from the US Census (American FactFinder or State and County QuickFacts)
  - Disease prevalence and incidence from NCI's Cancer Control P.L.A.N.E.T.
  - Health Information Trends from Health Information National Trends Survey: HINTS
  - Vital Statistics from State and Local Health Departments
- Behavioral Risk Factors and Psychographic (i.e. knowledge, attitudes, beliefs, etc.)
  - The Behavioral Risk Factor Surveillance System (BRFSS)
  - The National Health Interview Survey (NHIS)
- Media Use Habits
  - Computer and internet access and use: U.S. Census Bureau
  - Internet usage: PEW Research Center - Internet, Science & Technology
  - Media circulation: PEW Research Center – Journalism & Media
  - Media consumption: Federal Communications Commission – Consumer Survey on Media Usage
  - News consumption: American Press Institute – Media Insight Project

CASE STUDY PART 1A

The Utah Comprehensive Cancer Prevention and Control Plan, 2011-2015 includes several health objectives and strategies related to radon and lung cancer:

- "Increase radon awareness and testing in Utah homes from 2,085 to 4,000 in 2015."
- "Increase the number of radon mitigation systems installed in Utah homes with elevated radon levels from 475 each year to 650 each year in 2020."
- "Reduce the lung cancer death rate from 21.1 to 19 per 100,000 population by 2020."
- "Decrease the number of late stage lung cancers among high risk individuals from 19.8 per 100,000 population to 17.8 per 100,000 population by 2015." (Utah Cancer Action Network, 2011)

Accordingly, Utah's media plan includes a corresponding S.M.A.R.T. behavioral objective:

"By June 20, 2015, increase the number of short-term radon tests requested through the Utah Department of Environmental Quality's website by 10% over the number of tests requested July 1, 2013 through June 30, 2014."

The first step to any communication campaign is to conduct formative research, during which you collect evidence of the need for a campaign on the health topic. Hopefully, there is sufficient evidence outlined in your state cancer plan or media/communication plan, but you may want to find out more information specific to the intended audience with both primary and secondary sources. The Utah Comprehensive Cancer Control Program decided to focus their radon campaign on Utah adults, as they are more likely to be home owners, realtors, renters and home builders or contractors. More on strategies to identify audience characteristics and habits will be covered in Lesson 3.

The Utah Comprehensive Cancer Prevention and Control Plan reveals that of the 475 people they and their partners surveyed, "only 38% of people understood the health risk of radon and only 19% had tested their homes for radon gas." This reveals the need for awareness-raising. Other studies also reveal that confidence in radon testing highly correlates with knowledge of radon (Ferng & Lawson, 1996).

A Pew Research Center's Project for Excellence in Journalism survey on how people learn about their community revealed that:

- "Most people in the U.S. use a combination of online and traditional sources to get local news
- The Internet and newspapers were tied as the top source for news about housing, schools and jobs
- For the estimated 79% of people in the U.S. who have access to the Internet, the Internet is one of the top two most important sources for 15 of 16 local news topics examined in the survey" (Pew Research Center, 2011)

This research helped Utah select their communication channels.

1.3A Searching for Evidence-Based Approaches

Earlier, we defined different types and levels of evidence and Table 1A introduced the concept of **emerging, promising, effective** and truly evidence-based approaches. To determine if something is evidence-based, established scientific criteria must be applied. The National Academy of Sciences recommends considering the following standards when applying scientific criteria to establish strong evidence for effectiveness (National Research Council and Institute of Medicine, 2009, p. 371):

1. "Evidence for efficacy or effectiveness of prevention and promotion programs should be based on designs that provide significant confidence in the results. The highest level of confidence is provided by multiple, well-conducted randomized experimental trials, and their combined inferences should be used in most cases. Single trials that randomize individuals, places (e.g. schools), or time (e.g., wait-list or times-series designs), can all contribute to this type of strong evidence for examining intervention impact
2. When evaluations with such experimental designs are not available, evidence for efficacy or effectiveness cannot be considered definitive, even if based on the next strongest designs, including those with at least one matched comparison. Designs that have no control group (e.g., pre-post comparisons) are even weaker
3. Programs that have widespread community support as meeting community needs should be subject to experimental evaluations before being considered evidence-based
4. Priority should be given to programs with evidence of effectiveness in real-world environments, reasonable cost, and manuals or other materials available to guide implementation with a high level of fidelity"

Table 1B includes eight reliable resources for locating evidence-based programs, policies and strategies. It is likely that you are not the first public health professional to want to address the health issue you have chosen for your communication campaign. Before attempting to develop a campaign from scratch, take some time to see what has been done before you either adopt or adapt an evidence-based approach for your context.

Table 1B: Resources for Locating Evidence-Based Approaches

Resource	Features	Evidence-Based Approach (Programs, Policies, Strategies)
Cancer Control P.L.A.N.E.T.	• Data and resources for evaluation • Cancer plans, budgets, links to potential collaborators • Topics: multiple cancers and behaviors	Evidence-Based Programs

Center for Training and Research Translation (Center TRT)	• Training, webinars, evaluation tools • Programs: Research-tested interventions, practice-tested interventions, emerging interventions • Topics: diet and physical activity to reduce obesity	Evidence-Based Programs, Policies and Strategies
Coalition for Evidence-Based Policy	• Randomized controlled trials in various social programs (i.e. prenatal, early childhood, employment and welfare, mental health)	Evidence-Based Policies
Cochrane Collaboration	• Systematic reviews on clinical and public health topics	Evidence-Based Strategies
County Health Rankings and Roadmaps: What Works for Health	• Targeted peer-reviewed literature searches, selected sources of grey literature (not peer-reviewed) and the findings of relevant, reputable organizations • Topics: health behaviors, clinical care, social determinants of health, physical environment	Evidence-Based Programs and Policies
Research Tested Intervention Programs (RTIPS)	• Randomized controlled trials • Searchable by topic, age, setting, race/ethnicity, materials, origination and gender	Evidence-Based Programs
Task Force on Community Preventive Services' The Community Guide	• Recommendations based on systematic reviews evaluating the effectiveness of *types* of interventions • Organizational policy recommendations to increase cancer screening	Evidence-Based Strategies
US Preventive Services Task Force	• Clinical recommendations based on systematic reviews	Evidence-Based Strategies

CASE STUDY PART 1B

Health communication and social marketing campaigns are still fairly new, so you may not find proven campaigns that perfectly fit your topic or audience. A proven media campaign on radon, for example, is not available on The Community Guide. However, The Community Guide recommends that health communication and social marketing "use multiple channels, one of which must be mass media, combined with the distribution of free or reduced-price health-related products," which, for our case study, will be radon test kits.

1.4 Describe Behavioral and Communication Theories to Inform Evidence-Based Communication Campaigns

An evidence-based communication campaign should be driven by behavioral change or communication theory. Selecting the appropriate theory requires familiarity with the health issue and defined campaign objectives. These should be outlined in the communication plan and are discussed in Lessons 1 and 2 of *Communication Training 101*. Your communication campaign may be only one component of a larger public health intervention. The over-arching intervention should be theory-based and this theory may help inform the communication campaign.

"A theory is a set of interrelated concepts, definitions and propositions that explains or predicts events or situations by specifying relations among variables" (Glanz, n.d.). **Behavioral "theories** and models help *explain* behavior, as well as suggest how to develop more effective ways to influence and *change* behavior" (Glanz, n.d.). **Communication theories** and models explain how a sender, message and channel can be used to effectively communicate an idea. The theory you choose will be used to guide you in creating your communication **campaign roadmap** to explain how you expect your campaign activities to lead to the desired change in behavior and health. The theory will help you refine your communication objectives, plan activities to accomplish them and determine what you can measure for evaluation of your campaign. Roadmaps will be discussed in more detail in Lesson 2.

Generally speaking, public health seeks to improve overall quality of life through implementation of programs, policies and strategies that improve health. As you will likely see when you begin to collect data on factors related to the behaviors and health outcome of interest, health is influenced by many factors at multiple levels including individual, organizational and societal, as depicted in the social ecological model of health (Figure 1A).

Interventions that target change at multiple levels and multiple **determinants of health** tend to be most successful at achieving sustainable change (Jackson et al., 2006). The multi-level determinants of health and their relationship to quality of life and the development of the campaign are discussed further in Lesson 2.

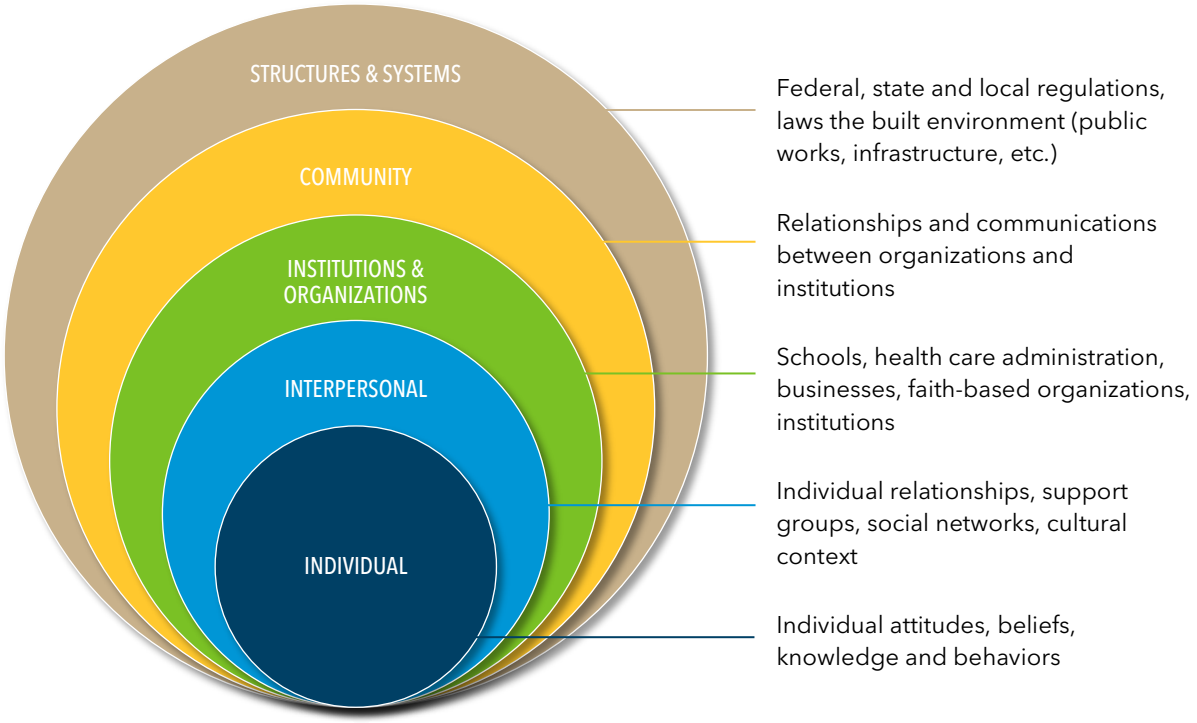


Figure 1A: Social Ecological Model of Health (Adapted from CDC)

Your public health communication campaign may aim to intervene at multiple levels. For example, the campaign may try to affect change simultaneously at the individual, environmental and policy levels for maximum impact. Your choice of theory to guide the campaign will be related to the levels at which you wish to intervene and the factors that you believe (based on evidence) to be determinants of the health outcome. If a single theory does not seem to align well with your background research and objectives, it is okay to combine concepts from more than one theory into a **theory of change** for your program as long as you can justify your decision. Use the descriptions of common theories in Table 1C to help guide selection for your campaign.

Before choosing a theory, consider:

1. What is the level, or levels, at which the campaign will intervene? Is it individual, interpersonal, organizational or community level?
2. What constructs are you hoping to impact? Is it knowledge, awareness, skills, behavior, social influence, systems or environmental change?

Table 1C: Common Communication and Behavior Change Theories

Type of Theory	Theory/Model	Constructs/Elements	Level of Intervention
Communication Theory	**Diffusion of Innovations**: Focuses on how information about a new idea, product or social practice flows within a social environment (for example, neighborhoods, network, norms or societies) through certain communication channels over time (Rogers, 1983; Oldenburg & Glanz, 2008).	The four elements of this theory are: the innovation(s), communication channels, social system (context) and time (Rogers, 1983). There are three ways societies make the decision to accept the innovation: 1) optional, where individuals make the decision by themselves; 2) collective, where the decision is made collectively by all members of the social system; and 3) authoritative, where the decision is made by a few individuals for the social system as a whole (Rogers, 1983). The innovation-decision process can be explained in five stages: 1) knowledge, where an individual is exposed to the innovation and has knowledge of it; 2) persuasion, where the individual forms an attitude towards the innovation; 3) decision, where the individual contemplates making a decision about whether to adopt or reject the innovation; 4) implementation, where the individual puts the innovation into use; and 5) confirmation, where the individual confirms the decision they made (Rogers, 1983).	Interpersonal, organizational or community level
Communication Theory	**Elaboration Likelihood Model:** Explains how messages are processed and how they are able to influence motivation and change in attitude (Petty & Cacioppo, 1986b; Finnegan Jr. & Viswanath, 2008).	There are two routes of persuasion: the central route (straight to the point and complete) and the peripheral route (weak with low receiver involvement) (Petty & Cacioppo, 1986a).	Community Societal
Communication Theory	**Extended Parallel Process Model:** Describes the influence of the combination of rational considerations (self-efficacy) and emotional response (fear of a health threat) on motivations and behavior (Witte, 1994). This model is particularly relevant for some health issues like HIV/AIDS and avian influenza prevention (Storey, Saffitz, & Rimón,	There are four variables to this theory: 1) **self-efficacy**, how confident an individual is about performing the task proposed; 2) response-efficacy, how effective the proposed task is in controlling the threat; 3) perceived susceptibility, how likely the threat is to affect the individual; and 4) perceived severity, how serious or severe the threat is to the individual (Witte, 1994). Outputs of this theory are a result of a combination of efficacy and threat variables that affect different audience segments differently; these are: 1) danger control, where individuals have the perception that they are at-risk and are competent in taking	Community Societal

	2008).	protective action to reduce the threat; 2) fear control, where individuals perceive the risk or threat as high but perceive their ability to reduce the risk as low and therefore take steps to reduce their fear but don't take action to reduce the threat; and 3) no response, where individuals perceive the severity and susceptibility of the threat as low and do not take any action (Witte, 1994).	
Social or Behavioral Change Theory	**Health Belief Model**: Attempts to predict health behaviors by focusing on how target audiences are influenced by perceived personal susceptibility and severity of a health issue as well as benefits, costs and norms (Hochbaum, Kegels, & Rosenstock, 1952; Lee & Kotler, 2011).	The core constructs of this theory are: perceived susceptibility, perceived severity, perceived benefits (how effective is the action proposed in reducing the threat), perceived barriers (potential negative consequences of taking the action), cues to action (strategies or events that trigger the action to be taken), and self-efficacy (Champion & Sugg Skinner, 2008; Hochbaum, Kegels, & Rosenstock, 1952).	Individual
Social or Behavioral Change Theory	**Integrative Behavioral Model**: also known as Integrative Model of Behavioral Prediction proposes that intentions are the primary predictor of behavior (Fishbein & Ajzen, 2010). Media messages based on this model are created for different target audiences, depending on the population and the determinants that are most likely to influence their intentions to change behavior (Montaño & Kasprzyk, 2008; Fishbein & Ajzen, 2010).	Components that affect behavior include: intention (determined by attitude, perceived norms, personal agency), knowledge and skills, salience (important to the person), minimal environmental constraints, and experience (Fishbein & Ajzen, 2010). Constructs that lead to behavior change are: experiential attitude (feelings about the behavior), instrumental attitude (beliefs about the behavior), perceived norms, and personal agency (self-efficacy or perceived control) (Fishbein & Ajzen, 2010).	Individual
Social or Behavioral Change Theory	**Social Cognitive Theory**: emphasizes that behavioral, personal and environmental factors interact to determine motivation and behavior (Crothers, Hughes, & Morine, 2008). The theory explains that the likelihood of adopting a behavior is influenced by self-efficacy and perceptions that	Some key constructs of this theory include: 1) observational learning where an individual learns new behaviors by observation and exposure through peer modeling and interpersonal interaction; 2) reinforcement, where incentives or punishments are used or misused to motivate behavior; 3) self-regulation, where an individual controls themselves through goal-setting and self-monitoring; and 4) self-efficacy, the perception in one's ability to perform a behavior and achieve desired outcomes (McAlister, Perry, & Parcel, 2008).	Individual Interpersonal

	benefits outweigh the costs (Lee & Kotler, 2011; McAlister, Perry, & Parcel, 2008).		
Social or Behavioral Change Theory	**Transtheoretical Model**: emphasizes the notion of readiness to change where people are at different stages of readiness to adopt healthy behaviors (Prochaska, Redding, & Evers, 2008; Glanz & Bishop, 2010). This theory has been useful in explaining and predicting behaviors such as smoking, physical activity and eating habits.	The key constructs of this theory are the five stages of change: 1) precontemplation (no interest or recognition for the need to change behavior); 2) contemplation (thinking about changing behavior); 3) preparation (planning to change behavior); 4) action (adopting new behavior); and 5) maintenance (ongoing practice of new behavior) (Prochaska & Di Clemente, 1982).	Individual

CASE STUDY PART 1C

To choose a theory to guide the radon campaign, you have to decide at which level, or levels, the campaign will intervene. Because the campaign aims to reach home owners, realtors, renters and home builders or contractors, you are looking for a community- and individual-level intervention. Given the intended audience's lack of knowledge of radon and low confidence in radon-testing, the Extended Parallel Process Model or Integrative Behavioral Model are most relevant to the campaign.

The next lesson will take you through the process of defining the health issue and intended population, using evidence-based approaches to guide the campaign research, planning and implementation process. The lesson will also address how to complete a systematic **community assessment** and develop a communication campaign roadmap or logic model.

Further Readings and Resources

- Brownson, R. C., Baker, E. A., Leet, T. L., Gillespie, K. N., & True, W. R. (2011). *Evidence-based public health* (2nd ed.). New York, NY: Oxford University Press
- Cancer Prevention and Control Research Network's Putting Public Health Evidence in Action Training Materials
- Center for Training and Research Translation (Center TRT)
- Jacobs, J.A., Jones, E., Gabella, B.A., Spring, B., & Brownson, R.C. (2012). Tools for Implementing an Evidence-Based Approach in Public Health Practice
- Make it Your Own – Create customized health information for your target audience

- Office of Behavioral and Social Science Research's e-Source
- National Cancer Institute's Theory at a Glance – A Guide for Health Promotion Practice
- University of Twente's Health Communication Theories
- Web Center for Social Research Methods

LESSON 2: COMMUNICATION CAMPAIGN BACKGROUND AND JUSTIFICATION

By the end of this lesson, you should be able to:

- Conduct a systematic community assessment to define the health issue and intended audience for a communication campaign
- Develop a communication campaign roadmap

2.1 Conducting a Systematic Community Assessment

In the communication and marketing field, a situation analysis is a necessary first step to planning a campaign. The process involves assessing and articulating the problem you wish to solve including factors that contribute to the problem and what others have done in the past or are currently doing to address it; then developing a plan to solve the problem. Similarly, in the public health field, there are commonly used models for program planning and evaluation. The PRECEDE-PROCEED Model provides a framework for systematically planning, implementing and evaluating a program (Green & Kreuter, 2005). To learn more about PRECEDE-PROCEED or other common program planning frameworks like the National Association of County and City Health Officials (NACCHO) Mobilizing for Action through Planning and Partnerships (MAPP), visit the Community Tool Box.

In this lesson, we will present a model originally adapted by CPCRN to describe how to conduct a community assessment for planning a communication campaign (Figure 2A) (Cancer Prevention and Control Research Network, 2014b; Green & Kreuter, 2005; Bartholomew et al., 2006). Note that you may not need to start from scratch; review your state cancer control plan and mandatory community health needs assessment (CHNA) reports completed by local tax-exempt hospitals. Together, the cancer plan and CHNA may meet the informational needs of your communication campaign

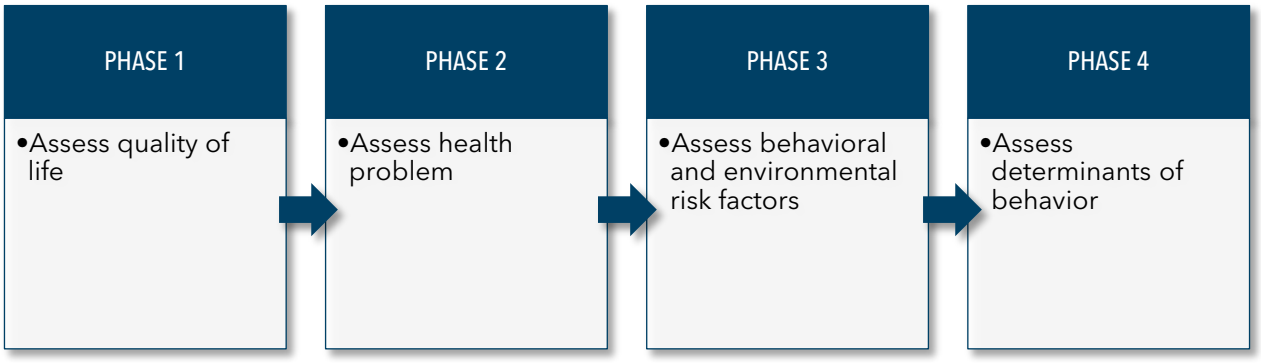


Figure 2A: Phases of a Systematic Community Assessment (Cancer Prevention and Control Research Network, 2014b; Green & Kreuter, 2005; Bartholomew et al., 2006)

CASE STUDY PART 2A

A community assessment of radon awareness in Utah might reveal the following:

Quality of Life
- Economic impact of lung cancer
- Physical costs of disability and shortened life expectancy

Health Problem
- High rates of lung cancer partially from indoor radon gas exposure

Behavioral & Environmental Risk Factors
- Lack of access to radon test kits
- Lack of radon testing
- High levels of radon in area

Determinants of Behavior
- Lack of knowledge on radon and its health impacts
- Lack of confidence to test for radon

Community assessment should be a participatory process that involves stakeholders from the outset of planning. Health is influenced and shaped by the community, and health is part of a larger context for individuals and communities. Furthermore, individual and community health is made up of many factors, including economic, social, political, ecological and physical factors (Office of Disease Prevention and Health Promotion, n.d.). An understanding of the multi-level social determinants of health is prerequisite to conducting a systematic community assessment.

2.1A Multi-Level Determinants of Health

Health is impacted by a variety of factors at multiple levels of the social ecological model introduced in Lesson 1. Determinants of health are the personal, social, economic and environmental factors that influence health status (Office of Disease Prevention and Health Promotion, n.d.). General examples include individual characteristics, personal lifestyle, education, culture, living and working environments, access to health services and various policies, among other factors. To achieve optimal impact, public health communication campaigns should aim to contribute to change at more than one of these levels to enable and reinforce change.

Health-related quality of life is a broad concept encompassing a person's perception about his or her physical and mental health, and it is influenced by determinants at multiple levels. Figure 2B below provides a cancer-specific example of multi-level influences on health and health care. The figure does not identify specific solutions, but rather potential points of intervention. By understanding the determinants of health that impact the health-related quality of life issue you are interested in, you can create a communication campaign that intervenes at the level(s) that best address the issue.

FIGURE 2B: MULTILEVEL INFLUENCES ON HEALTH AND HEALTH CARE (CANCER EXAMPLE)

NATIONAL HEALTH POLICY ENVIRONMENT

- Medicare reimbursement
- Federal efforts to reform health care
- National cancer initiatives
- Accreditations
- Professional standards

STATE HEALTH POLICY ENVIRONMENT

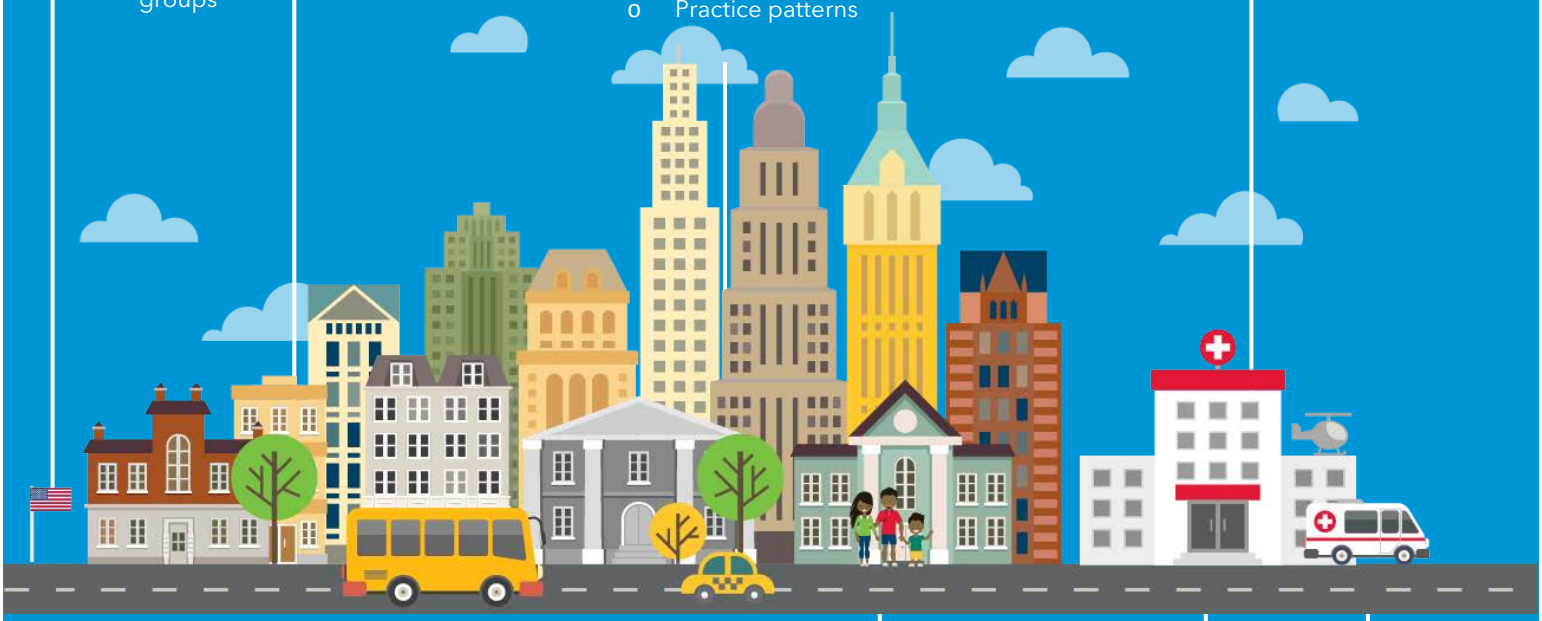
- Medicaid reimbursement
- Hospital performance data policies (dissemination, visibility etc.)
- State cancer plans/programs
- Regulations/limitations on reimbursement of clinical trials
- Activities of statewide advocacy groups

LOCAL COMMUNITY

- Community Level Resources
  - Medicare care offerings
  - Population SES
  - Lay support networks
  - Private cancer organizations
- Local Hospital & Cancer Services Market
  - Market structure
  - Level of competition
  - Third party payors/insurance
  - Pay for performance initiatives
  - Managed care penetration
  - Percent nonprofit
  - Specialty mix
- Local Professional Norms
  - MD practice organizations
  - Use of guidelines
  - Practice patterns

ORGANIZATION AND/OR PRACTICE SETTING

- Leadership
- Organizational structure, policies and incentives
- Delivery system design
- Clinical decision support
- Clinical information systems
- Patient education and navigation



PROVIDER/TEAM

- Knowledge, communication skills
- Perceived barriers, norms, test efficacy
- Cultural competency
- Staffing mix and turnover
- Role definition
- Teamwork

FAMILY AND SOCIAL SUPPORTS

- Family dynamics
- Friends, network support

OUTCOMES

- **Improved quality of cancer care**
- **Improved cancer-related health outcomes**

INDIVIDUAL PATIENT

- Biological factors
- Socio-demographics
- Insurance coverage
- Risk status
- Comorbidities
- Knowledge, attitudes and beliefs
- Decision-making preferences
- Psychological reaction/coping

Adapted from Taplin et al., 2012

Communication alone is not likely to produce sustained behavior or health changes. A comprehensive multi-level intervention, with a communication component, has the potential to reinforce the desired health outcomes and facilitate sustainable systems-level change. For example, social media and radio messages about the benefits of sunscreen alone might not increase sunscreen use but introducing national policy change around sunscreen labeling can facilitate better understanding of appropriate sunscreen usage at the individual level.

"A comprehensive multi-level intervention, with a communication component, has the potential to reinforce the desired health outcomes and facilitate sustainable systems-level change."

Policies can be implemented at national, state and local levels. Even an organizational policy can enhance a program's effectiveness (e.g., rule requiring all people who swim at a local recreation center to apply sunscreen with SPF 30 before visiting the pool).

2.1B Four Phases of Community Assessment

Existing evidence and expertise should be used to inform development and implementation of the evidence-based communication campaign, including defining the health issue and the intended audience. The four phases of community assessment guide you through defining the health issue and related determinants and identifying an intended audience for your communication campaign. Table 2A outlines some general questions to think through at each phase when conducting the assessment. By working through each of these phases, you will gather the information needed to complete a campaign roadmap to outline what you plan to do and how you expect it to lead to the desired outcomes and overall impact.

Table 2A: Questions to Answer When Conducting a Community Assessment (Cancer Prevention and Control Research Network, 2014b)

Phase	Indicator(s)	Example Question(s)
1: Quality of Life	Life expectancy	• What is the average lifespan?
2. Health Problems	Chronic disease rate	• Which diseases are most prevalent?
3. Behavioral Factors	Behaviors Social factors	• What behaviors put people at risk? • Where do people spend most of their time?
3. Environmental Factors (e.g., social, built and media environment)	Environmental Demographics Communication	• What facilitates/hinders healthy behaviors? • Where do individuals live? • Where do people obtain health information?

4: Determinants of Behaviors	Health problems Values Individual factors Social and cultural factors Demographics of target population	• What are the health problems? • What are barriers to improving health care? • What is important to community members? • What are the personal knowledge/attitudes regarding the health issue/behavior? • What are commonly held beliefs and attitudes about health, health care or particular behaviors such as exercise? • Where do people live? • What are the ethnicities, education levels, ages etc.?

Now we'll walk you through some suggested steps for completing each of the four phases.

Phase 1: Assessing Quality of Life

Concerns about health-related quality of life in your community may be inspired by topics discussed at local coalition meetings, health issues highlighted by the department of health, state cancer plans or news reports. You can gather additional information through a review of academic literature. Taking real-time knowledge and events and researching them further using the methodology outlined below will increase your campaign's ability to respond to health issues.

Conducting a Literature Review

A scientific literature review is a "systematic, explicit and reproducible method for identifying, evaluating and synthesizing the existing body of completed and recorded work produced by researchers, scholars and practitioners" (Fink, 2005). Literature review is useful at all phases of community assessment.

Figure 2C lists seven key steps to follow when conducting a literature review. These steps provide a pragmatic approach for investigating and evaluating existing research.

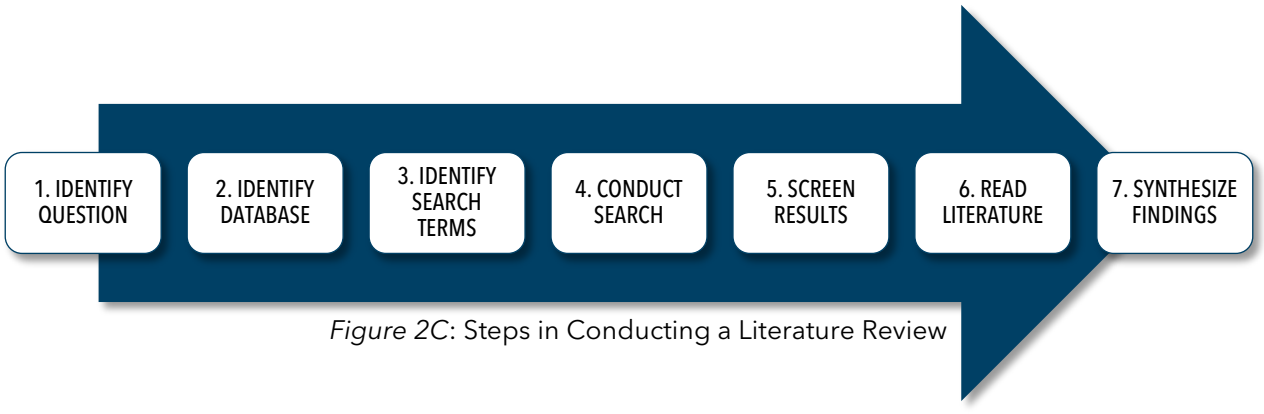


Figure 2C: Steps in Conducting a Literature Review

Step 1: Articulate your research question.
What do you need to better understand the health status in your community, or what more do you need to know in order to solve the health issue you've identified? The quality and quantity of search results will depend on how broad or narrow your question is (Figure 2D). Try to be as specific as possible with your question, or design multiple search strategies if you have several questions.

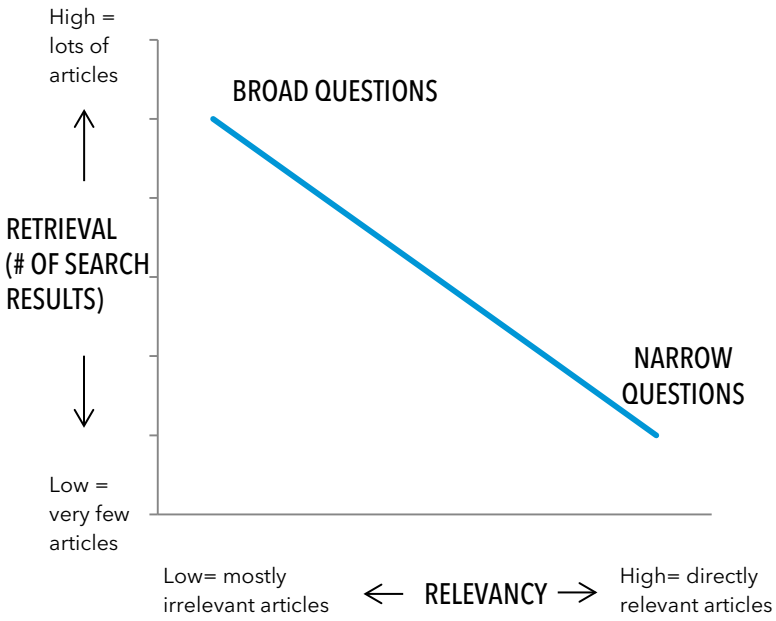


Figure 2D: How Questions Influence Search Results (Featherstone, 2011)

Step 2: Identify where to find information.
Once your research question has been decided, the second step is determining where to look for literature. You may be able to find quite a lot of initial information through basic internet searches that return reports or briefs on the health topic, but it is likely that the information will be general and not specific to your context or audience. You may also go to familiar government websites that share reports and datasets from national population-based health surveillance (see list in Lesson 1.3).

There are several databases that you may have access to through a local university, hospital or department of health where you can search for additional relevant peer-reviewed health care or public health academic literature. Select a database or multiple databases that index journals and other literature relevant to public health and health care or communication and **media consumption**. A list of useful public health databases is available in Appendix B.

Step 3: Identify search terms.
Once the database(s) have been identified, the third step is to choose your specific search terms. After selecting the database, break your questions into concepts and identify key terms for each. It might be helpful to use a related article you already have to help you identify search terms. Often the key terms are listed along with the abstract. Some databases use subject headings, like PubMed's Medical Subject Headings (MeSH) terms. These terms provide a consistent vocabulary and are used in indexing new articles added to the database. Identifying and using appropriate MeSH terms are helpful in reducing the number of keywords you have to include in the search. For example, searching the single MeSH term "neoplasms" would account for all of these possible key words: Neoplasm; Tumors; Tumor; Neoplasia; Cancer; Cancers; Benign Neoplasms; Neoplasms, Benign; Benign Neoplasm; Neoplasm, Benign. In the literature review process, it is very important to keep track of your

search terms, the number of results returned and how you narrowed down which ones to read so that you can describe and replicate the methodology used to conduct the literature review at a later date, if needed. Table 2B provides an example of what this might look like in practice.

Table 2B: Example of Literature Search Question Broken Down Into Concepts and Search Terms

Question	**What cancer-related health disparities exist among the lesbian, gay, bisexual, transgender, queer/questioning (LGBTQ) population?**		
Concepts	LGBTQ	Health Disparities	Cancer-Related Conditions
Search Terms	Homosexuality OR Bisexuality OR Transgendered Persons OR Sexual Minorities OR LGBTQ	Health Disparities OR Health Inequalities OR Health Care Barriers	HIV, Substance Abuse, Mental Disorder, Cancer, Smoking, Obesity
Example Final Combined Search	((Homosexuality) OR (Bisexuality) OR (Transgendered Persons) OR (Sexual Minorities) OR LGBTQ)) AND ((Health Disparities) OR (Health Inequalities) OR (Health Care Barriers)) AND (Cancer)		

Step 4: Conduct the search.
With the search terms laid out, you are ready to run your search. **Boolean logic** is "a system that allows a searcher to communicate to a database specific relationships between keywords (or concepts) when searching. The most common Boolean search terms used to join or separate concepts include 'AND', 'OR' and 'NOT'" (University of Maryland University Libraries, 2016). In searching, you may wish to use filters for the publication language, date, type (i.e. conference proceeding, systematic review, book chapter, etc.) to help narrow your results. Learn more from the University of Maryland library.

Step 5: Screen the results.
Once the search is complete, the fifth step is to apply practical and methodological screening criteria to determine which articles you will or will not include. Screen first by title, eliminating articles that clearly do not fit what you are looking for. Then, review abstracts of remaining articles to determine their relevance based on topical focus, participants or audience, research design, or other criteria you choose. Depending on your level of desired rigor, teams often work together to screen and complete steps 6 and 7.

Step 6: Read the literature.
Once you have sufficiently narrowed the pool of literature through strategic searching and screening, you must read the resulting literature. How you record and report what you learn from reading will depend on your goal for the literature review (i.e. formative background reading vs. wish to publish synthesis).

Step 7: Synthesize the findings.
Finally, after you finish reading, the results must be synthesized. Describe the current knowledge about your topic**,** explain the findings and describe the quality of the body of research, identifying any gaps in knowledge**.**

In conducting a community assessment, it is also important to not only note the quality of life and health issues through literature review, but also the assets and resources within the community.

Mapping Community Assets and Resources

When assessing deficits in quality of life as the first phase in systematic community assessment, it is also important to look at the positive assets and resources the community has. **Asset mapping** is an assessment of a community or neighborhood's capacities and assets (Kretzman & McKnight, 1993). Primary assets include individual and organizational assets that are readily available in the neighborhood or community. Secondary assets include public and private institutions as well as physical assets that are located within the community but controlled by outsiders; secondary assets can be brought under community control for community-building purposes (Figure 2E) (Kretzman & McKnight, 1993).

Figure 2E: Examples of Primary and Secondary Community Assets (Kretzman & McKnight, 1993)

Community asset mapping can improve the process of selecting, adapting and evaluating communication campaigns. Mapping assets helps prioritize health problems in the intended audience, characterize the intended audience's health goals and priorities and identify existing community assets including factors at multiple levels that could support the achievement of desired outcomes. Asset-based strategies may be more likely to produce long-term sustainable outcomes (Improvement and Development Agency, 2010).

Depending on your communication campaign objectives, the assets that you outline may vary. It is, however, recommended that you try to create as comprehensive of an asset map as possible. A comprehensive asset map can help you better understand the ecological context and could give insight to potential collaborations, or new mediums through which to promote this particular campaign and your future work in the community. For more on how to map community assets, visit the Community Tool Box. Figure 2F shows one possible way to organize the information you collect.

Figure 2F: A Method for Organizing the Components of Your Asset Map (Merten, Barr, Monroe-Ossi, King, Griner & Vosoughi, 2014)

Phase 2: Assessing the Health Problem

Now that you have a better understanding of the quality of life concerns and assets in your community of focus, it is time to dig into the data on the specific health issue you plan to address. Terms like data mining are common among marketing strategists. The term is somewhat of a misnomer because it implies a heavy focus on finding data. However, the important part of data mining is the knowledge and insights that are extracted from the data (Han, Kamber, & Pei, 2012). The way that the data are presented can improve your ability to derive insights from your assessment of the prevalence, incidence, morbidity and mortality related to the specific health issue being addressed. In conducting this assessment, it may be helpful to access databases that have information on incidence, prevalence and other **population health** statistics (see Appendix B).

You probably already have some background information and health objectives in your communication or media plan. This is an opportunity to expand or update the data, as necessary, and refine your S.M.A.R.T. health objective.

Compiling statistics based on your literature review and your communication campaign objectives can be time consuming but is necessary to set you up to evaluate your efforts. Table 2C illustrates one way to visualize data in a format that compares local statistics to national data as well as benchmarks like those outlined in Healthy People 2020. Green numbers indicate where the state is performing better than the U.S. average and the Healthy People 2020 target, if available. Comparing statistics can guide you in defining specific, measurable and realistic S.M.A.R.T. objectives for your campaign.

Table 2C: Comparing National and State Data with Healthy People 2020 Targets				
Summary Indicators	**Healthy People 2020**	**U.S.**	**Florida**	**Source**
Female breast cancer death rate	20.7%	20.8% (2013)	19.6% (2013)	US: NVSS-M FL: NVSS-M
Prostate cancer death rate	21.8%	19.2% (2013)	17.3% (2013)	US: NVSS-M FL: NVSS-M
Adults meeting aerobic physical activity and muscle-strengthening federal guidelines (age-adjusted ≥18 yrs)	20.1%	20.8% (2013)	19.9% (2013)	US: NHIS FL: NHIS
Adolescents in grades 9-12 meeting aerobic physical activity federal guidelines	31.6%	27.1% (2013)	25.3% (2013)	FL: YRBSS US: YRBSS

Phase 3: Assessing Behavioral and Environmental Risk Factors

Health status is determined by a combination of several factors: genetics, behavior, social factors, health services and policies commonly referred to as determinants of health (Office of Disease Prevention and Health Promotion, 2014). You cannot change genetics with a communication campaign, but it is important to remember that it does play a role in health status. In continuing the systematic community assessment, you have already defined the health problem, identified the intended audience, and assessed quality of life, community assets and the health issue. Now, look to identify major behavioral and environmental risk factors that contribute to the health issue.

Information on risk factors may already be included in your communication plan or state cancer plan. However, further literature review as well as dialogue with community members can help elucidate any lesser known or obvious contributing factors.

Phase 4: Assessing Determinants of Behavior

After outlining the behavioral and environmental risk factors for the health issue that is reducing quality of life in your community, you must determine what factors predispose, enable or reinforce the risky behaviors. Typical things to consider here are psychosocial factors such as knowledge, attitudes, beliefs, self-efficacy, social norms, intentions as well as skills, access, cultural factors, language, etc. (Green & Kreuter, 2005). Other factors to consider include **epidemiological**, educational, **ecological**, administrative and political. Don't forget to consider the multiple levels of the social ecological model we looked at in Lesson 1. You are likely already aware of some of these factors, but a thorough literature review will give you a full picture of the various potential factors you could intervene on to make progress toward change.

Once you have identified the determinants that lead to the behavior and health outcome you wish to change, then you can start to look for an evidence-based approach to address the determinants. Lesson 1 included some suggestions for where and how to identify various evidence-based approaches and Lesson 3 will discuss adapting an evidence-based approach to your context. In selecting an approach, assessing its fit with your organization's resources, policies and abilities as well as with the community's needs and preferences will be important. Development of key partnerships and involvement of community assets identified in the community assessment can help offset any gaps in capacity within your organization.

2.1C Example of a Systematic Community Assessment

Imagine your state cancer plan has this objective: "To reduce new cervical cancer cases in [state] by vaccinating against human papillomavirus (HPV) infections" (Figure 2G).

Phase 1: Assess Quality of Life and Community Assets

- You know that cervical cancer incidence rate is higher in your state than the national average and that pockets of the population experience disparities. You can conduct a literature review and learn about cervical cancer risk factors and its impact on various quality of life indicators including physical and economic wellbeing.

- At the state level it is difficult to conduct a true community asset map, but you can create a document that illustrates non-profits, clinical organizations and public services that are relevant to adolescent and women's health and wellbeing.

Phase 2: Assess the Health Issue

- After reviewing the latest state cancer profile and Healthy People 2020 targets, you are able to update your health objective to make it S.M.A.R.T. with a more recent baseline and realistic target for change: "To reduce new cervical cancer cases in [state] from approximately 8.0 to 7.2 per 100,000 population by 2020."

Phase 3: Assess Behavioral and Environmental Risk Factors

- From the literature review you learned that there are several known risk factors for cervical cancer including:
    - age and race/ethnicity (National Cancer Institute, n.d.; Centers for Disease Control and Prevention, 2015a)
    - cigarette smoking, reproductive behaviors such as use of oral contraceptives, number of full-term pregnancies, and young age at first full-term pregnancy, as well as sexual behaviors including young age at sexual debut and number of sexual partners (International Collaboration of Epidemiological Studies of Cervical Cancer et al., 2006; Jensen & Speroff, 2000; International Collaboration of Epidemiological Studies of Cervical Cancer, 2006; American College of Obstetricians and Gynecologists, 2010; International Collaboration of Epidemiological Studies of Cervical Cancer et al., 2007; International Collaboration of Epidemiological Studies of Cervical Cancer, 2009)

- failure to be routinely screened and persistent infection with HPV subtype 16 or 18 (American Cancer Society, 2011; Walboomers et al., 1999; Muñoz et al., 2003)
- Knowing the risk factors, and the availability of three FDA-approved, highly-effective vaccines to prevent HPV infection, you are ready to set your behavioral objective. The Advisory Committee on Immunization Practices (ACIP) recommends administering the HPV vaccine for females and males beginning at age 11 or 12 (Petrosky et al., 2015), so you can set the following objective: "Increase the coverage level of 3 doses of HPV vaccine for girls aged 13 to 15 years from 16.6% to 50% by 2018."

Phase 4: Assess Determinants of Behavior

- Now that you have assessed the behavioral and environmental risk factors for cervical cancer and set your behavioral objective, you can start to examine the factors that determine whether or not an adolescent is vaccinated against HPV. Some of these factors include:
  - Lack of strong provider recommendation for HPV vaccination and low parental vaccine acceptability which includes awareness and knowledge about HPV, cervical cancer and vaccine safety, perceived susceptibility of child to HPV infection, and parental belief that the vaccine will condone or encourage risky sexual behavior in vaccinated daughters (Dempsey & Patel, 2010; Reiter, Brewer, Gottlieb, McRee, & Smith, 2009; Rosenthal et al., 2011; Dempsey, Abraham, Dalton, & Ruffin, 2009; Caskey, Lindau, & Alexander, 2009).
  - Other factors linked to lower rates of HPV vaccine uptake include lack of access to the vaccination due to health insurance status, socioeconomic status, and language barriers) (Jeudin, Liveright, del Carmen, & Perkins, 2013).
  - Studies show that patients who receive a provider recommendation are four to five times more likely to receive the HPV vaccine (Ylitalo, Lee, & Mehta, 2013; Lau, Lin, & Flores, 2012). Based on this information, you can set *one* of your communication objectives to the following: "Increase the number of providers giving a strong recommendation for HPV vaccination at adolescent visits for girls 11 to 12 years old from 64.4% to 80% by 2016."

Now that the systematic community assessment has been completed, it is time to put the campaign plan into a format that will illustrate how the campaign will achieve its desired impact.

2.2 Develop a Communication Campaign Roadmap (Logic Model)

After you complete the systematic community assessment, you should be able to complete Figure 2G with the information you've gathered. Notice how the campaign objectives from your communication plan should align with the information you found (Gay & Lesbian Alliance Against Defamation (GLAAD) & the Movement Advancement Project (MAP), 2008). It may help to think through these questions:

1. What quality of life or public health problem did you uncover and what can a communication campaign do to lead to positive change?
2. Looking back at the community assessment, what are some behavioral and environmental risk factors for the health problem?
3. What awareness, knowledge or attitudes do you want to change through the communication efforts?

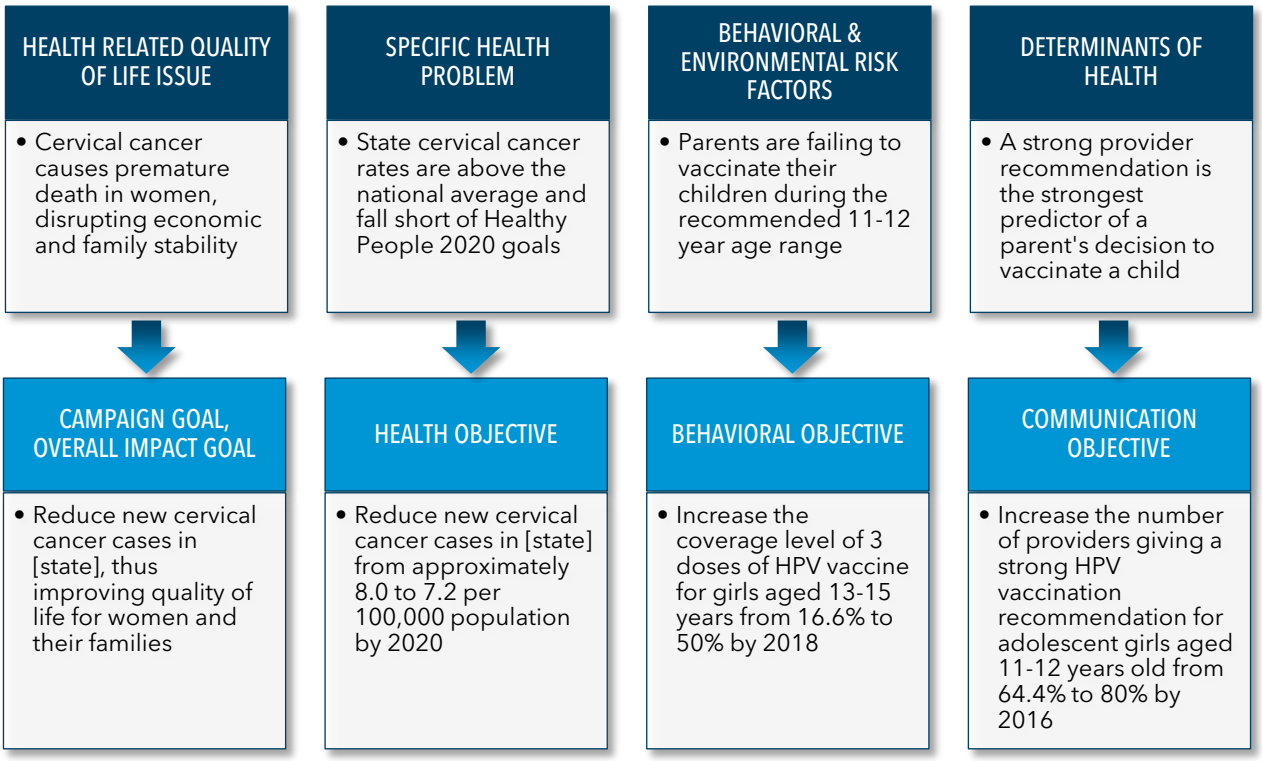


Figure 2G: Developing Communication Campaign Objectives

With your health problem and campaign objectives defined, and a priority population identified, you can now lay out your communication campaign roadmap. A campaign roadmap, often called a logic model in public health, is a diagram that illustrates *what* your campaign hopes to achieve and *how* you expect that change to happen. Defining your campaign goal and outlining the objectives of the campaign will help you identify what activities need to take place to lead to the desired outcomes and what resources, or inputs, you need to carry out the activities. This process can be thought of as backwards planning; you first determine what you want to change and then plan how you think you can make that happen, and finally what you need to implement your plan (Figure 2H). Think of the roadmap as a series of "IF, THEN" statements. For example, *If* the inputs or resources are used to implement the campaign, *then* the following activities can occur. *If* the activities occur as planned, *then* the desired outputs can be achieved.

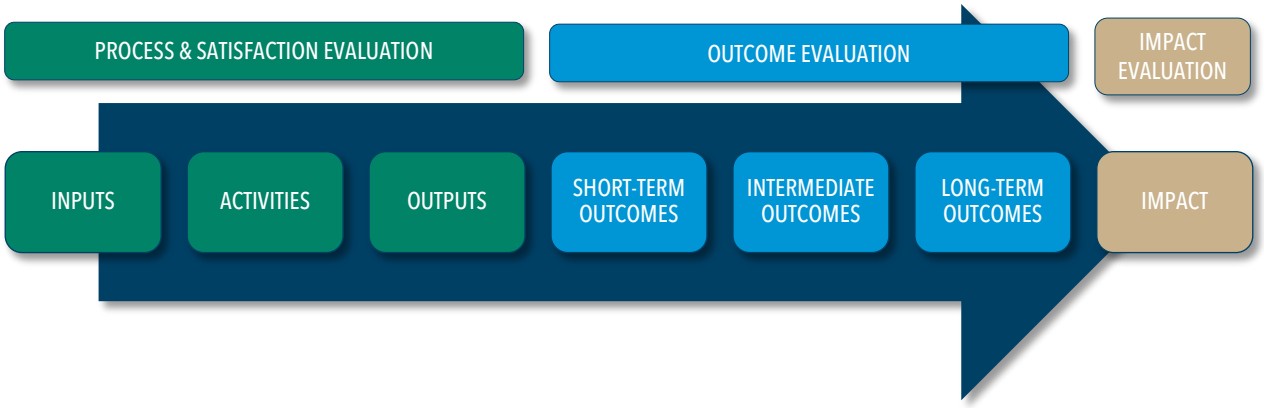


Figure 2H: Program Roadmap Framework

A roadmap or logic model is useful in communicating to stakeholders the objectives of your campaign and how they will be achieved as well as in focusing the evaluation by making assumptions and expectations for your communication campaign explicit. By outlining the program inputs and showing how they are linked to the desired outcomes to impact health, the roadmap can illustrate the theory behind your evidence-based campaign. "Logic models can be used to:

1. Identify the products, short-term, intermediate and distal outcomes for your program;
2. Link outcomes to each other and to program activities using the identified logic/theory/model for your program (illustrate cause and effect);
3. Incorporate findings from research and demonstration projects;
4. Select indicators to measure outcomes depending on the stage of your program's development;
5. Illustrate why the program is important as well as its fundamental purpose;
6. Depict what intermediate outcomes/products must occur before distal outcomes will be evident;
7. Make mid-course adjustments and improvements in your program; and
8. Become a common reference point for staff, stakeholders, constituents and funding agency" (Centers for Disease Control and Prevention, n.d.)

The terms road map and logic model are often used interchangeably. Other conceptually similar names are used as well, these include: conceptual map, mental model, theory or model of change, program framework, program theory or hypothesis, chain of causation and rationale, among others (Flint, 2013).

There is no single standard for what a road map should look like. It can be simple or complex depending on the stakeholder audience and complexity of your campaign. However, regardless of how you choose to display the information, it must communicate the theory of your program by showing the link between the identified resources, activities, products/outputs, outcomes and impact. Further, the roadmap can be a space to include assumptions or external factors that might affect the campaign.

2.2A Sections in a Campaign Roadmap

Audience and Campaign Goal

Ask yourself: Who are you trying to reach and what is your ultimate goal?
If you try to reach everyone, you will reach no one. The activities and outputs in your roadmap must always tie back to your goal, which can be expressed as the opportunity or problem to be addressed, as well as your target audience. An effective campaign roadmap usually includes some indication of the overall campaign goal, including who the intended audience is as well as the name of the campaign.

"If you try to reach everyone, you will reach no one."

Inputs

Ask yourself: What resources will be needed to carry out the planned activities?
Inputs typically include things like time, human resources such as staff or volunteers, collaborations with organizational or community partners, community assets, financial resources such as grant funding or in-kind donations and physical resources like space, brochures, raw materials or other supplies. Your planned activities should be feasible with the resources you have available and this section of the roadmap should capture everything you need to accomplish your program objectives.

Activities

Ask yourself: What are the main functions that the program will do or provide?
Activities are the actual events or interventions that will take place, using the defined inputs, in implementing the campaign. Activities include processes, events and actions.

Outputs

Ask yourself: What and how many tangible products will be created as a result of the activities?
Outputs are the tangible accomplishments resulting from the activities and typically link the activities with the campaign's audience(s) or short-term outcomes. Outputs can be thought of in terms of your campaign's "reach."

Outcomes

Ask yourself: What changes will your campaign bring about?
Outcomes or results can be short-term, intermediate and long-term. These are the measurable and specific changes observed as a result of the campaign. The outcomes should list targets in the roadmap.

Short-term outcomes are usually related to the participants or the campaign audience and are achieved within one to three years. When creating a health communication campaign, these are related to the communication objectives to change knowledge, skills, attitudes, etc. The intermediate and long-term outcomes are expected to be achieved later, sometimes as long as two to six years after the campaign has been launched. Intermediate outcomes are related to change objectives in behaviors, policies or practices and long-term outcomes are related to the campaign's health objectives.

Impact

Ask yourself: What was the ultimate goal of your campaign in improving health-related quality of life?
A comprehensive campaign roadmap will also note the desired impact of the campaign. Impacts are seen after the long-term outcomes and refer to even broader-level change compared to long-term outcomes. Impact is the overall campaign goal and relates back to the original quality of life issue you aimed to address. Often, the impact is very long-term societal, economic, civic or environmental change. This can be difficult to measure and harder to attribute to your campaign alone, but a well laid out roadmap can illustrate how your campaign may have contributed to the desired impact.

External Factors and Assumptions

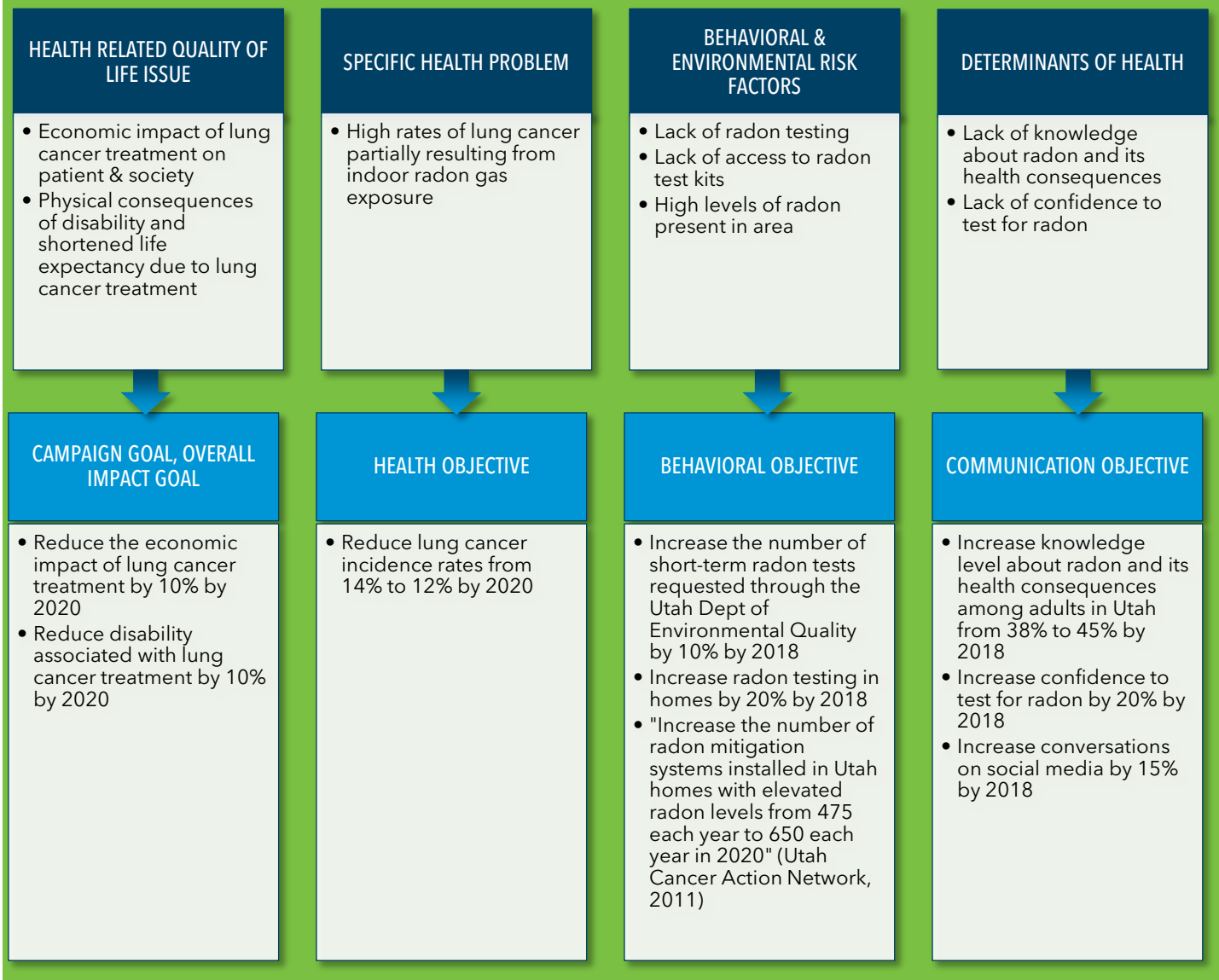
The context or conditions under which you are implementing your campaign can significantly influence the process or outcomes of the campaign. Being aware of potential factors that could detract from or augment the effectiveness of your campaign is imperative. Note these external factors that can negatively or positively influence program success and sustainability in your roadmap during campaign planning. For example, the socioeconomic status of your audience, current political climate or other factors from the community assessment that you cannot control.

Assumptions are other factors that must be taken into consideration when assessing the campaign's success. While the rest of the roadmap communicates specific processes by which outcomes will be achieved, the underlying assumptions of the intervention can play a

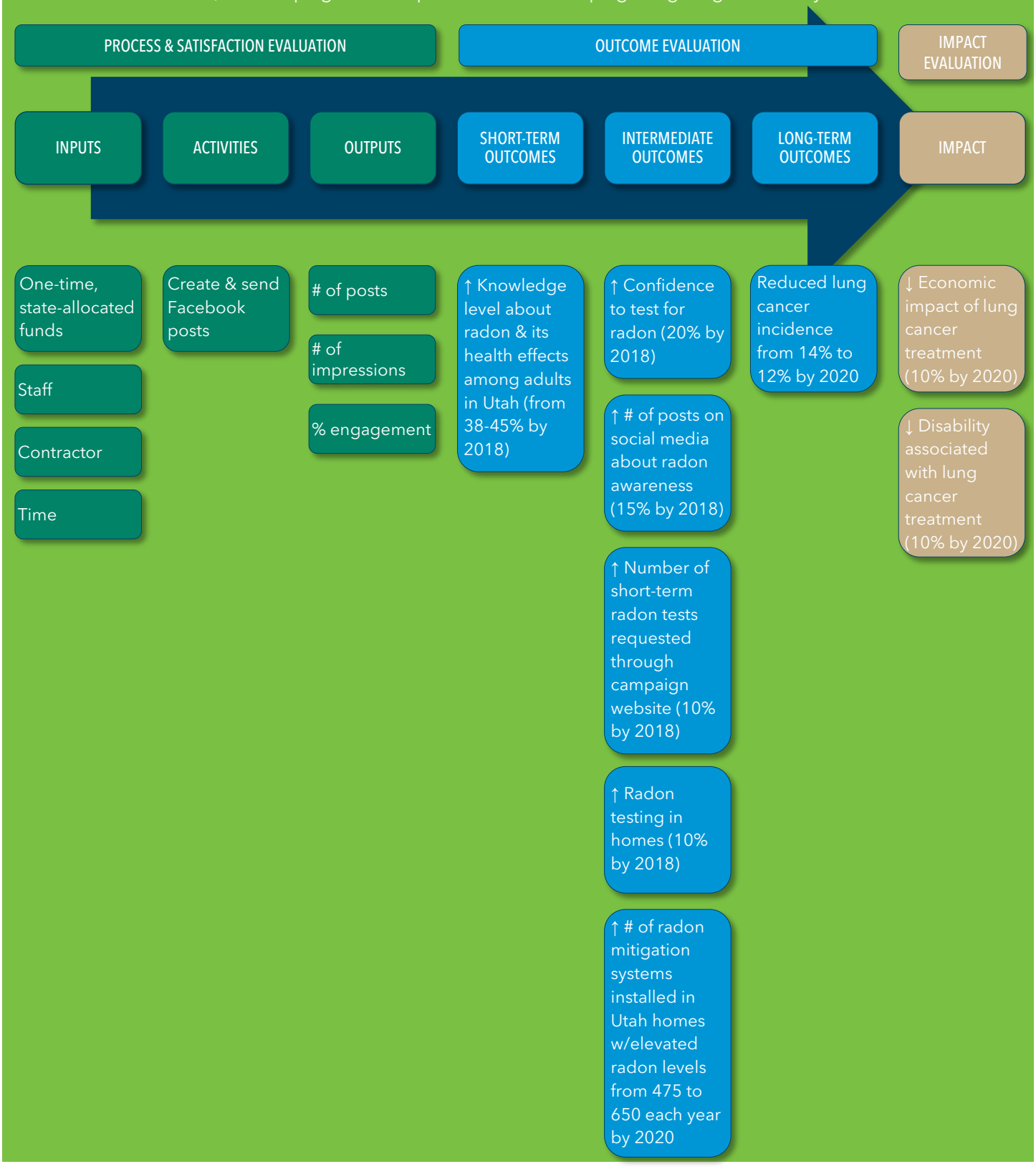
substantial role in affecting these outcomes. For example, you might make certain assumptions about the level of participation or reach you will achieve with your campaign.

CASE STUDY PART 2B

In the radon awareness case study, you can develop your roadmap by identifying the quality of life issues you seek to improve with your intervention, the specific health problem you want to address, the behavioral and environmental risk factors as well as other social determinants of health. Each of these factors can be used to develop your campaign goal, overall impact goal, health, behavioral and communication objectives as shown below. Often, you'll see a progression in dates from the short-term communication objectives to overall campaign impact goal, however, many state comprehensive cancer control plans use the plan end date as the date for most of their objectives.



Given that research on media habits revealed that adults seek health information from web-based media and many adults use social media, the campaign roadmap for the radon campaign targeting adults may look like this:



Further Readings and Resources

- Brownson, R. C., Baker, E. A., Leet, T. L., Gillespie, K. N., & True, W. R. (2011). Chapter 4: Community Assessment, in *Evidence-based public health* (2nd ed.). New York, NY: Oxford University Press
- Brownson, R. C., Baker, E. A., Leet, T. L., Gillespie, K. N., & True, W. R. (2011). Chapter 6: Quantifying the Issue, in *Evidence-based public health* (2nd ed.). New York, NY: Oxford University Press
- Brownson, R. C., Baker, E. A., Leet, T. L., Gillespie, K. N., & True, W. R. (2011). Chapter 7: Searching the Scientific Literature and Organizing Information, in *Evidence-based public health* (2nd ed.). New York, NY: Oxford University Press
- Cancer Prevention and Control Research Network's (CPCRN) Session 2: "Community Assessment"
- CPCRN's "Methods to Use to Influence Determinants" table for intervention strategies that correspond to various determinants and theories, to start brainstorming a menu of solutions
- CDCynergy "Problem Description"
- Community Tool Box "Models for Promoting Community Health and Development," "Collecting Information About the Problem" and "Understanding and Describing the Community"
- Crosby, R. & Noar, S. (2011). "What is a planning model? An introduction to PRECEDE-PROCEED"
- MAPPS Interventions for Communities Putting Prevention to Work
- National Cancer Institute's (NCI) *Making Health Communication Programs Work* "Assess the Health Issue/Problem and Identify All Components of a Solution" (p. 15-20)
- The Asset-Based Community Development Institute. School of Education and Social Policy Northwestern University. (2009). Downloadable Resources for Community Asset Mapping.

LESSON 3: COMMUNICATION CAMPAIGN MESSAGES, TACTICS AND CHANNELS FOR INTENDED AUDIENCES

By the end of this lesson, you should be able to:

- Describe strategies to identify audience characteristics and habits
- Create key messages and take-home messages
- Identify best practices for specific communication channels to reach intended audience
- Describe ways to adapt an evidence-based intervention to intended audience
- Identify methods to pretest campaign messaging and materials

3.1 Describe Strategies to Identify Audience Characteristics and Habits

Campaigns should focus on one, at most two, intended audiences (this really depends on the size and budget of the campaign, but staying focused is usually a good idea). Although we suspect the campaign will reach more people than those you are targeting, it is recommended that you distinguish and focus on one segment of the population, also known as the primary audience, to affect change. Secondary audiences are "those with influence" on the primary intended audience (National Cancer Institute, 2004, p. 26). For example, your campaign may primarily be designed to encourage colorectal cancer screening among African American men 50-75 years old, a secondary audience would likely be the spouses or domestic partners of those men.

Audience segmentation is the process of "defining subgroups of a population according to common characteristics" and can "help you develop messages, materials and activities that are relevant to the intended audience's current behavior and specific needs, preferences, beliefs, cultural attitudes [and] knowledge" (National Cancer Institute, 2004, p. 24) as well as media use and habits. There is no such thing as a "general public" in the public health marketing context: one approach will not engage all people. How each group of people interprets and views the health issue varies, and therefore how each group engages with your communication campaign's messages will vary.

Audience segmentation can:

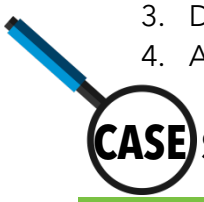
- "Identify a spectrum of potential audiences defined by commonalities (e.g. attitudes, behaviors or how they would relate to program components)
- Understand the beliefs, attitudes and behaviors of those audiences related to lifestyle issues (e.g. weight control, nutrition and physical activity)
- Select one or more intended audiences based on variety of perspectives, such as degree of health risk, likelihood to respond to a program strategy and short- versus intermediate or long-term goals
- Tailor behavior change programs or create calls to action most salient to interests and concerns of intended audiences

- Identify appropriate communication channels (e.g. social media advertisements, PSAs and billboards) for promotion and dissemination of program strategies" (Centers for Disease Control and Prevention, 2007, p. 5)

To understand your intended audience's attitudes and behaviors related to the specific health outcomes your campaign hopes to influence, employ the literature review and data analysis skills you learned about in Lesson 2. If there is no literature or data available on the population that you are working with, it is best to employ the techniques described in Lesson 2 and conduct formative research and community assessments to better characterize your intended audience. It may be helpful to consider the feasibility of your S.M.A.R.T. objectives during this formative research: remember that the "M" in S.M.A.R.T. represents "measurable," so start to consider what you want to and can measure to demonstrate the effects of your campaign. For more on S.M.A.R.T. objectives, refer to "Lesson 3: Media Planning and Strategic Principles in Public Health Communication" in *Communication Training 101*.

The following are four methods to use when narrowing down your intended audience:

1. Determine which audience segments have the biggest needs
2. Consider if this audience is persuadable
3. Decide which segment of the audience has the most influence and impact
4. Ask if it is realistic to reach this intended audience



CASE STUDY PART 3A

As supported by research discussed during Lesson 1, the Utah Comprehensive Cancer Control Program segmented their audience for their radon awareness media campaign to Utah adults, as they are more likely to be home owners, realtors, renters and home builders or contractors. They determined that this audience has the biggest need for intervention as knowledge of radon and radon testing is low (Ferng & Lawson, 1996); the audience is persuadable as increased knowledge of radon has shown to increase home testing (Larsson, Hill, Odom-Matyon, & Yu, 2009; Utah Cancer Action Network, 2011); Utah adults have the most influence and impact as they have ownership or tenancy of their homes; and they are reachable, as they exhibit health seeking behaviors via web-based and social media (Utah Cancer Action Network, 2011).

3.2 Create Key Messages

Having identified and gained a better understanding of your intended audience, you can make effective decisions about the kinds of messages you want to employ in your communication campaign. What is the key message you want to convey to your audience? What do you want your audience to take away from your campaign? This is your **key message**, also known as a take-home message. You probably want to narrow your campaign to two to three key messages to keep your campaign materials focused. Effective communication campaigns use a general "rule of three" to create a memorable way of presenting information. Your audience should consistently be exposed to your message through a messaging strategy that captures their attention but does not overwhelm them.

One tip to help you articulate your key message is to think about what promises you are making in your campaign in an IF-THEN statement. Here are some examples:

- If you are age 60 or older and get colorectal cancer screening, then you can reduce your risk of dying from colorectal cancer by up to 70% (National Cancer Institute, 2016)
- If you call the hotline, then you will get a free radon screening kit to test your home for cancer-causing chemicals

Once you have your campaign promise(s) solidified, you can start to adapt it to fit your primary and secondary intended audiences to create campaign messages (Figure 3A).

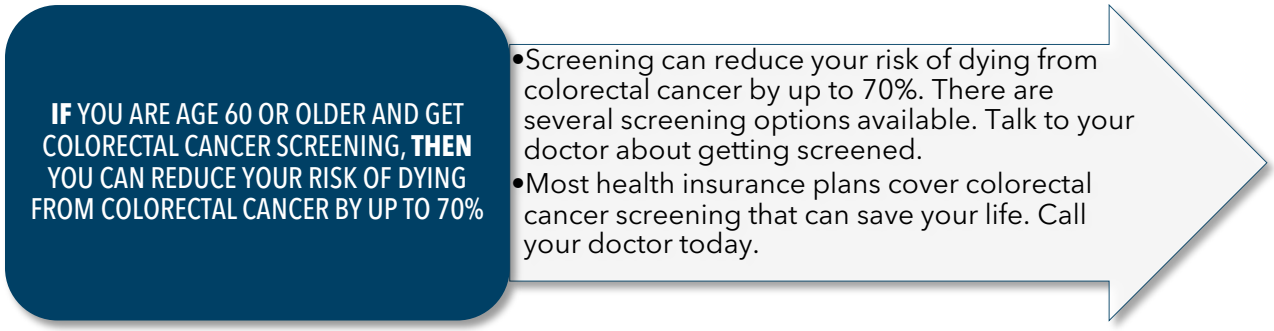


Figure 3A: Example of Campaign Messaging Developed from Key Message

3.2A Norms Messages

One type of messaging is known as "**Social Norms Marketing**" where messages focus on stating the actual commonality of any given health behavior. The hope is that by using this messaging approach, the audience will adjust their perception of the norm and ultimately, adjust their likelihood of engaging in the behavior.

Social Norms Marketing came about because studies consistently found that when people over-perceive certain risky behaviors, they are more likely to engage in that behavior as well (i.e. there is a positive correlation between perception and behavior) (Shepherd, Meteyer, Bruzios, Pol, & Charpentier, 2016). For example, public health issues such as excessive alcohol consumption perpetuate among social groups because the prevalence of that behavior is over-perceived. Studies show that college students overestimated the alcohol consumption of their peers (Baer, Stacy, & Larimer, 1991; Pederson & LaBrie, 2008). In such instances, norms messaging may be employed to reset the intended audience's perceived norm.

3.2B Message Framing

Another type of messaging entails considering how the message should be framed or presented to manage how your audience reacts. There are two types of framing in public health communication: **loss frame** or **gain frame**. Loss frame emphasizes the risk of a

behavior. For example, a loss-framed anti-smoking campaign will emphasize the dangers and consequences of smoking. Gain-framed anti-smoking campaigns will emphasize the benefits of quitting (Rothman, Bartels, Wlaschin, & Salovey, 2006).

In a famous study, researchers presented female participants with one of two variants of messages on breast self-examination (BSE): a gain-framed or a loss-framed message (Figure 3B) (Meyerowitz & Chaiken, 1987).

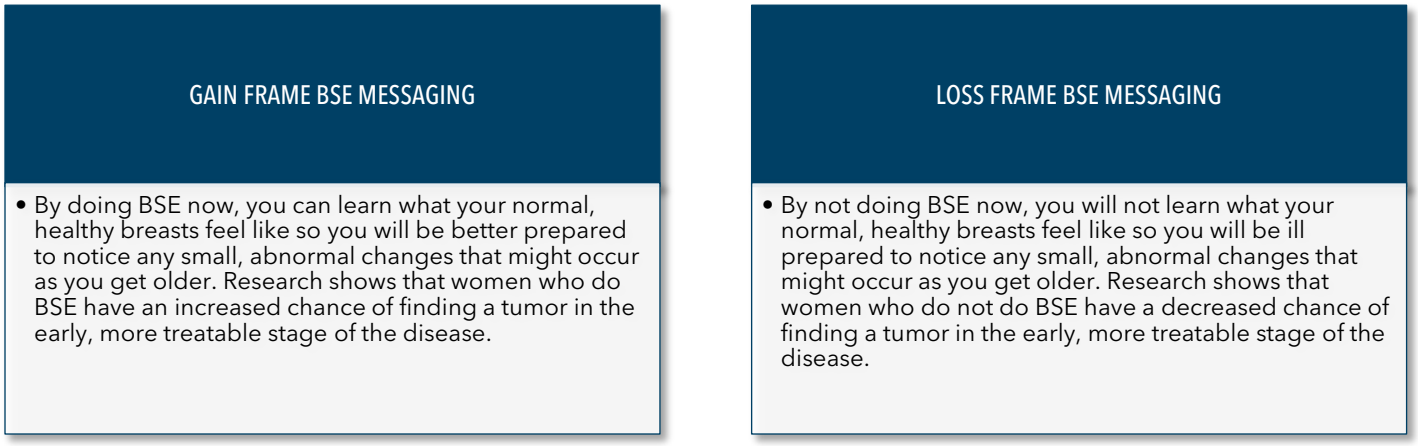


Figure 3B: Gain Frame and Loss Frame Messaging (Meyerowitz & Chaiken, 1987)

The study revealed that participants presented with the loss-framed pamphlet stressing the negative consequences of neglecting monthly BSE showed more positive BSE attitudes, intentions and behaviors than did those presented with either a gain-framed pamphlet emphasizing BSE's benefits, a pamphlet with no persuasive arguments or no pamphlet at all (Meyerowitz and Chaiken, 1987).*

Another example of the use of gain-framed and loss-framed messages is seen in a 1999 study on sun protection behavior messages. The study compared two gain-framed messages and two loss-framed messages and found that participants who read either of the two gain-framed brochures were significantly more likely to request sunscreen, intend to repeatedly apply sunscreen while at the beach and intend to use sunscreen with a sun protection factor of 15 or higher (Detweiler, Bedell, Salovey, Pronin & Rothman, 1999).

3.2C Presentation of Evidence

As outlined in Lesson 1, making your communication campaign evidence-based is of utmost importance for its effectiveness, stewardship, scalability and sustainability. When presenting evidence to your intended audience, it is important not to forget the reasons people engage

* As of 2009, the U.S. Preventive Services Task Force (USPSTF) recommends against teaching breast self-examination (BSE): http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/breast-cancer-screening

in the risky behavior you are trying to change or aren't engaging in preventive behaviors you are trying to promote. For example, think to yourself:

- Why do people start smoking?
- Why do people continue to smoke?
- Why do some teenagers use tanning beds?
- Why do people eat fast foods?
- Why do some people avoid colorectal cancer exams?

Some of the answers you may have considered could include psychosocial, epidemiological, educational, ecological, administrative and political factors you identified in your community assessment in Lesson 2, such as peer pressure, stress, financial costs, lack of access to services, convenience or perceived embarrassment.

This begs the question: How many of these root causes of a health issue should we bring up when we communicate about a public health issue?

A **one-sided message** is a message that only presents one side of an issue and ignores other opposing viewpoints. A **two-sided message**, also known as a "refutational" message, presents both sides of an issue and refutes the side that has little or no evidence or is dangerous (Arora & Arora, 2006; Erlinde, Cauberghe, & DePelsmacker, 2013).

Two-sided messages have been found to be more effective, especially with audiences who are skeptical or need convincing (Allen, 1991; Allen et al., 1990). Such audiences find two-sided messages more thoroughly researched, fair, honest and transparent (Hale, Mongeau, & Thomas, 1991). Perhaps more importantly, two-sided messages prompt the audience to think more critically about an issue. Skeptics also tend to find one-sided messages unconvincing. However, for audiences whose attitudes are already in the desired direction, for example, if they are already anti-smoking, one-sided messages are persuasive. In this case, a one-sided message reminds the audience of what they believe in and aids the maintenance of those attitudes (Allen, 1991; O'Keefe, 1993).

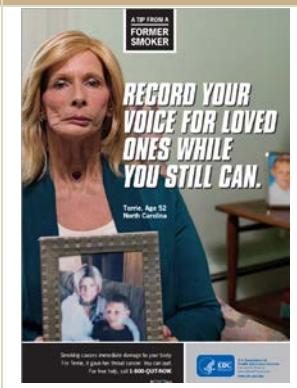
3.2D Emotional Appeals

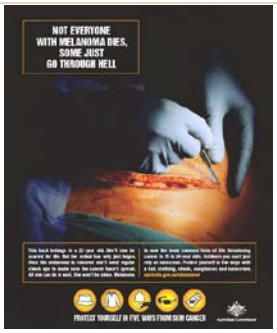
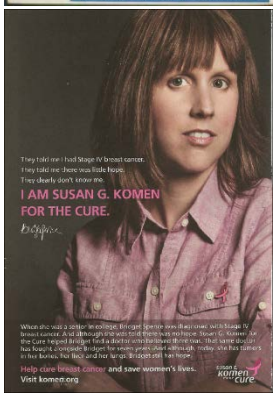
"Campaigns may be more effective when they use emotional appeals."

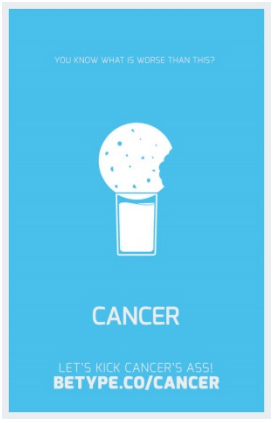
Content analysis of public health communication materials has been conducted by several researchers to test the effectiveness of specific messages in cognitive and behavioral outcomes of target audiences. (Lang & Yegiyan, 2008; Witte & Allen, 2000). Crawford and Okigbo explain that both logical and emotional appeals can persuade the target audience(s) to change their behavior (Crawford & Okigbo, 2014). Thus, while the content of the message is important to educate the target audience and provoke specific reactions, campaigns may be more effective when they use emotional appeals.

This is not to say we should abandon communicating facts and figures, but we also need to compel people to care about the health information. Research on the effects of emotional appeals has garnered the attention of practitioners and scholars alike in recent years. Often, people want to know what emotional appeals work best; but, the better question is: what emotional appeal is most effective with your particular audience, in this particular context? Emotional appeals in health communication materials can work, as long as they are used at the correct time, with the correct audience, for the correct reasons (Bleakley et al., 2015). Overall, humanizing your campaign will be most effective (Turner, 2011). Table 3A summarizes best practices for five types of emotional appeals.

Table 3A: Five Emotional Appeals (Turner, 2011)

Type of Emotional Appeal	Definition	Appropriate Intended Audience	Effective For	Campaign Example
Fear	Message that focuses in on relevant threat(s) to the intended audience. Focus is on severity of the threat and susceptibility of the audience to the threat.	Most audiences as long as the concerns intended are real concerns for the audience. Probably should be avoided with children.	Changing risk perceptions, attitudes and intentions	

				
(Anticipated) Guilt	Message that emphasizes how the audience would feel if they engaged in a behavior that was below "their moral code" or that hurt relevant others.	Most effective with adults. May be more effective with female audiences. Avoid with adolescents.	Changing risk perceptions, attitudes and intentions	 
Hope	Message focuses on uncertainty of consequences and emphasizes the behaviors that can be conducted to diminish the uncertainty.	Can work with any audience—especially older adolescents and adults.	Causing changes in cognitions, emotions, message recall and attitudes	 

Humor	Message that uses a positive and humorous tone to draw attention to an issue	Effective with any audience—as long as they find the message humorous. Most effective if the humor is related to the topic and competing communication is not humorous	Drawing attention to the topic and message, but, does not necessarily lead to attitude or intention changes	  
Shame	Message that focuses on the intended audience's personal characteristics that they should be ashamed of	Avoid at all costs with all audiences; tends to backfire	Causing feelings of shame, anger, and perceptions of being manipulated	 

CASE STUDY PART 3B

All key messages for the radon awareness raising campaign are gain frame messaging, and they emphasize the health benefits of radon testing. Gain frame messaging was chosen because studies have shown that gain frames produces better results than loss frame messages when communicating prevention behaviors.

All key messages for the radon awareness raising campaign are one-sided, and only present the issue that radon is dangerous and can be detected with a test kit. Radon testing is a non-controversial issue and the intended audience does not need to be convinced to test as much as they need to be made aware that they need to test and know where to get a kit.

IF YOU WANT TO ELIMINATE THE 2ND LEADING CAUSE OF LUNG CANCER FROM YOUR HOME, **THEN** BEGIN BY TESTING YOUR HOME FOR RADON

- Radon is the 2nd leading cause of lung cancer and can be present in your home. Order a free test kit today. Go to: www.abcdefg.org
- Wouldn't you want to know if a cancer-causing chemical were present in your home? There's a quick and easy test. Go to www.abcdefg.org to receive a free test kit.

IF YOU CALL THIS NUMBER, **THEN** YOU WILL GET A FREE RADON SCREENING KIT TO TEST YOUR HOME FOR CANCER-CAUSING CHEMICALS

- Radon, a cancer-causing chemical that you can't see or smell, can be hiding in your home. Protect yourself and your family. Call 1-800-xxx-xxxx to receive a free test kit.
- Radon gas is responsible for about 22,000 lung cancer deaths each year. Get your home tested today. Call 1-800-xxx-xxxx for a free test kit.

Since people are most motivated to change their behavior when they experience emotion with regard to a health issue, the key messages for the radon awareness raising campaign include emotional appeals.

- Radon is the second leading cause of lung cancer and can be present in your home. Order a free test kit today. Go to: www.abcdefg.org
- Radon gas is responsible for about 22,000 lung cancer deaths each year. Get your home tested today. Call 1-800-xxx-xxxx for a free test kit

These messages use fear and focus on the threat of radon at home. They emphasize the severity and susceptibility of the consequences. They are likely to be effective with our intended audience of adults and for changing risk perceptions of radon and intentions to test.

- Wouldn't you want to know if a cancer-causing chemical is present in your home? There's a quick and easy test. Go to: www.abcdefg.org to receive a free test kit
- Radon, a cancer-causing chemical that you can't see or smell can be hiding in your home. Protect yourself and your family. Go to www.abcdefg.org and receive a free test kit

These messages appeal to the anticipated guilt the intended audience would feel if they did not test for radon. They are likely to be effective with our intended audience of adults and for changing risk perceptions of radon and intentions to test.

3.3 Identify Best Practices for Specific Communication Channels to Reach Intended Audiences

Now that you have a better understanding of your intended audience and the message strategy you want to communicate, you can determine which media channels to use for your campaign. Here are some general best practices to consider when developing your messaging for specific channels:

- Use the channel your intended audience uses: There are numerous databases that tell us who is using what channel (see Lesson 1.3). For example, does your audience use smart phones? Do they read tabloid magazines? Where do they go to seek health information?
- Distinguish channels your audience uses for personal reasons versus to receive health information. For example, an audience may prefer to learn about colorectal cancer screening recommendations on Twitter but not on Facebook, as many people regard Facebook as a more private space for friends and family. Similarly, as we learned in *Communication Training 101,* journalists prefer that stories be pitched to them via Twitter or LinkedIn, but not Facebook.
- Make sure you use a message tactic that is appropriate for the channel. For example, does your intended audience want a scary, negative message in their Facebook feed? Do people want graphic images of a stoma in TV ads? We must pilot test these assumptions and ensure that the kind of messaging we employ is appropriate for the channel used. Pilot testing messages will be addressed in more detail shortly.
- Use multiple channels whenever it is appropriate or possible to maximize resources and widen the reach of your campaign.

Have a dynamic, interesting and user-friendly website for your intended audience to navigate to for more in-depth health information and resources. For example, you may place posters in local community clinics to capture patients' attention about survivorship services and direct them to a website with more information about specific support groups and resources.

Communication Training 101 presented an overview of advantages and disadvantages for distinct channels. Figure 3C outlines some best practices for specific channels to keep in mind.

CHANNEL		BEST PRACTICES TO REMEMBER
Outdoor Print Media: Posters, billboards		Appropriate for visual (graphics and images) and/or emotional appeals. Tend to be effective at drawing attention. Not appropriate for deep, lengthy or complex messages.
Print Media for Reading: Newsletters, pamphlets, brochures and booklets		Appropriate for communicating more difficult or complex facts that must be thought about carefully. May be effective for targeting audiences that already support your cause.
Mass Media: Newspapers and magazines		Best used when the objective is political or policy change. May be best for media advocacy efforts.
Mass Media: Radio, TV		Suitable for grabbing and maintaining attention to messages with novel, interesting and emotionally evocative messages that are dynamic.
Electronic Media: Websites		Every campaign should have a website, and a short and memorable website URL should be provided on all campaign materials. The website can be used to communicate simple or complex messages, provide stories or facts, archive past and present campaign materials, present reports on the effectiveness of the program, provide contact information for campaign staff and more.

Figure 3C: Best Practices for Using Various Types of Media Channels (Turner, 2011)

CASE STUDY PART 3C

Since the key intermediate outcome of the radon awareness raising campaign is to drive members of the intended audience to the campaign website so they can order free test kits, using a web-based channel is ideal. It would be more difficult for someone to access a website after hearing about it on the radio while they are driving than for someone to access a website after seeing a link on social media. During their campaign, Utah included their website, www.radon.utah.gov, on all the campaign materials.

3.4 Describe Ways to Adapt an Evidence-Based Intervention to Your Intended Audience

As outlined in Lesson 1, ideally all health communication campaigns should be evidence-based, drawn from existing best practices and theoretically driven. By now, you know how to research best practices and existing literature and use theory to shape your work; but how should you select and adapt other successful campaigns for your context?

The Cancer Prevention and Control Research Network provides resources for evaluating and adapting evidence-based approaches. In choosing a best fit approach, they recommend referring back to the community assessment and considering approaches that align with your goals and objectives, particularly with the determinants you selected to focus on, with the delivery method you hope to employ, with the characteristics of your priority population and with your organization and community context, including the resources and capacity you have to implement the approach.

Assess the various successful communication campaigns and choose one with similar objectives and outcomes as you are trying to achieve. You can start by conducting a literature review or looking at databases of successful campaigns such as Community Preventive Services Task Force's The Community Guide. The model campaign you select will likely have a different intended audience from yours. Think through whether the tactics and channels used in the campaign are appropriate for your intended audience.

Once you select a program to implement, you will likely have to adapt by adding, deleting or substituting program elements. This is a delicate balance of achieving a good fit for your community and organizational capacity and reaching a level of implementation that maintains the program's effectiveness. In deciding where to make adaptations, identify the core elements of the program that most likely make it effective and should probably not be changed. These might be content related or methods of delivery. A general rule of thumb is to avoid unnecessary changes in an evidence-based approach to maintain likelihood of the impact you hope for. Common adaptations you might consider include updating statistics and guidelines for your population, changing recruitment or engagement strategies, or customizing program materials that resonate with your audience (e.g., change pictures, wording, names of characters, etc.).

In making decisions about adaptation, you may want to conduct a quick qualitative study with members of your intended audience to assess their opinions and reactions to the campaign you chose before adapting it. Does your intended audience find anything particularly frustrating, unrealistic, offensive or angering, or do the materials and messages resonate well and motivate the desired action? Do the individuals in the existing campaign look like the people in your community? You might need to adapt your campaign messages for a Latino or South Asian audience. Make sure your intended audience can relate to the characters in the campaign. Do members of your audience understand the messages? You may need to adapt the messages so that they are culturally sensitive and relevant. By understanding the

phrases (even incorporating slang), myths and misconceptions, history and context of your audience, you can adapt the messaging so that it will resonate with and be understood by them. Use this knowledge to adapt the campaign for your community, then be sure to **pretest** new messages with a small group of audience members.

3.5 Identify Methods to Pretest and Pilot Test Campaign Messaging and Materials

It might be tempting to develop new or adopt existing messages and immediately distribute them to your intended audience. Before you do, it is critical to pretest campaign materials with members of the audience to help refine the messaging and materials. Depending on your budget, a **pilot test** could also be very useful. A pilot test is a small dry run of your campaign to determine barriers and facilitators to implementing the program protocol and assess the quality of program implementation and likelihood of success. There are several objectives of conducting this testing before launching the full-scale campaign.
First, if you developed several versions of campaign messages, pretesting can help determine which of the messages should be utilized. Likewise, if you have several intended audience segments, this pretest can help determine which messages resonate with which segments.

Second, a pretest can also help understand which, if any, messages offend people, also known as the boomerang effect. This is when a message that was intended to move the audience's attitudes and behaviors in a positive direction actually makes audiences less positive about the behavior due to poor message delivery. For example, a recent study assessed the effects of emotional messages on an anti-vaccine audience to persuade them to vaccinate their children (Watkins, 2015). Results showed that audience became even more anti-vaccine (Jeudin, Liveright, del Carmen, & Perkins, 2013). Therefore, pretesting messages is crucial to assess whether the message leads to negative reactions, including anger, frustration or shame.

Third, pilot testing can assess whether the message was received by the intended audience as you planned. As introduced in *Communication Training 101*, the transactional model of communication shows that once health messages are conveyed through some channel to the audience, the audience must then interpret the message amidst noise, which could prevent the message from being received or fully understood as the sender intended. For example, if you developed a campaign promoting pap smears with humor appeal, it would be important to assess whether your audience indeed found the campaign funny and that they understood the key message.

Finally, pilot testing can examine whether the message contributes to your objectives and goals. By testing messages with a sample of the intended audience and subsequently measuring attitudes, beliefs, knowledge, intentions and behaviors, you can gain insight as to whether your campaign is likely to work.

Below we discuss seven different methods that can be used in pretesting or pilot testing, and the benefits and challenges with each method. You will need to decide how rigorous you want the results to be and the level of resources you want to put into this portion of campaign development.

3.5A Test Messages for Reading Level

The first step of testing your messaging is to assess the reading level. If your message is too complex or technical for the literacy level of your intended audience, your audience will not understand what is being said or be able to use the information provided to make good behavioral decisions. Whether your intended audience is highly educated, such as clinicians, or has low literacy, always use **plain language**:

- Organize information in a logical manner with the reader in mind
- Use "you" and other pronouns
- Use active voice to engage the audience in doing an action
- Include common, everyday words
- Use easy-to-read design features, such as plenty of white space on a page (Plain Language Action and Information Network (PLAIN), n.d.)

You can test the readability of your messages by using online tools, or the built-in reading level score in Microsoft Word's spelling and grammar check feature that will evaluate the number of years of education audience members would need to have received to understand your messages. Different scores and indexes use various formulas to calculate grade levels by counting words in a sentence, syllables and number of sentences. For messages appealing to the general public, your campaign messages should be no higher than sixth- to eighth-grade reading levels (Badarudeen & Sabharwal, 2010).

3.5B Focus Group Method

The most common method for pilot testing campaign messages is by conducting **focus groups**. Typically, campaign planners recruit six to eight (no more than 10) individuals for the focus group session. Each focus group session should be broken down by audience segment. For example, if an HPV vaccination campaign is targeting two distinct audience segments, 1) Latina Mothers of 11-14 year old girls and 2) pediatricians serving in a Hispanic neighborhood, the campaign designers should pilot test their messages with the two audiences separately.

During the focus group session, the moderator might start out with a series of baseline questions to assess knowledge, attitudes, beliefs and intentions prior to actually seeing the campaign materials. Next, the moderator might reveal campaign materials, one at a time, and solicit feedback. The moderator might ask questions on visual aesthetics and reactions to the message.

The moderator might ask questions such as:

- What was the first thing that came to your mind when you saw this campaign material/message? What would you change, if anything, about this?
- Does this campaign material/message make you change your opinion about [the health issue]? Why or why not?
- Does this campaign material/message compel you to change your behaviors? Why or why not?

The questions moderators pose during these focus groups should be derived from the theory used to develop the campaign messages. For example, if the theory of planned behavior was used to develop messages, questions should assess attitudes, subjective norms, intentions and control beliefs.

There are multiple benefits of using focus group methodology. Generally speaking, they can be conducted at a small financial expense. Additionally, focus group methodology allows the campaign planners to talk with members of the intended audience and get deeper and more elaborate insight into their views of the campaign messages. In other words, focus groups not only answer the question of if they work but why they work.

There are also some challenges of using focus group methods. Focus group studies tend to have smaller sample sizes so the results may not be generalizable. They also rely solely on self-reported data, and numerous psychology studies have shown the difficulty people have in self-reporting whether messages can actually change their behaviors. Finally, focus groups are not controlled; therefore, it is difficult to assess what percentage of variance in responses is due to the campaign message being tested and what percentage of variance is due to factors like demographics, knowledge levels, prior behavior or even the result of a good or bad moderator. Conducting a few focus groups within each segment can potentially improve the reliability of the information you gather, if you have doubts about what you learn after only one group.

3.5C Survey Methodology with Embedded Experiment

Another method of pre-testing messages is conducting controlled experiments that are embedded within a survey instrument. The survey would first include demographics, variables that should be accounted for and controlled, such as prior knowledge, behaviors and personal experience, and a pre-test that measures the desired outcome variables, such as change in knowledge, attitudes, beliefs, intentions and norms.

Next, the survey would reveal one of the campaign messages that you want to pilot test. After participants look at the message, the survey poses post-test questions that repeat the desired outcome variables. If the team is pilot testing multiple messages, each of those messages can be embedded in the survey. The researchers would include post-test questions following each campaign item to be pilot tested. For this reason, the post-test should be short.

One methodological note here is that the researchers need to set up their study so that the order in which participants view the distinct campaign elements being pilot tested is randomized. Online survey platforms, such as SurveyMonkey, will do this for you at the click of a button (or two) quite easily.

There are several benefits of conducting a survey-based pilot test. First, survey methodology allows for large sample sizes. Depending on your budget, you could even recruit a randomized sample which would allow for greater generalizability of the findings. Data collection is not arduous because it may be as simple as disseminating a web link to potential participants. Second, the experimental component allows for greater control. The researchers can control for: 1) order effects (order of which they view the materials being tested) by randomizing the order, 2) potential confounding variables such as socio-economic status or ethnicity by measuring those constructs and using them as statistical controls and 3) moderator effects because everyone sees the same survey, since there is no moderator to bias input. Third, using this methodology we can calculate statistical effect sizes which tell us, all other things being equal, how much impact the message has on the outcome. Finally, this methodology allows the researchers to slice the data in many ways to shed light on other questions they may have. For example, the researchers can examine whether men were more motivated by a message than were women or whether prior knowledge of the health issue made a difference in what message was most impactful.

The disadvantage of survey-based pilot studies is that researchers do not have direct access to the participants. Thus, it will be impossible to directly follow-up with them and ask the more in-depth questions that may inform your programmatic decisions. Depending on how you choose to implement the survey, this method could also be more resource (i.e. time, money, staff) intensive than other options.

3.5D In-Depth Interviews

The concept, process and challenges of **in-depth interviews** are similar to that of focus groups, but in-depth interviews are conducted one-on-one. Although in-depth interviews are more time and cost intensive, they provide more detailed respondent feedback that are not influenced by the opinions of others.

3.5E Gatekeeper Interviews

As you obtain feedback about your campaign materials and messages from your intended audience, it is also beneficial to ask **gatekeepers**, such as public service directors, clinicians, community leaders and partner organization leaders to also review the materials. For example, if you plan to place posters in bus shelters it would be important to pitch the campaign to the transportation authority before getting too far into development. This is helpful not only to get input from those with experience and relationships with your target audience, but also to get their support of the campaign early in the process. Note that gatekeeper interviews should not substitute pretesting materials with your intended audience.

3.5F Center-Location Intercept Interviews

To gain your target audience's insights relatively quickly and in a cost-effective manner, you can conduct **center-location intercept interviews**. This method involves stopping potential intended audience members in highly trafficked locations, such as malls or public transportation hubs, screening them for eligibility, then showing them campaign materials and administering a survey of mostly closed-ended questions. These interviews can be conducted quickly (15-20 minutes) and should be conducted with a minimum of 60 to 100 respondents (Wurzbach, 2002). The disadvantage of center-location intercept interviews is that they are not appropriate to interview audiences on sensitive issues, such as alcohol use or sexual practices and concerns. The closed-ended questions also do not allow you to probe respondents easily for additional information. In-depth interviews are more appropriate to overcome these challenges.

3.5G Social Media Polling

Social media platforms are a great way to reach target audiences to pretest your social media campaign. For example, you can post several campaign messages and ask the Facebook audience to vote on which message they like most. Some applications will allow you to post photos and depending on the capabilities you are looking for, some of them are free.
The disadvantage of polling on social media is the pre-determined audience who use social media. For example, this method will not be appropriate if your target audience lacks Internet access. In addition, much like surveys, social media polling does not give you the opportunity to ask respondents further questions for more in-depth information and opinions.

CASE STUDY PART 3D

Here again we see the messages drafted for the radon case study. All the messages pass the reading level test! This is a good start. Messages and materials may be further assessed through focus groups, surveys, interviews and social media polling. Since this campaign is using social media, social media polling may be the best way to reach intended audiences.

Message	Reading Level
Radon is the second leading cause of lung cancer and can be present in your home. Order a free test kit today. Go to: www.abcdefg.org	Grade 4
Radon gas is responsible for about 22,000 lung cancer deaths each year. Get your home tested today. Call 1-800-xxx-xxxx for a free test kit	Grade 5
Wouldn't you want to know if a cancer-causing chemical is present in your home? There's a quick and easy test. Go to: www.abcdefg.org to receive a free test kit	Grade 4
Radon, a cancer-causing chemical that you can't see or smell, can be hiding in your home. Protect yourself and your family. Go to www.abcdefg.org and receive a free test kit	Grade 6

Further Readings and Resources

Audience research:

- Centers for Disease Control and Prevention (CDC) Division of Community Health's Making Healthy Living Easier Community Health Media Center

Key message design:

- CDC's Everyday Words for Public Health Communication
- Center for Health and Safety Culture's MOST of Us
- DesignKit's The Field Guide to Human-Centered Design
- Frog Collective Action Toolkit. Frog Design. 2015
- GW Cancer Institute's Colorectal Cancer Social Media Messages for the Unscreened
- GW Cancer Center's Social Media Toolkits highlighting evidence for communicating about various cancers
- GW Cancer Institute's webinar and toolkit on communicating about HPV vaccination
- National Colorectal Cancer Roundtable's 80% by 2018 Communications Guidebook: Effective messaging to reach the unscreened
- Turner, M.M. Discrete Emotions and the Design and Evaluation of Health Communication Messages
- University of Virginia's National Social Norms Center Website

Media channels:

- Gallup's polls on online products
- Pew Research Center's Internet, Science & Tech

Adapting evidence-based campaigns:

- CPCRN's Putting Public Health Evidence in Action Training Workshop
- National Colorectal Cancer Roundtable's (NCCRT) Evaluation Toolkit: How to evaluate activities to increase awareness and use of colorectal cancer screening
- NCI's Research-Tested Intervention Programs

Testing messages:

- Ben Parr's (Mashable) HOW TO: Conduct Live Polls via Twitter and SMS
- CDC's Executive Summary of Findings: Testing Core Community Health Messages with the Public
- CDC's Simply Put: A guide for creating easy-to-understand materials
- The Southern Center for Communication, Health & Poverty's Message Testing on a Shoestring Budget Webcast
- Zachary Sniderman's (Mashable) HOW TO: Poll Consumers on Facebook

LESSON 4: PLANNING FOR EVALUATION

By the end of this lesson, you should be able to:

- Explain the importance of evaluation in communication campaigns
- Identify metrics for campaign objectives
- Select appropriate methods of evaluation for a communication campaign

4.1 Explain the Importance of Evaluation in Communication Campaigns

National Comprehensive Cancer Control Programs are required to evaluate their programs and are encouraged to conduct process and outcome evaluation for their efforts at minimum (Centers for Disease Control and Prevention, 2015b). Program evaluation is "the systematic collection of information about the activities, characteristics and outcomes of programs to make judgments about the program, improve program effectiveness and/or inform decisions about future program development" (Patton, 1997, p. 39). Evaluation should occur simultaneously with your campaign implementation and after the campaign ends, thus you need to plan for evaluation early. You should already have a basic evaluation strategy in your communication or media plan, but here we explain some concepts and methods in greater detail.

There are four basic types of evaluation: process, satisfaction, outcome and impact evaluation and each tells you something different about your campaign. Process evaluation answers the question: "are you actually doing the things you planned to do?" (Community Tool Box, n.d.d). It is important to assess whether your communication campaign has been implemented as intended, and why or why not.

It involves monitoring progress toward program goals, identifying problems and seeking technical assistance before significant resources are used and identifying areas for program improvement and allowing for scalability and replication (National Cancer Institute, 2004). For a communication campaign that is part of a larger program effort, process evaluation is likely where you will focus your efforts and limited resources. If you developed a clear campaign roadmap, process evaluation findings will allow you to predict future changes in behaviors and health.

Satisfaction evaluation, related to process evaluation, can be used to assess how people felt about your campaign after the fact, whether they were satisfied with the quality and quantity

of the campaign and what elements of the campaign they found helpful or not. It is a good way to collect suggestions for improvements.

Outcome evaluation answers the question: "is the intervention having the desired effect on the intended audience?" (Community Tool Box, n.d.d). Has your audience's attitude changed? Have they adopted healthy behaviors? Outcome evaluation is important to show the effectiveness of your communication campaign, which is vital for justifying the program to management and funders, providing evidence of and celebrating successes with stakeholders and advocating for additional resources.

Impact evaluation answers the question: "is the intervention leading to the desired long-term impact envisioned?" (Community Tool Box, n.d.d) Assessing impact is not often used for health communication activities, because communication campaigns alone cannot create sustained changes in complex health behavior and quality of life indicators without the support of a larger program for change, including policy, systems and environmental changes (National Cancer Institute, 2004). Further, full impact may not be apparent for years or decades. Some data take years to accumulate, be analyzed and published, and benefits of behavior change will take time to translate into changes in health status or quality of life. You can make certain assumptions about impact based on short-, intermediate- or long-term outcomes, based on your campaign roadmap. For example, you may assume that if individuals called to receive a free radon test kit, they received it, used it and reduced their risk of lung cancer. Just be sure to make such assumptions clear in your evaluation report.

4.2 Identify Metrics for Health, Behavioral and Communication Objectives

The campaign roadmap and S.M.A.R.T. objectives lay the foundation for evaluation metrics. In developing your campaign objectives, you should have set targets for the outcomes and had baseline data or a desired magnitude of change in mind. The campaign roadmap can help you identify what processes you need to measure, particularly focusing on the outputs section (i.e. activities and products).

Depending on the time and resources you have at your disposal, your program will need to identify the most important evaluation questions you want to ask. To decide what process and outcome measures to prioritize, ask yourself: "which outcomes will be most useful in understanding program success and guiding improvements? Which outcomes are most important to the participants? Which outcomes are most important to other stakeholders, including funders?" (National Colorectal Cancer Roundtable, 2012).

Consider the following questions to help you focus the evaluation:

- "What are the communication objectives? What should the members of the intended audience think, feel, or do as a result of the health communication plan in contrast to what they thought, felt, or did before? How can these changes be measured?

- How do you expect change to occur? Will it be slow or rapid? What measurable intermediate outcomes (steps toward the desired behavior) are likely to take place before the behavior change can occur?
- How long will the program last? What kinds of changes can we expect in that time period (e.g. attitudinal, awareness, behavior, policy changes)? Sometimes, programs will not be in place long enough for objectives to be met when outcomes are measured (e.g., outcomes measured yearly over a 5-year program). To help ensure that you identify important indicators of change, decide which changes could reasonably occur from year to year
- Which outcome evaluation methods can capture the scope of the change that is likely to occur? Many outcome evaluations are relatively crude, which means that a large percentage of the intended audience (sometimes an unrealistically large percentage) must make a change before it can be measured. If this is the case, the evaluation is said to "lack statistical power." For example, a public survey of 1,000 people has a margin of error of about 3%. In other words, if 50% of the survey respondents said they engage in a particular behavior, in all likelihood somewhere between 47% and 53% of the population represented by the respondents actually engages in the behavior. Therefore, you can conclude that a statistically significant change has occurred only if there is a change of five or more percentage points. It may be unreasonable to expect such a large change, and budgetary constraints may force you to measure outcomes by surveying the general population when your intended audience is only a small proportion of the population
- Which aspects of the outcome evaluation plan best fit with your organization's priorities? Only rarely does a communication program have adequate resources to evaluate all activities. You may have to illustrate your program's contribution to organizational priorities to ensure continued funding. If this is the case, it may be wise to evaluate those aspects most likely to contribute to the organization's mission (assuming that those are also the ones most likely to result in measurable changes)" (National Cancer Institute, 2004, p. 108-109)

4.2A Process Evaluation

As covered in Communication Training 101, the purpose of process evaluation is to assess the extent to which the communication program was implemented as planned. Process evaluation is also useful for monitoring progress toward the stated objectives so that adjustments to the program materials or delivery may be made if necessary.

Process evaluation can also help with interpreting results of outcome evaluation, and help determine if observed changes were the result of the program. In practice, process evaluation "documents and assesses implementation; quantifies what was done; when, where and how it was done; and who was reached…It can help you identify any implementation concerns, determine if the program is communicating the right messages about the health topic or determine if participants understand the information they receive"

(National Cancer Institute, 2004, p. 129). Looking at the campaign roadmap (Figure 2H), process evaluation measures inputs, activities and outputs.

Examples of process metrics could include:

- Quantitative or qualitative feedback from program staff regarding the planning, resources (financial, staff, material) and timeline of the campaign to inform future improvements
- Number of attendees at campaign kick-off event
- Documentation of engagement with campaign partners, such as number of local businesses who sign on in support
- Number of posters, brochures, ads, etc. distributed
- Number of people in intended audience exposed to the campaign
- Number of hits to campaign website, downloads, video views, etc.
- Number of **media impressions** – media outlets represented at kick-off, stories generated about campaign activities, free or paid ad spots, etc.
- Radio spot performance measures such as **AQH persons, cume persons**, **frequency, gross impressions, designated market area, gross ratings points**, etc.
- Number of social media followers, post shares, likes, re-tweets, etc.

With process evaluation data, you should be able to effectively explain how your program operates and what reach it has, whether the audience understood the messages, if funding was sufficient to meet your objectives and how effective your partnerships were (National Cancer Institute, 2004, p. 101). Your process evaluation will be helpful in making improvements to the program and in helping others who may wish to replicate your work.

4.2B Satisfaction Evaluation

Satisfaction evaluation, related to process evaluation, is typically conducted after the conclusion of the campaign. It assesses how people felt about your campaign, including satisfaction about the level of exposure to the messages and how they reacted to the various elements of the campaign. Even a simple satisfaction evaluation with a small sample of audience members can be a good way to collect suggestions for campaign improvements. Methods for collecting such information are discussed in section 4.3 (National Cancer Institute, 2004, p. 101-102).

Examples of satisfaction evaluation questions might include:

- What did you like most about the program/brochure/educational session?
- What did you like least about the program/brochure/educational session?
- How did the program/brochure/educational session meet your needs?
- What, if anything, did you learn from the program/brochure/educational session?
- How, if at all, did the program/brochure/educational session affect your willingness to [engage in the desired behavior]?

- The information provided by the program was useful (rate from 1, strongly agree and 5, strongly disagree)
- The information provided by the program was easy to understand and useful (rate from 1, strongly agree and 5, strongly disagree)
- What, if anything, would you change about the program/brochure/educational session?

4.2C Outcome Evaluation

Outcome evaluation primarily measures the short-term and intermediate outcomes of the communication campaign. Short-term outcomes are likely theory-based communication outcomes, which are changes in awareness, knowledge, perceptions, beliefs and confidence/self-efficacy, or intentions that result from your communication campaign. Intermediate outcomes are likely changes in your audience's behaviors that can be expected as a result of your communication campaign. Metrics for outcomes should be stated in your campaign objectives. Figure 4A includes some short, intermediate and long-term outcome examples.

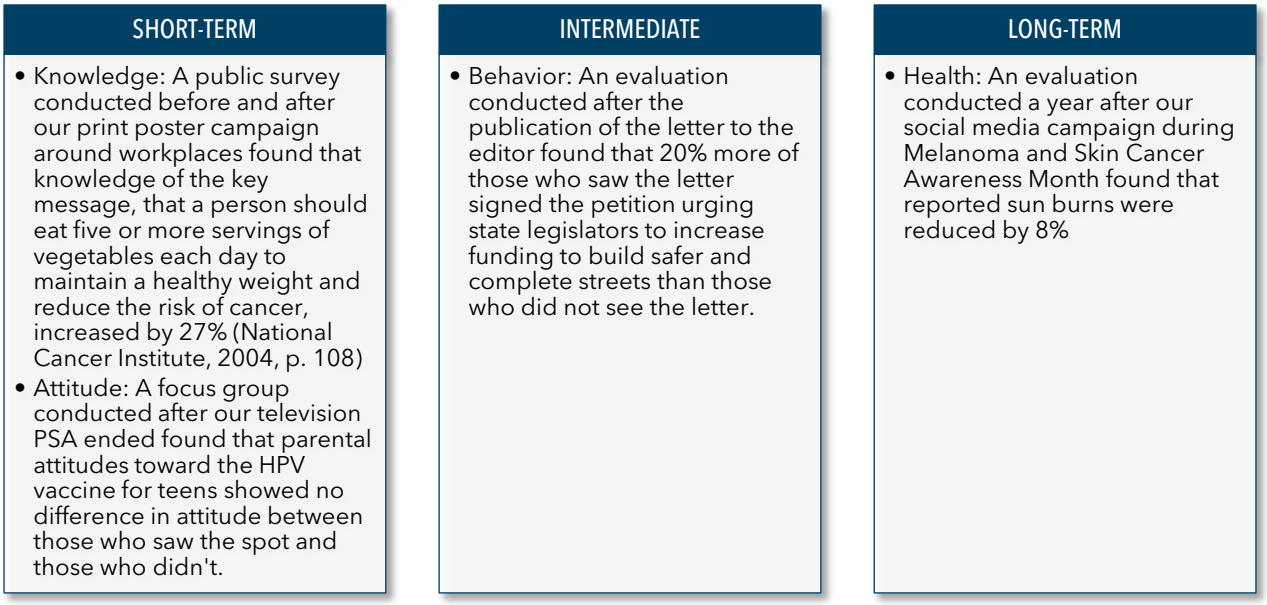


Figure 4A: Examples of Appropriate Indicators for Short-Term, Intermediate and Long-Term Outcomes for Health Communication Programs

4.2D Impact Evaluation

Impact evaluation measures the longer-term outcomes of the communication campaign, and the larger initiative within which the communication campaign is operating. Long-term outcomes are likely health outcomes, which are changes in the audience's health status as a result of your communication campaign. Measuring quality of life and other ultimate impact is often impossible for communication campaigns, as changes in health outcomes take time to manifest on a population-level and it is hard for communication strategies alone to produce sustained behavioral and health changes.

4.3 Select Appropriate Methods of Evaluation for a Communication Campaign

There are benefits and challenges of different methods for evaluating your campaign, and some methods will suit your campaign needs better than others (Table 4A). Process evaluation methods, for example, often include simply tracking counts of campaign outputs mentioned above in 4.2.A. Process evaluation methods could also include keeping a log of implementation notes reflecting standout successes and areas for improvement related to planning, resources and the timeline.

As each milestone on the campaign timeline arrives, note the actual date and reasons why the date may differ from the planned time; this will help in better planning for the following year. Assessment of partner engagement can be ongoing through regular contacts in person or by phone, and through individual surveys or in-person meetings at the conclusion of the campaign to capture qualitative feedback on their impressions of the program, anecdotal success stories, and suggestions for improvements. Methods outlined in Table 4A can be used for process evaluation, satisfaction or outcome evaluation. Most of the advantages and disadvantages of these methods are directly quoted from CDC Program Performance and Evaluation Office's Introduction to Program Evaluation for Public Health Programs: A Self-Study Guide as well as the Asian Pacific Partners for Empowerment, Advocacy and Leadership's Integrating Evaluation into Tobacco Programs for Asian American and Pacific Islander Communities.

Table 4A: Comparison of the Purpose, Advantages and Disadvantages of Various Evaluation Methods

Method	Purpose	Advantages	Disadvantages
Personal Interviews	"Collecting information verbally from informants, using a question and answer format in person. Interviews can be fairly unstructured, allowing you flexibility in deciding what questions to ask or how to best ask the question, or	• "Least selection bias, can interview people without telephones • Greatest response rate, people are most likely to agree to be surveyed when asked face-to-face • Visual materials may be used" (Centers for Disease Control and Prevention, 2012)	• "Most costly, requires trained interviewers, travel time and costs • Least anonymity, therefore most likely that respondents will share their responses toward what they believe is socially acceptable" (Centers for Disease Control and Prevention, 2012)

	can be tightly scripted, requiring you to ask questions the same way across respondents." (Holm-Hansen, 2006)		
Telephone Interviews	"Collecting information verbally from informants, using a question and answer format in person by telephone." (Holm-Hansen, 2006)	• "Good for both process and outcome evaluation because you can get in-depth information from participants" (Asian Pacific Partners for Empowerment, Advocacy and Leadership (APPEAL), 2009) • "Most rapid method • Most potential to control the quality of the interview, interviewers remain in one place so supervisors can oversee their work • Easy to select telephone numbers at random • Less expensive than personal interviews • Better response rate than for mailed surveys" (Centers for Disease Control and Prevention, 2012)	• "Most selection bias, omits people who are homeless and individuals without telephones • Less anonymity for respondents than for those completing instruments in private • As with personal interviews, requires a trained interviewer" (Centers for Disease Control and Prevention, 2012)
Surveys or Questionnaires	"Collecting information from respondents without direct contact. Paper versions of a survey may be handed out or mailed. You might also ask people to complete surveys electronically via email or the	• "Good for outcome evaluation" (Asian Pacific Partners for Empowerment, Advocacy and Leadership, 2009) • Most anonymity: therefore, least bias toward socially acceptable responses • Cost per respondent varies with response	• "Least control over quality of data • Dependent on respondent's reading level • Mailed instruments have lowest response rate • Surveys using mailed instruments take the most time to complete because such instruments require

	Internet." (Holm-Hansen, 2006)	rate: the higher the response rate, the lower the cost per respondent • Less selection bias than with telephone interviews" (Centers for Disease Control and Prevention, 2012)	time in the mail and time for respondent to complete" (Centers for Disease Control and Prevention, 2012)
Focus Groups	"Conducting group interviews with a small group of participants or other informants at the same time." (Holm-Hansen, 2006)	• "Good for outcome evaluation as you can ask people to explain how the program affected them • Can identify a lot of issues and effects • Can give staff better understanding of the program from participants' own words • Can be done relatively quickly (1-2 hours per focus group)" (Asian Pacific Partners for Empowerment, Advocacy and Leadership (APPEAL), 2009)	• "Requires a good facilitator • Takes time to analyze and interpret the discussion • May require extra resources for facilitator's time and participant incentives" (Asian Pacific Partners for Empowerment, Advocacy and Leadership (APPEAL), 2009)
Surveillance Data	Capturing of health status and behavior data for objective comparison over time (Thacker and Berkelman, 1988) (e.g., number of vaccinations given at clinic, statewide annual vaccination statistics, infection rates and deaths).	• Can provide compelling illustration of change on a broader scale over time	• Can be very difficult to attribute change in behavior or health status to communication campaign alone

As you can see, conducting a thorough community assessment and creating a campaign roadmap provides a foundation for your program from planning to implementation to evaluation. It is also evident that evaluation should not be an afterthought as a communication campaign comes to an end.

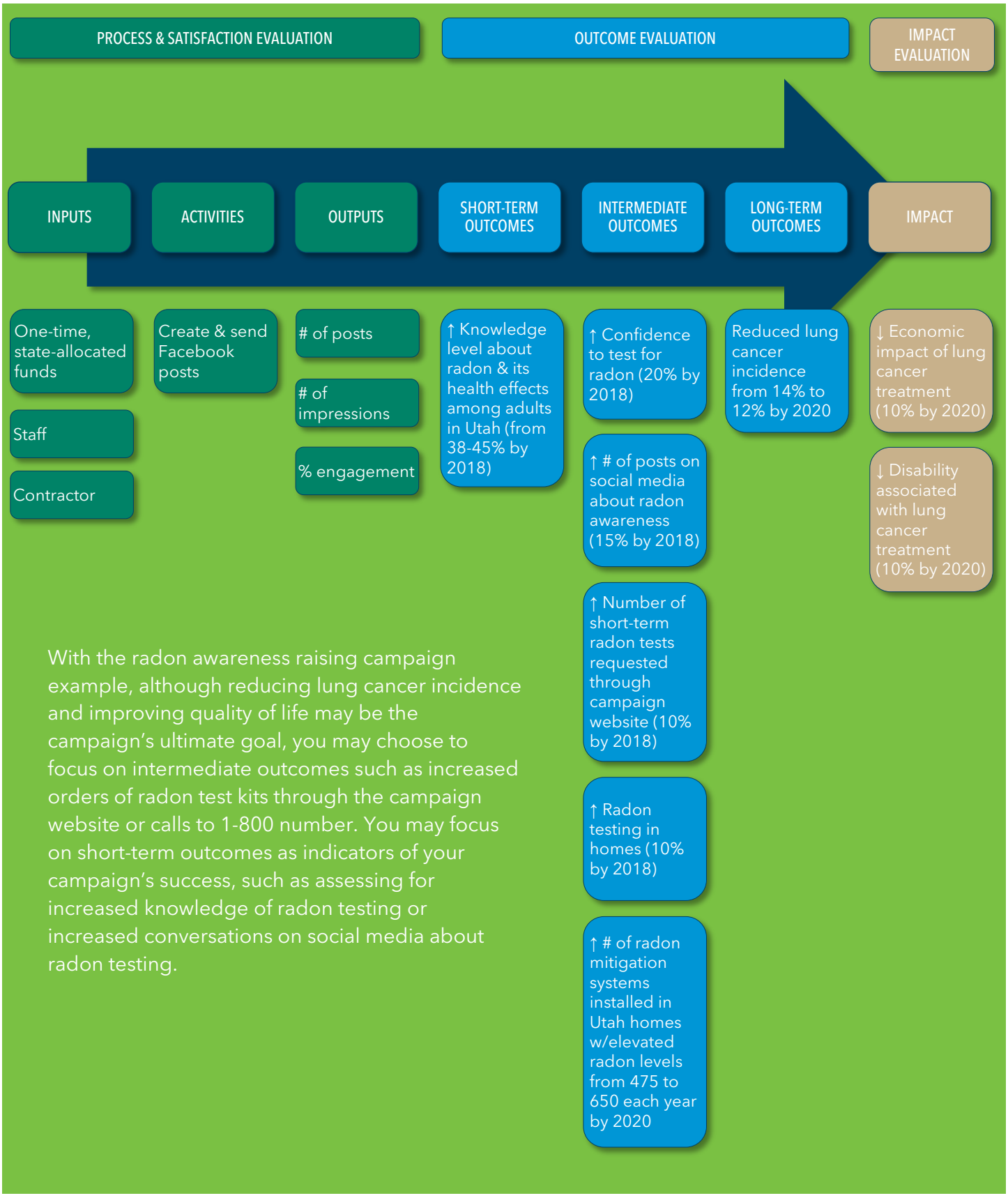
CASE STUDY PART 4A

The campaign roadmap can help you identify what you can and need to measure. For process evaluation, look at the inputs, activities and outputs of your roadmap. You may decide to track the number of posts as well as number of impressions and engagement to assess for improvements for the next program cycle. Remember to also plan for satisfaction evaluation to assess how the intended audience received your campaign.

For outcome evaluation, look at the short-term and intermediate outcomes of your roadmap. Measuring the number of radon test kits requested through the campaign website is a priority, as it would ultimately show the success of the campaign and may be a priority for funders. You may also want to assess whether the campaign led to an increased knowledge of radon and confidence to test for radon by conducting focus groups, surveys, interviews or social media polling.

For impact evaluation, look at the long-term outcomes of your roadmap. Long-term outcomes are likely changes in the audience's health status and quality of life as a result of your communication campaign. Measuring impact is often impossible for communication campaigns, as changes in health and quality of life take time to manifest on a population-level, and it is hard for communication strategies alone to produce sustained behavioral and health changes. However, you may track surveillance data in the years after the campaign.

On the next page, let's look back at the logic model of a social media campaign to increase awareness about testing for radon gas among homeowners between the ages of 25 and 50.



With the radon awareness raising campaign example, although reducing lung cancer incidence and improving quality of life may be the campaign's ultimate goal, you may choose to focus on intermediate outcomes such as increased orders of radon test kits through the campaign website or calls to 1-800 number. You may focus on short-term outcomes as indicators of your campaign's success, such as assessing for increased knowledge of radon testing or increased conversations on social media about radon testing.

Further Readings and Resources

- CDC's Comprehensive Cancer Control Branch Evaluation Toolkit
- CDC's Developing an Effective Evaluation Plan: Setting the course for effective program evaluation
- CDC's Gateway to Health Communication & Social Marketing Practice: Research & Evaluation
- CPCRN's Putting Public Health Evidence in Action Training Workshop Session 3: Planning for Evaluation
- GW Cancer Institute's Media/Communication Plan Template and Sample
- NCCRT's Evaluation Toolkit: How to evaluate activities to increase awareness and use of colorectal cancer screening
- NCCRT's Tips for Evaluating a Colorectal Cancer Screening Social Media Campaign webinar
- Robert Wood Johnson Foundation's A Practical Guide for Engaging Stakeholders in Developing Evaluation Questions

LESSON 5: COMMUNICATION CAMPAIGN IMPLEMENTATION

By the end of this lesson, you should be able to:

- Create a communication campaign implementation plan
- Launch communication campaign

5.1 Outline Activities and Draft a Work Plan (What)

After you have established partnerships and determined partner roles and skills, the next step is to determine what activities need to be implemented. You should have a general sense of what needs to be done based on your campaign roadmap—use that as a guide when outlining what activities need to happen. Account for any intermediate steps as well. For example, if "print materials" is an activity, you may need to include "(1) obtain content approvals (2) submit purchase orders (3) work with print vendor on formatting and file requirements and (4) shipping and receiving" as intermediate steps.

Think about your activities in five phases:

1. Planning and formative research
2. Development of messages and materials
3. Planning for evaluation
4. Implementation
5. Evaluation

When creating your list of activities, make sure you consider sequence of events as well as who will be responsible for each activity based on the list of partners you identified at the start of this lesson.

A sample of common implementation activities for a communication campaign is provided in Appendix C. Note that not all of these activities will apply to your campaign; it is meant to be used as a general overview and adapted for your particular circumstances. The more detailed your list of activities, the more realistic your timeline will be when you develop it in the next step.

5.2 Establish a Timeline (When)

When creating your timeline, think first in terms of big milestones. It may be useful, for example, to work backwards from your launch date if you are having a media event (more on media events at the end of this lesson), or start from when you'll first distribute materials for pilot testing as part of a phased rollout. It is also important to

remember that your timeline is a living, flexible document. It will need to be reviewed and updated throughout your campaign and can be used to monitor whether or not your implementation is on schedule (Johns Hopkins Center for Communication Programs, n.d.).

Think about when each activity will be implemented and how each activity is linked. If your efforts are tied to a service, like increasing screening, be sure to consider capacity of service providers in your timeline. Likewise, if your campaign includes provider training as a component, be sure that activity happens first so capacity is in place before your campaign launches.

The most important rule for creating timelines is to allow as much time as possible—especially if you are working with a large group of partners or within a large organization—approvals and red tape frequently take longer than expected. Also take into account the calendar year. For example, it is much more difficult and expensive to get advertising in the fall as it is the start of the holiday advertising season. If you are running your campaign in the fall, make sure you reserve advertising space during the spring before, if possible. Perhaps your timeline also needs to take into account your grant year or funder requirements—many organizations require money to be spent down well in advance of the end of the grant or fiscal year, be sure to take this into account as you plan your timeline.

If you are considering a kick-off or launch event to start your campaign, think about other media activities that may be happening at the same time. Here in the Washington, DC area, for example, a visit by a foreign dignitary or international leader can often dominate the press—the more you know about what is going on in the news, both locally and nationally, the more prepared you can be to launch at the right time and ensure the best possible coverage of your event. Consider holding your event around an awareness month or health observance, as media may be more likely to cover your campaign if it has a natural **news hook** with other events.

5.3 Determine a Budget (How Much)

Once you have a timeline and list of activities, you can begin to estimate your budget. Appendix C provides a list of activities and possible costs to plan for throughout the campaign. Finalize the budget once your work plan is complete.

Organizations are often forced to implement health communication campaigns with little or no budget. Leveraging partnerships and free or low-cost resources can expand your capacity and reach without additional cost. Some channels, such as Twitter or Facebook, are free and can expand your potential reach. Outreach to high-influence bloggers, message boards and social networks can also be an effective and low-cost way to advertise in addition to posting social marketing advertisements on state Department of Health webpages. More information on channels, including cost, is available in *Communication Training 101*.

CDC also offers sample creative elements like posters, graphics, television spots, radio spots and outdoor advertising at free or low cost from their Community Health Media Center or Media Campaign Resource Center (for tobacco counter-advertising). Make it Your Own (MIYO) also offers health communication campaigns that are customizable to your target audience. Finally, the National Public Health Information Coalition (NPHIC) has a searchable repository of campaigns on a variety of topics and budgets.

5.4 Finalize the Implementation Plan

At this point in the implementation process, you should be able to put together the pieces of your plan into a single document. A sample implementation plan is provided at the end of this lesson and should include who is responsible (who), all campaign activities (what), the timeline (when) and budget (how much) for each piece of the communication campaign.

Many campaign implementation plans include a launch event (also called a press event, kick-off event or media event). Launch events are a great way to build excitement around your campaign and generate earned media. Reach out to the press early to generate interest in your event and consider any activities to generate more interest in your event, like placing an op-ed, editorial or letter-to-the-editor beforehand.

Generally, schedule press events for Tuesdays, Wednesdays or Thursdays (journalists are generally catching up from weekend developments on Mondays, and Friday coverage often does not get noticed). It is best to schedule your event for mid-morning, no earlier than 10 a.m. since journalists often don't have their assignments until that part of the day (American Public Transportation Association, n.d.). Determine who will represent you with the media (your organization and your issue; patients or people otherwise affected help personalize your news and your campaign). Be flexible with speakers, as many individuals in positions of leadership may not know until the last minute whether they will be able to attend. Always have a back-up plan!

As you learned in *Communication Training 101*, building relationships with reporters should start long before your launch event. Assuming you have established relationships with journalists, it's best to let them know about the timing of your event as early as possible, up to two to three weeks beforehand. Send a formal media advisory to reporters at least three to four days in advance of your event with the relevant location and details. A media advisory is a short one-page document that lets reporters know about an upcoming news event (Communication Consortium Media Center, n.d.). Media advisories should be followed up with a phone call. It's important to emphasize here that the media advisory ideally shouldn't be the first contact you have with journalists. If you have been building relationships with journalists as part of your media strategy, you'll be able to informally reach out to them as soon as you have established the date of your event.

The day of the event, disseminate a press release that announces your news and provides more details about your campaign. Press releases should lead with the most important information first, and should be written in a newsy style. Many journalists rely on press releases when writing their stories. More information on writing press releases, including a template, is available in *Communication Training 101*.

Hold the launch event in a location that is convenient, central and meaningful. Reporters are often covering multiple stories in any given day, so thinking about details like parking, space and proximity to downtown will ensure that your event receives optimal attendance. The location should also be meaningful and connected to your campaign. If you are promoting a screening program, for example, consider holding the launch event at one of the neighborhood clinics, and invite members of the community to participate. Always have a back-up location in the event of changing circumstances.

When planning your launch event, remember that visuals are important. Members of the press will often shoot **"b-roll" footage** for their piece, so include posters, demonstration items, graphs or any other creative visuals to emphasize your message. Don't forget to reserve any necessary audiovisual equipment in advance, including a mult box (allows media to plug in their equipment), lighting, microphones, stages, podiums and chairs. Consider creating a media kit that includes your press release, media advisory, fact sheets and anything else that will help attendees understand your issue or campaign. Be sure to follow-up with media who attended and those who didn't, and track coverage after the event. Have designated individuals who are available to give follow-up interviews after the event and make sure the media knows how to contact them for additional stories in the future.

5.5 After the Launch

After your campaign is launched, the work is ongoing! Continue monitoring your campaign to make sure you're reaching your target population. If you are running paid ads, make sure they are airing at times that make sense. For example, if you are directing people to call a hotline, but TV ads are airing at night when the hotline is closed, re-assess and run the ads at a more appropriate time.

This is also when you start collecting any process evaluation data. You may make necessary modifications to materials, re-print and re-stock **marketing collateral** materials, continue to engage existing partners and possibly add new community partners. Developing a structured timeline will help the campaign coordinator keep things moving. One strategy to consider is staggering your messages to keep your campaign fresh and engaging (American Institutes for Research, 2015). It may make sense to "pulse" your messages depending on the time of year and your audience. For example, if you are doing a quit smoking campaign, it may make sense to do a big push of advertising or roll out new messaging around New Year's Day since many smokers may be thinking about quitting around that time, in addition to during relevant awareness days/months.

Information needed to develop the implementation plan for the radon awareness campaign may look like this:

Communication Vehicle/Channel	Intended Audience	Description or Purpose	Frequency	Owner	Internal or External	Timelines
Social media: Facebook	Utah adults (home owners, realtors, renters and home builders or contractors)	Raise awareness of the dangers of radon and ability to test	Five messages per day during Radon Action Month in January	Public education specialist	Internal with some external consulting	Sept-January

Your campaign timeline, from formative research to campaign launch and evaluation may look like this:

Planning and Formative Research	Timeline	Team Lead
Planning and formative research	April-May	Communication team and research assistants (Internal); Academic partners (External)
Identify and secure partners and collaborators: Cancer Coalition, Chronic Disease Coalition, Environmental Quality Department, Housing Department	June-July	Health Education Coordinator and Communication Team (Internal)
Conduct baseline social media polls and interviews to assess current levels of awareness	June-July	Communication team and research assistants (Internal); Academic partners (External)
Development of Messages and Materials	**Timeline**	**Team Lead**
Using survey findings, reassess target audience needs	September	Health Education Coordinator and Communication Team (Internal)
Create campaign messages	September	Health Education Coordinator and Communication Team (Internal)
Pre-test messaging with social media polling	September	Health Education Coordinator and Communication Team (Internal)
Update campaign website	October	Communication Team (Internal)
Draft talking points for organization spokesperson	November	Communication Team (Internal)
Draft press release	November	Communication Team (Internal)
Draft letter to the editor	November	Communication Team (Internal)

Notify press contacts	December	Communication Team (Internal)
Implementation	**Timeline**	**Team Lead**
Publish five social media messages per day	January 1-31	Communication Team (Internal)
Evaluation	**Timeline**	**Team Lead**
Process evaluation: Number of posts and impressions and level of engagement	February	Communication team and research assistants (Internal); Academic partners (External)
Satisfaction evaluation: Social media polling	February	Communication team and research assistants (Internal); Academic partners (External)
Short-term outcome evaluation: Social media polling and interviews	February	Communication team and research assistants (Internal); Academic partners (External)
Intermediate outcome evaluation: Number of campaign website visitors and test kits requested	February	Communication team and research assistants (Internal); Academic partners (External)
Impact evaluation: Ongoing surveillance data tracking	Ongoing	Communication team and research assistants (Internal); Academic partners (External)

Further Readings and Resources

- Communication Training 101: Media Planning and Media Relations Guide
- Make it Your Own (MIYO) – Adaptable evidence-based interventions with images, messages, designs
- National Public Health Information Coalition's health promotion resource library
- Johns Hopkins Center for Communication Programs Designing a Social and Behavior Change Communication Strategy – Implementation toolkit on designing a public health communication campaign, including sections on implementation and evaluation
- Neilson Media Research Group Glossary of Common Media Terms
- Digital Advertising Terms Every Marketer Should Know – Blog post on common marketing terms and their meanings

REFERENCES

Agency for Healthcare Research and Quality. (2016). *Effective health care program. Glossary. Evidence-based practice.* Retrieved from http://effectivehealthcare.ahrq.gov/

Allee, N., Alpi, K., Cogdill, K.W., Selden, C., & Youngkin, M. (n.d.) *Public health information & data tutorial.* Retrieved from https://phpartners.org/tutorial/00/0.1.2.html

Allen, M. (1991). Meta-analysis comparing the persuasiveness of one-sided and two-sided messages. *Western Journal of Speech Communication, 55*(4), 390-404. doi:10.1080/10570319109374395

Allen, M., Hale, J., Mongeau, P., Berkowitz-Stafford, S., Stafford, S., Shanahan, W., …Ray, C. (1990). Testing a model of message sidedness: Three replications. *Communication Monographs*, *57*, 275-291.

American Cancer Society. (2011). *Cervical cancer prevention and early detection.* Retrieved from http://www.cancer.org/cancer/cervicalcancer/moreinformation/cervicalcancerpreventionandearlydetection/cervical-cancer-prevention-and-early-detection-toc

American Cancer Society. (2015). *HPV and cancer.* Retrieved from http://www.cancer.org/cancer/cancercauses/othercarcinogens/infectiousagents/hpv/hpv-and-cancer-info

American College of Obstetricians and Gynecologists. (2010). Practice bulletin No. 110: Noncontraceptive uses of hormonal contraceptives. *Obstetrics and Gynecology*, *115*(1), 206-218. doi: 10.1097/AOG.0b013e3181cb50b5

American Institutes for Research. (2015). *The employee health communication toolkit.* Retrieved from http://www.helpyouremployeeshealth.com/

American Public Transportation Association. (n.d.). *How to plan a media event.* Retrieved from http://www.publictransportation.org/community/media/coverage/Pages/HowtoPlanaMediaEvent.aspx

Angell, B. (2008). Behavioral theory. In *Encyclopedia of Social Work.* (2016). Retrieved from http://socialwork.oxfordre.com/view/10.1093/acrefore/9780199975839.001.0001/acrefore-9780199975839-e-30

Appleby, P., Beral, V., Berrington De González, A., Colin, D., Franceschi, S., Goodill, A., …Sweetland, S. (2006). Carcinoma of the cervix and tobacco smoking: Collaborative reanalysis of individual data on 13,541 women with carcinoma of the cervix and 23,017 women without carcinoma of the cervix from 23 epidemiological studies. *International Journal of Cancer, 118*(6), 1481-1495. doi:10.1002/ijc.21493

Arbitron. (2010). *A guide to understanding and using PPM data*. Retrieved from http://www.arbitron.com/downloads/guide_to_using_ppm_data.pdf

Armstrong, C. (2010). ACOG guidelines on noncontraceptive uses of hormonal contraceptives. *American Family Physician, 82*(3), 288-295. Retrieved from http://journals.lww.com/greenjournal/

Arora, R., & Arora, A. (2006). Effectiveness of message sidedness and credibility on healthy eating to prevent cancer. *Services Marketing Quarterly, 27*(3), 35-52. doi:10.1300/J396v27n03_03

Asian Pacific Partners for Empowerment, Advocacy & Leadership (APPEAL). (2009). *Integrating evaluation into tobacco programs for Asian American and Pacific Islander communities.* Retrieved from http://www.appealforcommunities.org/wp-content/uploads/2015/06/APPEAL_Evaluations-web.pdf

Badarudeen, S., & Sabharwal, S. (2010). Assessing readability of patient education materials: Current role in orthopaedics. *Clinical Orthopaedics and Related Research, 468*(10), 2572-2580. doi: 10.1007/s11999-010-1380-y

Baer, J. S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol, 52*(6), 580-586. doi: 10.15288/jsa.1991.52.580

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). New York: Cambridge University Press.

Bartholomew, L.K., Parcel, G.S., Kok, G. & Gottlieb, N.H. (2006). *Intervention mapping: Designing theory and evidence-based health promotion programs*. San Francisco, CA: Jossey-Bass

Bleakley, A., Jordan, A. B., Hennessy, M., Glanz, K., Strasser, A., & Vaala, S. (2015). Do emotional appeals in public service advertisements influence adolescents intention to reduce consumption of sugar-sweetened beverages? *Journal of Health Communication, 20*(8), 938-948. doi:10.1080/10810730.2015.1018593

Boykin, G. (n.d.). *What is marketing collateral?* Retrieved from http://yourbusiness.azcentral.com/marketing-collateral-3222.html

Brabin, L., Roberts, S. A., Farzaneh, F., & Kitchener, H. C. (2006). Future acceptance of adolescent human papillomavirus vaccination: A survey of parental attitudes. *Vaccine, 24*(16), 3087-3094. doi:10.1016/j.vaccine.2006.01.048

Brawner, B. M., Baker, J. L., Voytek, C. D., Leader, A., Cashman, R. R., Silverman, R., …Frank, I. (2013). The development of a culturally relevant, theoretically driven HPV prevention intervention for urban adolescent females and their parents/guardians. *Health Promotion Practice, 14*(4), 624-636. doi:10.1177/1524839912462389

Brest, P. (2010). The power of theories of change. *Stanford Social Innovation Review.* Retrieved from http://ssir.org/articles/entry/the_power_of_theories_of_change

Brick Marketing. (n.d.). *What is an impression?* Retrieved from http://www.brickmarketing.com/define-impression.htm

Brownell, K.D., Kersh, R., Ludwig, D.S., Post, R.C., Puhl, R.M., Schwartz, M.B., & Willet, W.C. (2010). Personal responsibility and obesity: A constructive approach to a controversial issue. *Health Affairs, 29*(3), 379-387. doi:10.1377/hlthaff.2009.0739

Brownson, R.C., Baker, E. A., Leet, T.L., & Gillespie, K.N. (2003). *Evidence-based public health.* New York: Oxford University Press.

Brownson, R.C., Baker, E.A., Leet, T.L., Gillespie, K.N., & True, W.R. (2011). *Evidence-based public health* (2nd ed.). New York: Oxford University Press.

Brownson, R.C., Chriqui, J.F., & Stamatakis, K.A. (2009). Understanding evidence-based public health policy. *American Journal of Public Health, 99*(9), 1576-1583. doi: 10.2105/AJPH.2008.156224

Brownson, R.C., Fielding, J.E., & Maylahn, C.F. (2009). Evidence-based public health: A fundamental concept for public health practice. *The Annual Review of Public Health, 30*, 175-201. doi: 10.1146/annurev.publhealth.031308.100134

Camp, N. (2014). *What is B-roll? Enhance your video production with additional shots.* Retrieved from http://www.thevideoeffect.tv/2014/01/27/what-is-b-roll-enhance-your-video-production-with-additional-shots/

Cancer Prevention and Control Research Network. (2014a). *Putting public health evidence in action training files: Session 1: Defining evidence slides.* Retrieved from http://cpcrn.org/pub/evidence-in-action/

Cancer Prevention and Control Research Network. (2014b). *Putting public health evidence in action training files: Community assessment*. Retrieved from http://cpcrn.org/pub/evidence-in-action/

Caskey, R., Lindau, S. T., & Alexander, G. C. (2009). Knowledge and early adoption of the HPV vaccine among girls and young women: Results of a national survey. *Journal of Adolescent Health, 45*(5), 453-462. doi:10.1016/j.jadohealth.2009.04.021

Centers for Disease Control and Prevention. (2003). Media advocacy. In *Designing and implementing an effective tobacco counter-marketing campaign* (pp. 256-266). Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health.

Centers for Disease Control and Prevention. (2007) *Segmenting audiences to promote energy balance resource guide for public health professionals*. Retrieved from http://www.cdc.gov/nccdphp/DNPAO/socialmarketing/pdf/audience_segmentation.pdf

Centers for Disease Control and Prevention. (2009). *Evaluation briefs: Developing process evaluation questions.* Retrieved from https://www.cdc.gov/healthyyouth/evaluation/pdf/brief4.pdf

Centers for Disease Control and Prevention. (2010). *Comprehensive cancer control branch program evaluation toolkit.* Retrieved from https://www.cdc.gov/cancer/ncccp/pdf/ccc_program_evaluation_toolkit.pdf

Centers for Disease Control and Prevention. (2011). *Communities of Practice: Do a SWOT analysis*. Retrieved from http://www.cdc.gov/phcommunities/resourcekit/evaluate/swot_analysis.html

Centers for Disease Control and Prevention. (2012). *Introduction to program evaluation for public health programs: A self-study guide, Step 4: Gather credible evidence.* Retrieved from https://www.cdc.gov/eval/guide/

Centers for Disease Control and Prevention. (2013a). *Cancer plan self-assessment tool*. Retrieved from http://www.cdc.gov/cancer/ncccp/cancerselfassesstool.htm

Centers for Disease Control and Prevention. (2013b). *Health-related quality of life (HRQOL)*. Retrieved from https://www.cdc.gov/hrqol/

Centers for Disease Control and Prevention. (2014). *Media plan guidance: How to create and implement an effective media plan.* Retrieved from http://smhs.gwu.edu/cancercontroltap/resources/media-plan-guidance-how-create-and-implement-effective-media-plan

Centers for Disease Control and Prevention. (2015a). *Cervical cancer rates by race and ethnicity*. Retrieved from http://www.cdc.gov/cancer/cervical/statistics/race.htm

Centers for Disease Control and Prevention. (2015b). *National comprehensive cancer control program (NCCCP): Comprehensive cancer control plans.* Retrieved from http://www.cdc.gov/cancer/ncccp/ccc_plans.htm#States

Centers for Disease Control and Prevention. (2016a). *Youth risk behavior surveillance system (YRBSS).* Retrieved from http://www.cdc.gov/healthyyouth/data/yrbs/index.htm

Centers for Disease Control and Prevention. (2016b). *U.S. census populations with bridged race categories.* Retrieved from http://www.cdc.gov/nchs/nvss/bridged_race.htm

Centers for Disease Control and Prevention. (2016c). *National vital statistics system: Mortality data.* Retrieved from http://www.cdc.gov/nchs/nvss/deaths.htm

Centers for Disease Control and Prevention. (n.d.). *Logic Models Step 2B*. Retrieved from https://www.cdc.gov/oralhealth/state_programs/pdf/logic_models.pdf

Chambers, D., & Kerner, J. (2007). Closing the gap between discovery and delivery. Dissemination and implementation workshop: Harnessing science to maximize health.

Champion, V.L., & Sugg Skinner, C. (2008). Chapter 3: The health belief model. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed.) (pp. 45-66). San Francisco, CA: Jossey-Bass.

Chisolm, S. (2007). Impact of public health. In *The health professions: Trends and opportunities in U.S. health care* (p. 339). Sudbury, MA: Jones and Bartlett.

Coffman, J. (2002). *Public communication campaign evaluation: An environmental scan of challenges, criticisms, practice, and opportunities.* Cambridge, MA: Harvard Family Research Project.

Communication Consortium Media Center. (n.d.). *Press releases and media advisories.* Retrieved from http://ccmc.org/tips/press-releases-and-advisories/

Community Tool Box. (n.d.a). *Chapter 3, Section 6: Conducting focus groups.* Retrieved from http://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/conduct-focus-groups/main

Community Tool Box. (n.d.b). *Chapter 3, Section 12: Conducting interviews.* Retrieved from http://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/conduct-interviews/main

Community Tool Box. (n.d.c). *Chapter 3, Section 8: Identifying community assets.* Retrieved from http://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/identify-community-assets/main

Community Tool Box. (n.d.d). Chapter 2, *Section 2: PRECEDE/PROCEED.* Retrieved from http://ctb.ku.edu/en/table-contents/overview/other-models-promoting-community-health-and-development/preceder-proceder/main

Community Tool Box. (n.d.e) *Chapter 33, Section 2: Writing letters to the editor.* Retrieved from http://ctb.ku.edu/en/table-contents/overview/other-models-promoting-community-health-and-development/preceder-proceder/main

Cooney, S.M., Huser, M., Small, S., & O'Connor, C. (2007). Evidence-based programs: An overview. *What Works Wisconsin- Research to Practice Series*, *6*, 1-8. Retrieved from http://www.human.cornell.edu/outreach/upload/Evidence-based-Programs-Overview.pdf

Cornelis, E., Cauberghe, V., & De Pelsmacker, P. (2013). Health versus appearance focus in one- versus two-sided messages discouraging sun tanning. In S. Rosengren, M. Dahlén, & S. Okazaki (Eds.), *Advances in advertising research (Vol. IV)* (pp. 203-212). Wiesbaden, Germany: Springer Gabler. doi: 10.1007/978-3-658-02365-2_15

Crawford, E.C., & Okigbo, C.C. (2014). Chapter 2: Strategic communication campaigns. In C.C. Okigbo (Ed.), *Strategic urban health communication* (pp. 11-23). New York, NY: Springer.

Crothers, L.M., Hughes, T.L., & Morine, K.A. (2008). *Theory and cases in school-based consultation: A resource for school psychologists, school counselors, special educators, and other mental health professionals*. New York, NY: Routledge Taylor & Francis Group.

Dempsey, A.F., Abraham, L.M., Dalton, V., & Ruffin, M. (2009). Understanding the reasons why mothers do or do not have their adolescent daughters vaccinated against human papillomavirus. *Annals of Epidemiology, 19*(8), 531-538. doi:10.1016/j.annepidem.2009.03.011

Dempsey, A.F., & Patel, A.D. (2010). HPV vaccine acceptance, utilization and expected impacts in the U.S. *Human Vaccines*, *6*(9), 715-720. doi:10.4161/hv.6.9.12730

Detweiler, J.B., Bedell, B.T., Salovey, P., Pronin, E., & Rothman, A.J. (1999). Message framing and sunscreen use: Gain-framed messages motivate beach- goers. *Health Psychology, 18*(2), 189-196. doi: 10.1037/0278-6133.18.2.189

Devine, J. (2007). *Pre-testing communication materials: Some quick tips!* [PowerPoint slides]. Retrieved from https://www.wsp.org/sites/wsp.org/files/userfiles/WSP-Pre-testing-Communication-Materials.pdf

District of Columbia Department of Transportation. (2010). *D.C. transit future system plan – Final report.* Retrieved from http://ddot.dc.gov/page/dc-transit-future-system-plan-final-report-april-2010

Donahue, K.L., Stupiansky, N.W., Alexander, A.B., & Zimet, G.D. (2014). Acceptability of the human papillomavirus vaccine and reasons for non-vaccination among parents of adolescent sons. *Vaccine, 32*(31), 3883-3885. doi:10.1016/j.vaccine.2014.05.035

Escalada, M.M. (n.d.). *Pretesting and evaluation of communication materials.* Unpublished manuscript.

Escoffery, C., Hannon, P., Maxwell, A.E., Vu, T., Leeman, J., Dwyer, A., …Gressard, L. (2015). Assessment of training and technical assistance needs of colorectal cancer control program grantees in the U.S. *BMC Public Health, 15*(1) doi:10.1186/s12889-015-1386-1

Everett, M.W., & Palmgreen, P. (1995). Influences of sensation seeking, message sensation value, and program context on effectiveness of anticocaine public service announcements. *Health Communication, 7*(3), 225-248. doi:10.1207/s15327027hc0703_3

Featherstone, R. (2011). *How to conduct a literature review.* Message posted to http://www.slideshare.net/featherr/how-to-conduct-a-literature-review

Ferng, S.F., & Lawson, J.K. (1996). Residents in a high radon potential geographic area: Their risk perception and attitude toward testing and mitigation. *Journal of Environmental Health, 58*(6), 13-17.

Fineberg H. (2003). Table 5-1: Traditional distinctions between public health and medicine. In K. Gebbie, L. Rosenstock, & L.M. Hernandez (Eds.), *Who will keep the public health? Educating public health professionals for the 21st century* (pp. 132-133). Washington, DC: The National Academies Press.

Fink, A. (2005). *Conducting research literature reviews: From the internet to paper* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Finnegan Jr., J.R., & Viswanath, K. (2008). Chapter 16: Communication theory and health behavior change: The media studies framework. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed) (pp. 363-387). San Francisco, CA: Jossey-Bass.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York, NY: Psychology Press.

Flint, R.W. (2013). *Practice of sustainable community development: A participatory framework for change*. New York, NY: Springer Science and Business Media.

Friends of Cancer Research. (n.d.). *Randomized and single-arm trials.* Retrieved from http://www.focr.org/randomized-and-single-arm-trials

Gay & Lesbian Alliance Against Defamation (GLAAD), & the Movement Advancement Project (MAP). (2008). *Communications campaign best practices*. Retrieved from https://www.lgbtmap.org/file/communications-campaign-best-practices.pdf

Glanz, K. (n.d.). Chapter 1: Social and behavioral theories. In *E-Source Behavioral & Social Sciences Research*. Retrieved from http://www.esourceresearch.org/tabid/724/default.aspx#

Glanz, K., Rimer, B.K., & Viswanath, K. (Eds.) (2008). *Health behavior and health education: Theory, research, and practice* (4th ed.). San Francisco, CA: Jossey-Bass.

Glanz, K., & Bishop, D.B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*, *31*, 399-418. doi:10.1146/annurev.publhealth.012809.103604

Green, L.W., & Kreuter, M.W. (2005). *Health program planning: An educational and ecological approach* (4th ed.). New York, NY: McGraw-Hill Higher Education.

Hale, J. L., Mongeau, P.A., & Thomas, R.M. (1991). Cognitive processing of one- and two-sided persuasive messages. *Western Journal of Speech Communication, 55*(4), 380-389. doi:10.1080/10570319109374394

Han, J., Kamber, M., & Pei, J. (2006). *Data mining: Concepts and techniques* (3rd ed.). New York, NY: Elsevier.

Head, B. (2009). Chapter 2: Evidence-based policy: Principles and requirements. In *Strengthening evidence-based policy in the Australian Federation (Vol. 1).* Canberra, Australia: Productivity Commission.

Herland, M., Khoshgoftaar, T.M., & Wald, R. (2014). A review of data mining using big data in health informatics. *Journal of Big Data*, *1*(2), 1-35. doi: 10.1186/2196-1115-1-2

Hochbaum, G., Kegels, S., & Rosenstock, I. (1952). *Health belief model.* United States Public Health Service.

Holm-Hansen, C. (2006). Tips for conducting program evaluation. *Gathering Information, 8*, 1-4. Retrieved from https://www.wilder.org/Wilder-Research/Publications/Studies/Program%20Evaluation%20and%20Research%20Tips/Gathering%20Information%20-%20Tips%20for%20Conducting%20Program%20Evaluation%20Issue%208,%20Fact%20Sheet.pdf

Improvement and Development Agency (IDeA). (2000). *A glass half-full: How an asset approach can improve community health and well-being*. Retrieved from http://www.local.gov.uk/c/document_library/get_file?uuid=bf034d2e-7d61-4fac-b37e-f39dc3e2f1f2

Institute of Medicine. (2002). *The future of the public's health in the 21st century*. Washington, DC: The National Academies Press.

International Collaboration of Epidemiological Studies of Cervical Cancer. (2006). Cervical carcinoma and reproductive factors: Collaborative reanalysis of individual data on 16,563 women with cervical carcinoma and 33,542 women without cervical carcinoma from 25 epidemiological studies. *International Journal of Cancer*, *119*(5), 1108-1124. doi: 10.1002/ijc.21953

International Collaboration of Epidemiological Studies of Cervical Cancer. (2009). Cervical carcinoma and sexual behavior: Collaborative reanalysis of individual data on 15,461 women with cervical carcinoma and 29,164 women without cervical carcinoma from 21 epidemiological studies. *Cancer Epidemiology, Biomarkers, and Prev*ention, *18*(4), 1060-1069. doi: 10.1158/1055-9965.EPI-08-1186

International Collaboration of Epidemiological Studies of Cervical Cancer, Appleby, P., Beral, V., Berrington de González, A., Colin, D., Franceschi, S., … Sweetland, S. (2006). Carcinoma of the cervix and tobacco smoking: Collaborative reanalysis of individual data on 13,541 women with carcinoma of the cervix and 23,017 women without carcinoma of the cervix from 23 epidemiological studies. *International Journal of Cancer*, 118(6), 1481-1495. doi: 10.1002/ijc.21493

International Collaboration of Epidemiological Studies of Cervical Cancer, Appleby, P., Beral, V., Berrington de González, A., Colin, D., Franceschi, S., …Sweetland, S. (2007). Cervical cancer and hormonal contraceptives: Collaborative reanalysis of individual data for 16 573 women with cervical cancer and 35 509 women without cervical cancer from 24 epidemiological studies. (2007). *Lancet, 370*(9599), 1609-1621. doi:10.1016/S0140-6736(07)61684-5

Investopedia. (n.d.). *Prospect theory*. Retrieved from http://www.investopedia.com/terms/p/prospecttheory.asp

Jackson, L.D., & Duffy, B.K. (1998). *Health communication research*. Westport, CT: Greenwood.

Jackson, S. F., Perkins, F., Khandor, F., Cordwell, L., Hamann, S., & Buasai, S. (2006). Integrated health promotion strategies: A contribution to tackling current and future health challenges. *Health Promotion International, 21*(S1), 75-83. doi: 10.1093/heapro/dal054

Jacobs, J.A., Jones, E., Gabella, B.A., Spring, B., & Brownson, R.C. (2012). Tools for implementing an evidence-based approach in public health practice. *Preventing Chronic Disease, 9*(6) doi:10.5888/pcd9.110324

Jena, A.B., Goldman, D.P., & Seabury, S.A. (2015). Incidence of sexually transmitted infections after human papillomavirus vaccination among adolescent females. *JAMA Internal Medicine, 175*(4), 617-623. doi:10.1001/jamainternmed.2014.7886

Jensen, J.T., & Speroff, L. (2000). Health benefits of oral contraceptives. *Obstetrics and Gynecology Clinics of North America, 27*(4), 705-721.

Jeudin, P., Liveright, E., del Carmen, M.G., & Perkins, R.B. (2013). Race, ethnicity and income as factors for HPV vaccine acceptance and use. *Human Vaccines and Immunotherapeutics, 9*(7), 1413-1420. doi:10.4161/hv.24422

Jewell, E. J., & Abate, F. (2001). Evidence. In *The New Oxford American Dictionary*. New York, NY: Oxford University Press.

Johns Hopkins Center for Communication Programs. (n.d.). Step 6: Implementation plan. In *Designing a social and behavior change communication strategy*. Retrieved from http://sbccimplementationkits.org/lessons/step-6-implementation-plan/

Kadis, J.A., McRee, A., Gottlieb, S.L., Lee, M.R., Reiter, P.L., Dittus, P.J., & Brewer, N.T. (2011). Mothers' support for voluntary provision of HPV vaccine in schools. *Vaccine, 29*(14), 2542-2547. doi:10.1016/j.vaccine.2011.01.067

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica 47*(2), 263-292. doi: 10.2307/1914185

Kessels, S.J.M., Marshall, H.S., Watson, M., Braunack-Mayer, A.J., Reuzel, R., & Tooher, R.L. (2012). Factors associated with HPV vaccine uptake in teenage girls: A systematic review. *Vaccine, 30*(24), 3546-3556. doi:10.1016/j.vaccine.2012.03.063

Kindig, D., & Stoddart. G. (2003). What is population health? *American Journal of Public Health, 93*(3), 380-383.

Kohatsu, N.D., Robinson, J.G., & Torner, J.C. (2004). Evidence-based public health: An evolving concept. *American Journal of Preventive Medicine, 27*(5), 417-421. doi: 10.1016/j.amepre.2004.07.019

Kretzmann, J.P., & McKnight, J.L. (1993). *Building communities from the inside out: A path toward finding and mobilizing a community's assets*. Evanston, IL: Institute for Policy Research.

Lang, A., & Yegiyan, N.S. (2008). Understanding the interactive effects of emotional appeal and claim strength in health messages. *Journal of Broadcasting and Electronic Media, 52*(3), 432-447. doi:10.1080/08838150802205629

Larsson, L.S., Hill, W.G., Odom-Matyon, T., & Yu, P. (2009). Householder status and residence type as correlates of radon awareness and testing behaviors. *Public Health Nursing, 26*(5), 387-395. doi: 10.1111/j.1525-1446.2009.00796.x

Lau, M., Lin, H., & Flores, G. (2012). Factors associated with human papillomavirus vaccine-series initiation and healthcare provider recommendation in US adolescent females: 2007 national survey of children's health. *Vaccine, 30*(20), 3112-3118. doi:10.1016/j.vaccine.2012.02.034

Lee, N.R., & Kotler, P. (2011). *Social marketing: Changing behaviors for good* (5th ed.). Thousand Oaks, CA: SAGE Publications.

Lewis, J. (2002). *Cultural studies: The basics*. London: Sage.

Lewis, K.L., & Chisolm, S. (2007). *The health professions: Trends and opportunities in U.S. health care* (pp. 337-356). Sudbury, MA: Jones & Bartlett Learning.

Maciag, P. C., & Villa, L. L. (1999). Genetic susceptibility to HPV infection and cervical cancer. *Brazilian Journal of Medical and Biological Research, 32*(7), 915-922. doi: 10.1590/S0100-879X1999000700017

Magloff, L. (n.d.). *What is included in advertising collateral?* Retrieved from http://smallbusiness.chron.com/included-advertising-collateral-26008.html

McAlister, A.L., Perry, C.L., & Parcel, G.S. (2008). Chapter 8: How individuals, environments, and health behaviors interact: Social cognitive theory. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed.) (pp. 169-188). San Francisco, CA: Jossey-Bass.

Mediactive. (2013). 2.0 Chapter 2: Becoming an active user: Principles. Retrieved from http://mediactive.com/2-0-chapter-2-becoming-an-active-user-principles/

Mehta, P., Sharma, M., & Lee, R. C. (2013). Designing and evaluating a health belief model-based intervention to increase intent of HPV vaccination among college males. *International Quarterly of Community Health Education, 34*(1), 101-117. doi:10.2190/IQ.34.1.h

Merriam-Webster. (n.d.a). Ecology. In *Merriam-Webster's Learner's Dictionary*. Retrieved from http://www.merriam-webster.com/dictionary/ecology

Merriam-Webster. (n.d.b). Epidemiology. In *Merriam-Webster's Learner's Dictionary*. Retrieved from http://www.merriam-webster.com/dictionary/epidemiology

Merten, J.W., Barr, E.M. Monroe-Ossi, H., King, J.L., Griner, S., & Vosoughi, M. (2014). Asset mapping and resource guide development in partnership with Title I schools. *American International Journal of Social Science, 3*(5), 66-71.

Meyerowitz, B.E., & Chaiken, S. (1987). The effect of message framing on breast self-examination attitudes, intentions, and behavior. *Journal of Personality and Social Psychology, 52*(3), 500-510. Retrieved from http://www.communicationcache.com/uploads/1/0/8/8/10887248/the_effect_of_message_framing_on_breast_self-examination_attitudes_intentions_and_behavior.pdf

Mishra, A. (2010). Implementing HPV vaccines: Public knowledge, attitudes, and the need for education. *International Quarterly of Community Health Education, 31*(1), 71-98. doi:10.2190/IQ.31.1.f

Montaño, D.E., & Kasprzyk, D. (2008) Chapter 4: Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed.) (pp. 67-96). San Francisco, CA: Jossey-Bass.

Muñoz, N., Bosch, F.X., De Sanjosé, S., Herrero, R., Castellsagué, X., Shah, K.V., …Meijer, C.J.L.M. (2003). Epidemiologic classification of human papillomavirus types associated with cervical cancer. *New England Journal of Medicine, 348*(6), 518-527. doi:10.1056/NEJMoa021641

National Campaign to Prevent Teen and Unplanned Pregnancy. (n.d.). *Tips and recommendations for successfully pilot testing your program: A guide for the Office of Adolescent Health and Administration on Children, Youth and Families' Grantees.* Retrieved from http://www.hhs.gov/ash/oah/oah-initiatives/teen_pregnancy/training/tip_sheets/pilot-testing-508.pdf

National Cancer Institute. (1989). *Making health communications work. Pub. No. NIH 89-1493.* Washington, DC: U.S. Department of Health and Human Services (HHS).

National Cancer Institute. (2004). *Making health communication programs work: A Planner's guide.* Retrieved from https://www.cancer.gov/publications/health-communication/pink-book.pdf

National Cancer Institute. (2016). *Tests to detect colorectal cancer and polyps.* Retrieved from http://www.cancer.gov/types/colorectal/screening-fact-sheet

National Cancer Institute. (n.d.). *SEER cancer statistics fact sheets: Cervix uteri cancer.* Retrieved from http://seer.cancer.gov/statfacts/html/cervix.html

National Colorectal Cancer Roundtable. (2012). *Evaluation toolkit, version 3: How to evaluate activities intended to increase awareness and use of colorectal cancer screening.* Retrieved from http://nccrt.org/about/public-education/evaluation-toolkit/

National Research Council & Institute of Medicine. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities.* Washington, DC: The National Academies Press. doi: 10.17226/12480

National Social Norms Center at Michigan State University. (n.d.). *Social norms approach.* Retrieved, from http://socialnorms.org/social-norms-approach/

Nielsen. (2013). *Terminology and definitions for the Nielsen radio diary service.* Retrieved from http://www.arbitron.com/downloads/terms_brochure.pdf

NYS Health Foundation. (n.d.). *Outcome evaluation.* Retrieved from http://nyshealthfoundation.org/our-grantees/grantee-resources/outcome-evaluation

O'Connell, M.E., Boat, T., & Kenneth, E. (Eds.). (2009). Prevention Infrastructure. In *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities* (p. 373). Washington, DC: The National Academies Press.

Oldenburg, J., & Glanz, K. (2008). Chapter 14: Diffusion of innovations. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed.) (pp. 313-333). San Francisco, CA: Jossey-Bass.

Office of Disease Prevention and Health Promotion. (n.d.). *Determinants of health.* Retrieved from https://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health

O'Keefe, D. J. (1993). The persuasive effects of message sidedness variations: A cautionary note concerning Allen's (1991) meta-analysis. *Western Journal of Communication, 57*(1), 87-97. doi: 10.1080/10570319309374432

Oracle Marketing Cloud. (2015). How to build a winning campaign roadmap in 5 easy steps. *Modern Marketing Blog.* Message posted to https://blogs.oracle.com/marketingcloud/how-to-build-a-winning-campaign-roadmap-in-5-easy-steps

Organization for Economic Co-Operation and Development (OECD). (n.d.). *Outline of principles of impact evaluation.* Retrieved from http://www.oecd.org/dac/evaluation/dcdndep/37671602.pdf

Patton, M. Q. (1997). *Utilization-focused evaluation* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Pedersen, E. R., & LaBrie, J. W. (2008). Normative misperceptions of drinking among college students: A look at the specific contexts of prepartying and drinking games. *Journal of Studies on Alcohol and Drugs, 69*(3), 406-411. doi: 10.15288/jsad.2008.69.406

Petrosky, E., Bocchini J.A., Hariri, S., Chesson, H., Curtis, C.R., Saraiya, M., ...Markowitz, L.E. (2015). Use of 9-valent human papillomavirus (HPV) vaccine: Updated HPV vaccination recommendations of the Advisory Committee on Immunization Practices. *Morbidity and Mortality Weekly Report, 64*(11), 300-304. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6411a3.htm

Petty, R.E., & Cacioppo, J.T. (1986a). *Communication and persuasion: Central and peripheral routes to attitude change.* New York, NY: Springer-Verlag.

Petty, R.E., & Cacioppo, J.T. (1986b). The Elaboration Likelihood Model of persuasion. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology (Vol. 19)* (pp. 123-205). New York, NY: Academic Press.

Pew Research Center. (2011). *How people learn about their local community*. Retrieved from http://www.pewinternet.org/files/old-media/Files/Reports/2011/Pew%20Knight%20Local%20News%20Report%20FINAL.pdf

Piotrow, P.T., Kincaid, D.L., Rimon, I., J.G., & Rhinehart, W. (1997). *Health communication: Lessons from family planning and reproductive health*. Westport, CT: Praeger.

Plain Language Action and Information Network (PLAIN). (n.d.). *Document checklist for plain language.* Retrieved from http://www.plainlanguage.gov/howto/quickreference/checklist.cfm

Prochaska, J.O., & Di Clemente, C.C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy, 19*(3), 276-288. Retrieved from http://www.hbftpartnership.com/documents/uploadResources/TranstheoreticalT-Prochaska1982.pdf

Prochaska, J.O., Redding, C.A., & Evers, K.E. (2008). The transtheoretical model and stages of change. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed.) (pp. 97-122). San Francisco, CA: Jossey-Bass.

Quintero, F. (2015). How personal responsibility framing undermines efforts to improve public health. *BMSG* Blog. Message posted to http://www.bmsg.org/blog/personal-responsibility-framing-undermines-public-health-efforts

Rajkumar, T., Cuzick, J., Appleby, P., Barnabas, R., Beral, V., Berrington De González, A., …Meirik, O. (2006). Cervical carcinoma and reproductive factors: Collaborative reanalysis of individual data on 16,563 women with cervical carcinoma and 33,542 women without cervical carcinoma from 25 epidemiological studies. *International Journal of Cancer, 119*(5), 1108-1124. doi:10.1002/ijc.21953

Reiter, P.L., Brewer, N.T., Gottlieb, S.L., McRee, A.L., & Smith, J.S. (2009). Parents' health beliefs and HPV vaccination of their adolescent daughters. *Social Science & Medicine, 69*(475), 480-720. doi: 10.1016/j.socscimed.2009.05.024

Rogers, E. M. (1983). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.

Rosenthal, S. L., Weiss, T. W., Zimet, G. D., Ma, L., Good, M. B., & Vichnin, M. D. (2011). Predictors of HPV vaccine uptake among women aged 19-26: Importance of a physician's recommendation. *Vaccine, 29*(5), 890-895. doi:10.1016/j.vaccine.2009.12.063

Rothman, A. J., Bartels, R. D., Wlaschin, J., & Salovey, P. (2006). The strategic use of gain- and loss-framed messages to promote healthy behavior: How theory can inform practice. *Journal of Communication, 56*(SUPPL.). doi:10.1111/j.1460-2466.2006.00290.x

Saraiya, M., Glanz, K., Briss, P. A., Nichols, P., White, C., Das, D., …Rochester, P. (2004). Interventions to prevent skin cancer by reducing exposure to ultraviolet radiation: A systematic review. *American Journal of Preventive Medicine, 27*(5), 422-466. doi:10.1016/j.amepre.2004.08.009

Satterfield, J.M., Spring, B., Brownson, R.C., Mullen, E.J., Newhouse, R.P., Walker, B.B., & Whitlock, E.P. (2009). Toward a transdisciplinary model of evidence-based practice. *Milbank Quarterly, 87*(2), 368-390. doi:10.1111/j.1468-0009.2009.00561.x

Shannon, C.E., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana, IL: University of Illinois Press.

Shepherd, J., Meteyer, K., Bruzios, K., Pol, J., & Charpentier, M. (2016). Normative perceptions of peer substance use and party-related behaviors. *Rivier Academic Journal, 12*(1). Retrieved from https://www.rivier.edu/journal/ROAJ-Spring-2016/J932_Shepherd_et_al.pdf

Smith, L.M., Brassard, P., Kwong, J.C., Deeks, S.L., Ellis, A.K., & Lévesque, L.E. (2011). Factors associated with initiation and completion of the quadrivalent human papillomavirus vaccine series in an Ontario cohort of grade 8 girls. *BMC Public Health, 11*(645), 1-11. doi:10.1186/1471-2458-11-645

Storey, J.D., Saffitz, G.B., & Rimón, J.G. (2008) Chapter 19: Social marketing. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research and practice* (4th ed.) (pp. 435-464). San Francisco, CA: Jossey-Bass.

Taplin, S. H., Price, R. A., Edwards, H. M., Foster, M. K., Breslau, E. S., Chollette, V., …Zapka, J. (2012). Introduction: Understanding and influencing multilevel factors across the cancer care continuum. *Journal of the National Cancer Institute Monographs, 44*, 2-10. doi:10.1093/jncimonographs/lgs008

Taylor-Powell, E., & Henert, E. (2008). *Developing a logic model: Teaching and training guide*. Retrieved from http://www.alnap.org/pool/files/logic-model-guide.pdf

Thacker, S. B., & Berkelman, R. L. (1988). Public health surveillance in the united states. *Epidemiologic Reviews, 10*(1), 164-190.

Turner, M. (2011). Discrete emotions and the design and evaluation of health communication messages. In H. Cho (Ed.), *Designing messages for health communication campaigns: Theory and practice* (pp. 59-71). Thousand Oaks, CA: Sage.

UCLA Anderson School of Management. (n.d.) *Data mining: What is data mining?* Retrieved from http://www.anderson.ucla.edu/faculty/jason.frand/teacher/technologies/palace/datamining.htm

United Nations Statistical Commission & Economic Commission for Europe. (2000). *Glossary of terms on statistical data editing*. Retrieved from http://www.unece.org/fileadmin/DAM/stats/publications/editingglossary.pdf

University of Maryland University Libraries. (2016). *Using Boolean logic or connectors.* Retrieved from http://www.lib.umd.edu/tl/guides/boolean-logic

University of Missouri School of Psychology. (n.d.) *What are evidence-based interventions?* Retrieved from http://ebi.missouri.edu/?page_id=52

U.S. Food and Drug Administration. (2015). *Tobacco Control Act overview*. Retrieved from http://www.fda.gov/TobaccoProducts/GuidanceComplianceRegulatoryInformation/ucm298595

Utah Cancer Action Network, Utah Department of Health. (2011). *Utah's comprehensive cancer prevention and control plan, 2011-2015.* Retrieved from ftp://ftp.cdc.gov/pub/Publications/Cancer/ccc/utah_ccc_plan_2011_2015.pdf

Walboomers, J.M.M., Jacobs, M.V., Manos, M.M., Bosch, F.X., Kummer, J.A., Shah, K.V., …Muñoz, N. (1999). Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *Journal of Pathology, 189*(1), 12-19. doi:10.1002/(SICI)1096-9896(199909)189:1<12::AID-PATH431>3.0.CO;2-F

Walkosz, B.J., Buller, D.B., Andersen, P.A., Scott, M.D., Dignan, M.B., Cutter, G.R., & Maloy, J.A. (2008). Increasing sun protection in winter outdoor recreation. A theory-based health communication program. *American Journal of Preventive Medicine, 34*(6), 502-509. doi:10.1016/j.amepre.2008.02.011

Watkins, S. (2015, March 3). Vaccine skeptics aren't swayed by emotional scare tactics. *WSU News*. Retrieved from https://news.wsu.edu/2015/03/03/vaccine-skeptics-arent-swayed-by-emotional-scare-tactics/

Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). *Communication Monographs, 61*(2), 113-134. doi:10.1080/03637759409376328

Witte, K., & Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education and Behavior, 27*(5), 591-615. Retrieved from http://www.mnt.ee/public/Fear.pdf

Wurzbach, M.E. (Ed.). (2002). *Community health education and promotion: A guide to program design and evaluation* (2nd ed.). Gaithersburg, MD: Aspen Publishers.

Ylitalo, K. R., Lee, H., & Mehta, N.K. (2013). Health care provider recommendation, human papillomavirus vaccination, and race/ethnicity in the US national immunization survey. *American Journal of Public Health, 103*(1), 164-169. doi:10.2105/AJPH.2011.300600

Yopp, J.J., McAdams, K.C., & Thornburg, R.M. (2010). *Reaching audiences: A guide to media writing* (5th ed.). New York, NY: Pearson.

GLOSSARY

4 P's of Marketing Framework used by health communicators to think about their communication campaign from the viewpoint of the customer: Product, Price, Place and Promotion

Asset Mapping "an assessment of a community or neighborhood's capacities and assets" (Kretzmann & McKnight, 1993)

Audience Segmentation "subdividing an overall population into homogenous subsets in order to better describe and understand a group, predict behavior and tailor messages and programs to match specific interests, needs or other group characteristics. Segments may be demographic (e.g., age, sex, education, life cycle), geographic (e.g., Southeastern U.S., rural, north side of town), or psychographic (e.g., personality, lifestyle, usage patterns, risk factors, benefits sought), or they may be based on a combination of these factors" (National Cancer Institute [NCI], 2004)

Average Quarter-Hour (AQH) Persons "the average number of persons listening to a particular station for at least five minutes during a 15-minute period" (Nielsen, 2013)

Behavioral Objectives changes in your audience's behaviors that can be expected as a result of your communication campaign

Behavioral Theories "seek to explain human behavior by analyzing the antecedents and consequences present in the individual's environment and the learned associations he or she has acquired through previous experience." (Angell, 2008). Behavioral theories and models help explain behavior, as well as suggest how to develop more effective ways to influence and change behavior" (Glanz, n.d.)

Boolean Logic "a system that allows a searcher to communicate to a database specific relationships between keywords (or concepts) when searching. The most common Boolean search terms used to join or separate concepts include 'AND', 'OR' and 'NOT'" (University of Maryland University Libraries, 2016)

B-Roll a video production term; it is "supplementary footage shown during a production. It can make telling your story much easier and compelling with added footage. As a general rule B-Roll can include animation, graphical elements, photographs and extra footage" (Camp, 2014)

Campaign a set of systematic promotional activities that are intended for a well-defined target group

Campaign Roadmap a logic model that explains how you expect your campaign activities to lead to the desired change in behavior and health. Using communication theory to guide its development, a campaign roadmap is used to explain program goals, outline planning resources, and include milestones that keep you on track to achieve your goals (Oracle Marketing Cloud, 2015) (see *logic models*)

Center-Location Intercept Interviews stopping potential intended audience members in highly trafficked locations, such as malls or public transportation hubs, to administer a survey and pretest communication materials

Communication Objectives changes in awareness, knowledge, perceptions, beliefs and confidence/self-efficacy of risk factors, diseases or behaviors as a result of your communication campaign

Communication Theories were formulated in the study of communication and mass media; they are conceptual models used to explain the human communication process. The first major model for communication was developed in 1949 by Claude Elwood Shannon and Warren Weaver for Bell Laboratories (Shannon & Weaver, 1949). Communication theories and models explain how a sender, message and channel can be used to effectively communicate an idea

Community Asset also known as **Community Resource**, **"**anything that can be used to improve the quality of community life." This can include a person, physical structure or place, community service, business or other members of the community (Community Tool Box, n.d.c)

Community Assessment systematic collection of information, such as needs and assets, of a community to understand how to address gaps in the community (Cancer Prevention and Control Research Network, 2014b)

Comprehensive Cancer Control Plans "identify how an organization addresses cancer burden as a significant public health challenge. They are data-driven, evidence-based blueprints for action. CCC plans guide cancer control activities and can have similar components. Plans typically cover a five-year timeframe" (Centers for Disease Control and Prevention [CDC], 2015b)

Cume Persons "the total number of different persons who tune to a radio station during the course of a daypart for at least five minutes" (Nielsen, 2013)

Data Mining "the process of finding correlations or patterns among dozens of fields in large relational databases"(UCLA Anderson School of Management , n.d.). "Public health informatics applies data mining and analytics to population data, in order to gain insight. Data in Public Health Informatics is from the population, gathered either from "traditional" means (experts or hospitals) or gathered from the population (social media)" (Herland, Khoshgoftaar, & Wald, 2014)

Designated Market Area "is composed of sampling units (counties or geographically split counties) and is defined and updated annually by Nielsen Media Research, Inc., based on historical television viewing patterns" (Nielsen, 2013)

Determinants of Health the personal, social, economic and environmental factors that influence health status (Office of Disease Prevention and Health Promotion, n.d.). There are several interrelated categories of determinants related to individual and

population health: policymaking, social factors, health services, individual behavior, biology and genetics (Office of Disease Prevention and Health Promotion, n.d.).

Diffusion of Innovations Theory communication theory that "focuses on the flow of information about a new product or practice within the social environment (for example, neighborhoods and networks) and how these influence access to information and response to it" (Oldenburg & Glanz, 2008)

Domains specified spheres or activities of knowledge

Earned Media "publicity through promotion other than advertising... Often refers to publicity gained through editorial influence" (CDC, 2014)

Ecology a science "concerned with the interrelationship of organisms and their environments" (Merriam-Webster, n.d.a)

Effective Evidence strong (peer-reviewed) evidence demonstrating the effectiveness of programs in achieving outcomes (Brownson, Fielding, & Maylahn, 2009)

Elaboration Likelihood Model communication theory that explains how messages are processed and how they are able influence motivation and change in attitude (Petty & Cacioppo, 1986b; Finnegan Jr. & Viswanath, 2008.)

Emerging Evidence evidence collected through evaluation methods that are less rigorous than those of effective and promising evidence (i.e. ongoing work, practice-based summaries, or evaluation works in progress) demonstrating the effectiveness of programs in achieving outcomes (Brownson, Fielding, & Maylahn, 2009)

Epidemiology the study of the "incidence, distribution, and control of disease in a population"(Merriam-Webster, n.d.b)

Evidence "the available body of facts or information indicating whether a belief is true or valid" (Jewell & Abate, 2001). Evidence can be used to establish proof or to confirm the existence of a particular phenomenon. It is a tool to make judgements or decisions on how to make your campaign most effective

Evidence-Based Approaches (EBAs) "provide assurance that decision-making is based on scientific evidence and effective practices. They help ensure the retrieval of up-to-date and reliable information about what works and doesn't work for a particular public health question; and provide assurance that one's time is being used most efficiently and productively in reviewing the "best of the best" information available on the particular public health question" (Allee, Alpi, Cogdill, Selden, & Youngkin, n.d.)

Evidence-Based Interventions (EBIs) also known as **Evidence-Based Programs** interventions that have been proven effective (to some degree) through outcome evaluations. EBIs are likely to be effective in changing target behavior if implemented with integrity (University of Missouri School of Psychology, n.d.)

Evidence-Based Practice (EBP) application of the best available research results (evidence) when making decisions about public health. Health care providers who perform

evidence-based practice use research evidence along with clinical expertise and patient preferences. Systematic reviews (summaries of research results) provide information that aids in the process of evidence-based practice (Agency for Healthcare Research and Quality, 2016)

Evidence-Based Programs see *evidence-based interventions (EBIs)*

Evidence-Based Policy is "informed by rigorously established objective evidence" (Head, 2009). This is a pragmatic systems-level evidence-based approach demonstrated under more diverse conditions than evidence-based programs.

Evidence-Based Public Health the **"**development, implementation and evaluation of effective programs and policies in public health through application of principles of scientific reasoning, including systematic uses of data and information systems and appropriate use of behavioral science theory and program planning models" (Brownson, Baker, Leet, & Gillespie, 2003)

Evidence-Based Strategies actions that are recommended on the basis of having been proven effective in multiple studies. These strategies are not prescriptive and do not include implementation details. These are often demonstrated under more diverse conditions than evidence-based programs

Extended Parallel Process Model communication theory that describes the influence of the combination of rational considerations (self-efficacy) and emotional response (fear of a health threat) on motivations and behavior (Witte, 1994). This model is particularly relevant for some health issues like HIV/AIDS and avian influenza prevention (Storey, Saffitz, & Rimón, 2008).

Focus Groups "small-group discussion guided by a trained leader. It is used to learn about opinions on a designated topic and to guide future action" (Community Tool Box, n.d.a)

Frequency "the average number of times an individual is exposed to an advertising message"(Nielsen, 2013)

Gain Frame message framing that emphasizes the benefits of a behavior

Gatekeepers those who have influence and control access to your intended audience, such as public service directors, clinicians, community leaders and partner organization leaders

Goals "typically broad general statements about the underlying purpose of the [media] plan." (CDC, 2013a). They should parallel goals in your state Comprehensive Cancer Control Plan.

Gross Impressions "the total number of times a radio commercial/spot will be heard by a station's audience in a given schedule. This number could include people who have heard the commercial multiple times" (Nielsen, 2013).

Gross Rating Points "the sum of all the rating points that an advertising schedule will deliver" (Nielsen, 2013)

Health Belief Model behavior change theory that "emphasizes target audiences are influenced by perceived personal susceptibility and seriousness of the health issue and benefits, costs and norms" (Lee & Kotler, 2011)

Health Communication "the study and use of communication strategies to inform and influence individual and community decisions that enhance health. It links the domains of communication and health and is increasingly recognized as a necessary element of efforts to improve personal and public health" (NCI, 1989; Piotrow, Kincaid, Rimon, & Rhinehart, 1997; Jackson & Duffy, 1998)

Health Informatics combination of information science and computer science in health care. There are numerous current areas of research within the field of Health Informatics, including Bioinformatics, Image Informatics (e.g. Neuroinformatics), Clinical Informatics, Public Health Informatics and Translational Bioinformatics (TBI). Research done in Health Informatics (as in all its subfields) can range from data acquisition, retrieval, storage, analytics employing data mining techniques (Herland, Khoshgoftaar, & Wald, 2014).

Health Education/Promotion relays information and educates individuals about a certain health issue. The desired end product is individuals who are educated.

Health Objectives goals for changes in the audiences' health status as a result of your communication campaign

Health Outcomes changes in individual, group or population health status usually as a result of an intervention

Impact Evaluation an assessment of the long-term changes (related to health objectives) and impact (related to quality of life) resulting from the intervention or program being evaluated. Impact evaluations answer the question: is the intervention leading to the desired long-term impact envisioned? (Community Tool Box , n.d.d).

In-Depth Interviews "conversation with a purpose. They can be very helpful to your organization when you need information about assumptions and perceptions of activities in your community. They're also great if you're looking for in-depth information on a particular topic from an expert" (Community Tool Box, n.d.b).

Individual Behavior Change Campaign "Try to change in individuals the behaviors that lead to social problems or promote behaviors that lead to improved individual or social well-being." These campaigns use a social marketing strategy to achieve their goals (Coffman, 2002).

Individual Responsibility Frame also known as **Personal Responsibility Frame**; poses that people are solely responsible for their cancer or chronic disease because they made poor choices (Brownell, Kersh, & Ludwig, 2010). "This makes advocating for health policy challenging since many policies are designed to change the conditions or

situations surrounding individuals (the environment) rather than changing individual behavior" (Quintero, 2015).

Integrative Behavioral Model also known as **Integrative Model**; communication theory that proposes that intentions are the primary predictor of behavior (Fishbein & Ajzen, 2010). Media messages based on this model are created for different target audiences, depending on the population and the determinants that are most likely to influence their intentions to change behavior (Montaño & Kasprzyk, 2008; Fishbein & Ajzen, 2010).

Intended Audiences 1) Intended recipients of messages or 2) group for which the health, communication and behavioral objectives are aimed (sometimes called target audience or priority population)

Key Message simply and consistently communicated message and basis of your communication campaign. Also known as **take-home message** or **central message**.

Literature Review a "systematic, explicit and reproducible method for identifying, evaluating and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners" (Fink, 2005)

Logic Models essential tools for planning and evaluation that can help to focus an evaluation by making assumptions and expectations for your communication campaign explicit. The model can help you communicate the objectives of your campaign. They serve as the roadmap to your campaign.

Loss Frame message framing that emphasizes the risk of a behavior

Marketing Collateral marketing materials "used to support a company's primary advertising message to consumers" (Boykin, n.d.). It is "generally used after the main media campaign for a new product or brand is launched -- when the target market has been identified and sales are already taking place." (Magloff, n.d.)

Media Advocacy "the strategic use of mass media and community advocacy to advance environmental change or a public policy initiative" (CDC, 2003)

Media Consumption or **Media Diet** the sum of information and entertainment media taken in by an individual or group. It includes activities such as interacting with media, reading books and magazines, watching television and film, and listening to radio (Lewis, 2002). An active media consumer must have the capacity for skepticism, judgement, free thinking, questioning, and understanding (Mediactive, 2013).

Media Plan "a subset of a communication plan" that "focuses on and describes strategies using media to reach, engage, inform and create awareness" (CDC, 2014)

Media Impression "sometimes called a view or an ad view, is a term that refers to the point in which an ad is viewed once by a visitor, or displayed once on a web page. The number of impressions of a particular advertisement is determined by the number of times the particular page is located and loaded. If it is randomly generated, then it is

the number of times the particular ad appears from the random generator" (Brick Marketing, n.d.).

News Hook a critical piece of information used in a media event or message that is considered newsworthy because it captures the attention and interest of the news media and their audiences (Yopp, McAdams, & Thornburg, 2010)

Norm Messages type of message that merely state the accuracy of health behavior to re-set the perceived norm

Objective Evidence derived under highly controlled conditions, which may not exist in reality. This evidence is derived research on tested interventions, systematic reviews of multiple studies and policy analyses.

Objectives "specific measurable statements of what is to be accomplished to achieve the goals" (Nielsen, 2013). (See *health objectives, behavioral objectives* and *communication objectives)*

One-Sided Message message that only presents one side of an issue and ignores other opposing viewpoints

Outcome Evaluation "measures the program's outcomes and assesses program effectiveness." (NYS Health Foundation, n.d.). Outcome evaluations answer the question: is the intervention having the desired effect on the intended audience (Community Tool Box, n.d.d).

Owned Media "channel you control. There is fully-owned media (like your website) and partially owned media (like your Facebook fan page or Twitter account)" (CDC, 2014)

Paid Media "publicity gained through advertising" (CDC, 2014)

Population Health the health outcomes of a group of individuals, including the distribution of such outcomes within the group" (Kindig & Stoddart, 2003)

Public Will Campaigns "attempt to mobilize public action for policy change. A public will campaign attempts to legitimize or raise the importance of a social problem in the public eye as the motivation for policy action or change." These campaigns use a media advocacy strategy to achieve their goals (Coffman, 2002).

Plain Language communication your audience can understand the first time they read or hear it (Plain Language Action and Information Network (PLAIN), n.d.)

Pilot Test a trial run or a smaller scale version of your campaign. A campaign pilot is an important step that can help you determine barriers and facilitators to implementing the program protocol and assess the quality of program implementation and likelihood of success prior to full-scale implementation.

PRECEDE-PROCEED Model framework for planning, implementing and evaluating communication campaigns. It is a type of logic model that walks you through program planning, implementation and evaluation. The model assumes a participatory process

that involves stakeholders from the outset of planning , it recognizes that health is influenced and shaped by the community, and that health is part of a larger context for individuals and communities, and it assumes that individual and community health is made up of many factors, including economic, social, political, ecological and physical factors (Community Tool Box, n.d.d).

Pretesting of communication materials **"**allows you to ensure your campaign products and materials are understood, attractive, acceptable, identifiable and persuasive by/to your target audiences" (Devine, 2007)

Primary Audiences "individuals the program is intended to affect" (NCI, 2004b)

Primary Data data that you collect

Process Evaluation assesses how a program is being implemented and "focuses on the program's operations, implementation, and service delivery." (NYS Health Foundation, n.d.). Process evaluations answer the question: "are you actually doing the things you planned to do?" (Community Tool Box, n.d.d).

Promising Evidence evidence collected through evaluation methods that are less rigorous than those of effective evidence (i.e. without formal peer review) demonstrating the effectiveness of programs in achieving outcomes. (Brownson, Fielding, & Maylahn, 2009)

Prospect Theory theory that states that people value gains and losses differently such that "they will base their decisions on perceived gains rather than perceived losses." (Kahneman & Tversky, 1979). "Thus, if a person were given two equal choices, one expressed in terms of possible gains and the other in possible losses, people would choose the former" (Investopedia, n.d.).

Public Health a field of applied science. "Public health carries out its mission through organized, interdisciplinary efforts that address the physical, mental and environmental health concerns of communities and populations at risk for disease and injury. Its mission is achieved through the application of health promotion and disease prevention technologies and interventions designed to improve and enhance quality of life" (Chisolm, 2007).

Public service Announcement (PSA) "any announcement… for which no charge is made and which promotes programs, activities, or services of federal, state, or local governments (e.g. recruiting, sale of bonds, etc.) or the programs, activities, or services of non-profit organizations (e.g. United Way, Red Cross blood donations, etc.) and other announcements regarded as serving community interests, excluding time signals, routine weather announcements and promotional announcements" (CDC, 2013a)

Qualitative Data descriptive information or non-numerical data; it cannot be measured

Quantitative Data information that can be counted or measured; it is data that expresses "a certain quantity, amount or range" (United Nations Statistical Commission & Economic Commission for Europe, 2000)

Satisfaction Evaluation seeks feedback from program or participants, partner organizations, and program staff to measure how satisfied they were with the program (NYS Health Foundation, n.d.). Satisfaction evaluations ask questions that relate to customer experience, program/service delivery, and overall satisfaction.

Secondary Audience group(s) that can "help reach or influence" the primary intended audience (NCI, 2004)

Secondary Data data that have been collected and published

Self-Efficacy one's belief in one's capabilities to accomplish a task or succeed in a prospective situation (Bandura, 1995)

Shared Media also known as social media; "publicity gained through grassroots action, particularly on the Internet" (CDC, 2014)

S.M.A.R.T. Objectives objectives that are specific, measurable, attainable, results-oriented or relevant and time-bound

Social Cognitive Theory behavior change theory that emphasizes that behavioral, personal and environmental factors interact to determine motivation and behavior (Crothers, Hughes, & Morine, 2008). The theory explains that the likelihood of adopting a behavior is influenced by self-efficacy and perceptions that benefits outweigh the costs (Lee & Kotler, 2011; McAlister, Perry, & Parcel, 2008).

Social Marketing "process that applies marketing principles and techniques to create, communicate, and deliver value in order to influence target audience behaviors that benefit society (public health, safety, the environment, and communities) as well as the target audience" (Lee & Kotler, 2011)

Social Norms Marketing often referred to as "the social norms approach to behavior change"; combines the fields of behavioral psychology, sociology, social marketing and evaluation research. The foundational idea behind the social norms approach is that "our perceptions of our peers' attitudes and behaviors have a great influence on our own attitudes and behaviors." (National Social Norms Center at Michigan State University, n.d.). The hope is that by using this messaging approach, the audience will adjust their perception of the norm and ultimately, adjust their likelihood of engaging in the behavior.

Strategies "specific, discrete activities designed to achieve the objectives. These strategies should [be evidence-based]. That is, the strategy has been evaluated and found to be effective at decreasing the burden of cancer. Examples include those recommended by the United States Preventive Services Task Force, other systematic reviews, peer-reviewed published studies, and other evaluators" (CDC, 2013a).

Study Arm in a clinical trial or research study; a group of patients or participants receiving a specific treatment or intervention (vs. no intervention). Studies involving several arms, or **randomized trials**, treat randomly-selected groups of patients or participants with different therapies or interventions in order to compare their outcomes (Friends of Cancer Research, n.d.).

Subjective Evidence derived from direct experience with smaller populations in variable conditions. This evidence is derived from practice

SWOT Analysis "method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats that exist" (CDC, 2015b) in addressing the health problem

Tactics specific activities using the strategy chosen

Target Audience see *intended audiences*

Transtheoretical Model behavior change theory that focuses on the idea that "people are at different stages of readiness to adopt healthful behaviors," (Glanz & Bishop, 2010) and has been useful in explaining and predicting behaviors such as smoking, physical activity and eating habits

Theory of Change "is a specific type of methodology for planning, participation, and evaluation that is used in the philanthropy, not-for-profit and government sectors to promote social change. Theory of Change defines long-term goals and then maps backward to identify necessary preconditions" (Brest, 2010).

Two-Sided Message message that presents both sides of an issue and refutes the side that has little or no evidence or is dangerous. Also known as **two-sided refutational message.**

Type One Evidence indicates that something should be done. It defines the causes of diseases and the magnitude, severity, and preventability of risk factors and diseases (Brownson, Fielding, & Maylahn, 2009).

Type Two Evidence focuses on a particular intervention. It describes the relative impact of specific interventions that do or do not improve health (Brownson, Fielding, & Maylahn, 2009).

Type Three Evidence suggests how an intervention should be implemented. It shows how and under which contextual conditions interventions were implemented and how they were received (Brownson, Fielding, & Maylahn, 2009).

APPENDICES

Appendix A: Sample Implementation Plan

Appendix B: Electronic Public Health Resources

Appendix C: Case Study – Radon Awareness Media Campaign

Appendix A: Sample Implementation Plan

Implementing Partners	Expertise

PHASE 1: PLANNING AND FORMATIVE RESEARCH			
Activity 1: Conduct literature and evidence review			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
Activity 2: Conduct systematic community assessment			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
Activity 3: Select behavioral and communication theory or theories			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
PHASE 2: DEVELOPMENT OF MESSAGES AND MATERIALS			
Activity 4: Define audience, resources, campaign goals and communication channels			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			

2.			
3.			
Activity 5: Create key messages			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
Activity 6: Pre-test and refine messaging			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Conduct focus groups			
2. Conduct surveys			
3. Conduct social media poll			
4. Conduct one-on-one interviews			
5. Revise materials based on feedback			
PHASE 3: PLAN FOR EVALUATION			
Activity 7: Obtain IRB approval (note that some of this may have to be done before pre-testing if doing focus groups and/or surveys)			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Develop survey instrument			
2. Submit initial draft to IRB			
3. Revise based on IRB feedback			
Activity 8: Test survey instrument			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
Activity 9: Train interviewers			

Intermediate Steps	Implementing Partners	Timeline	Budget
1.			
2.			
3.			
Activity 10: Collect and analyze pre-campaign data			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
PHASE 4: IMPLEMENTATION			
Activity 11: Finalize creative materials and secure paid media			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			
Activity 12: Launch website			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Discovery and planning			
3. Design			
4. Content writing and assembly			
5. Development and programming			
6. Beta testing and review			
7. Obtain necessary organizational approvals			
8. Site launch			
9. Maintenance and enhancements			

Activity 13: Print materials (postcards, posters, flyers and other incentive items)			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Add logos, attribution language, copyright language			
3. Obtain necessary organization approvals			
4. Format materials for printer, including layout, file size and type			
5. Send materials to vendor for print			
6. Shipping and receiving			
7. Distribution to partners			
Activity 14: Purchase and finalize television spot(s)			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Consult with vendor(s) to reserve spot times, number of spots, time slot(s), frequency			
3. Write and finalize script(s)			
4. Production and editing			
5. Send logos, attribution language, copyright information and any other necessary artwork to vendor(s)			
6. Obtain necessary organizational approvals			
7. Work with vendor(s) to negotiate weekly or daily updates on performance metrics (like impressions, spot times, viewership, day-parts, etc.) – Note that your funder may have specific reporting requirements; make sure you know what these are so you can request			

the necessary information from your vendor(s).			
Activity 15: Purchase and finalize outdoor advertising			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Consult with vendor(s) to reserve space on billboards (bulletins), bus shelters, public transit stations, buses or trains			
3. Finalize and resize creative materials for the appropriate medium			
4. Send logos, attribution language, copyright information and any other necessary artwork to vendor(s)			
5. Obtain necessary organizational approvals			
6. Work with vendor(s) to negotiate weekly or daily updates on performance metrics (like impressions, demographics, locations, photos of placement – Note that your funder may have specific reporting requirements; make sure you know what these are so you can request the necessary information from your vendor(s).			
Activity 16: Purchase and finalize radio spot(s)			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Consult with vendor(s) to reserve spot times, number of spots, time slot(s), frequency			
3. Write and finalize script(s)			

4. Production and editing			
5. Obtain necessary organizational approvals			
6. Work with vendor(s) to negotiate weekly or daily updates on performance metrics (like AQH persons, cume persons, frequency, gross impressions, designated market area, gross ratings points, etc.) – Note that your funder may have specific reporting requirements; make sure you know what these are so you can request the necessary information from your vendor(s).			
Activity 17: Purchase and finalize online ads			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Submit purchase order request(s) for vendor(s)			
2. Consult with vendor(s) to reserve ad sizes, frequency and number of impressions			
3. Finalize and resize creative materials for the appropriate medium			
4. Send logos, attribution language, copyright information and any other necessary artwork to vendor(s)			
5. Obtain necessary organizational approvals			
6. Work with vendor(s) to negotiate weekly or daily updates on performance metrics (like impressions, clicks, etc.) – Note that your funder may have specific reporting requirements; make sure you know what these are so you can request the necessary information from your vendor(s).			

Activity 18: Plan and execute launch event			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Reserve location			
2. Secure speakers including leaders or dignitaries, community members and other spokespeople			
3. Draft talking points for speakers and obtain organizational approvals for talking points			
4. Reserve equipment including mult-box, microphones, podium, lighting, speakers, stage and any other equipment			
5. Draft media advisory			
6. Draft press release			
7. Create media kit			
8. Pitch media			
9. Disseminate press release			
10. Design and print visuals for launch event including posters, banners, demonstration items, etc.			
11. Follow-up with media members and launch event attendees as needed			
PHASE 5: EVALUATION			
Activity 19: Begin process evaluation			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1. Collect media coverage of launch event including clips, videos, articles or other coverage			
2. Collect metrics from media vendors and re-assess timing and placement of ads based on metrics and feedback			

3. Check placement of print ads, re-order materials and distribute as needed			
Activity 20: Begin outcome evaluation, including post-campaign data collection			
Intermediate Steps	**Implementing Partners**	**Timeline**	**Budget**
1.			
2.			
3.			

Appendix B: Electronic Public Health Resources

FREE PUBLIC HEALTH DATABASES

Cancer Publications Available Online – Current online cancer publications produced by the Centers for Disease Control and Prevention.

Google™ Scholar – Search diverse sources for scholarly literature (books, articles and abstracts, etc.) in a wide range of disciplines. Citations may include links to full-text content from publisher web sites.

Healthy People 2020 Structured Evidence Queries – Provides pre-formulated PubMed search strategies to find published literature to support achieving Healthy People 2020 objectives.

MedlinePlus – Consumer health information on more than 700 topics provided by the National Library of Medicine.

National Center for Health Statistics – From the Centers for Disease Control and Prevention, NCHS is the nation's principal health statistics agency, compiling statistical information to guide actions and policies to improve the health of our people.

National Center on Birth Defects and Developmental Disabilities (NCBDDD) Publications – Searchable database of all publications that have been published by the Centers for Disease Control and Prevention authors within the National Center on Birth Defects and Developmental Disabilities.

PILOTS Database – Index to the worldwide literature on post-traumatic stress disorder (PTSD) and other mental-health consequences of exposure to traumatic events.

POPLINE® – Database on reproductive health, providing more than 300,000 citations with abstracts to scientific articles, reports, books, and unpublished reports in the field of population, family planning, and related health issues.

PubMed – Public access database to citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

PubMed Health – Provides summaries and full-text of selected systematic reviews on the prevention and treatment of diseases and conditions.

Surveillance, Epidemiology, and End Results (SEER) – Premier source of the National Cancer Institute for cancer statistics in the United States.

CDC Office of Smoking & Health – Contains tobacco-related data and other information from various sources, such as CDC surveillance systems, journal articles, and reports.

PUBLIC HEALTH ONLINE JOURNALS – BY CATEGORY/DOMAIN

Epidemiology

American Journal of Epidemiology: premier epidemiologic journal devoted to the publication of empirical research findings, opinion pieces, and methodological developments in the field of epidemiologic research. It is a peer-reviewed journal aimed at both fellow epidemiologists and those who use epidemiologic data, including public health workers and clinicians.

Cancer Causes & Control: an international refereed journal that both reports and stimulates new avenues of investigation into the causes, control, and subsequent prevention of cancer. Its multidisciplinary and multinational approach draws together information published in a diverse range of journals.

Cancer Epidemiology, Biomarkers & Prevention: Cancer Epidemiology, Biomarkers & Prevention publishes original peer-reviewed, population-based research on cancer etiology, prevention, surveillance and survivorship.

Journal of Epidemiology & Community Health: a leading international journal devoted to publication of original research and reviews covering applied, methodological and theoretical issues with emphasis on studies using multidisciplinary or integrative approaches.

MMWR. Morbidity and Mortality Weekly Report: contains data on specific diseases as reported by state and territorial health departments and reports on infectious and chronic diseases, environmental hazards, natural or human-generated disasters, occupational diseases and injuries, and intentional and unintentional injuries.

Weekly Epidemiological Record: serves as an essential instrument for the rapid and accurate dissemination of epidemiological information on cases and outbreaks of diseases under the International Health Regulations and on other communicable diseases of public health importance, including emerging or re-emerging infections.

PubMed: Public access database to citations for biomedical literature from MEDLINE, life science journals and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

Chronic Disease & Conditions

CA: A Cancer Journal for Clinicians: one of the oldest peer-reviewed oncology journals, published by the American Cancer Society.

Cancer Causes & Control: an international refereed journal that both reports and stimulates new avenues of investigation into the causes, control and subsequent prevention of cancer.

Cancer Facts & Figures: eight regularly uploaded Cancer Facts & Figures titles, present the most current trends in cancer occurrence and survival, as well as information on symptoms, prevention, early detection and treatment.

Journal of the National Cancer Institute: publishes peer-reviewed original research from around the world and is internationally acclaimed as the source for the most up-to-date news and information from the rapidly changing fields of cancer research and treatment.

General Public Health

American Journal of Preventive Medicine: publishes articles in the areas of prevention research, teaching, practice and policy. Original research is published on interventions aimed at the prevention of chronic and acute disease and the promotion of individual and community health.

American Journal of Public Health: publishes original work in research, research methods and program evaluation in the field of public health.

JAMA (The Journal of the American Medical Association): an international peer-reviewed general medical journal published 48 times per year.

Journal of Public Health (Springer): an interdisciplinary publication for the discussion and debate of international public health issues, with a focus on European affairs.

Quality of Life Research: an international, multidisciplinary journal devoted to the rapid communication of original research, theoretical articles and methodological reports related to the field of quality of life, in all the health sciences.

Maternal & Child Health

American Journal of Obstetrics and Gynecology: publish original research (clinical and translational), reviews, opinions, video clips, podcasts and interviews that will have an impact on the understanding of health and disease and that has the potential to change the practice of women's health care. An important focus is the diagnosis, treatment, prediction and prevention of obstetrical and gynecological disorders.

Archives of Disease in Childhood: an international peer-reviewed journal that aims to keep pediatricians and others up to date with advances in the diagnosis and treatment of childhood diseases as well as advocacy issues such as child protection.

International Journal of Gynecology & Obstetrics: publishes articles on all aspects of basic and clinical research in the fields of obstetrics and gynecology and related subjects, with emphasis on matters of worldwide interest.

Journal of Pediatric Health Care: provides scholarly clinical information and research regarding primary, acute and specialty health care for children of newborn age through young adulthood within a family-centered context.

Obstetrics & Gynecology: monthly journal specializing in obstetrics, gynecology and women's health care.

Evidence-based Guidelines

Guide to Community Preventive Services (Task Force on Community Preventive Services) – Collection of summaries and recommendations detailing the effectiveness, economic efficiency, and feasibility of interventions for a number of health topics.

MMWR Recommendations and Reports (Centers for Disease Control and Prevention) – Published reports outlining policy statements for prevention and treatment on all areas in CDC's scope of responsibility.

National Guideline Clearinghouse (Agency for Healthcare Research and Quality) – Comprehensive, searchable collection of evidence-based clinical practice guidelines.

USPSTF Recommendations (U.S. Preventive Services Task Force) – Collection of summaries with associated supporting documentation evaluating preventive measures for a variety of clinical services including screening tests, counseling, immunizations, and preventive medications.

Systematic Reviews

Healthy People 2020 Evidence-Based Resources: Systematic Reviews (Office of Disease Prevention and Health Promotion, HHS) – Systematic reviews relevant to Healthy People 2020 topic areas.

PubMed Systematic Reviews (National Library of Medicine) – Provides specialized searches of the PubMed database to retrieve citations identified as systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences and guidelines.

PubMed Health (National Library of Medicine) – Provides summaries and full-text of selected systematic reviews on the prevention and treatment of diseases and conditions.

Appendix C: Case Study – Radon Awareness Media Campaign

Adapted from Utah Comprehensive Cancer Control Program

1.3 Describe Methods to Collect Evidence

To give you a concrete understanding of how information presented in the **Communication Training for Comprehensive Cancer Control Professionals 102: Making Communication Campaigns Evidence-Based** applies in real-world, we will follow a media campaign on radon awareness adapted from the Utah Comprehensive Cancer Control Program from planning to implementation to evaluation.

The Utah Comprehensive Cancer Prevention and Control Plan, 2011-2015 includes several health objectives and strategies related to radon and lung cancer:

- "Increase radon awareness and testing in Utah homes from 2,085 to 4,000 in 2015."
- "Increase the number of radon mitigation systems installed in Utah homes with elevated radon levels from 475 each year to 650 each year in 2020."
- "Reduce the lung cancer death rate from 21.1 to 19 per 100,000 population by 2020."
- "Decrease the number of late stage lung cancers among high risk individuals from 19.8 per 100,000 population to 17.8 per 100,000 population by 2015." (Utah Cancer Action Network, 2011)

Accordingly, Utah's media plan includes a corresponding S.M.A.R.T. behavioral objective:

- "By June 20, 2015, increase the number of short-term radon tests requested through the Utah Department of Environmental Quality's website by 10% over the number of tests requested July 1, 2013 through June 30, 2014."

The first step to any communication campaign is to conduct formative research, during which you collect evidence of the need for a campaign on the health topic. Hopefully, there is sufficient evidence outlined in your state cancer plan or media/communication plan, but you may want to find out more information specific to the intended audience with both primary and secondary sources. The Utah Comprehensive Cancer Control Program decided to focus their radon campaign on Utah adults, as they are more likely to be home owners, realtors, renters and home builders or contractors. More on strategies to identify audience characteristics and habits were covered in Lesson 3.

The Utah Comprehensive Cancer Prevention and Control Plan reveals that of the 475 people they and their partners surveyed, "only 38% of people understood the health risk of radon and only 19% had tested their homes for radon gas." This reveals the need for awareness-raising. Other studies also reveal that confidence in radon testing highly correlates with knowledge of radon (Ferng & Lawson, 1996).

Additional research on the audience habits reveals that:

- "Most Americans use a combination of online and traditional sources for local news."

- "The Internet and newspapers were tied as the top source for news about housing, schools and jobs."
- For the estimated 79% of Americans adults reported that "the Internet is one of the top two most important sources for 15 or 16 local news topics"
- "72% of online U.S. adults used social networking sites as of May 2013." (Utah Cancer Action Network, 2011)

This research helped Utah select their communication channels.

1.3A Searching for Evidence-Based Approaches

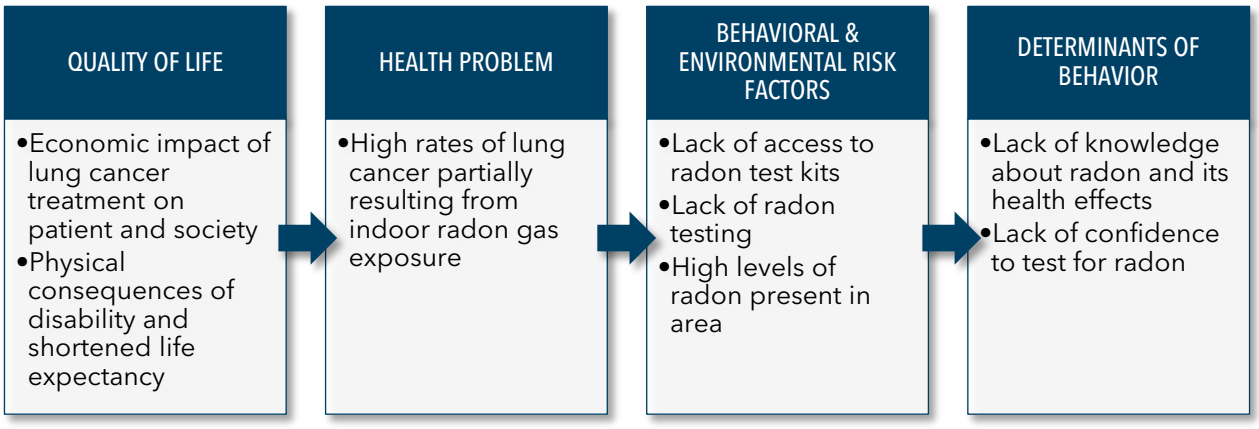
In the training Guide, you learned about reliable resources for locating evidence-based programs, policies and strategies. Health communication and social marketing campaigns are still fairly new, so you may not find proven campaigns that perfectly fit your topic or audience. A proven media campaign on radon, for example, is not available on *The Community Guide*. However, *The Community Guide* recommends that health communication and social marketing "use multiple channels, one of which must be mass media, combined with the distribution of free or reduced-price health-related products," which, for our case study, is radon test kits.

1.4 Describe Behavioral and Communication Theories to Inform Evidence-Based Communication Campaigns

In the training Guide, you learned about common communication and behavior change theories that are used to inform evidence-based communication campaigns. To choose a theory to guide the radon campaign, you have to decide at which level, or levels, the campaign will intervene. Because the campaign aims to reach home owners, realtors, renters and home builders or contractors, you are looking for a community- and individual-level intervention. Given the intended audience's lack of knowledge of radon and low confidence in radon-testing, the Extended Parallel Process Model or Integrative Behavioral Model are most relevant to the campaign.

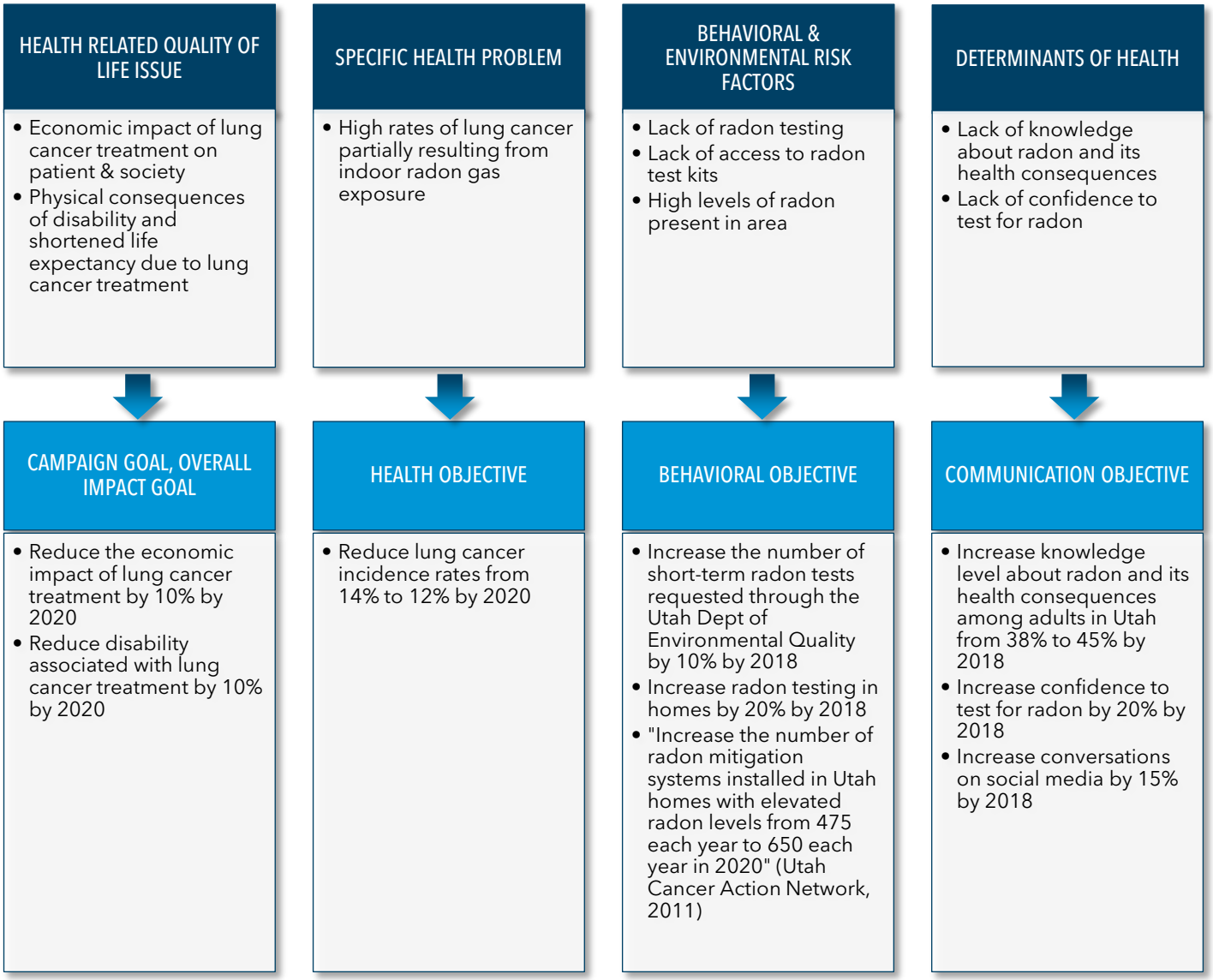
2.1 Conducting a Systematic Community Assessment

A community assessment of radon awareness in Utah might reveal the following:

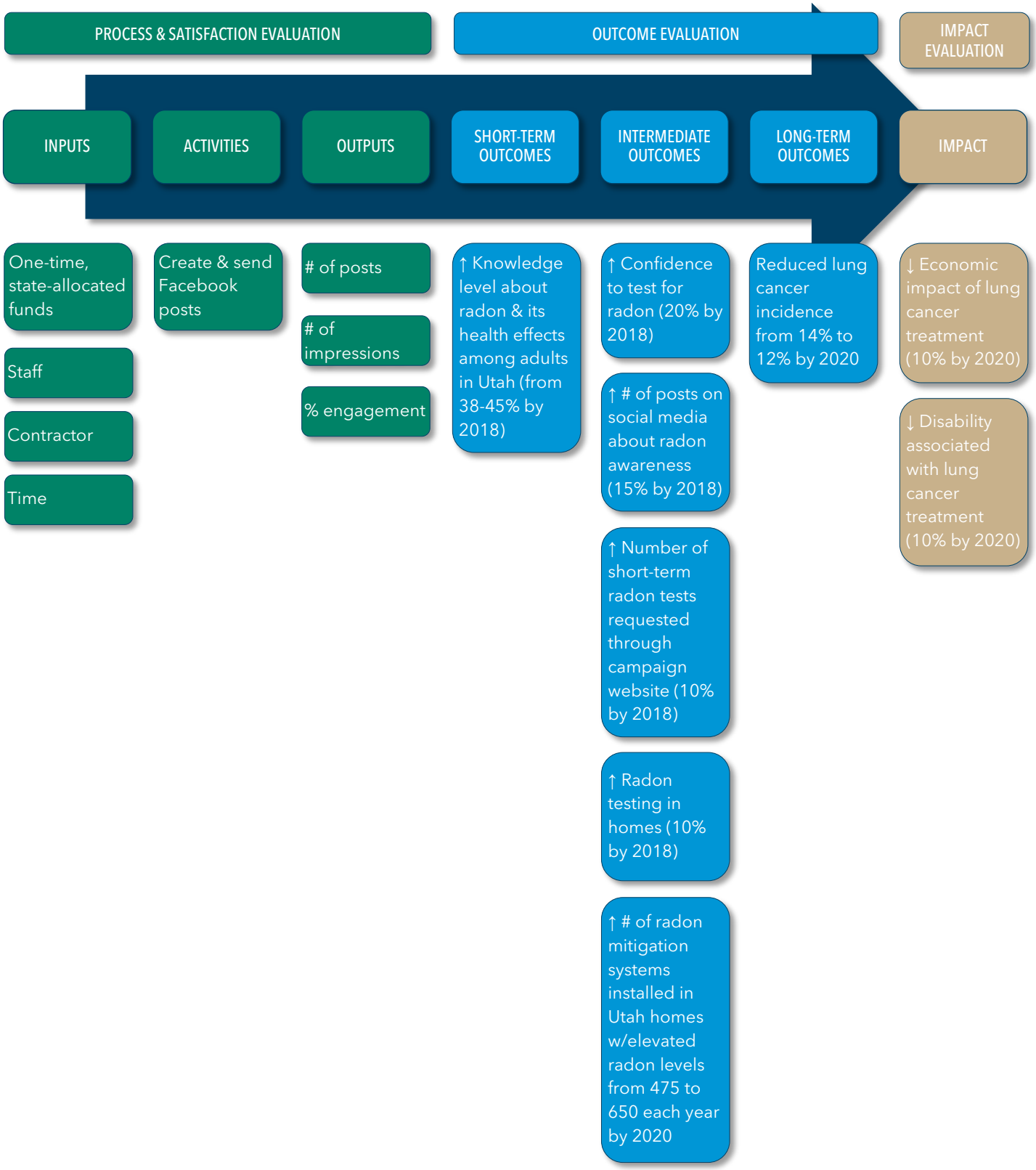


2.2 Develop a Communication Campaign Roadmap (Logic Model)

In this case study, you can develop your roadmap by identifying the quality of life issues you seek to improve with your intervention, the specific health problem you want to address, the behavioral and environmental risk factors as well as other social determinants of health. Each of these factors can be used to develop you campaign goal, overall impact goal, health, behavioral and communication objectives as shown below. Often you'll see a progression in dates from the short-term communication objectives to overall campaign impact goal, however, many state comprehensive cancer control plans use the plan end date as the date for most of their objectives.



Given that research on media habits revealed that adults seek health information from web-based media and many adults use social media, the campaign road map for the radon campaign targeting adults may look like this:



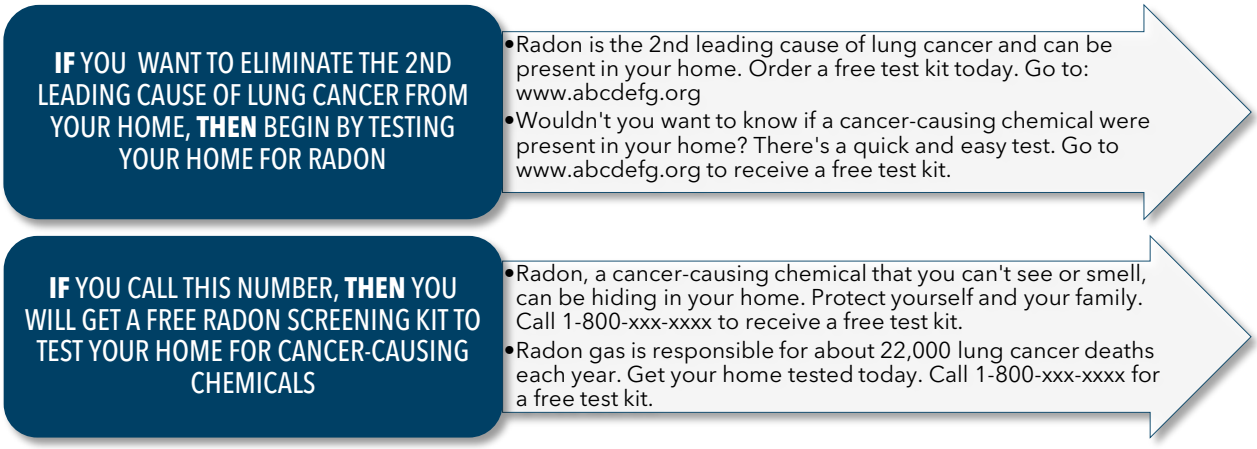
3.1 Describe Strategies to Identify Audience Characteristics and Habits

As supported by research discussed during Lesson 1 of the training Guide, the Utah Comprehensive Cancer Control program segmented their audience for their radon awareness media campaign to Utah adults, as they are more likely to be home owners, realtors, renters and home builders or contractors. They determined that this audience has the biggest need for intervention as knowledge of radon and radon testing is low (Ferng & Lawson, 1996); the audience is persuadable as increased knowledge of radon has shown to increase home testing (Larsson, Hill, Odom-Matyon, & Yu, 2009; Utah Cancer Action Network, 2011); Utah adults have the most influence and impact as they have ownership or tenancy of their homes; and they are reachable, as they exhibit health seeking behaviors via web-based and social media (Utah Cancer Action Network, 2011).

3.2 Create Key Messages

In the training Guide, you learned that there are two types of framing in public health communication: **loss frame** or **gain frame.** All key messages for the radon awareness raising campaign are gain frame messaging, and they emphasize the health benefits of radon testing. Gain frame messaging was chosen because studies have shown that gain frames produces better results than loss frame messages when communicating prevention behaviors.

All key messages for the radon awareness raising campaign are one-sided, and only present the issue that radon is dangerous and can be detected with a test kit. Radon testing is a non-controversial issue and the intended audience does not need to be convinced to test as much as they need to be made aware that they need to test and know where to get a kit.



Since people are most motivated to change their behavior when they experience emotion with regard to a health issue, the key messages for the radon awareness raising campaign include emotional appeals.

- Radon is the second leading cause of lung cancer and can be present in your home. Order a free test kit today. Go to: www.abcdefg.org

- Radon gas is responsible for about 22,000 lung cancer deaths each year. Get your home tested today. Call 1-800-xxx-xxxx for a free test kit

These messages use fear and focus on the threat of radon at home. They emphasize the severity and susceptibility of the consequences. They are likely to be effective with our intended audience of adults and for changing risk perceptions of radon and intentions to test.

- Wouldn't you want to know if a cancer-causing chemical is present in your home? There's a quick and easy test. Go to: www.abcdefg.org to receive a free test kit
- Radon, a cancer-causing chemical that you can't see or smell can be hiding in your home. Protect yourself and your family. Go to www.abcdefg.org and receive a free test kit

These messages appeal to the anticipated guilt the intended audience would feel if they did not test for radon. They are likely to be effective with our intended audience of adults and for changing risk perceptions of radon and intentions to test.

3.3 Identify Best Practices for Specific Communication Channels to Reach Intended Audiences

Since the key intermediate outcome of the radon awareness raising campaign is to drive members of the intended audience to the campaign website so they can order free test kits, using a web-based channel is ideal. It would be more difficult for someone to access a website after hearing about it on the radio while they are driving than for someone to access a website after seeing a link on social media. During their campaign, Utah included their website, www.radon.utah.gov, on all the campaign materials.

3.5 Identify Methods to Pretest Campaign Messages and Materials

Here again we see the messages drafted for the radon case study. All the messages pass the reading level test! This is a good start. Messages and materials may be further assessed through focus groups, surveys, interviews and social media polling. Since this campaign is using social media, social media polling may be the best way to reach intended audiences.

Message	Reading Level
Radon is the second leading cause of lung cancer and can be present in your home. Order a free test kit today. Go to: www.abcdefg.org	Grade 4
Radon gas is responsible for about 22,000 lung cancer deaths each year. Get your home tested today. Call 1-800-xxx-xxxx for a free test kit.	Grade 5
Wouldn't you want to know if a cancer-causing chemical is present in your home? There's a quick and easy test. Go to: www.abcdefg.org to receive a free test kit	Grade 4
Radon, a cancer-causing chemical that you can't see or smell can be hiding in your home. Protect yourself and your family. Go to www.abcdefg.org and receive a free test kit.	Grade 6

4.2 Identify Metrics for Health, Behavioral and Communication Objectives

The campaign roadmap can help you identify what you can and need to measure. For process evaluation, look at the inputs, activities and outputs of your roadmap. You may decide to track the number of posts as well as number of impressions and engagement to assess for improvements for the next program cycle. Remember to also plan for satisfaction evaluation to assess how the intended audience received your campaign.

For outcome evaluation, look at the short-term and intermediate outcomes of your roadmap. Measuring the number of radon test kits requested through the campaign website is a priority, as it would ultimately show the success of the campaign and may be a priority for funders. You may also want to assess whether the campaign led to an increased knowledge of radon and confidence to test for radon by conducting focus groups, surveys, interviews or social media polling.

For impact evaluation, look at the long-term outcomes of your roadmap. Long-term outcomes are likely changes in the audience's health status and quality of life as a result of your communication campaign. Measuring impact is often impossible for communication campaigns, as changes in health and quality of life take time to manifest on a population-level, and it is hard for communication strategies alone to produce sustained behavioral and health changes. However, you may track surveillance data in the years after the campaign. Take a look again at the logic model of a social media campaign to increase awareness about testing for radon gas among homeowners between the ages 25 and 50.

5.1 Create a Communication Campaign Timeline and Launch Plan

Information needed to develop the implementation plan for the radon awareness campaign may look like this:

Communication Vehicle/Channel	Intended Audience	Description or Purpose	Frequency	Owner	Internal or External	Timelines
Social media: Facebook	Utah adults (home owners, realtors, renters and home builders or contractors)	Raise awareness of the dangers of radon and ability to test	Five messages per day during Radon Action Month in January	Public education specialist	Internal with some external consulting	Sept-January

In the training Guide, you learned the five phases that will help you determine the activities that need to be implemented in your communication campaign:

1. Planning and formative research
2. Development of messages and materials
3. Planning for evaluation
4. Implementation

5. Evaluation

Your campaign timeline, from formative research to campaign launch and evaluation may look like this:

Planning and Formative Research	Timeline	Team Lead
Planning and formative research	April-May	Communication team and research assistants (Internal); Academic partners (External)
Identify and secure partners and collaborators: Cancer Coalition, Chronic Disease Coalition, Environmental Quality Department, Housing Department	June-July	Health Education Coordinator and Communication Team (Internal)
Conduct baseline social media polls and interviews to assess current levels of awareness	June-July	Communication team and research assistants (Internal); Academic partners (External)
Development of Messages and Materials	**Timeline**	**Team Lead**
Using survey findings, reassess target audience needs	September	Health Education Coordinator and Communication Team (Internal)
Create campaign messages	September	Health Education Coordinator and Communication Team (Internal)
Pre-test messaging with social media polling	September	Health Education Coordinator and Communication Team (Internal)
Update campaign website	October	Communication Team (Internal)
Draft talking points for organization spokesperson	November	Communication Team (Internal)
Draft press release	November	Communication Team (Internal)
Draft letter to the editor	November	Communication Team (Internal)
Notify press contacts	December	Communication Team (Internal)
Implementation	**Timeline**	**Team Lead**
Publish five social media messages per day	January 1-31	Communication Team (Internal)
Evaluation	**Timeline**	**Team Lead**
Process evaluation: Number of posts and impressions and level of engagement	February	Communication team and research assistants (Internal); Academic

		partners (External)
Satisfaction evaluation: Social media polling	February	Communication team and research assistants (Internal); Academic partners (External)
Short-term outcome evaluation: Social media polling and interviews	February	Communication team and research assistants (Internal); Academic partners (External)
Intermediate outcome evaluation: Number of campaign website visitors and test kits requested	February	Communication team and research assistants (Internal); Academic partners (External)
Impact evaluation: Ongoing surveillance data tracking	Ongoing	Communication team and research assistants (Internal); Academic partners (External)