Addressing the Cancer Workforce Crisis Using a Competency-Based Approach with Non-Oncology Health Professionals

July 2008
ACKNOWLEDGEMENTS

The C-Change Cancer Core Competency Pilot Project was made possible by the collaboration and funding of its membership and other leaders representing private, public, and not-for-profit organizations committed to eliminate cancer as a public health problem, at the earliest possible time.

C-Change would like to specially thank Maureen Lichtveld, MD, MPH, Tulane University School of Public Health and Tropical Medicine, for chairing this initiative. Dr. Lichtveld has been a tireless champion of this effort, a demonstration of her commitment to improving professional practice and public health.

In addition, C-Change would like to recognize several individuals for their leadership and intellectual contributions to this effort through their active participation on the Core Competency Expert Panel and/or the Core Competency Advisory Committee:

- Michael Caldwell, MD, MPH, National Association of County & City Health Officials
- Elizabeth J. Clark, PhD, ACSW, MPH, National Association of Social Workers
- C. Norman Coleman, MD, National Cancer Institute
- Yvette Colon, MSW, ACSW, BCD, American Pain Foundation
- Mignon Dryden, CTR, North American Association of Cancer Registries
- Laurie Fennimore, MSN, RN, Oncology Nursing Society
- Linda Filipczak, RN, MBA, American Society for Therapeutic and Radiation Oncology
- Leslie Given, MPA, Strategic Health Concepts
- Cecilia Gaston Grindel, PhD, RN, CMSRN, American Society for Medical-Surgical Nursing
- Jill Kolesar, PharmD, American Association of Hospital Pharmacists
- Rika Maeshiro, MD, MPH Association of American Medical Colleges
- Sara Miller, MPH, Colorado Department of Public Health and Environment
- Raphael Pollock, MD, Society of Surgical Oncologists
- Alice Reichenberger, RN, OCN, OSI Pharmaceuticals
- Paula Reiger, RN, MSN, AOCN, FAAN, American Society for Clinical Oncology
- Kathryn M. Smolinski, MSW, Association of Oncology Social Work
- Armin Weinberg, PhD, Intercultural Cancer Council

In addition, C-Change would like to acknowledge the expert consultative support for various aspects of the effort including:

- Kristine Gebbie, RN, DrPH, Columbia University School of Nursing
- Anita Nirenberg, DNS(c), RN, Columbia University School of Nursing
- Dyana Rumpf, MSN, RN, Columbia University School of Nursing
- Nicole Zakak, MSN, RN, Columbia University School of Nursing
- Maureen Lichtveld, MD, MPH, Tulane University School of Public Health and Tropical Medicine
Kathleen R. Miner, PhD, Emory University Rollins School of Public Health
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C-Change would like to recognize the pilot site coordinators for their leadership and collaboration with the Advisory Committee, consultants, and staff:

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JoAnn Raines, MA, Marshall University School of Medicine
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Eileen Milakovic, RN, BSN, MA, OCN, University of Pittsburgh Medical Center
Beth Simon, DrPH, MSN, RN, University of Pittsburgh Medical Center

Lastly, C-Change would like to acknowledge the support provided by the staff who contributed significantly to the conceptual development of the initiative as well as facilitated all aspects of the project completion:

Alison P. Smith, BA, BSN, RN, Director
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About C-Change

C-Change is a not-for-profit organization whose mission is to eliminate cancer as a public health problem, at the earliest possible time, by leveraging the expertise and resources of our members. C-Change is the only organization that assembles cancer leaders from the three sectors – private, public, and not-for-profit – from across the cancer continuum – prevention, early detection, treatment, and quality of life.

Former President George Bush and former First Lady Barbara Bush are Co-chairs of C-Change and Senator Dianne Feinstein serves as Vice Chair of C-Change, a 501(c)(3). C-Change is comprised of approximately 130 of the Nation’s key cancer leaders who share the vision of a future where cancer is prevented, detected early, and cured or is managed successfully as a chronic illness.

One of the underlying principles of C-Change is to serve as both a forum and a catalyst for identifying issues and major challenges facing the cancer community, and for initiating collaborative actions to complement the efforts of individual C-Change Members. C-Change invests in the resolution of problems that cannot be solved by one organization or one sector alone.

For more information about the Cancer Core Competency Pilot Project, please contact C-Change at 202-756.1600 or visit www.c-changetogether.org
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Cancer Core Competency Pilot Project

Evaluation Report

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EXECUTIVE SUMMARY

The purpose of this report is to describe the general methods and results from the overall pilot phase of the C-Change Cancer Core Competency Initiative with an emphasis on aggregate findings from the pilot sites. An overview of the site similarities and differences are also discussed. Details from the individual site experiences such as their unique program designs, content, learner characteristics, and outcomes are discussed in Appendices K-N.

A critical shortage of healthcare workers trained threatens the Nation’s ability to provide cancer care across the continuum from prevention to survivorship. This shortage includes health professionals, who have not specialized in cancer, but who do provide face to face contact to patients and their families. Defining the core competencies in cancer care needed by all members of the health workforce, is the first step toward expanding the cancer workforce. With these standards, related teaching and assessment tools can be created to strengthen the skills and expand the necessary surge capacity. In collaboration with a multidisciplinary expert panel, C-Change, a 501 (c)(3) coalition of cancer organizations, defined a set of core competencies in cancer care targeting the non-oncology workforce who have the generalized knowledge of cancer and are able to initiate the continuum of cancer care.

C-Change implemented a Cancer Core Competency Pilot Project to assess the aggregated utility of the C-Change Cancer Core Competencies in improving the knowledge and performance of non-cancer specialist health care professionals through educational interventions. Specifically, the objectives of this were:

- Define implementation methods for various organizations, disciplines, and geographic areas
- Implement program plans across various settings to evaluate the applicability of the competencies and utility of the implementation tools
- Evaluate the impact of the program on professional competency and attitudes

Project Implementation

In early February 2007, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to professionals, to include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face to face contact with patients and their families along the continuum of cancer care. Proposals were reviewed by the C-Change Cancer Core Competency Advisory Committee and ranked.

The four pilot sites that were selected included Audrain Medical Center (Audrain) focusing on nurses and skin cancer prevention and early detection; the California University of Pennsylvania School of Social Work (California) focusing on social workers and cancer-related depression and anxiety; the University of Pittsburgh Medical Center Cancer Centers (UPMC) focusing primary care providers (MDs, RNs) and survivorship ; and the Marshall University School of Medicine (Marshall) focusing on 2nd year medical students and breast cancer. Pilot sites were notified of their selection in early April 2007. Each site received between $29,000 and $37,000 in funding. Pilot sites were required to submit for review project logic models and validation templates.
<table>
<thead>
<tr>
<th></th>
<th>Audrain</th>
<th>Marshall</th>
<th>UPMC</th>
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<tr>
<td><strong>Cancer Topic</strong></td>
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<td>Breast cancer screening and patient</td>
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<td>Psychosocial assessment and intervention with</td>
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</tr>
<tr>
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<td>Faculty recognized the unique needs of cancer patients and growing need for cancer support services from generalist social workers</td>
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<tr>
<td><strong>Host Goal for Pilot Outcome</strong></td>
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<td>Reinforce knowledge of breast cancer examination and screening and have early exposure to patient interaction</td>
<td>Identify and refer for support or meet the physical and psychosocial needs of cancer survivors</td>
<td>Identify and support the needs of people at risk for or living with cancer related anxiety and depression</td>
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Table 1 illustrates how the sites differed with regard to their project scope, planning methods, and participation drivers. Table 1 also highlights aspects of the project scope of each of the four pilot sites.

The C-Change Cancer Core Competencies were used to guide curricular development across a range of professional disciplines to accommodate the needs of a variety of practicing populations as well as students. Furthermore, the competencies, used to address topics that were relevant to the organization, showed utility across different practice settings. Competency goals across sites varied in desired breadth and depth of knowledge. For example, Marshall wanted students to be exposed to a broad and integrated experience, while Audrain used the competencies to build a training program to prepare nurses to conduct independent exams in
the field. The unique use of competencies at each site shows a high degree of flexibility for use across professional disciplines and settings.

**Evaluation Methods**

To gather a holistic picture of pilot project development, implementation, and outcomes, an integration of quantitative and qualitative methods was employed in the evaluation of the Cancer Core Competency Pilot Project. Pilot project evaluation methods included site specific pre- and post-test questions and cross site quantitative questions administered to learners. Observation visits were conducted at each of the training sites and interviews were conducted with both pilot site leaders and project stakeholders.

**Results**

The four pilot sites yielded a variety of quantitative and qualitative results. The C-Change Cancer Core Competencies were used to guide curricular development across a range of professional disciplines to accommodate the needs of a variety of practicing populations as well as students. The competencies showed utility across different practice settings. The unique use of competencies at each site shows a high degree of flexibility for use across professional disciplines and settings. For each site, the competency objectives drove the construction of their educational methods which drove the development of their evaluation methods. While each site had some common education and evaluation elements, each site’s logic model indicated the need for unique program planning methods as well.

The total number of competency-based instructional hours provided through the C-Change Cancer Core Competency Pilot Project was 2943. Across sites, there was an increase in the learners level of cancer knowledge from the pretest and post-test. This increase was evidenced independent of the learner’s incoming level of cancer knowledge, providing evidence for the utility of competency-based instruction. During on-site observation visits, two observers rated to what extent the site’s specified competencies were covered during the training. Of the 26 core competencies that were intended to be implemented, observers witnessed the implementation of 23 (88%) across training sites, demonstrating the feasibility of sites translating competencies into their practice-focused educational programs. This observation acknowledges an extraordinary compliance with expectations of the C-Change Cancer Core Competency Pilot Project expectations.

The Competency Utility Scale was developed by the C-Change team to determine the overall utility of the competencies throughout the pilot process. On a scale of 1 to 5, the average overall utility of the competencies was greater than 3, showing that the C-Change Cancer Core Competencies were perceived by the users as having value. The competencies were found to have the highest utility in driving curricular content, aligning with the original intention of the competencies to serve as a basis for curricular development.

Qualitative data were collected from in-depth interviews and focus groups with pilot site leaders and stakeholders. The six dominant themes expressed by learners included increased knowledge, confidence, motivation, relevance, benefit and environment. The six dominant themes expressed by pilot leaders and stakeholders included increased support, need, effort, time, benefits and future. The focus group came to a consensus on the four questions:

**Should something be done?**

It is clear that in order to address the shortages in the cancer workforce it will be necessary to use non-traditional methods to expand workforce capacity.
What should be done?
This utility validation project demonstrated the feasibility of using an instructional intervention to alter the pathways for workforce preparation.

How should it be done?
The quantitative and qualitative data supported the following universal attributes of the C-Change Cancer Core Competencies: the cancer core competencies are (1) useful instructional tools the health care workforce; (2) flexible in the application for both academic and non-academic instructional settings; (3) adaptable for a range of health workforce disciplines engaged in cancer care; and (4) acceptable statements of professional practice as seen by institutional boards, such as, academic curriculum committees.

Is it working?
All pilot sites documented: improvement in four outcomes professional development; learner knowledge, institutional advancement, and cancer workforce capacity at the community level.

Limitations
As with any evaluation study there are inherent limitations to the interpretation of the findings. In this evaluation study, the limitations center on two general themes: (1) the small sample size, and, (2) the short time-frame for effect measurement.

Conclusions
The results from the C-Change Cancer Core Competency Pilot Project evaluation support the following conclusions:

1. The implementation of the Cancer Core Competency methods and tools in four pilot sites were effective in improving participant knowledge of their respective cancer topics and resulted in strong cancer skills and attitudes as a result of the educational intervention.
2. The methods and tools developed to support program planning, implementation, and evaluation were both useful and flexible. All site leaders found the tools supportive of their efforts, demonstrating their utility. All sites were able to utilize the methods and tools in a variety of setting and educational formats and with different disciplines, demonstrating their flexibility.
3. Each pilot site derived benefits from their program investment beyond the educational gains demonstrated by their program participants. The sites were able to leverage the competency initiative to include faculty professional development, institutional value, and community value.

Recommendations
The C-Change cancer core competencies have demonstrated utility and flexibility. There are two recommendations: (1) encouraging their integration into areas of health care practice where the oncology gaps are most pronounced, and (2) demonstrating their utility within the health care profession with an emphasis on depth versus breadth.

Summary
Application of the competency-based standards, methods, and tools proved effective in four diverse settings among different disciplines in increasing cancer knowledge and skills. The program methods and tools are useful guides for program development and are highly flexible, making them applicable with a variety of disciplines and settings. In addition, the program
benefits extend beyond the learners to the institution and community. Based upon these findings, dissemination and further validation among more sites remain as top priorities.

PART I: BACKGROUND

C-Change, a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations, adopted as its mission to leverage the expertise and resources of our membership to eliminate cancer as a public health problem at the earliest possible time.

Through its convening power, the organization engages its membership to accelerate and focus the cancer agenda. C-Change envisions a future where cancer is prevented, detected early and cured or managed successfully as a chronic illness. One of C-Change key priority areas is addressing the Cancer Workforce crisis. Integral to providing cancer care across the continuum from prevention to survivorship is having a workforce that is quantitatively robust enough and qualitatively competent to address the needs of our communities locally, nationally and globally. The data below are illustrative of the cancer workforce challenges we face.

Several shortages exist in cancer-related clinical and public health professions including nurses, oncologists, radiation oncologists, pharmacists, researchers/scientists, and imaging technologists. These shortages can be characterized as supply and demand determinants.

Supply

- Demand for oncologists is expected to exceed supply by 25-30% by 2020 (ASCO, 2008)
- Approximately 60% of oncologists and oncology nurses surveyed reported inadequate staffing (Buerhaus, 2001).
- By 2020 the projected gap between supply in demand for RNs will be 340,000 – 3x’s larger than ever experienced in the US – Also by 2020, more RNs in 60s than in 20s (Auerbach/Buerhaus 2007)
- Oncology care is increasingly delivered in outpatient settings and oncology nursing experts are being decentralized within the acute care setting (Satryan, 2001)
- The social work labor force is older than most professions and occupations, with nearly 30% of licensed social workers over 55 years of age (Whitaker, 2006)
- The average age of a public health worker is 47 years; many public health agencies currently face a 20% vacancy rate (APHA, 2007)
- Radiation therapy vacancy rates average 18.3 percent (ASTRO, 2004)
- Radiation therapy practices across the country are currently in need of approximately 2.6 healthcare professionals per practice (ASTRO, 2004)
- Cancer registrar vacancies remain difficult to fill in some regions of the country and demand for registrars is estimated to grow 10% in the next 15 years (NCRA, 2006)
Cancer Core Competency Pilot Project

- The proportion of minorities in the population outstrips their representation among health professionals by several fold (IOM, 2004)

**Demand**

- Cancer is the second most common cause of death by disease claiming the lives of more than half a million people per year (ACS, 2007)
- Cancer rates are expected to increase as baby boomers age (U.S. Cancer Statistics Working Group, 2003)
- The lifetime probability of developing cancer is 1 in every 2 men and 1 in every 3 women (NCI, 2005)
- Five-year cancer survival rates have risen to 64% for adults (CDC, 2005)

The current and projected workforce shortage in health disciplines is magnified in the sub-population of oncology-related professionals. The increasing shortage in many critical disciplines of the cancer workforce requires a multi-pronged approach. While efforts to increase the number of professionals trained for the health and cancer workforce should continue, the current crisis dictates short-term action.

Competencies outline the linkage between the skills and knowledge to perform identified tasks. These tasks are often performed under specific conditions associated with professional identities or requirements of practice, like certification or licensure. Defining core competencies is a widely recognized approach to developing and maintaining key knowledge and skills in a workforce. This practice has occurred in the fields of epidemiology, emergency preparedness, public health, and in other non-health related industries. Defining the core competencies in cancer care needed by all members of the health workforce is the first step toward expanding the cancer workforce. With these standards, related teaching and assessment tools can be created to strengthen the skills and expand the necessary surge capacity. The competencies, developed to support the overall goal of establishing a national cancer corps, represent a rigorous framework of measurable standards that can be applied through policy by any organization to drive improvements in practice. (Smith, 2007)

In collaboration with a multidisciplinary expert panel, C-Change defined a set of core competencies in cancer care (See Appendix A) targeting the non-oncology workforce who have the generalized knowledge of cancer and are able to initiate the continuum of cancer care. Specifically, the target audiences are health care professionals who have the generalized knowledge of cancer across the continuum of cancer care. This includes licensed, registered, or certified members of health professions who have not specialized in cancer and whose scope of practice includes face to face contact with patients and their families.

The overall goal of the C-Change cancer core competencies initiative is to strengthen the quality and quantity of the non-oncology health workforce

To maximize the utility of the competency set, three domains of competencies reflect both the phases of the cancer care continuum (including cancer site-specific learning), basic cancer science and aspects of collaboration and communication. While the core competencies are aimed at establishing a baseline of knowledge and skills, an individual learner’s need is guided by his/her professional discipline, scope of practice, education, and role expectations. Similarly,
ample opportunity exists to define sub-level competencies within a given domain or for a specific group of competencies to achieve more in-depth knowledge.

Rationale

At the heart of the Cancer Core Competency Pilot Project was the belief that competency-based instruction provides the most appropriate approach to infuse cancer expertise into a multidisciplinary healthcare workforce. The rationale for this belief is multifold. First, competencies require standardization of terminology and semantics that can lead to the transportability across institutions, associations, and organizations that are not aligned with colleges and universities. (U.S. Department of Education, 2002)

Second, competency-based instruction places an emphasis on the association between the content of the instruction and its application in practice, which requires the curriculum to be tailored to meet the need of the professional. Thus, competency-based instruction adheres to the fundamental principles of Adult Learning Theory. Adult learners are motivated to learn when the educational setting is characterized by things such as, immediate application, minimal uncertainty in the instruction experience, active participation, a defined body of knowledge, and integrated learning. (Wlodkowski, 2008)

Third, evidence for evaluating the effect of this competency-based and Adult Learning Theory-based approach is rooted in the Theory of Planned Behavior (TPB). This theory provides a social science construct suggesting that measurement of intent to change behavior in the short term is predictive of actual behavior change in the longer term. In essence, what TPB asserts is the “most important determinant of behavior is a person’s behavioral intention” (Glanz, 2002, p.70). Thus, if an individual believes that she or he “intends” to perform a competency as a result of competency-based training, while not an actual measure of change, measuring intention does conform to accepted social science theory.

When modest resources are available to evaluate training efficacy, measuring learner intent is an acceptable standard of practice especially when linked to competency-based instruction. These three concepts: competency-based instruction; Adult Learning Theory; and the Theory of Planned Behavior; along with the supporting expertise of the Advisory Committee and the extensive need within the cancer workforce, served as the guiding elements for this evaluation project.

The evaluation team was influenced in its approach to the structure of this competency validation project by the following four questions:

1. Should something be done to address the cancer workforce shortage?
2. If so, what should be done?
3. How can it be done?
4. Is it working?
These questions helped put into context the overarching rationale for both the methodology and data collection strategies used in this study and are particularly important in order to realize the greatest possible relevance of the cancer core competencies in the health care, public health, and academic settings. To answer these questions, C-Change embarked on the utility validation project as described below. For an overview and rationale of the Evaluation process for the C-Change Cancer Core Competency Pilot Project, see Figure 1.

**Figure 1 - Overview and Rationale of the Evaluation Process for the C-Change Cancer Core Competency Pilot Project**

**SHOULD SOMETHING BE DONE?**
Shortages in cancer workforce require unique solutions beyond efforts to expand the number of oncology specialists

**WHAT SHOULD BE DONE?**
Strengthen non-oncology workforce to complement other national efforts

**HOW SHOULD IT BE DONE?**
- Competency-based instruction
- Standards and tools with maximal utility & flexibility across work settings, disciplines and competencies
- Adult Learning Theory
- Theory of Planned Behavior

**IS IT WORKING?**
- Professional development
- Learner knowledge and skills
- Institutional advancement
- Community cancer workforce capacity
- Measure behavior change

The scientifically robust methodology deployed in the development of the competencies enabled pilot testing and validation in a fashion that assures the broadest utility across the non-oncology disciplines and in a variety of academic and practice settings. The findings and lessons learned from the pilot testing phase will inform the final set of competencies and implementation tools and will be shared with those who can take the next steps towards dissemination and implementation.

**Report Objectives**

The purpose of this report is to describe the general methods and results from the overall pilot phase of the C-Change Cancer Core Competency Initiative with an emphasis on aggregate findings from the pilot sites. An overview of the site similarities and differences are also discussed. Details from the individual site experiences such as their unique program designs, content, learner characteristics, and outcomes are discussed in Appendices K-N.
PART II: METHODS

Introduction

The purpose of the Cancer Core Competency Pilot Project was to assess the aggregated utility of the C-Change Cancer Core Competencies in improving the knowledge and performance of non-cancer specialist health care professionals through educational interventions. Project objectives included the following:

- Define implementation methods for various organizations, disciplines, and geographic areas
- Implement program plans across various settings to evaluate the applicability of the competencies and utility of the implementation tools
- Evaluate the impact of the program on professional competency and attitudes
- Synthesize pilot site findings for publication
- Revise materials based upon findings in preparation for national dissemination

Project Development

In early February 2007, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to Tier 2 professionals. Tier 2 professionals include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face to face contact with patients and their families along the continuum of cancer care. The RFP described the objectives for the pilot project, reviewed pilot site expectations, and solicited the following: a brief description of the host organization, a definition of the target professional population, a description of project methods including education and evaluation methods, participation incentives and implementation plan, a project timeline for site expectations, project leadership and personnel qualifications, and an itemized budget (See Appendix B). Flexibility was allowed in selection of the number and types of competencies that best aligned with the proposed educational intervention. Project leaders were expected to collaborate with C-Change members, staff, and consultants to implement and evaluate their programs over a nine month period.

Proposals were reviewed by the C-Change Cancer Core Competency Advisory Committee and ranked according to the following criteria: how well the host organization and target population fit with the pilot goals, the size of the project sample, the feasibility and nature of the project methods, the practicality of the project timeline and budget, the qualifications of the project staff, the overall fit of the proposal with the pilot goals, the level of potential influence of the proposal beyond the pilot program, and the potential for the project to be sustained and reproduced. The four pilot sites that were selected included Audrain Medical Center (Audrain), the California University of Pennsylvania School of Social Work (California), the University of Pittsburgh Medical Center Cancer Centers (UPMC), and the Marshall University School of Medicine (Marshall). Pilot sites were notified of their selection in early April 2007. Each site received between $29,000 and $37,000 in funding.
Throughout the pilot process, sites worked in collaboration with the C-Change team. Sites were required to attend an orientation session, a mid-pilot meeting, and a debriefing session. The orientation session was convened in April in New Orleans, Louisiana. The objectives of this meeting were to embrace a common framework to translate competency statements to program curricula and assessment methods, to apply this framework to site-specific pilot curriculum and assessment plans, and to identify evaluation measures for universal assessment across pilot sites. Members of the consultant team introduced logic models as a tool to guide the pilot process and to aid in the development of evaluation strategies (See Appendix C for consultant PowerPoint presentation). Time was allocated for small group workings sessions to facilitate the planning process.

Pilot sites were required to submit for review project logic models and validation templates. The logic models delineated the inputs, activities, outputs, and outcomes of their project, providing sites with a framework to revisit throughout program planning, implementation, and evaluation. In addition, the C-Change team developed a project validation template (See Appendix D) to serve as a competency-to-curriculum guide for use by the pilot sites. Validation templates specified the competencies and sub-competencies guiding project development, described learner characteristics and preparation, and broke down evaluation strategies and indicators for each instructional activity. Pilot site leaders worked with the C-Change team in a series of conference calls to improve and refine both project logic models and validation templates.

The mid-pilot meeting was convened in September in Pittsburgh, Pennsylvania. Sites were required to present their program logic models and provide a progress report of their proposed implementation plans. Sites received feedback from C-Change project staff and other pilot sites to refine their plans. During the meeting sites formulated a data collection and analysis plan and were provided with a final report template to complete upon conclusion of their program.

The debriefing session was convened in January in Washington, DC. The meeting was a forum for sites to present the content of their final reports and to discuss strategies for national dissemination. Each site gave a brief presentation of their educational experience, results of their pre- and post-test data, and a summary of their lessons learned. The evaluation team facilitated a discussion of cross cutting findings and the proposed content for the final overall report. Sites were given individual feedback on their site specific reports and asked to expand on or clarify certain components.

**Evaluation Methods**

To gather a holistic picture of pilot project development, implementation, and outcomes, a triangulation of quantitative and qualitative methods was employed in the evaluation of the Cancer Core Competency Pilot Project. Each site was responsible for developing and administering a pre- and post-test to examine changes in learner knowledge. The number and format of these questions varied across sites. All sites used the same questions on their pre- and post-test.

At the end of each of the site specific post-tests were five questions that were common across sites. These questions were developed by the C-Change team; however, sites tailored the questions to reflect site specific training content. The questions allowed for aggregated assessment across sites of the relevance of the training, increases in learner confidence to provide cancer care, learner intentions to change practice, learner intentions to suggest the training to colleagues, and level of learner knowledge of the shortages in the cancer workforce.
Learner attitudes and intentions are antecedents of behavior, as described by Adult Learning Theory and the Theory of Planned Behavior; therefore, these measures served as predictive indicators of longer term outcomes, such as changes in practice. Respondents were asked to rank each of the domains using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The generic outline of these common questions, which was provided to the sites, can be found in Appendix E.

Two members of the C-Change evaluation team conducted visits to observe implementation of each site’s educational programs. The observation team included one individual representing the evaluation contractor and one representative from C-Change. Each site was observed only once. Site observations were designed to gather data to assure that the curriculum implemented the specified C-Change competencies. To coordinate systematic observation, evaluation team members used observational checklists (See Appendix F) to record the number of participants, the competencies implemented, the instructional formats employed, and learner responses for each of the observed activities. While observing the competencies, the observers recorded how learners were given an opportunity to practice the competency and at what skill level.

Qualitative data were obtained from learners, pilot site leaders, and stakeholders in order to facilitate a deeper understanding of their perceptions of the pilot project. Focus groups were conducted with a sample of learners during each of the pilot site visits. The focus group interview guide (See Appendix G) was based on the first four cross site common questions from the site specific post-tests. The purpose was to gain a better understanding of the learner’s experience by discussing the relevance of the training, the level of confidence in implementing what was learned, any intentions to change practice, and who would benefit from similar training.

Interviews were conducted with pilot site leaders. A pilot site leader was defined as anyone who was involved in the development of the program. The number of pilot site leaders ranged from one to three. The pilot site leader interviews were conducted to provide further insight into the efforts it took to develop and implement the program, to uncover any benefits or broader effects of the program, to examine any plans to replicate or expand the program, and to examine the utility of the C-Change competencies (See Appendix H for interview guide).

Finally, interviews were conducted with stakeholders from each of the pilot sites. A stakeholder was defined as any individual who had a vested interest in the pilot project development, implementation, or outcomes. Pilot site leaders were asked to identify up to five stakeholders who they determined would have valuable insight into the utility of the C-Change Cancer Core Competency Pilot Project. They were asked about the long range benefit of the cancer competencies to the learners, the institution, and the community that they serve. Stakeholders were questioned about their knowledge of C-Change, the C-Change competencies, and their site’s pilot project. Furthermore, they were asked to speculate about the level of curricular innovation and sustainable changes within the organization as a result of participation in the grant program (See Appendix I for interview guide).

Finally, after submission of their final report, pilot leaders completed the Competency Utility Scale (See Appendix J). The scale measured the overall utility of the competencies throughout the pilot process, including the development, implementation, and evaluation of program curricula. The pilot leaders at each site were asked to come to consensus and complete one Competency Utility Scale for their site. Overall, these evaluation methods sought to gather a holistic perspective of both the effects of the site specific training programs and the utility of the
core competencies and implementation methods. In addition to the cross cutting evaluation strategies that looked across all the pilot sites, the evaluation team reviewed each of the submitted documents, including the applications for funding, letters of agreement, and final reports, for specific projection and performance numbers.

Summary

The Cancer Core Competency Pilot Project was designed to assess the utility of the C-Change Cancer Core Competencies in improving the knowledge and performance of non-cancer specialist health care professionals through educational interventions. Pilot project evaluation methods included site specific pre- and post-test questions and cross site quantitative questions administered to learners. Observation visits were conducted at each of the training sites and interviews were conducted with both pilot site leaders and project stakeholders. Finally, pilot site leaders completed the Competency Utility Scale.
PART III: RESULTS

Introduction

The Cancer Core Competency Pilot Project was implemented at four pilot sites, Audrain, Marshall, California, and UPMC, and yielded a variety of quantitative and qualitative results. Quantitative results were collected from pilot site applications for funding, pilot site reports, site specific pre- and post- test questions, cross-site common questions, site visit observation forms, and the Competency Utility Scale. Qualitative results were collected from focus groups and in-depth interviews.

Pilot Site Implementation

Audrain Medical Center, a rural Missouri community hospital, is recognized throughout the region for its comprehensive cancer screening program. In response to a number of inquiries to host skin cancer screenings from neighboring public health departments, Audrain used the core competencies to develop a skin cancer workshop for public health nurses. The workshop consisted of a day-long didactic portion, highlighting skin cancer prevention, education, and early detection, and a day-long practical field experience in which participants observed and conducted skin cancer screening under the direction of a cancer screening mentor within the clinic. See Appendix K for the site’s final report.

Marshall University School of Medicine developed the Training Tomorrow’s Physicians for the Management of Cancer through Innovative Educational Program in an effort to provide an avenue for second year medical students to apply classroom training and to gain experience interacting with patients. The project focused on incorporating the core competencies of breast cancer prevention and early detection into second year medical students’ core courses. Instruction was structured around a standardized case, a forty-five year old female presenting for a well women visit. Students were guided through the process of taking a comprehensive health history, conducting a well women patient visit, diagnosing a breast lump, and referring the patient for additional testing using actual clinical findings. Students received competency-based instruction in both the classroom and during two supplemental academic workshops in which they rotated through a series of interactive stations on topics such as breast imaging, pathology, ethics, and oncology and culminated in an encounter with standardized patients. See Appendix L for the site’s final report.

The University of Pittsburgh Medical Center Cancer Centers, one of the largest cancer care delivery networks in the nation, developed a half-day training addressing issues relevant to cancer survivorship for primary care providers. Speakers discussed cancer surveillance, the personal impact of cancer, the role of rehabilitation, childhood cancer survivors, the role of nutrition, and pain after cancer treatment. In addition to presenting the training to an in-person audience, the training was recorded for web casting and has been posted on the UPMC Cancer Centers’ web site for ongoing and public use. See Appendix M for the site’s final report.
Finally, the California University of Pennsylvania’s Social Work Department developed the Cancer Care Assessment, Intervention, and Training Program to teach Masters of Social Work students and their field instructors how to apply psychosocial communication skills while working with individuals at risk for or living with cancer. Students and field instructors participated in a five module online training that facilitated the development of the psychosocial communication skills necessary to identify and manage the anxiety and depression associated with cancer and to help those afflicted learn adaptive coping skills. In addition, a skills lab was established, allowing students to practice and refine these competencies through the role plays with trained theatre students. See Appendix N for the site’s final report.

<table>
<thead>
<tr>
<th>Table 1. Project Scope - C-Change Cancer Core Competency Pilot Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cancer Topic</strong></td>
</tr>
<tr>
<td>Skin cancer prevention and early detection</td>
</tr>
<tr>
<td><strong>Healthcare discipline</strong></td>
</tr>
<tr>
<td><strong>Type / Level of education and experience</strong></td>
</tr>
<tr>
<td><strong>Practice Setting</strong></td>
</tr>
<tr>
<td><strong>Motivation to Host Program</strong></td>
</tr>
<tr>
<td><strong>Host Goal for Pilot Outcome</strong></td>
</tr>
</tbody>
</table>
Sites differed with regard to their project scope, planning methods, and participation drivers. Table 1 highlights aspects of the project scope of each of the four pilot sites.

As seen in Table 1, the C-Change Cancer Core Competencies were used to guide curricular development across a range of professional disciplines to accommodate the needs of a variety of practicing populations as well as students. Furthermore, the competencies, used to address topics that were relevant to the organization, showed utility across different practice settings. Competency goals across sites varied in desired breadth and depth of knowledge. For example, Marshall wanted students to be exposed to a broad and integrated experience, while Audrain used the competencies to build a training program to prepare nurses to conduct independent exams in the field. The unique use of competencies at each site shows a high degree of flexibility for use across professional disciplines and settings.

Likewise, as shown in Table 2, the pilot sites varied in the program planning methods they employed for education and evaluation efforts. While didactic techniques were utilized across sites, some included additional components such as clinical experience and standardized patient interaction. The competencies show utility in aiding in the development a variety of instructional methods, all emphasizing the principles of Adult Learning Theory to increase participants’ motivation to learn and ability to retain information. The desired level of competency was a consideration in each sites’ choice of instructional and assessment methods. Because Audrain strived to prepare nurses for independent practice, they included a hands-on experience, yielding improvements in participant confidence above the level of confidence measured after the didactic portion. Of note, two sites (UPMC and California) were able to leverage pilot resources to create enduring program material which will continue to deliver dividends from their planning investment. For each site, the competency objectives drove the construction of their educational methods which drove the development of their evaluation methods. While each site had some common education and evaluation elements, each site’s logic model indicated the need for unique program planning methods as well.

Finally, as shown in Table 3, sites differed with regard to the incentives, rewards, and requirements which drove pilot project participation. The reality of the busy professional practice requires that education programs be marketed with sufficient notice and vigor and include enticing incentives and rewards. Within an academic institution- or employer-sponsored program, it is more feasible to mandate program participation.

Based upon a common set of competency standards and application tools, Tables 1-3 illustrate a rich diversity across pilot sites in terms of program scope, planning, and implementation strategies. Upon completion of the planning phase, the diversity across sites provided an early signal of flexibility in the competency-based approach and utility of the universal planning methods to support a wide variety of program designs. Each site was readily able to identify ways to translate the competencies into educational programs that were relevant to their organization and embed them into new, complementary or existing structures. However, it also limited the basis for comparative analysis across sites in a small-scale, short-duration pilot phase.
### Table 2. Planning Methods - C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th></th>
<th>Audrain</th>
<th>Marshall</th>
<th>UPMC</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructional Methods</strong></td>
<td>Didactic lecture by advanced practice nurse instructor</td>
<td>Didactic lecture by multidisciplinary faculty and attending physicians</td>
<td>Didactic lecture by multidisciplinary faculty and attending physicians</td>
<td>Didactic lecture for students and workshop for field faculty by social work faculty</td>
</tr>
<tr>
<td></td>
<td>Slide identification and case studies</td>
<td>Topic-specific seminars with slide/film review and case study discussion</td>
<td>Archived Webcast</td>
<td>Intensive discussion of theory and case studies</td>
</tr>
<tr>
<td></td>
<td>Observation and practice in clinical setting with clinical preceptor</td>
<td>Standardized patient interactions (2) - physical examination and screening visit; communication of bad news and follow care planning</td>
<td></td>
<td>On-line course content</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Standardized patients experience for students (in progress)</td>
</tr>
<tr>
<td><strong>Evaluation Methods</strong></td>
<td>Pre-post knowledge assessment</td>
<td>Pre-post knowledge assessment</td>
<td>Pre-post knowledge assessment</td>
<td>Pre-post knowledge assessment</td>
</tr>
<tr>
<td></td>
<td>Skill assessment by clinical preceptor</td>
<td>Skill assessment by attending physician of standardized patient interaction #1</td>
<td>Self assessment of attitudes*</td>
<td>Self assessment of attitudes*</td>
</tr>
<tr>
<td></td>
<td>Self assessment of attitudes* after didactic lecture and after clinical experience</td>
<td>Skill assessment by standardized patient of interaction #1 and #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self assessment of attitudes*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Enduring Content</strong></td>
<td>Practice resources for field reference</td>
<td>Integration of seminar content into medical school curriculum</td>
<td>Survivorship Toolkit; Survivorship Webinar</td>
<td>On-line course</td>
</tr>
</tbody>
</table>

*Self assessment of attitudes - Confidence, relevance, likely to change practice, likely to recommend to peers*
Table 3. Participation Drivers - C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>Incentives, Rewards, &amp; Requirements</th>
<th>Audrain</th>
<th>Marshall</th>
<th>UPMC</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEU credit</td>
<td>School requirement</td>
<td>CME/CEU credit</td>
<td>School requirement for students</td>
<td></td>
</tr>
<tr>
<td>Free registration</td>
<td>Opportunity for patient interaction</td>
<td>Free registration</td>
<td>Free course for faculty</td>
<td></td>
</tr>
<tr>
<td>Take home materials: reference books, pocket guide</td>
<td>Flexible Webcast options</td>
<td>Take home materials: survivorship toolkit resources</td>
<td>Opportunity for students to have patient interaction</td>
<td></td>
</tr>
<tr>
<td>Clinical preceptor</td>
<td>Opportunity for regional networking and coordination of care</td>
<td>Opportunity for regional networking and coordination of care</td>
<td>Opportunity for field faculty to collaborate with peers</td>
<td></td>
</tr>
<tr>
<td>Ongoing consultative support</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity for regional networking and coordination of care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quantitative Results

Quantitative results were collected from pilot site applications for funding, letters of agreement, pilot site reports, site specific pre- and post-test questions, cross-site common questions, site visit observation forms, and the Competency Utility Scale.

Investment

To allow for a common indicator across sites, pilot leaders were asked to calculate the total number of instructional hours spent on all learners. This figure was calculated by having each pilot site multiply the number of people taught by the number of instructional hours spent on each of these individuals. In total, instructional hours indicate the organization's program investment as well as the potential for impact on the patient community. These calculations can be found in Table 4. As shown, the overall investment of competency-based instructional hours across sites was high.
Table 4. Total Project Investment (in hours spent)
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>Site</th>
<th>Instructional Hours x Number of People Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPMC</td>
<td>44</td>
</tr>
<tr>
<td>Audrain</td>
<td>188</td>
</tr>
<tr>
<td>California</td>
<td>476</td>
</tr>
<tr>
<td>Marshall</td>
<td>2235</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>2943</td>
</tr>
</tbody>
</table>

Although the overall investment of competency-based instructional hours across sites was high, all sites fell short of reaching the projected number of program participants, as specified in their letters of agreement. As seen in Table 5, across sites, the actual number of program participants was lower than the number of expected program participants. The sites that came closest to meeting their expected participation level included Marshall, which integrated the competency program into the existing medical school curriculum, thus making it a course requirement, and Audrain, which developed its training in response to a significant number of requests from area professionals. These results point to the value of matching a competency-based program to a clearly defined community need. Sites could benefit from conducting a needs assessment with potential voluntary participants. In the individual sites reports (Appendices K-N), the pilot site leaders further analyze the differences between expected and actual participation. They cited opportunities for improving their ability to project participation, promote the learning opportunity among potential participants, adapt their instructional methods to be most relevant to the learners, adjust the program schedule, and strengthen incentives and rewards based upon a more thorough needs assessment.

Table 5. Expected versus Actual Pilot Site Participation
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>Site</th>
<th>Expected Participation</th>
<th>Actual Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPMC</td>
<td>250</td>
<td>11</td>
</tr>
<tr>
<td>Audrain</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>California</td>
<td>310</td>
<td>13</td>
</tr>
<tr>
<td>Marshall</td>
<td>66</td>
<td>54</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>666</td>
<td>97</td>
</tr>
</tbody>
</table>
Learners

Each site developed its own pre- and post-test questions, the number and format of which varied by site. Pre-tests were administered to all learners prior to implementation of any training component and post-tests were administered upon completion of the training. The post-test consisted of the same pre-test questions as well as five common cross site quantitative questions. These common questions were developed by the C-Change team; however, sites tailored the questions to reflect site specific training content. Training participants were asked to rate five statements on a scale of 1 (strongly disagree) to 5 (strongly agree): relevance of the training, increases in confidence to provide cancer care, intention to change practice, intention to suggest the training to colleagues, and knowledge of the shortages in the cancer workforce.

A summary of the results of the site-specific pre-tests and post-tests is located in Table 6. Across sites, the training increased learners’ level of knowledge. Increases in knowledge were seen regardless of the learner’s incoming level of knowledge, providing evidence for the utility of competency-based instruction independent of the learner’s status based on the pre-test.

Table 6. Percent Changes in Learner Knowledge from Pre-Test to Post-Test
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>Site</th>
<th>Pre-Test Average</th>
<th>Post-test Average</th>
<th>Average Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marshall (N=54)</td>
<td>45%</td>
<td>76%</td>
<td>119%</td>
</tr>
<tr>
<td>California (N=13)</td>
<td>50%</td>
<td>74%</td>
<td>177%</td>
</tr>
<tr>
<td>Audrain (N=19)</td>
<td>73%</td>
<td>90%</td>
<td>39%</td>
</tr>
<tr>
<td>UPMC (N=11)</td>
<td>70%</td>
<td>84%</td>
<td>20%</td>
</tr>
</tbody>
</table>

A summary of the results of the cross-site quantitative questions are located in Tables 7 and 8. Across sites, the majority of learners felt that the training was relevant, increased their confidence, will result in changes in their practice, and is a training that they would suggest to their colleagues. These results suggest that competency-based instruction yields increased applicability to professional practice. In addition, the results suggest that the majority of learners across professional practices and settings are aware of the cancer workforce shortage. It is therefore justifiable to move from campaigns designed to merely raise awareness of the cancer workforce shortage to the development and implementation of focused training programs designed to bolster the cancer knowledge and skills of the non-oncology workforce.
Table 7. Common Questions (Average/Standard Deviation)
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>All Sites</th>
<th>Average (Standard Deviation)</th>
<th>Range: 1 (Disagree) to 5 (Agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The training was relevant to my current practice/education (n=88)</td>
<td>4.14 (0.87)</td>
<td></td>
</tr>
<tr>
<td>The training increased my confidence to provide cancer care (n=88)</td>
<td>4.06 (0.85)</td>
<td></td>
</tr>
<tr>
<td>The training will result in me changing my practice (n=82)</td>
<td>3.96 (1.00)</td>
<td></td>
</tr>
<tr>
<td>I would suggest that my colleagues take a similar training course (n=89)</td>
<td>4.22 (0.87)</td>
<td></td>
</tr>
<tr>
<td><strong>Audrain, UPMC, California</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before the training, I was aware of the need for providers to become</td>
<td></td>
<td></td>
</tr>
<tr>
<td>involved in cancer care (n=39)</td>
<td>3.95 (1.10)</td>
<td></td>
</tr>
</tbody>
</table>

*Marshall did not include this question in their common questions

Table 8. Common Questions (Percentage)
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>All Sites</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>The training was relevant to my current practice/education (n=89)</td>
<td>4 (4.5%)</td>
<td>16 (18%)</td>
<td>68 (76.4%)</td>
<td>1 (1.1%)</td>
</tr>
<tr>
<td>The training increased my confidence to provide cancer care (n=88)</td>
<td>4 (4.5%)</td>
<td>17 (19.1%)</td>
<td>67 (76.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>The training will result in me changing my practice (n=88)</td>
<td>6 (6.8%)</td>
<td>18 (20.5%)</td>
<td>58 (66%)</td>
<td>6 (6.8%)</td>
</tr>
<tr>
<td>I would suggest that my colleagues take a similar training course (n=89)</td>
<td>4 (4.5%)</td>
<td>15 (16.9%)</td>
<td>70 (78.6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>Audrain, UPMC, California</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before the training, I was aware of the need for providers to become</td>
<td>4 (9.7%)</td>
<td>9 (22%)</td>
<td>26 (63.4%)</td>
<td>2 (4.9%)</td>
</tr>
<tr>
<td>involved in cancer care (n=41)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Marshall did not include this question in their common questions


Observations

Table 9 contains a list of all of the competency statements that were identified by the sites during the program planning phase. During on-site observation visits, two observers (one member of the evaluation team and one C-Change staff person) rated to what extent the site’s specified competencies were addressed during the observed portion of the training – giving the learner the opportunity to achieve them. Observations were divided into two categories: “Implementation Fully Observed” and “Implementation Partially Observed.” “Implementation Fully Observed” indicated that observers were able to attend the entire implementation of the educational program in its entirety.

“Implementation Partially Observed” indicated that the observers viewed only a portion of the training session due to the fact that some sites designed their program in a manner involving multiple sessions spread over time. In these cases, aspects of the competencies were addressed during parts of the program implementation but were not directly observed.

Since some sites conducted training programs that were administered over more than one training session, the observations were meant to serve as a snapshot of program implementation. Each competency was independently rated a score of 0 (did not directly address), 1 (addressed competency somewhat), or 2 (addressed competency fully). Upon completion of the observed training session, observers came to a consensus rating, using the same scale, to indicate to what extent learners were given an opportunity to achieve the competency objectives.

Of the 26 core competencies that were intended to be implemented, observers witnessed the implementation of 23 (88%) across training sites, demonstrating the feasibility of sites to successfully translate competencies into their practice-focused educational programs. Furthermore, observers were generally in agreement about the degree to which competencies were addressed. Within the context of training sessions that were fully observed, observers agreed 70% of the time. Within the context of training sessions that were partially observed, observers agreed 100% of the time. These high levels of agreement provide support for the utility of the competencies to be observed in a standardized fashion.
### Table 9. Adherence to Competencies during Instruction Evaluated by On-Site Observation

<table>
<thead>
<tr>
<th>Competency</th>
<th>Observer 1</th>
<th>Observer 2</th>
<th>Consensus Rating</th>
<th>Percent Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Implementation Fully Observed:</strong> Staff observed the entire program implementation</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>70%</td>
</tr>
<tr>
<td>1. Define cancer survivorship</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2. Assess that resources for cancer services and insurance coverage are consistent with current recommendations</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3. Manage continuing and late effects of cancer and cancer treatment</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4. Refer survivors to rehabilitation services</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5. Provide support for cancer survivors and their families and caregivers as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, and personal intimacy</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6. Perform an individualized skin cancer assessment based upon a comprehensive skin health history and current skin status including genetic risk factors</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7. Assist patients and families in navigating the health care system following cancer treatment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8. Advocate for pain and symptom management throughout the course of survivorship</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9. Describe the surveillance recommendations for the detection of recurrence and second primary cancers</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10. Provide ongoing health services that meet age and gender recommendations</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Program Implementation Partially Observed:</strong> Staff observed only a portion of the program implementation due to program design (i.e., multiple training sessions)</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>100%</td>
</tr>
<tr>
<td>11. Explain the role of diagnostic examinations in the identification of suspected cancer</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12. Recognize signs &amp; symptoms of cancer related depression &amp; anxiety</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>13. Explain management of depression and anxiety with patients with cancer</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14. Explain useful coping mechanisms after cancer diagnosis</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>15. Incorporate evidence-based cancer prevention guidelines in their professional practice</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>16. Explain the continuum of comprehensive cancer care: prevention, early detection, treatment, survivorship, and palliative care</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>17. Refer individuals to resources for cancer prevention, screening, and management of precancerous conditions</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>18. Explain the benefits and risks of screening tests</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>19. Explain the possible findings from a screening test</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>20. Refer individuals for further assessment based upon screening test results</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>21. Perform an individualized cancer risk assessment based upon a comprehensive health history and current health status including genetic risk factors</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>22. Refer individuals to resources for cancer screening and risk assessment</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>23. Describe the methods of breast cancer detection, including breast self examination, clinical breast examination and mammography</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>24. Refer for follow up assessment</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>25. Perform a clinical breast examination</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>26. Describe evidence based early detection guidelines based upon risk-factors</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Rating Scale: 0 (did not directly address), 1 (addressed somewhat), 2 (addressed fully)
Beyond the observed competencies, two sites reported incorporating additional competencies into their pilot project curriculum and learner evaluations. These additional competencies incorporated by Marshall and Audrain (listed in Table 10) were identified through interviews with pilot site leaders and review of the site specific reports. These sites were able to leverage the C-Change Cancer Core Competencies beyond the ones that were initially targeted for comprehensive pilot testing.

Table 10. Additional Core Competencies Incorporated into Pilot Testing
C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>Pilot Site</th>
<th>Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marshall</td>
<td><img src="#" alt="List of competencies" /></td>
</tr>
<tr>
<td>Audrain</td>
<td><img src="#" alt="List of competencies" /></td>
</tr>
</tbody>
</table>

**Competency Utility**

The Competency Utility Scale was developed by the C-Change team to determine the overall utility of the competencies throughout the pilot process. This scale was administered to pilot site leaders upon completion of their final reports. In sites with more than one pilot leader, they were asked to come to consensus to complete one Competency Utility Scale. Results of the Competency Utility Scale are located in Table 11. Competency utility was measured in three areas: driving curricular content, aiding professional practice, and leveraging pilot resources.
On a scale of 1 to 5, the average overall utility of the competencies was greater than 3, showing that the C-Change Cancer Core Competencies were perceived by the users as having value. The competencies were found to have the highest utility in driving curricular content, aligning with the original intention of the competencies to serve as a basis for curricular development. They were found to have some degree of utility in aiding professional practice. However, the low degree of the utility of the competencies in leveraging pilot resources reveals a missed opportunity.

Table 11. Competency Utility Scale - C-Change Cancer Core Competency Pilot Project

<table>
<thead>
<tr>
<th>The C-Change Competencies were/are useful for…</th>
<th>Average</th>
<th>Domain Average</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range: 1 (Not very useful) to 5 (Very useful)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Driving Curricular Content**

- Incorporating cancer content into new or existing curricula or training activities in my agency or university. 4.25
- Determining the content of my cancer curriculum or training program. 4.0
- Designing the instructional methods used in my cancer curriculum or training program. 4.0

**Aiding Professional Practice**

- Managing the curriculum development process. 4.0
- Guiding members in my professional organizations to develop training courses. 3.0
- Planning for my professional development courses. 3.0
- Selecting the ways to measure gains in learner performance in those individuals who participated in cancer courses or training programs 2.75
- Proposing remedial instructional activities for those individuals who find it challenging to incorporate cancer competencies into their professional practice. 2.75

**Leveraging Pilot Resources**

- Communicating C-Change grant to colleagues in my agency or university. 2.75
- Leveraging additional resources to implement the C-Change grant requirements. 2.25
Qualitative Results

Qualitative data were collected from focus groups and in-depth interviews. At each of the pilot sites, one focus group was conducted with a sample of learners immediately following the training session; therefore, four focus groups were conducted across sites. A sample of learners, selected by the pilot site leader, was invited to participate in the focus group. All learners who were invited chose to participate. The number of focus group participants varied by site and ranged from three to seven participants. A member of the evaluation team facilitated the focus groups, consistent with the methods outlined by Coffey and Atkinson (1996) while a C-Change staff person took notes. The facilitator explained that the purpose of the focus group was to gain a better understanding of the impact of the program on the learners and then proceeded to have the group discuss the four questions. While the guide was tailored to reflect the content of the site specific training, general concepts remained consistent across sites (See Appendix G). Focus groups lasted between 11 and 20 minutes. The focus groups were recorded, transcribed, and analyzed for themes.

In depth interviews were conducted with pilot site leaders and stakeholders. A pilot site leader was defined as anyone who was involved in the development or implementation of the program. The number of pilot site leaders per site ranged from one to three, for a total of seven. A stakeholder was defined as any individual who had a vested interest in the pilot project development, implementation, or outcomes. Pilot leaders were asked to identify up to five stakeholders. The number of stakeholders per site ranged from two to four, for a total of thirteen. When possible, interviews were conducted in-person during the pilot site visit, or, alternately, via telephone. All interviews were conducted by a member of the evaluation team. The purpose of the pilot site leader interviews (see Appendix H for Pilot Site Leader Interview Guide) was to gain insight into the overall pilot process. The purpose of the stakeholder interviews (see Appendix I for Stakeholder Interview Guide) was to uncover program effects. Interviews lasted between 10 and 30 minutes. The interviews were recorded, transcribed, and analyzed for themes. Both focus group and interview data were stored on a CD and are kept in a locked cabinet at the C-Change office.

Focus Group Results

Focus group results are organized by the themes learners expressed across sites, without attribution to a specific pilot location. The six dominant themes expressed by learners included:

- Training increased or reinforced knowledge ........................................ Knowledge
- Training increased confidence and comfort ........................................... Confidence
- Training increased motivation to advocate ............................................. Motivation
- Training is relevant and needed on the topic ....................................... Relevance
- Many professions would benefit from the training ................................. Benefit
- Training environment was positive ...................................................... Environment
Knowledge. Across sites, focus group participants mentioned that the training increased or reinforced their knowledge of the subject being taught. Focus group participants stated:

“This training was an affirmation that we are trying to go about this in the right way. It is good to hear that our approach to cases in a multidisciplinary way is correct. It enhanced my thoughts and understanding about a variety of topics” (Focus Group #2).

“A lot of the information at the [training] reinforced what we have heard before. It was helpful having clinicians from different specialties teach us. It has given me better ideas on how to ask history and physical examination screening questions” (Focus Group #3).

Confidence. Focus group participants expressed that the training helped them feel more comfortable addressing certain populations or issues. Many felt as if the training provided them with information and tools that made them more confident in their abilities. Focus group participants stated:

“I feel more comfortable, especially after the practical part. I have more information to share with people now. I will be more willing to sit down with the patient now. I will feel more confident saying ‘this is why you should go get this looked at’” (Focus Group #1).

“This training has helped me to be more sensitive to families. It gave very simple tools, but it was very powerful. It opened my eyes to things I probably wouldn’t have thought of before. It’s scary if you don’t know what to do or say but this training gives you the tools so you feel more confident, like you can be really helpful” (Focus Group #4).

Motivation. Focus group participants across sites mentioned that the training increased their motivation to advocate for certain issues. Participants stated:

“We’ve been trying to increase the number of referrals to cancer rehab services. This training has motivated me to push for it more. People are getting lost in the shuffle” (Focus Group #2).

“Going through this training has made me want to step up more and say to other hospital staff you guys need to go through this training and we need to do more with this group [cancer patients and families]” (Focus Group #4).

Relevance. Across sites, focus group participants expressed that the training was relevant to their profession. Many saw a need for trainings on the topic. Focus group participants stated:

“As a public health nurse, you don’t get that much experience about this topic, but people in the community see us as all knowing and will call up and ask about a number of topics including skin lesions” (Focus Group #1).

“We need to be better at communicating across the continuum of primary care providers and to providers of resource and be better at educating. Lots of patients have lost connections with their primary care providers and do not have their support” (Focus Group #2).

“Every time we have patient interaction it is a fantastic breakthrough. We need to learn how to interact with patients before we get thrown to the wolves next year. I am shadowing an OB and am amazed by the history and preventative things that they don’t do” (Focus Group #3).

“I was thinking about how relevant this is and wondering why someone hasn’t done this type of training before. Cancer - there is no one whose life hasn’t been touched by it in some way. For this program to be in its infancy stages is surprising to me” (Focus Group #4).
Benefit. Participants believed that a range of individuals from various professions would benefit from participating in a similar training. Participants stated:

“Everyone on the continuum of cancer care team would benefit from this training, including nurses, doctors, managers, students, pharmacy researchers, social workers” (Focus Group #2).

“I think this training should be shared interdisciplinary, with clergy, educators, teachers, counselors, nurses, and the geriatric community, even with families and friends” (Focus Group #4).

Environment. Finally, participants mentioned the positive training environment. One focus group participant stated:

“I think it was good that everyone was allowed to ask questions, that people were relaxed enough and people were able to interject things” (Focus Group #1).

Pilot Site Leader and Stakeholder Interview Results

Pilot site leader and stakeholder interview results are organized by the themes that were expressed across sites, without attribution to specific pilot site leader or stakeholder location. The six dominant themes expressed by pilot leaders and stakeholders included:

- Pilot site leaders received support from their agency.............................. Support
- The training addressed a community or institutional need............................. Need
- The training was part of a larger educational effort................................... Effort
- The pilot site process was very time consuming...................................... Time
- The pilot projects created benefits on the professional, learner, institutional, and community levels ........................................ Benefits
- Sites see the core competencies being used in the future............................. Future

Support. All pilot site leaders expressed that received a high level of support from their host agency. Furthermore, many stakeholders who were affiliated with the host agency expressed their support and enthusiasm for the pilot project. One pilot site leader commented:

“The support we’ve gotten from the university community has been overwhelming. The President and everyone picked up on it right away. They featured the grant in the summer catalog. We got buy-in both from our own faculty as well as individuals from another university” (Pilot Leader #7).

Need. Pilot leaders and stakeholders expressed that the training addressed a need within their institution or community. At some sites this need prompted the training, while at other sites training implementation led to realization of the need. Pilot leaders and stakeholder stated:

“I had been getting phone calls from public health agencies asking for me to participate in skin cancer screenings in their community and wanting to know how to conduct one. I thought that this program would be an opportunity to impact the workforce by educating them on how to properly conduct skin cancer screenings” (Pilot Leader #1).
“Survivorship is one of the areas we as a cancer center are weak in, one of the things on our agenda that we are moving in the direction of fulfilling. Survivorship is one of the areas in which our patients and the community were starting to ask: What are the programs? What are things to consider” (Pilot Leader #3)?

“As a result of the publicity of the grant, people have stopped [pilot leaders] around campus and said that they really like this and that they need this, saying “We are cancer survivors, we are parents, siblings, spouses of cancer survivors. This is something that is really needed” (Stakeholder #13).

Effort. Pilot leaders across sites specified that the pilot project was part of a larger educational effort. Many sites expressed plans to replicate or expand the program, some beyond their own institution. The program provided sites with a starting point for future educational programs. Pilot site leaders and stakeholders commented:

“We plan to replicate at least once a year and add new disease processes, for example breast cancer. The whole process has been the seed to push our education programs to the next step, to put our thoughts and ideas into action. By going through this process, [conducting training programs] is something we have thought about, something we thought we would be good at, something we thought would benefit the community. This program has been the catalyst” (Pilot Leader #1).

“We are planning to implement more programs for cancer survivors here. This program is a beginning for some of the activities we hope to develop. It gives us a basis to figure out where we need to go with some of our survivorship programs here” (Pilot Leader #2).

Time. All pilot site leaders expressed that the pilot project was a time consuming process. Many wished that they had been given more time or had budgeted more time for project development, implementation, and evaluation when writing the grant proposal. Pilot leaders stated:

“We wish we had more time to put the program together. We had to put our ideas together really quickly; it took a lot of effort, getting the right group together quickly to figure out what was needed in the community and center and what we wanted to focus on” (Pilot Leader #2).

Pulling together a multidisciplinary team in a short period of time can be difficult…the time frame of the grant was so short. I wish we had built release time into it. Most of the costs we experienced were in terms of time. (Pilot Leader #6)

Benefits. Pilot leaders and stakeholders identified multiple levels of benefit as a result of participating in the Cancer Core Competency Pilot Project. Benefits occurred at the professional, learner, institutional, and community levels. Each of these levels is briefly reviewed.

Pilot site leaders reported developing professionally as a result of participating in the pilot project. Pilot leaders were exposed to new methodologies, such as competency and logic model use, and increased their understanding of site specific training content. Pilot leaders expressed that the process was valuable, rewarding, and created knowledge that they can apply to future projects. Pilot site leaders stated:

“I learned a lot personally; it was like taking a graduate school course. It was very rewarding and I will take all of those tools, such as the logic model, with me for use on future projects” (Pilot Leader #1).
“The literature review really opened our eyes. We have worked with cancer patients, but it really opened our eyes to new things we hadn’t thought about, the existential issues with cancer patients. We realized right away with training people working in the field that we would experience the ‘oh, I know this’ attitude, so that focused us” (Pilot Leader #6).

Pilot site leaders and stakeholders also reported benefits to learners who participated in the training. These benefits, beyond increases in knowledge and confidence, included an enhanced learning experience and an opportunity to apply knowledge in a practice setting. Interview respondents stated:

“The grant provided us with the means to allow the students to understand the experience of a patient, make it a more lived experience instead of a discussed experience. It is a more effective way of learning” (Stakeholder #8).

“I think it will help our social work graduates to be better social workers, being sensitized and being able to apply what they have in their books. With our field instructors it is opening up the discussion about how working with people who are ill can cause you to shut down psychologically” (Pilot Leader #6).

“It’s so important to understand professionally how to do this and not act as a friend. I think that is what our program is trying to do, help any social worker who comes across someone with cancer, what are some of the competencies you need to be aware of, what can help you do the job, show them that you don’t have to be an expert or specialize in this” (Pilot Leader #7).

Pilot leaders and stakeholders reported a number of institutional benefits including increases in community awareness and trust building. The pilot project provided a forum for collaboration, both within the institution and with the community at large. Furthermore, sites reported that the project facilitated an internal analysis of institutional strengths and weaknesses. Stakeholders reported:

“If we can sustain this enhanced focus on education and early detection it will help our organization grow. The change that we would like to see is to become more preventative, more wellness, more educational in our nature. I am hoping this program will help us to shift our focus to just not helping people when they are sick, but the education, wellness and prevention sides of it, and grow that” (Stakeholder #1).

“The program has helped to expand not only local but also regional and statewide relationships. Something like this can allow more integration and communication with other entities. I think it helps to give [my agency] more credibility” (Stakeholder #3).

“The medical education curriculum is so tight, it is hard to incorporate more things, but your grant allowed us to team up with a lot of other disciplines and do better. We need further funding to train faculty to deliver content, to incorporate your cancer competencies into curriculum” (Stakeholder #9).

“We’re getting ready to go through accreditation again with the MSW program and any time we can do over and above what our accreditation is looking for, that speaks well for that…This grant has helped our instructors to think differently about the way they teach their classes. That’s the kind of benefit we want to see, how we can make some kind of systemic changes within the program. We need opportunities such as this to help keep us on top of our game” (Stakeholder #10).
Stakeholders also reported that the project produced benefits for the community. The pilot project produced a more highly trained workforce that is better equipped to address community needs. Stakeholders commented:

“This training allows other health care providers to learn what we are doing in our comprehensive cancer screening service and take that back to their communities. Many of those who attended are from rural areas - this allows the rural areas to benefit. There is a lot of attention in the big cities, but it is important to make sure the rural areas are served” (Stakeholder #2).

“There are a lot of cancer survivors who will be followed up by their primary care providers. I think the program did an in-depth job of covering some of the issues and I think it will be helpful to healthcare providers and to the patients they serve. These are topics that impact all of us who work with patients directly” (Stakeholder #5).

“We try and do things that have an impact on the community, not just here at the university, so working with this grant allows us to have an impact in the surrounding community. We have formed a partnership with [agency] so students have the opportunity to provide services there” (Stakeholder #10).

Future. Finally, pilot leaders stated that they saw a place for the future use of the core competencies within their institution. Pilot leaders commented:

“I think the competencies will be a base that is realized, it’s going to be information that will stick in the back of our brains. I was not familiar with them prior to this; it was new information to me. But in some of our other curriculum development, I find my brain going toward that direction” (Pilot Leader #4).

“I think there is room to integrate the Core Competencies. We are currently in the process of looking at our curriculum more closely and revamping it…we are going to have to try and figure out where in the curriculum we could place them. We already do a lot of what C-Change is promoting but there is always room for improvement” (Pilot Leader #5).

Summary

The C-Change Cancer Core Competency Pilot Project demonstrated utility of the C-Change Cancer Core Competencies. Project implementation was feasible across pilot sites; pilot projects were implemented in a range of settings, delivered to different disciplines, and utilized a variety of instructional methods. All sites demonstrated the feasibility of translating competencies into their practice-focused educational programs according to observer reports. Competencies were found to have a high degree of utility in driving curricular content and in aiding in professional practice. Within all participating organizations, the preparation of primary care and other health professionals to assist in the care of cancer patients and their families is a top priority. The development and implemented of the education interventions produced a number of profound effects at the professional, learner, institutional, and community levels. The Cancer Core Competencies are a useful tool in the development of education interventions to improve the knowledge and performance of non-cancer specialist health care professionals.
PART IV: DISCUSSION

Introduction

The design of the validation project was guided by a proven rationale and framework. The cancer core competencies were developed to stimulate competency-based instruction and incorporate adult learning principles and assess outcomes using the Theory of Planned Behavior. Pilot testing was aimed at ascertaining the utility and feasibility across different work settings, multiple professional disciplines, and competency subsets. Most importantly, the project demonstrated the role of the competencies in improving outcomes in four spheres of influence: professional development, learner knowledge, use of competency-based instruction at the institutional level, and competence of the cancer workforce at the community level.

The core scientific framework employed by the Guide to Community Preventive Services supports the evidence-based approach of the cancer competencies validation project. Figure 1 outlines this approach arrayed by the four key questions:

Key Questions

Should something be done?

As evidenced by the data in background statement, it is clear that in order to address the shortages in the cancer workforce it will be necessary to use non-traditional methods to expand workforce capacity. This will require a multi-pronged approach of reaching into a large pool of health professionals using diverse strategies for recruitment, retention, and training and education. Many of the participants who attended the training programs reported that they intended to incorporate cancer competencies in their professional practice. The pilot projects provided evidence that cancer core competencies and competency-based instruction represent a responsible means towards increasing cancer skill capacity in the health care workforce.

What should be done?

The goal of the overall core competencies initiative project is to strengthen the quality and quantity of the non-oncology health workforce. This utility validation project demonstrated the feasibility of using an instructional intervention to alter the pathways for workforce preparation. The faculty who developed the competency-based curricula reported increased satisfaction with the instruction design processes and intend to continue using this style of curriculum development in the future. Consistent with Adult Learning Theory, learners also reported satisfaction with the competency-based instructional design. The pilot projects provided evidence that the cancer core competencies and competency-based instruction are a curricular strategy acceptable to both academic and practice communities.

How should it be done?

Pilot testing was conducted using a three-pronged rationale: competency-based instruction; examining ways to maximize utility and flexibility across work settings, disciplines, and competency subsets; and applying Adult Learning Theory and Theory of Planned Behavior to assess the intent of behavioral change. The synergy of the cancer core competencies with the instructional design and theoretical underpinnings grounded this evaluation project in a social science base.
Given the time and resource constraints, the evaluation team triangulated both quantitative and qualitative evidence through a social science lens to conclude the following: the cancer core competencies are (1) useful instructional tools the health care workforce; (2) flexible in the application for both academic and non-academic instructional settings; (3) adaptable for a range of health workforce disciplines engaged in cancer care; and (4) acceptable statements of professional practice as seen by institutional boards, such as, academic curriculum committees.

**Is it working?**

The four pilots documented: improvement in four outcomes professional development; learner knowledge, institutional advancement and cancer workforce capacity at the community level. The unique interdependence of those outcomes is depicted in Figure 2 and discussed below. Since the pilots were conducted at one point in time, measuring actual behavior change was beyond the scope of this evaluation assessment. The evaluation did measure behavioral intention, consistent with the Theory of Planned Behavior, which suggests that participants in the Cancer Core Competency Pilot Project have a high likelihood to implement a change in their practice. A more confirmatory validation of change, actually observing changes in practice, would require additional time and resources.

When the Cancer Core Competency Pilot Project site evaluation results were viewed at the macro level, an unprecedented set of interdependent benefits emerged. These benefits cut across four levels of social influence: professional, learner, institutional, and community. These are depicted in Figure 2.
Figure 2 - Levels of Benefit

"We do a lot of education but do not go out of the box very often, this experience forced us to take a different approach to training development and work from the competencies." Pilot Leader, UPMC

"The curriculum development process and the tools of learning how to develop a logic model and validation template will serve both the individual and institution well in future efforts." Pilot Leader, Audrain

"Students study cases, but until have personal interaction and are able to see how patient progresses- I think the fair helped students look at prevention and screening techniques, actually see the case." Pilot Leader, Marshall

"This training really opened my eyes. Before, I didn't feel comfortable approaching patients that had cancer. I found myself struggling- what do you say to someone who is ultimately dying? It just made me realize how I treat people with cancer differently." Training Participant, California

"We're getting ready to go through accreditation again and any time that we can do over and above what our accreditation is looking for, that speaks well." Stakeholder, California

"Would love to do more training, especially non-healthcare workforce, but unfortunately our focus and funding is often on acute care and we can't get to these types of outreach programs to educate folks who are outside the business. That is why grant is so important to community organization such as ours. Being involved in this project will be a stepping stone; it will create a ripple effect for future trainings." Stakeholder, Audrain

"This experience has given us a basis to figure out where we need to go with some of our survivorship programs here. It will have broader effects. It is a good start for expanding programs- what do our survivors need and what we want to do here or out in our communities." Pilot Leader, UPMC

"Now we have stronger connections, bigger network, more people involved, more awareness of the availability of this information and what we do at our cancer screening program. Especially in small communities, things work by word of mouth." Stakeholder, Audrain

"We also try and do things that have an impact on the community, not just here at the University, so working with this grant allows us to have an impact in the surrounding community, for example in the Center in the Woods." Stakeholder, California
The most profound benefit is observed at the professional level that included participating faculty and instructors who were able to employ a competency-driven approach to education. The benefits to this approach were three-fold: the cancer core competencies were validated within a theoretical framework, the educational content was mapped back to specific competencies; and the competency-based instruction was directly observed and measured. All four pilot sites intend to continue to use their, and some case expand their curricula for future cancer education programs.

The accomplishments at the professional level significantly influenced the benefits at the learner level. In addition to the increase in cancer knowledge from the pilot site instruction, the learners left equipped with tangible resource material, which will help sustain reinforce their newly acquired competencies in cancer care. In some pilot sites, remote learning technology (e.g., webinar, on-line course) was used to reach practicing professionals. Reaching practicing professionals with competency-driven educational programs, rather than traditional CEU programs, helps to narrow the gap between academic and practice settings. At several pilot sites the learners were already practicing non-oncology health care providers. Participation in the cancer core competencies validation project bolstered their self confidence to work with cancer patients while giving them an opportunity to reflect on their ability to contribute to the cancer care continuum.

The cancer core competencies produced benefits as well at the institutional level. First, the project anchored competency-based education as an effective methodological strategy. It served as a type of change agent or promoter of competency-based instruction within the university or agency. Second, all pilot sites reported plans to conduct future training programs beyond the subset of competencies originally evaluated during this project, which indicates that the larger cancer core competency document continues to serve as an overarching framework for workforce development. Lastly, it was noted by some of the pilot site faculty that their experience with this grant program has had utility beyond this particular experience, including things such as, using the competencies for strengthening continuing education offerings, improving re-accreditation efforts, and generating extramural funding opportunities.

While the effects of a competency-based program on the professional and learner may be intuitive, the farther-reaching effects of the program on the institution and the community may not be so obvious. For this pilot project, the community in its broadest sense included the organization/institution of the participating faculty, the health workforce, and the traditional community to whom cancer care services are targeted. According to stakeholders, as a result of the pilot project a stronger network now exists between them and the affiliated organizational entity not only in the context of cancer care, but in general with respect to health care services. The ultimate goal of any competency set is to improve the quality workforce. By targeting the non-oncology workforce, the cancer core competencies developed by C-Change are designed to impact both the quality as well as the quantity of the health workforce. The pilot projects validated the feasibility of the competencies to do so.
Limitations

As with any evaluation study there are inherent limitations to the interpretation of the findings. These limitations result from the inevitable lack of time and financial resources that come with small grant programs. The advantage of discussing limitations is that their mirror image is an opportunity. In this evaluation study, the limitations center on two general themes: (1) the small sample size, and, (2) the short time-frame for effect measurement. In this Cancer Core Competency Pilot Project evaluation, the small sample size can be viewed from two perspectives: the number of pilot sites and the number of participants. With only four pilot sites, the type of interventions was limited by the capacity of the project to design, integrate, and implement competency-based curricular instruction within a nine month time-frame. Each site constructed an instructional program that was unique to its setting, which from a quantitative point of view results in a total denominator (N) of 4. The number of participants varied markedly by site, depending upon their instructional design from a low of 11 at UPMC to a high of 54 at Marshall. Given the different instructional methods and competencies deployed at the sites, there were few opportunities to aggregate measures for all participants. The second limitation is the short time frame for measuring change in the behavior of the participants in instructional programs. All assessments for behavioral change were taken immediately following the instruction and were limited to determining their intention to incorporate competencies into their practice. While measuring a learner’s intention to change behavior is predictive of actual behavior change, it is a less certain measure than actually observing the learner consistently integrating the competency into practice. To determine behavior change in the long term would have required follow up assessments to validate competency performance in a practice setting. Some individual pilot sites are planning to provide ongoing practice support as well as follow-up evaluations. Plans for longer term program evaluation are discussed further in the individual site reports (Appendices L-N).

On a related note, knowledge decay occurs after any educational intervention. A one-time educational intervention will not result in a sustained increase in competency. With the overall Cancer Core Competency Initiative goal to strengthen the quality and quantity of the non-oncology health workforce, the only way to achieve and maintain this outcome is to improve and maintain the benefits derived from the program interventions. Site-specific follow interventions are necessary to preserve learner-specific competency. Broad dissemination efforts through various academic institutions, healthcare providers, and cancer coalitions will also help to create momentum and sustain competency benefits.

The limitations do bring into focus several important points that should be highlighted. Although small sample sizes often pose several quantitative challenges, such studies also provide some interesting qualitative insights. In this case, the four pilot sites provided a richness of qualitative observational, interview, and focus group data resulting in a very compelling case study for each individual instructional intervention. In their aggregate, these data crafted a model, Levels of Benefit that placed cancer core competencies into a social continuum extending from the professional to the institution and to the community. This would not be a typical outcome of a larger scale evaluation study that focused primarily on the long term behavioral change of the learners. Recognizing that this evaluation report was grounded in theory, there is evidence that learners gained competence through their instructional experience. Finally, small pilot studies allow for the examination of projects with modest investments of resources and, in this case, the results indicate that additional investments in the further assessment of the utility of cancer core competencies are warranted.
PART V: CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

Conclusions

The results from the C-Change Cancer Core Competency Pilot Project evaluation support the following conclusions:

1. The implementation of the Cancer Core Competency methods and tools in four pilot sites were effective in improving participant knowledge of their respective cancer topics and resulted in strong cancer skills and attitudes as a result of the educational intervention.

2. The methods and tools developed to support program planning, implementation, and evaluation were both useful and flexible. All site leaders found the tools supportive of their efforts, demonstrating their utility. All sites were able to utilize the methods and tools in a variety of setting and educational formats and with different disciplines, demonstrating their flexibility.

3. Each pilot site derived benefits from their program investment beyond the educational gains demonstrated by their program participants. The sites were able to leverage the competency initiative to include faculty professional development, institutional value, and community value.

Recommendations

Now that the C-Change cancer core competencies have demonstrated utility and flexibility, the next logical step is a focus on two general areas: (1) encouraging their integration into areas of health care practice where the oncology gaps are most pronounced, and (2) demonstrating their utility within the health care profession with an emphasis on depth versus breadth. To this end, the following recommendations seem most practical.

1. Promote utilization of methods and findings in collaboration with practice-focused associations and coalitions as well as with training-focused academic associations

2. Disseminate methods and findings through web-based tools, news and journal publications, and national conference presentations

3. Support a second group of grant-funded pilot sites in partnership with other national C-Change member organizations

4. Accumulate additional findings from future implementation sites to further validate the application of competency methods and tools with all with other cancer topics, disciplines, and educational methods and create an open-access repository of findings from all sites utilizing the cancer competency program methods and tools
5. Review inventory of competency statements on a regular basis to refine definitions based upon implementation site experiences and changes in cancer research and practice

Lessons Learned

Lessons learned are those ideas that come from the process of evaluation that arise from the experience itself. These come from the integrative or meta-analysis of the experience by stepping back a bit from the micro level of the data and asking the question, what can be learned from initiating an evaluation of the C-Change Cancer Core Competency Pilot Project. Lessons learned are not data driven but arise from the collective observations of the evaluators and site leaders. They can be useful in the design of future evaluation activities and can serve the bases of case studies exercises.

1. Program Planning Team Composition – In order to ensure the success of the planning, implementation, and evaluation phases of a competency initiative, the program planning team should be composed of members with cancer content expertise and with the ability to support educational program develop and implementation within the institution. In addition, the team should also have individuals able to meet some of the more challenging aspects of the process, namely, the development of logic models, data analysis, and report writing.

Take home message: build a balanced planning team equipped to meet the challenges of the program

2. Project Development Timeline – The planning and evaluation phases of a competency-based educational program are more time consuming than typical continuing education programs due to a more intensive pre-planning and post-evaluation process. [While all pilot sites were experienced providers of academic course or continuing education programs, none were experienced in the use of logic models or evaluation.] In order to maximize the yield from the rigorous planning process, adequate time should be invested to utilize the logic model tools and validation templates to ensure the impact of the educational effort. Similarly, evaluation tool design, data collection, and resulting data analysis require a concentrated effort so improvements in competency can be clearly documented. Lastly, efforts to document and publish project findings are highly encouraged as a contribution to the health professions’ community.

Take home message: Allot significant time to thoroughly complete the planning and evaluation processes

3. Audience Readiness & Participation Incentives – To maximize the yield from the time and resources invested in program development, efforts to maximize participation rates are highly encouraged. Paying special attention to assessing and understanding the readiness of the audience to learn is critical to reaching adult learners. Similarly, careful consideration of program incentives, rewards, and/or requirements will help to ensure high levels of participation. Program marketing; program fees; event timing, location, duration, and format are examples of factors that can influence the net impact of the program’s reach.

Take home message: Know your audience
Summary

In response to the current cancer workforce shortage, the C-Change Cancer Core Competency Pilot Project was designed to strengthen the cancer knowledge and skills of the non-oncology workforce. Application of the competency-based standards, methods, and tools proved effective in four diverse settings among different disciplines in increasing cancer knowledge and skills. The program methods and tools are useful guides for program development and are highly flexible, making them applicable with a variety of disciplines and settings. In addition, the program benefits extend beyond the learners to the institution and community. Based upon these findings, dissemination and further validation among more sites remain as top priorities.
References


Appendices

Appendix A: Background and Cancer Core Competency Statements

“A Competency-Based Approach to Expanding the Cancer Workforce”

Appendix B: Request for Proposals

Appendix C: Orientation Meeting Evaluation Contractor PowerPoint Presentation

Appendix D: Validation Template

Appendix E: Common Questions Template

Appendix F: Observation Template

Appendix G: Focus Group Interview Guide

Appendix H: Pilot Site Leader Interview Guide

Appendix I: Stakeholder Interview Guide

Appendix J: Competency Utility Scale

Appendix K: Audrain Medical Center Pilot Site Final Report

Appendix L: Marshall University Pilot Site Final Report

Appendix M: UPMC Cancer Centers Pilot Site Final Report

Appendix N: California University of Pennsylvania Pilot Site Final Report
Like nursing, many health care professions are experiencing significant workforce shortages, including social work, public health, pharmacy, medicine, basic science, and other allied health disciplines. Simultaneously, the aging population is creating an increased demand for health care services. At the intersection of these trends are vulnerable patient populations such as older adults experiencing chronic disease and cancer. C-Change, a coalition of cancer organizations, recognized these trends and has embarked upon several initiatives to address shortages in the cancer workforce. In addition to recruitment efforts targeting students to choose health careers, the Cancer Core Competency Initiative aims to bolster the basic cancer care knowledge and skills of the general health workforce. This article serves as an introduction to the initiative, including the project development methods, competency definitions, and future implementation plans. Subsequent columns will delve into specific aspects of the core curriculum with continuing nursing education offerings.

State of the Cancer Workforce and Nation’s Health

Figure 1 highlights the magnitude of the supply issues facing the general and cancer health workforce as well as some of the demand issues facing the health and demographics of the U.S. population. Each major health discipline is facing a notable shortage in supply that is projected to worsen.

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Acknowledgments: The authors would like to acknowledge the members of the C-Change Cancer Workforce team and the contributions of the expert panel members including Michael Caldwell, MD, MPH, National Association of County & City Health Officials; Elizabeth J. Clark, PhD, ACSW, MPH, National Association of Social Workers; C. Norman Coleman, MD, National Cancer Institute; Yvette Colon, MSW, ACSW, BCD, American Pain Foundation; Mignon Dryden, CTR, North American Association of Cancer Registries; Laura Fennimore, MSN, RN, Oncology Nursing Society; Linda Filipczak, MBA, RN, American Society for Therapeutic and Radiation Oncology; Jill Kolesar, PharmD, American Association of Hospital Pharmacists; Rika Maeshiro, Association of American Medical Colleges; Sara Miller, MPH, Colorado Department of Public Health and Environment; Raphael Pollock, MD, Society of Surgical Oncologists; Alice Reichenberger, RN, OCN, OSI Pharmaceuticals; and Paula Reiger, MSN, RN, AOCN, FAAN, American Society for Clinical Oncology.

In addition, the authors would like to acknowledge the expert consultative support of Kristine Gebbie, DrPH, RN; Anita Nirenberg, DNS(c), RN; Dyana Rumpf, MSN, RN; and Nicole Zakak, MSN, RN, of Columbia University; and Kathleen R. Miner, PhD, of Emory University.

Note: This column is made possible through an educational grant from C-Change, a Washington, DC-based, 501(3)c (not for profit), organization comprising the nation’s key cancer leaders from government, business, and nonprofit sectors. These cancer leaders share the vision of a future where cancer is prevented, detected early, and cured or is managed successfully as a chronic illness. The mission of C-Change is to leverage the combined expertise and resources of its members to eliminate cancer as a (major) public health problem at the earliest possible time. C-Change is both a forum and a catalyst for identifying issues and major challenges facing the cancer community and for initiating collaborative actions to complement the efforts of individual C-Change members. Medical-Surgical nurses are invited to learn more about this important organization by visiting www.ndoc.org

The authors reported no actual or potential conflict of interest in relation to this continuing nursing education article.
Simultaneously, an aging population is at greater lifetime risk for cancer and has achieved higher survival rates, so overall cancer prevalence is expected to grow. In the next 15 years, Medicare beneficiaries with cancer are estimated to double while the number of nursing vacancies is estimated to exceed 1.1 million (U.S. Department of Health and Human Services, 2002). When viewed together, the quality and quantity of the cancer care demanded will likely fall short due to supply limitations unless significant interventions are enacted.

The following observations set the stage for C-Change to define an approach to this problem: (a) the cancer health workforce needs are universal and widespread across discipline, continuum of care, and geography; (b) recruitment and retention needs are often very local or regional in nature; (c) ongoing quality management and continuing education are prerequisites to keep pace with scientific developments and social complexity of cancer; (d) the workforce development pipeline spans issues of education, training, licensing, recruitment, and retention; and (e) health workforce problems and solutions are not unique to cancer, but are felt more intensely in the context of an aging population. With these observations in mind, the solution to these challenges requires a multidimensional, scalable and flexible, dynamic, and sustainable solution that embraces generalists and specialists.

Organizations, such as the Oncology Nursing Society, the American Society for Clinical Oncology, the Association of Oncology Social Workers, and the American Society for Therapeutic and Radiation Oncology (ASTRO), have major initiatives in progress to assess, recruit, and retain more cancer specialists. While oncology specialists are the obvious caretakers of patients with cancer, they are not available equally to the population in need of services. Of the nearly 2 million registered nurses in the United States, only 21,000 (approximately 1%) are oncology certified. While efforts to increase the specialty workforce will continue, expanding the development pipeline for specialists requires a long-term investment. The current crisis also dictates the need for short-term action. Through a focused competency intervention with non-oncology specialists, surge capacity could be created in the short term. Recognizing that an adequate quantity and quality of health professionals are necessary to assure quality access to cancer care, C-Change developed a multi-pronged approach to a multidimensional problem, the Cancer Core Competency Initiative.

**Context for Multidisciplinary Collaboration**

C-Change was well positioned to tackle this cancer workforce issue due to the very nature of its composition, drawing members from public, private, and not-for-profit organizations concerned with cancer issues across the continuum of research, practice, and policy. The mission of this not-for-profit organization is to leverage the expertise and resources of its membership to eliminate cancer as a public health problem at the earliest possible time. Practically speaking, the organization convenes multi-sector leaders to accelerate and focus the cancer workforce needs.
agenda, tackling issues that they cannot affect alone.

The Cancer Workforce Team of C-Change aimed to build a “National Cancer Corps” with the surge capacity to meet the needs of an aging and increasingly diverse population. As noted previously, the team launched several recruitment initiatives including a Careers in Cancer Speakers Kit (Smith, 2005) and a Summer Internship Program to promote health and cancer career choices. A cancer career summer internship Web portal will go live in 2007. Being careful not to duplicate the efforts of the oncology professional organizations, C-Change identified the opportunity to strengthen the cancer knowledge and skills of the non-oncology health workforce as another means to improve the quality of cancer care.

**From Science to Policy to Practice**

Defining core competencies is a widely recognized approach to developing and maintaining key knowledge and skills in the workforce. This practice has occurred in the fields of epidemiology, emergency preparedness, public health, and other non-health related industries as a means to define minimum standards of quality and expand capacity. Defining the core competencies needed by all members of the general health workforce is the first step toward expanding the cancer workforce. Specifically, the Cancer Core Competencies are intended for health care professionals who have generalized knowledge of cancer and are able to initiate the continuum of cancer care from prevention and screening through palliative care, to assure the continuum of services to cancer patients and their families. Figure 2 illustrates how this notable undertaking to define core competencies in cancer was constructed. The research phase entailed the development of competency definitions. With these standards, related teaching and assessment tools will be created to strengthen the skills and expand the necessary surge capacity of health care professionals.

Through the leadership of an expert panel, feedback from various professional constituents, and the technical assistance of a consulting team from Columbia and Emory Universities, C-Change has defined a set of core workforce competencies. The competency statements were derived from an extensive review of the health literature. The bibliography of this effort can be found online (http://
An ever-expanding knowledge base that allows for the detection, diagnosis, and treatment of cancers, and a fast-growing population, the Cancer Core Competency Initiative aims to build our collective capacity for effective care and treatment through development of a National Cancer Corps. At the heart of this Cancer Corps are all members of the general health workforce, who can be equipped with the basic knowledge and skills necessary to meet the basic needs of patients with cancer and thus are in a position to expand the impact of oncology specialists.

These core competencies and the soon-to-be-available curriculum resources have been developed for several uses:

- Integrating cancer competencies into basic training curricula by academic institutions preparing physicians, nurses, and other health professionals.
- Integrating cancer competencies into continuing education programs and licensing requirements by health professional societies.
- Integration of cancer competencies into work-site training programs offered by employers of health professionals.

**Tiers of Care**

In cancer care and prevention, the complete workforce consists of professionals from a variety of disciplines, working interactively to assure the continuity of health care, including prevention, assessment, diagnosis, treatment, and monitoring. The functions of health care professionals in cancer range across three tiers of service:

**Tier 1.** Health care workers who provide general services supportive of the infrastructure for the delivery of services

**Tier 2.** Health care professionals who have generalized knowledge of cancer and are able to initiate the continuum of cancer care from prevention and screening through palliative care, to assure the continuum of services to cancer patients and their families

**Tier 3.** Oncology specialists who have the advanced, specialized knowledge needed to diagnose the condition, determine the treatment regimen, and evaluate the disease processes for cancer patients

The C-Change Cancer Core Competency Initiative focuses on Tier 2. Tier 2 professionals, by virtue of their numbers and distribution, provide the greatest opportunity to reach the general population as well as patients and families with cancer.

Tier 2 includes licensed, registered, or certified members of health professions who have not specialized in cancer and whose scope of practice includes face-to-face contact with patients and their families. The regular activities performed by Tier 2 health professionals incorporate some or all of the following, based on the professional education and licensing requirements of the individual profession:

- Diagnosing or prescribing privileges (independent or collaborative) (MD, DDS, DO, APN, PA, and PharmD).
- Developing, implementing, and evaluating care (RN, RDH, PT, OT, and RT).
- Counseling and educating patients or families (psychologist, BSW/MSW, RD, and health educator).

Figure 3 illustrates the difference between the level of competency expected from an oncology specialist compared to a generalist within the realm of cancer prevention. Figure 4 illustrates the range of competencies expected from a generalist across the continuum of care.

**Competencies**

Competency statements have become the basic building blocks for workforce development in many...
settings.

- Competencies focus on the tasks or functions that a person should be able to do or perform. For this reason, every competency statement includes a single active verb. This is a more robust approach than some of the prior descriptive methods (for example, identifying areas of needed knowledge without indication of how the knowledge is applied, or listing knowledge, skills, and abilities without identifying how they integrate into behavior).

- Competency statements are a flexible resource because they can be written at a high level, describing a general area of performance, or at a very detailed level, indicating what must be performed at the end of a single section within a curriculum.

The competency statements presented in this document are best described as “above the midpoint” in the degree of detail (see Figure 5). For full application, each competency included here requires further division into subcompetencies, although as a general description of expectation, several statements may be grouped into a single broad area of activity.

Other key standards are integral to providing cancer care, but they are not repeated in this document. In addition to the competencies presented here, two in particular have relevance:

- Cultural competence – the process by which individuals and systems respond respectfully and effectively to people of all cultures, languages, classes, races, ethnic backgrounds, religions, and other diversity factors in a manner that recognizes, affirms, and values the worth of individuals, families, and communities, and protects and preserves the dignity of each. An additional set of competencies in this area is forthcoming and will be linked to this document.

- Evidence-based prevention – the implementation of preventive services that are documented to be of value for the age/gender of the individual. The U.S Preventive Services Task Force is considered the most authoritative standard for such services, and should be consulted for the most recent guidance in prevention.

**Applying the Competencies**

Because functions of the many health professionals included in Tier 2 often overlap, the competencies are presented as a single set. The application or demonstration of any one competency, however, is shaped by the legal and professional scope of practice of the individual. For example, the general competency, “manage symptoms of the cancer patient,” will be performed differently by:

- A physician, who may prescribe specific medications.
- An occupational therapist, who may assist a patient in developing new approaches to activities of daily living.
- A psychologist facilitating an understanding of new limits in physical activity.

Complete management of symptoms may not be within the scope of practice of any one profession. Any Tier 2 professional will take some actions individually, make referrals to other members of the care team, and collaborate with oncology specialists.

As a further example, a symptom management educational program will have to be designed with both context and recipient of care in mind.

- A physician competency might include much more informa-
The result should be both a short-term increase and sustainable capacity for cancer care, with improved outcomes for all who receive care.

Mention about pharmacology and dosage calculations.
- An occupational therapist competency, for those working primarily with outpatients, might include assessment of fatigue and modification of activities.
- A psychologist competency, for those working with families, might include more detailed approaches to understanding self-image during therapy.

These differences in application do not change the competency itself, though the subcompetencies will vary, as do the educational approaches and curriculum resources.

Some confusion may arise because many of the competencies overlap with expectations of an oncology specialist. For example, “explain screening test” is a competency that every Tier 2 professional should master. The explanation should be accurate, and reflect the best current information concerning utility of a specific test. The degree of detail and manner of explanation, however, will differ across Tier 2 professionals; the explanation given by a social worker will likely differ from that of a family practitioner in the degree of anatomical and physiological information included. The oncology specialist would be expected to provide an equally accurate, but probably much more detailed explanation of the same test, particularly if working with a survivor who has already experienced one or more cancers.

Likewise, the single set of competencies can be applied to any age of cancer patient, although adaptation will be required. The phrase “age-appropriate” is included in many of the competencies; this requires the practitioner to consider, for example, the vocabulary appropriate to answering questions, or differing expectations of response to interventions, depending on the age of the patient and family.

Expected Outcome

State cancer coalitions, caregiving institutions, and discipline-specific educational programs must decide the degree to which some or all of these competencies are already included in basic professional education, continuing education, or care. Application decisions will require setting priorities among the competencies, or selecting a focus on a key discipline or setting. The result should be both a short-term increase and sustainable capacity for cancer care, with improved outcomes for all who receive care.

References


## Domain I: Continuum of Care

Within the context of the professional discipline and scope of practice, a health care professional should:

### A. Prevention and Behavioral Risks

#### 1. General
- Incorporate evidence-based cancer prevention guidelines in professional practice.
- Incorporate the shared decision-making process into cancer risk-reduction counseling.
- Explain the continuum of comprehensive cancer care: prevention, early detection, treatment, survivorship, and palliative care.
- Refer individuals to resources for cancer prevention, screening, and management of precancerous conditions.
- Describe evidence-based early detection guidelines based upon risk factors.

#### 2. Tobacco
- Describe the effects of tobacco use from inhaled tobacco, spit tobacco, and second-hand exposure.
- Incorporate the five A’s of tobacco intervention (ask, advise, assess, assist, and arrange) into practice.
- Refer individuals to tobacco cessation programs.
- Describe the psychological and physiologic symptoms of nicotine withdrawal.
- Name the available treatment options/interventions that can be employed to facilitate smoking cessation.
- Assess an individual’s adherence to a tobacco cessation plan.

#### 3. Ultraviolet Rays
- Describe the risks associated with natural UVA and UVB rays.
- Describe the risks associated with tanning booths.
- Assess individuals’ degree of sun exposure.
- Describe the characteristics of skin cancer lesions in order to identify patients for referral to dermatologist.
- Counsel individuals on skin protection including the avoidance of sun exposure and use of sun protection.
- Identify patients for referral to dermatologist.

#### 4. Diet and Exercise
- Describe the association between cancer and diet, physical activity, and obesity.
- Assist individuals with developing a diet plan that is consistent with their cultural and economic environments.
- Refer individuals for assistance with modifying their dietary risk factors.
- Assist individuals with developing a physical activity plan that is consistent with their physical abilities.
- Refer individuals for assistance in developing a physical activity plan based upon their physical abilities and risk factors.

### 5. Sexually Transmissible Diseases
- Describe the association between cancer and human immunodeficiency virus, human T-lymphotropic virus, human papilloma virus, and hepatitis B and C.
- Describe the vertical transmission of STD viruses.

### B. Screening and Early Detection

#### 1. General
- Explain the benefits and risks of screening tests.
- Explain the possible findings from a screening test.
- Refer individuals for further assessment based upon screening test results.
- Perform an individualized cancer risk assessment based upon a comprehensive health history and current health status, including genetic risk factors.
- Refer individuals to resources for cancer screening and risk assessment.
- Identify clinical and genetic counseling resources.
- Coordinate referrals with the financial and geographic needs of the individuals.
- Explain the role of diagnostic examinations in the identification of suspected cancer.

#### 2. Oral
- Describe the characteristics of early oral lesions.
- Refer individuals to a dental professional for a complete oral examination.
- Describe the risk factors for the development of oral cancer lesions.
- Educate individuals about the importance of a complete oral examination.

#### 3. Skin
- Refer for full-body skin examinations.

#### 4. Breast
- Describe the methods of breast cancer detection, including breast self-examination, clinical breast examination, and mammography.
- Perform a clinical breast examination.
- Refer for follow up assessment.

#### 5. Cervical and Uterine
- Describe the importance of pelvic screening exams.
- Describe the process of performing a pelvic examination and cervical smear examination.
- Perform a pelvic examination including obtaining cervical specimens.
- Refer for colposcopy and biopsy of cervical tissue.

#### 6. Colorectal
- Explain the importance of colorectal screening.
- Describe the procedures for conducting colorectal cancer screening.
-Perform a fecal occult blood test.
- Refer for colonoscopy based upon age and other risk factors.

### Domain I: Continuum of Care (continued)

#### 7. Prostate
- Explain the importance of screening for prostate cancer.
- Describe the procedures employed in prostate cancer screening.
c. Explain the advantages and disadvantages of PSA testing.
d. Explain the utility of digital rectal examinations.
e. Perform digital rectal examination.
f. Refer patients for prostate cancer screening.

8. Testicular
a. List the benefits of testicular self-examination.
b. Discuss the appropriate age to begin performing testicular self-examination.
c. Explain the procedures for self-testicular examinations.
d. Teach individuals how to perform a testicular self-examination.

C. Treatment
1. General
a. Access cancer treatment information specific to cancer location and type.
b. Describe the available cancer treatment modalities.
c. Identify clinical findings that may represent clinical emergencies.
d. Describe options to manage disease and treatment-related symptoms.
e. Manage disease and treatment-related symptoms.
f. Refer for treatment of disease and treatment-related symptoms.
g. Provide emotional support to patients.
h. Refer for mental health services.

D. Survivorship
1. General
a. Define cancer survivorship.
b. Assess that resources for cancer services and insurance coverage are consistent with current recommendation.
c. Assist patients and families in navigating the health care system following cancer treatment.
d. Guide patients with cancer and their families toward support systems and groups.
e. Provide ongoing health services that meet age and gender recommendations.
f. Recognize the importance of survivorship in a long-term cancer care plan at the conclusion of active treatment.
g. Manage continuing and late effects of cancer and cancer treatment.
h. Describe the surveillance recommendations for the detection of recurrence and second primary cancers.
i. Refer patients to resources for the detection of recurrence and second primary cancers.
j. Refer survivors to rehabilitation services.
k. Provide support for cancer survivors and their families and caregivers as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, and personal intimacy.
l. Advocate for pain and symptom management throughout the course of survivorship.

E. Palliative and End-of-Life Care
1. General
a. Define palliative and end-of-life care.
b. Assess that resources for palliative and end-of-life care and insurance coverage are consistent with current recommendations.
c. Refer patients to community palliative and end-of-life care and support resources.
d. Explain the role of hospice care.
e. Manage symptoms of the cancer patient.
f. Incorporate end-of-life comfort strategies for the dying cancer patient.

2. Pain Management
a. Explain how cancer pain differs from other types of pain.
b. Describe the methods used to diagnosis cancer pain throughout the progression of the disease.
c. Differentiate between acute and chronic pain symptoms.
d. Describe the characteristics used to assess cancer pain: frequency, intensity, and site.
e. Perform a cancer pain assessment.
f. Explain the different treatment options for cancer pain.
g. Perform a pain-related history taken during a physical examination.
h. Manage cancer-related pain and analgesic side effects.

DOMAII: BASIC CANCER SCIENCE
Within the context of the professional discipline and scope of practice, a health care professional should be able function in the following competency areas:

A. Incorporate General Cancer Knowledge into Professional Practice
1. Implement ways to keep cancer knowledge current.
   a. Review the literature for new information regarding screening techniques.
   b. Participate in professional cancer education opportunities.

B. Describe the Biologic Attributes of Cancer Etiology
1. Distinguish cancer facts from cancer myths.
2. Explain the relationship between cancer and genetics.
Cancer Core Competency Definitions

DOMAIN II: BASIC CANCER SCIENCE (continued)

C. Reference the Cancer Epidemiology and Risk-factor Data for Individuals and Specific Communities
2. Describe the utility of cancer clinical data and cancer population-based data including those collected through cancer and tumor registries.
3. Apply epidemiologic principles of sensitivity and specificity to cancer screening recommendations.

D. Discuss Complementary and Alternative Therapies
1. Assess patient and family beliefs regarding complementary and alternative therapies.
2. Explain the role of complementary and alternative therapies in cancer treatment.
3. Refer the patient, family, and caregivers to licensed complementary therapists and alternative medicine practitioners and information sources.
4. Describe the potential side effects and possible interactions among complementary therapies, alternative medicines, and other prescribed treatments.

E. Support Participation in Clinical Trials
1. Define a cancer clinical trial.
2. Describe the clinical trial process beginning with informed consent.
3. Describe the oncology specific rationale for community-based clinical trials.
4. Adhere to a clinical trial protocol.
5. Assist patient in adhering to clinical trial protocol.

F. Adhere to the Data Collection Standards in Reporting Cancer Cases to Hospital, State, and National Tumor Surveillance Registries
1. Define the purpose and requirements of cancer registries.
2. Describe the role of tumor surveillance registries.
3. Describe the importance of complete, accurate, and timely data collection in cancer tumor registries.
4. Interpret cancer data using basic epidemiologic principles.
5. Categorize cancer incidence by age, gender, ethnicity, and geography.

DOMAIN III: COLLABORATION AND COMMUNICATION

Within the context of the professional discipline and scope of practice, a health care professional should be able function in the following competency areas:

A. Participate Within an Interdisciplinary Cancer Care Team
1. Define interdisciplinary care.
2. Describe the contribution of each professional perspective in the development of a cancer care plan.
3. Consider the financial implications for recommended cancer care.
4. Refer patients to an oncology social worker for financial guidance and resource navigation.
5. Consider the resource challenges of the agency in implementing a treatment plan.

B. Incorporate Psychosocial Communication Strategies in Conveying Cancer Information
1. Refer patients to mental health, psychosocial, and support services.
2. Recognize the signs and symptoms of cancer related depression and anxiety.
3. Explain the management of depression and anxiety in patients with cancer.
4. Explain the useful coping mechanisms following a cancer diagnosis.

C. Incorporate Cross-Cultural Communication Strategies in Conveying Cancer Information
1. Identify cultural subgroups in a given patient population.
2. Define culture-specific beliefs and practices.
3. Communicate cancer care information that is sensitive to religious and spiritual beliefs and practices.

D. Describe Common Ethical and Legal Issues in Cancer Care
1. Adhere to HIPAA policies, procedures, and regulations.
2. Access institutional and other ethics resources.
3. Advocate for the use of advanced directives, including the right to refuse care.
4. Justify the need for informed consent in cancer research.

E. Incorporate Communication Strategies That Encourage the Process of Grieving
1. Consider personal death awareness and cumulative loss as it applies to the practice of oncology.
2. Assist oncology team members with the coping strategies over the death of patients with cancer.
3. Develop a roster of coping resources for assisting family and other cancer care providers.
4. Suggest resources that help professionals cope with the death of patients with cancer.
Answer/Evaluation Form:
A Competency-Based Approach to Expanding the Cancer Care Workforce

This test may be copied for use by others.

**COMPLETE THE FOLLOWING:**

**Name:** ________________ __________ _____________________________________

**Address:** ____________________________________________________________

**City:** ___________ ________________ ________ **State:** _______ **Zip:** _____________

**Preferred telephone:** (Home)_________________ (Work) ______________ ________

**AMSN Member Expiration Date:** __________________________________________

**Registration fee:** Complimentary CNE provided as an educational service by C-Change (www.c-changetogether.org).

Answer Form:

1. If you applied what you have learned from this activity into your practice, what would be different?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

CNE Instructions

1. To receive continuing nursing education credit for individual study after reading the article, complete the answer/evaluation form to the left.

2. Photocopy and send the answer/evaluation form along with a check or credit card order payable to AMSN to MEDSURG Nursing, CNE Series, East Holly Avenue Box 56, Pitman, NJ 08071–0056.

3. Test returns must be postmarked by April 30, 2009. Upon completion of the answer/evaluation form, a certificate for 1.4 contact hour(s) will be awarded and sent to you.

This independent study activity is co-provided by AMSN and Anthony J. Jannetti, Inc. (AJJ).

AJJ is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation (ANCC-COA).

Anthony J. Jannetti, Inc. is a provider approved by the California Board of Registered Nursing, Provider Number, CEP 5387.

This article was reviewed and formatted for contact hour credit by Dottie Roberts, MSN, MACI, RN, CMSRN, OCNS-C, MEDSURG Nursing Editor; and Sally S. Russell, MN, RN, CMSRN, AMSN Education Director.
To Whom It May Concern,

At C-Change, we envision a future where cancer is prevented, detected early, and cured or managed successfully as a chronic illness. We recognize that ensuring the quantity and quality of health professionals is key to achieving this end. One of our strategic priorities involves the development and implementation of the Cancer Core Competency Program to improve the basic working knowledge of cancer among the general health workforce.

Through the leadership of an expert panel, feedback from various professional constituents and the technical assistance of a consulting team, C-Change has defined a set of core workforce competencies and developed a competency-to-curriculum toolkit. C-Change will sponsor 3-5 grants and work collaboratively with pilot sites to implement the competencies, refine the methods and materials, and develop evaluation methods. Based upon these pilot experiences, C-Change will pursue national dissemination of this program through academic, health care, and professional institutions as well as through comprehensive cancer control coalitions.

We invite you to review and respond to the attached request for grant proposals by March 15, 2007. We look forward to your response.

Sincerely,

Alison P. Smith, BA, BSN, RN
Director, C-Change
Executive Summary

C-Change aims to equip the general health workforce with the knowledge and skills necessary to meet the basic needs of an aging and increasingly diverse population of people at risk for or living with cancer. Through the leadership of an expert panel, feedback from various professional constituents and the technical assistance of a consulting team, C-Change has defined a set of core workforce competencies and developed a competency-to-curriculum toolkit. C-Change will sponsor 3-5 grants and work collaboratively with pilot sites to implement the competencies, refine the methods and materials, and develop evaluation methods. These tools will enable non-oncology experts to bolster the efforts of a limited oncology workforce by creating sustainable capacity in cancer care on the front line.

Background

C-Change

The mission of C-Change is to leverage the expertise and resources of our membership to eliminate cancer as a public health problem at the earliest possible time. We envision a future where cancer is prevented, detected early and cured or managed successfully as a chronic illness. C-Change is a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations. Practically speaking, our organization convenes multi-sector leaders in the world of cancer to accelerate and focus the cancer agenda. Together, we are able to tackle issues that we cannot affect alone. For more information about C-Change visit www.c-changetogether.org.

C-Change has organized seven teams to address various strategic priorities: Access to Quality Care, Prevention and Early Detection, Cancer Research, Clinical Trials, State Cancer Plans, Tobacco, and Cancer Workforce. Comprised of multidisciplinary experts from various sectors of the cancer industry and cancer care continuum, the teams pursue collaborative initiatives through C-Change and often drawing upon the network of their own organizations.

The Cancer Core Competency Project is sponsored by the Cancer Workforce Team. A sub-committee has developed the project materials and grant criteria. They will recommend the grant awards, oversee pilot project progress, and champion further dissemination efforts in collaboration with the C-Change staff.
State of the Cancer Workforce

The statistics below highlight both the magnitude of “supply” issues facing the cancer workforce and of the "demand" issues facing the health of our country:

- Several shortages exist in cancer-related clinical and public health professions including nurses, oncologists, radiation oncologists, pharmacists, researchers/scientists, and imaging technologists.
- Imaging services demand projected to increase by 140% over the next 20 years.
- Nursing shortages are expected to reach 30% by 2020 in some areas of the country (NJSNA, 2001).
- Approximately 60% of oncologists and oncology nurses surveyed reported inadequate staffing (Buerhaus, 2001).
- The average age of a public health worker is 46.6 years; many public health agencies currently face a 20% vacancy rate.
- Cancer is the second most common cause of death by disease claiming the lives of a half a million people per year.
- The lifetime probability of developing cancer is 1 in every 2 men and 1 in every 3 women.
- While cancer survival rates are improving, cancer incidence in an aging population is worsening.

The current and projected workforce shortage in health disciplines is magnified in the sub-population of oncology-related workers. The increasing shortage in many critical disciplines of the cancer workforce requires a multi-pronged approach. While efforts to “grow” the workforce pipeline should continue, the current crisis dictates short term action.

Defining core competencies is a widely recognized approach to developing and maintaining key knowledge and skills in the workforce. This practice has occurred in the fields of epidemiology, emergency preparedness, public health, and in other non-health related industries. Defining the core competencies needed by all members of the health workforce is the first step toward expanding the cancer workforce. With these standards, related teaching and assessment tools can be created to strengthen the skills and expand the necessary surge capacity.

Cancer Core Competency Program Pilot Overview

This grant opportunity invites pilot sites to implement the core competencies within their organization, discipline, or geographic area. Through a collaborative process, pilot sites will work with C-Change to implement and evaluate the program in various settings. Pilot participation includes the planning, implementation, dissemination, data collection, and evaluation of project efforts over a 9 month period. The pilot objectives and timeline are described below.
Objectives of Pilot Phase

The objectives of the Cancer Core Competency Pilot Grant Program include:

- Define implementation methods for various organizations, disciplines, and geographic areas
- Implement program plans across various settings to evaluate the applicability of the competencies and utility of the implementation tools
- Evaluate the impact of the program on professional competency and attitudes
- Synthesize pilot site findings for publication
- Revise materials based upon findings in preparation for national dissemination

Pilot Site Expectations

Selected pilot sites will be expected to:

- Base program design on the Core Competency Definitions (see Appendix A)
- Base implementation design on the Competency-to-Curriculum Guide (pending)
- Implement plan by using the competencies with the target professional population
- Assess the pre- and post-program competency and attitudes of the target population
- Record and share all project data, methods, teaching and communication tools
- Work in collaboration with C-Change members, staff, and consultants
- Participate in efforts to refine and advance program tools for further dissemination
- Assure a minimum level of participation from target professional population
- Fulfill the requirements of your IRB
- Participate in a project orientation session
- Participate in monthly conference calls
- Host mid-pilot site visit
- Participate in concluding conference
- Participate in efforts to compile project results across programs
- Serve as a program reference for other implementation sites

Grant Project Timeline

All grant applicants and awardees will follow the following schedule:

2/09/07  Release Grant Application
3/15/07  Submit grant proposals
4/1/07   Notify applicants of grant award
4/15/05  Conduct orientation session for grant project leaders
5/1/07   Commence pilot site implementation plans
8/1/07   Conduct mid-pilot site visits
10/30/07 Complete pilot site implementation and submit final data
11/15/07 Conduct debrief session with grant project leaders
12/15/07 Finalize project findings
Grant Proposal Content Requirements

Proposals for the Core Competency Pilot Grant opportunity should include:

I. Brief description of the host organization  
II. Definition of target professional population  
III. Description of the project methods including education and evaluation methods, participation incentives, and implementation plan  
IV. Project timeline for site expectations  
V. Project leadership and personnel qualifications (resume or curriculum vitae)  
VI. Budget including itemized cost estimates for labor, expenses, and overhead fees

Grant proposals should not exceed 10 pages (excluding resume or curriculum vitae).

Grant amounts will vary ($10,000 – 50,000) based upon the size of the target population and other considerations.

Grant Proposal Submission Process

Responses to the request for proposal should be brief and are due in paper and electronic format by 3/15/07 to:

Alison Smith  
Director  
C-Change  
1776 Eye St, NW, Suite 900  
Washington, DC 20006  
asmith@c-changetogether.org

If you have any questions about the program or application, please contact Alison Smith by email or at 847-432-6301
Appendix C

Orientation Meeting Evaluation
Contractor PowerPoint Presentation
April 16, 2007

Competency to Curriculum—Curriculum to Assessment

C Change Competency Initiative
Pilot Site Orientation
and Planning Session
April 16, 2007

Objectives

At the end of this session, the participants will be able to:
1.) describe the competency to curriculum process within an adult education framework;
2.) explain how competencies link to instructional evaluation and logic models; and,
3.) apply competencies, adult education, and logic models to the evaluation of their C Change project.
Competency Challenges

1. Partnering between academia and practice in the adoption and use of overarching competencies.
2. Translating the existing competency sets into a format that informs training and workforce preparation.
3. Selecting competency indicators.
4. Designing assessments that measure the competence of individuals and of groups.
5. Validating existing competencies.
6. Updating existing competencies.

The Anatomy of an Instructional/Individual Competency Statement

Single Verb + Specific Content

Instructional Design

Indicators

Assessments
Competency Framework

Domain Area: (8 domains)

Topic Area:
- Competency A
  - Learning Objective 1
  - Indicator(s)
  - Learning Objective 2
  - Indicator(s)
- Competency B
  - Learning Objective 1
  - Indicator(s)
  - Learning Objective 2
  - Indicator(s)

Competency to Curriculum

Verb
- Describe
- Apply
- Synthesis
- Evaluation

Instructional Design
- Mental practice
- Dialogue/Dyads
- Case Study
- Situational Analysis
- Table top exercise
- Modeling
- Peer review
- Clinical assessments
Curriculum to Evaluation

Instructional Design
- Mental practice
- Situational analysis
- Table Top
- Clinical Assessments

Learner Assessment
- Short answer question
- Navigation exercise
- Alternative situation
- Role play
- Check Lists
- Essay Question
- Standardize Patients
- Video Taping

Adult Learning Practices

Andragogy practices are based in the acceptance that adults will categorize learning into three primary classifications:

1.) immediate relevance;
2.) future relevance;
3.) minimal or no relevance.
Adult Learning Practices

Adults expect clear expectations for:

1.) the content and skills to be mastered in the learning (learning objectives);

2.) the processes used to facilitate learning (assignments);

3.) how their performance will be assessed (grades).

Role of Competencies in Adult Education

Adults consider competencies to be:

1.) a contract between the learner and the instructor.

2.) the connection between the “learning” (what the student achieves) and the “instruction” (what the teacher does).

3.) the level of mastery to reach for a favorable assessment of performance and/or progress.
Adult Learning Practices

Adult learning environments are designed to minimize dependence and maximize independence.

Adult instructional strategies adapt to the learners’ previous experiences including skills and content.

Faculty in adult learning settings function as both instructors and facilitators.

Characteristics of Effective Adult Educators (as measured by learner surveys).

Accurate/Informed/Current
Relevant
Empathetic/Understanding/Accommodating
Just/Fair/ Reasonable
Accessible
A basic belief in the learners’ ability to learn.
Appendix C

Basics of a Logic Model

**INPUTS**
- Program resources

**OUTPUTS**
- Activities
- Participation

**OUTCOMES**
- Short
- Medium
- Long-term

Changes in the learner’s knowledge, attitudes, beliefs

Changes in the participants

Efforts on the part of the program or intervention staff

Components
- **Precursors**: Conditions or events that are assumed to be in place without measurement by the program
- **Inputs**: Resources that go into the program
- **Activities**: Actual events or actions
- **Outputs**: Products that are produced by program activities
- **Outcomes**: Effects that result from program from more immediate towards more distal to their occurrence

Arrows: Indicate the theoretical connections or “logic” that connect the components of the model and lead directly to the assessment questions and indicators. Arrows may be one or two way.

Indicators: Evidence that the connections (logic) among the components has or is taking place. Indicators are located in the boxes.
Bloom’s Taxonomy

Sample Skills by Bloom’s Taxonomy

Knowledge: name, list, arrange, relate, specify, enumerate, define, recall, label, cite, repeat, copy, order, record

Comprehension: describe, iterate, recognize, summarize, explain, discuss, locate, input, translate, paraphrase, itemize

Application: practice, calculate, compute, sketch, illustrate, interview, operate, simulate, demonstrate, apply, schedule, utilize, relate, diversify
Sample Skills by Bloom’s Taxonomy

**Analysis:** interpret, test, differentiate, scrutinize, investigate, interpret, compare, contrast, discriminate, distinguish, question, manipulate, dissect, estimate, measure

**Synthesis:** compose, construct, predict, reason, hypothesize, design, formulate, manage, develop, assemble, propose, theorize, invent, attribute, simplify

**Evaluation:** judge, assess, recommend, determine, criticize, argue, defend, estimate, appraise, justify, feedback, review

Lessons Learned from Previous Efforts

- Innovation crosses more than one generation of leadership.
- Professionals in practice are skeptical about the motives for competency initiatives.
- Competencies are dynamic.
- Core competencies come first.
- Discipline specific competencies are built upon core competencies.
- There has been no systematic crosswalk between workforce and instructional competencies.
## Appendix D

### C-CHANGE Cancer Core Competency Pilot Project Validation Template

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Competency:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-competencies:</th>
<th>Learner Characteristics:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Learner Preparation: | |
|----------------------| |

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
<th>Indicators</th>
<th>Notes to the Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Case Study: | |
|-------------| |

| Didactic Exercise: | |
|--------------------| |

| Interactive Exercise: | |
|-----------------------| |

| Closure: | |
|----------| |

| Remedial Activities: | |
|---------------------| |

| Enhancement Activities: | |
|-------------------------| |
### Appendix E

**C-Change Cancer Core Competency Project**  
**Common Questions Template**

Each of the following questions asks you to rate characteristics of the training course you just completed. Please select the number that best describes your answer with the number 1 = the lowest possible response through the number 5 = the highest possible score. If the question does not pertain to you, you can select the letters NA. For each question there is a comment section, if you would like to add some additional thoughts or if you did not understand the question, please provide your ideas here.

<table>
<thead>
<tr>
<th>ID</th>
<th>Attribute</th>
<th>Selection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How relevant was the training to your skin cancer screening?</td>
<td>1 2 3 4 5</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>How well did the training increase your confidence to provide cancer care in your practice?</td>
<td>1 2 3 4 5</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>How likely are you to change your practice as a result of attending this training (based upon the C Change competencies)?</td>
<td>1 2 3 4 5</td>
<td>NA</td>
</tr>
<tr>
<td>4</td>
<td>How likely are you to suggest to your colleagues that they take a training course based upon the C Change competencies?</td>
<td>1 2 3 4 5</td>
<td>NA</td>
</tr>
<tr>
<td>5</td>
<td>Based upon your experience, to what extent would this course encourage you to consider a career in cancer care?</td>
<td>1 2 3 4 5</td>
<td>NA</td>
</tr>
</tbody>
</table>
Observation Checklist – General

This is the general template for observations. Data collection will be broken down by activity. “Activities” and “Competencies Addressed” will vary by site.

Date:             Observer:  

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Participants</th>
<th>Implemented</th>
<th>Competencies Addressed</th>
<th>Instructional Activities</th>
<th>Learner Response</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity [Will vary by site]</td>
<td>1 Yes 2 No</td>
<td>(Check as many as apply)</td>
<td>(Check as many as apply)</td>
<td>(Check as many as apply)</td>
<td>(Check as many as apply)</td>
<td>___ Questions and answers ___ Taking notes ___ Small group discussion ___ Other Describe:</td>
</tr>
<tr>
<td>Start Time:</td>
<td></td>
<td></td>
<td></td>
<td>__ PowerPoint/lecture with no/little student involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Time:</td>
<td></td>
<td></td>
<td></td>
<td>__ PowerPoint/lecture with some student involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>__ Discussion/interactive station</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instructions:

- Note activity start time, end time, and number of participants
- Circle whether or not the activity was implemented
- Check which competencies were addressed. Check as many as apply.
  - In deciding which competencies to check, ask yourself “Did the instructor give an opportunity to practice the competency at the level of the verb?”
- Check which instructional activities and learner responses were present. Check as many as apply.
- Take any additional notes you feel are relevant
Appendix G

C-Change Cancer Core Competency Pilot Project
Participant Focus Group Guide

This is the general template for focus group interviews. The information in the blanks will vary by site. The solid bullets are intended to be the “main questions” while the open bullets are intended to be prompts for the question they appear under.

- In what ways was the program on _________ relevant to your current practice?
  - In what ways was the program applicable to the work you do?
- What ways did the training increase your confidence in providing care to _________ in your practice?
  - How confident do you feel in your ability to implement the knowledge and skills you have gained?
- In what ways do you see yourself changing your practice as a result of attending this training on _________?
  - What ways will this training have an influence on your practice?
- What type of health care professionals would be interested in attending a training on _________?
  - Who would benefit from further training related to _________?

General Prompts for all Questions
These general prompts should be used to stimulate further discussion among focus group participants.

- Do you feel the same way?
- Is this how you feel about ____?
- Do you agree/disagree?
- Would you like to add anything to that?
- Was your experience here similar/different?
Appendix H

C-Change Cancer Core Competency Pilot Project
Pilot Site Leader Interview Guide

Please describe any efforts it took to prepare the Cancer Core Competency Pilot Grant. For example, were additional faculty members, administrative personnel, or facilities managers involved? Were other approval processes required?

Upon notification of the grant award did you encounter any unanticipated costs (human and financial resources) in implementation? If so, please describe.

Since receiving the pilot grant, describe any anticipated and unanticipated benefits from implementing grant activities.

Are there plans to replicate, expand, or disseminate the program? If so, please describe.

Please describe any broader effects that the preparation or implementation of the program has had, or you anticipate to have, on your organization.

Based on your familiarity with the C-Change competencies, do you see other areas or disciplines within your curriculum or program using them? In what ways?

If you had to do the whole pilot over again, what would you do differently?

Are there any additional comments you would like to share about your experience with the C-Change competencies and/or the Cancer Core Competency Grant Pilot Grant program?
Appendix I

C-Change Cancer Core Competency Pilot Project
Stakeholder Interview Guide

What do you know about C-Change?

What do you know about the use of the C-Change Cancer Core Competencies to encourage the development of the non-cancer workforce?

What do you know about [Title of the Course- site specific]?

How important is it for your agency to prepare primary care and other health professional to assist in the care of cancer patients?

In what ways has participation in the grant program supported curricular innovation within your agency/organization?

Are there elements of the Cancer Core Competency Pilot Grant program that will result in sustainable changes in your agency’s/organization’s education and training programs after the grant is complete?

Are there any additional comments you would like to share about your experience with the C-Change competencies and/or the Cancer Core Competency Grant Pilot Grant program?
Appendix J

C Change Utility Scale Competency Assessment

Using the rating scale 1-5 (1 = not very useful through 5 = very useful) please select the number in each of the following attributes that best describes your opinion regarding the utility of the C Change competencies. If you do not have an opinion regarding a particular attribute, please select NO. If you would like to make an additional comment regarding an attribute, please feel free to write in the space provided. All responses and comments will be summarized in the aggregate.

The C Change Competencies were/are:

<table>
<thead>
<tr>
<th>ID</th>
<th>Attribute</th>
<th>Selection</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determining the content of my cancer curriculum or training program.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>2</td>
<td>Informing the design of the methods in my cancer curriculum or training program.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>3</td>
<td>Determining the measures of learner performance.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>4</td>
<td>Facilitating the incorporation of cancer content into new or existing curricula in my agency or university.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>5</td>
<td>Proposing advanced coursework in cancer care education.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>6</td>
<td>Managing the curriculum development process.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>7</td>
<td>Communicating the need for cancer care education to colleagues in my agency or university.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>8</td>
<td>Guiding members in my professional organizations to cancer care education courses.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>9</td>
<td>Planning for my professional development courses.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
<tr>
<td>10</td>
<td>Leveraging additional resources to implement cancer care education.</td>
<td>1 2 3 4 5</td>
<td>NO</td>
</tr>
</tbody>
</table>
C-Change Cancer Core Competency Program
Comprehensive State Wide Cancer Prevention & Early Detection
Skin Cancer Training
Audrain Medical Center

Tonya Linthacum, APRN, BC, FNP
Abstract

As part of a national effort to address shortages in the cancer workforce, Audrain Medical Center served as one of four grant-funded pilot sites to implement the C-Change Cancer Core Competency Initiative. Each pilot site utilized a rigorous set of competency standards, curriculum design tools, and evaluation methods to create their programs. The Audrain Program strengthened rural public health nurse’s knowledge, skills, and attitudes on skin cancer screening and patient education. The program offered participants an expert-lead workshop on skin cancer, followed by a preceptor-guided clinical experience. As a result of the program, participant knowledge improved 39% and confidence in their skills to differentiate benign and malignant lesions improved. All four pilot sites experienced benefits beyond those derived by the participant including positive effects such as professional development, institutional visibility, and, community relations, which are discussed in the companion report.
General Introduction & Overview

In February 2007, C-Change, a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations, embarked on a national validation project to address the Cancer Workforce crisis. Integral to providing cancer care across the continuum from prevention to survivorship is having a workforce that is quantitatively robust enough and qualitatively competent to address the needs of our communities locally, nationally, and globally.

In collaboration with a multidisciplinary expert panel, C-Change defined a set of core competencies in cancer care targeting the non-oncology workforce. To achieve the greatest possible uptake of the cancer core competencies in the health care, public health, and academic settings, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to Tier 2 professionals. Tier 2 professionals include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face-to-face contact with patients and their families along the continuum of cancer care (Smith & Lichtveld, 2007).

The scientifically robust methodology deployed in the development of the competencies enabled pilot testing and validation in a fashion that assured the broadest utility across the non-oncology disciplines. The findings and lessons learned will inform the final set of competencies and will be shared with those who can take the next steps towards dissemination and implementation. In addition to the Audrain Medical Center, Mexico, MO, the three pilot sites that were selected included the University of Pittsburgh Medical Center, Pittsburgh, PA; the California University of Pennsylvania School of Social Work, California, PA; and the Marshall University School of Medicine, Huntington, WV.

Figure 1 illustrates the Cancer Core Competency Program Development Process, which includes three primary phases: Planning, Implementation, and Evaluation. In the Planning Phase, pilot sites defined program goals – to improve the competency of a target professional population on a specific cancer topic. With specific competency objectives in mind, they were able to identify the most appropriate array of educational interventions to achieve the desired knowledge and skills defined by the competency statements. Planning efforts also included the development of curriculum materials and evaluation tools to assess the impact of the educational intervention. The Implementation Phase entailed providing the educational experience for program participants and gathering evaluation data. During the Evaluation Phase, the data were analyzed to assess changes in knowledge, skills, attitudes, and ultimately, achievement of the competency goals.
Site Specific Background and Rationale

Audrain Medical Center, a rural 131-bed community hospital, and the J.B. and Greeta B. Comprehensive Cancer Center host a Comprehensive Screening Program. This multi-organ cancer detection clinic has served asymptomatic women over age thirty-five and asymptomatic men over age fifty since 1985. The Screening Program is supervised by a medical director, includes day to day oversight by a family nurse practitioner, as well as exams carried out by nurse practitioners and specialty trained registered nurses. This multi-organ screening program focuses on breast, colon, skin, cervical, and prostate cancer detection. One-hour comprehensive screening exams for women include a detailed cancer risk assessment, head-to-toe physical exams (including an examination of the skin), clinical breast exam, mammogram, and a pelvic and Pap test. Exams of the abdomen, thyroid, peripheral lymph nodes, and rectum are also conducted. Screening for men includes examinations of the skin, abdomen, thyroid, external genitalia, digital rectal exam and the prostate, and PSA test. For all tobacco users, the screening includes an oral examination.

Extensive education is provided to participants regarding prevention modalities, current screening guidelines, and new research findings. Patients with detected abnormalities are referred to the patient’s primary care physician for follow up. Patients are contacted by phone and primary care providers are contacted by letter four to six weeks after the initial exam to obtain the results of the referral visit.

The Screening Program boasts 21-year participation rates totaling 41,223 visits with a ratio of 1 male to 19 females. Participant return rates over the past year were 94%. Four hundred and two cancers have been detected since the inception of the program with 1 breast cancer for every 41 women participating; most of these cancers were identified at early stages. Over 2500 participants, with a 95% satisfaction rating, from 48 Missouri counties, as well as 21 other States are seen annually for cancer screening.
The Screening Program is well known regionally and has been featured in presentations at statewide cancer summits and international cancer conferences. The Screening Program leaders have received numerous requests from public health agencies to provide skin cancer screenings in various communities. In addition, hospitals within the region have expressed interest in replicating the Screening Program at their facility.

The C-Change grant, utilizing the core cancer competencies, assisted Audrain Medical Center's Cancer Screening Program to take a known need for health care provider cancer education and training from a thought to a clear vision. The need for skin cancer training in the public health sector was evidenced by the requests for skin cancer screening assistance from several public health agencies within the region prior to the development of the course. An evolving mission and a pathway for the implementation of a State Wide Comprehensive Cancer Education, Prevention, and Detection Training Site for health care providers was developed. The 9-month pilot program served as the catalyst for the development of phase one of this training program, including a skin cancer education, prevention, and early detection training workshop focused primarily on the public health provider workforce.

Methods

A logic model (Appendix K-1) was developed for the Cancer Screening Program and provided a pathway for guiding the program development, implementation, and evaluation of the skin cancer workshop training. Initial planning efforts to realize the vision for a state or regional-level skin cancer training site included gathering support from hospital administration and organizations such as local and regional county health departments, the Missouri Cancer Consortium, and the American Cancer Society. An extensive review of current skin cancer and dermatology precancerous skin lesion literature was conducted. Resources and reference materials including the “Field Guide to Clinical Dermatology” textbook, skin cancer fact sheets from the National Cancer Institute and the American Cancer Society, were purchased for use in curriculum development and as participant program incentives.

A skin cancer prevention, education, and early detection training curriculum based on the core competencies was developed to be comprehensive and include a didactic portion and a “hands-on-training” opportunity at the Comprehensive Cancer Screening Services program. The Cancer Core Competencies (Domain 1: Continuum of care) utilized for this project included:

Competency Statements

- Screening and Early Detection (General)
  - Perform an individualized cancer risk assessment based upon a comprehensive health history and current health status, including genetic risk factors.

Upon further review of program design, implementation and evaluation, it became apparent that the following competencies were included in the curriculum development but were not formally cited in the validation template or formally evaluated:

- Prevention and Behavior risks (General)
  - Refer individuals to resources for cancer prevention, screening, and management of precancerous conditions.

- Ultraviolet Rays
Describe the risks associated with natural UVA and UVB rays.
Describe the risks associated with tanning beds.
Assess individual's degree of sun exposure.
Describe the characteristics of skin cancer lesions in order to identify patients for referral to dermatologist.
Counsel individuals on skin protection including the avoidance of sun exposure and use of sun protection.
Identify patients for referral to dermatologist.

Screening and Early Detection (General)
- Explain the possible finding from a screening test
- Refer individuals for further assessment based upon screening test results.
- Refer individuals to resources for cancer screening and risk assessment.

Skin
- Refer for full body examinations.

A validation template (Appendix K-2) was developed and proved helpful in keeping the curriculum development thorough, systematic, and closely tied to the core competencies. Adult learning theory principles were utilized for showing intent to change in students attending the course. Students were asked on pre and post-tests if they hosted a skin cancer-screening clinic or if they planned to host a clinic within the next six months.

The didactic portion of the skin cancer course included:
- Brief overview of the host site Cancer Screening Program
- Anatomy and physiology of normal skin
- Normal aging process
- American Cancer Society Skin Cancer Facts and Figures
- Dermatology terminology
- Precancerous lesions
- Non-melanoma and melanoma
- Differential diagnosis for these lesions
- How to conduct skin exams
- How to develop skin cancer screening clinic in their communities
- Appropriate referral process
- Prevention modalities of skin cancer
- Skin cancer vaccinations and new research.

Course presentation and delivery methods included Power Point presentations, slides of skin lesions, handouts, and brochures. Participants reviewed reference materials including examples of anatomic skin cancer models and pathology models. Multiple reference materials were utilized for the curriculum development.

Participants built upon their didactic lessons on the first day with a second day-long practical field experience. Under the direction of a cancer-screening mentor, participants observed and conducted skin cancer screenings. The hands-on portion of the course (day 2) allowed the student to work side by side with a host site cancer screening mentor, during an eight hour clinic, observing and helping to conduct skin cancer screenings. The hands-on portion (day 2) was scheduled at the convenience of each student in the month following day 1 of the skin cancer education, prevention and early detection course. Evaluation methods (Appendix K-3)
Marketing for this workshop was limited to state public health agencies. Members of the Missouri State Cancer Consortium received marketing information via emails and hardcopy. Announcements were sent to all Missouri public health agencies through a newsletter bulletin. In addition, all public health administrators in Missouri received notification regarding the course. The target participation goal for the first course was 30 students (not including approximately 7-10 students from the host site).

Incentives were used as a means to promote participation throughout for the duration of the course and were given to students at the completion of the course. Incentives for attending the workshop included a skin cancer handbook and patient education booklet, American Cancer Society skin cancer brochures, National Cancer Institute skin cancer education materials. Tools for setting up a skin cancer-screening clinic as well as sample consent and documentation forms were included. Students also received Continuing Education Units both days of the workshop. The C-Change Cancer Core Competencies were included in the workshop materials.

Results

Twenty-three students registered for the 2-day skin cancer workshop (including 5 staff members of the J.B. and Greeta B. Comprehensive Cancer Center). Nineteen students attended the course. Thirteen of the nineteen students (not including staff) returned for the second “hands on” day. The one student who did not return currently performs skin cancer screenings at the Cancer Screening Program at Ellis Fischel Hospital.

As evidenced in Figure 1, pre-test scores showed a lack of knowledge on skin cancer. Post-test scores indicated improvement in knowledge at the conclusion of the didactic day with significant percentage increases in the ability to identify lesions. The mean pre-test score was 73% and the mean post-test score was 90%. There was a 39% improvement between the pre and post-test scores.
|   | Lesion Identification | Lesion Identification | Lesion Identification | Lesion Identification | Basal Cell cancers are generally found on the head, neck and sun exposed areas (True/False) | The ABCDE’s of skin cancer stand for: | Actinic kerotosis is a precancerous condition which is often seen in older adults with fair skin and can lead to basal cell cancer. | A farmer tells you that he had a toenail which has been blackened for a few months. He can not remember the injury to his foot, but he might have injured it on the farm. Should you refer this as a possible case of melanoma? | Skin cancer can only occur in sun exposed skin. | Which of the following statements is false? | What tools are required for a complete skin exam? | Have you ever hosted a skin cancer screening clinic? | Do you plan to host/participate in a skin cancer screening clinic in your community in the next 6-9 months? | Documentation of skin lesions should include size, color, location and duration of the lesion. | A papule is described as: |   |
| 1 | 9 | 19 | 10 | 111% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2 | 5 | 18 | 13 | 260% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3 | 14 | 19 | 5 | 36% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4 | 10 | 18 | 8 | 80% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5 | 11 | 18 | 7 | 64% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6 | 16 | 17 | 1 | 6% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8 | 4 | 5 | 1 | 25% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9 | 15 | 19 | 4 | 27% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11 | 12 | 12 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15 | 19 | 19 | 0 | 0% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16 | 13 | 15 | 2 | 15% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   | 13.94 | 17.13 | 3.19 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   | 73% | 90% | 38.99% |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

Table 1: Audrain Medical Center Pre/Post Test Data
Figure 2 illustrates changes in day one and day two programmatic evaluations. Both evaluations used a Likert scale with ranges between 1 and 5 (1 ranking not well met and 5 being met very well). Eighteen day one didactic evaluations and thirteen day two clinical evaluations were received. Participants indicated a dramatic increase between day 1 and the culmination of the clinical rotation in their ability to conduct skin cancer screenings.

**Audrain Medical Center Programmatic Evaluation Results**

<table>
<thead>
<tr>
<th>Question</th>
<th>Day 1 Didactic Evaluation</th>
<th>Day 2 Clinical Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiate benign lesion from suspicious lesion</td>
<td>4.35</td>
<td>4.61</td>
</tr>
<tr>
<td>Use appropriate descriptive dermatology terminology</td>
<td>3.77</td>
<td>4.89</td>
</tr>
<tr>
<td>Educate patients about sun safety and preventative skin cancer measures</td>
<td>4.92</td>
<td></td>
</tr>
<tr>
<td>Know how to do patient exams</td>
<td>4.27</td>
<td>4.91</td>
</tr>
<tr>
<td>Develop skin cancer screening clinic in their community</td>
<td>3.94</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: Audrain Medical Center Programmatic Evaluation Data

Comments for the didactic portion of the course included:
- “Excellent speaker with great knowledge of the subject. She allowed plenty of time for questions, answers and input.
- “Excellent presentation and quality of information given. The presentation was well organized and included great photos of lesions.”

Thirteen students returned for the day two clinical experience. Five students were existing staff who currently work at the cancer screening clinic, one of whom is a new hire. Participating employees from AMC commented that the didactic day reinforced knowledge about skin cancer screening. Staff members did not complete a day-two evaluation and served as preceptors during the second day. Students were asked to rate their ability to differentiate benign from suspicious lesions.

Comments for experiential second day included:
- “By far the best class I have had since working in public health. Knowledge useful for my career and personally. I would be interested in future training here.”
- “It was helpful to participate in the skin assessment. This, together with the workshop was very informative.”
- “The time spent with patients was great. The atmosphere for patients is so relaxed. This was a great learning experience. I feel more comfortable with skin assessments.”
- “I enjoyed both days; it was an excellent training and confidence builder.”
The presenter was evaluated on the knowledge of subject, organization and clarity of content, effectiveness of teaching methods, audiovisual aids helpful in the learning process, handouts useful, and adequate time allowed. All students ranked presenter in the 5 and 4 ranges with 15 students and above ranking the 5 criteria for all objectives. One student gave a 3 on the usefulness of handouts.

The clinical rotation day evaluations were ranked with Likert scale rating of 1 to 5 with 1 being not met and 5 being met very well. Thirteen students returned for the hands on day. Of note, 5 students were existing staff who currently work at the cancer screening clinic, one of whom is a new hire. All employees from AMC commented that attending the didactic portion of the course both expanded their understanding of cancer screening and reinforced their knowledge. These 5 students did not complete a day two evaluation and did not participate as a student for day two, but rather served as preceptors.

The practicum advisor was evaluated with all 13 students rating the advisor a 5 on the following criteria: knowledge of subject, communicated expectations prior to beginning of examination, effectiveness of communication to participant, and adequate time allowed.

The Skin Cancer Screening Program workshop has made an impact upon healthcare providers who received the training and community members who received skin cancer screenings. Since the conclusion of the course, one student has made plans to host a community skin cancer screening event. Early in the planning process of this event, seventeen community members were signed up for a skin cancer screening. The effects of the skin cancer workshop on the participants are still being felt as they apply their newly honed skills with individual patients in their respective communities as well as their efforts to develop larger scale skin care events and/or programs. Dialogue with many participants is ongoing.

Each pilot site utilized five questions that were common across pilot sites. These questions were developed by the C-Change team; pilot sites tailored the questions to reflect site specific training content and were listed at the end of each post-test. The questions allowed for aggregated assessment across sites of the relevance of the training, increases in learner confidence to provide cancer care, learner intentions to change practice, learner intentions to suggest the training to colleagues, and level of learner knowledge of the shortages in the cancer workforce. Learner attitudes and intentions are antecedents of behavior, therefore, these measures served as predictive indicators of longer term outcomes, such as changes in practice. Respondents were asked to rank each of the domains using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Figure 3 displays results from the common questions. Results from the common question data indicated that participants felt that the training was highly relevant to their practice with an increased willingness to suggest the training to their colleagues.

Program participants reported satisfaction with the learning environment. Students also expressed a high level of satisfaction with regard to the performance of the instructor in the areas of clarity of content, clarity of content, effectiveness of teaching methods, usefulness of materials, and overall management of the workshop.
Audrain Medical Center Common Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of need for more healthcare providers in cancer prevention, education, and early detection?</td>
<td>4.06</td>
</tr>
<tr>
<td>How likely are you to suggest to your colleagues?</td>
<td>4.76</td>
</tr>
<tr>
<td>How likely are you to change your practice?</td>
<td>4.46</td>
</tr>
<tr>
<td>How well did training increase confidence?</td>
<td>4.12</td>
</tr>
<tr>
<td>How relevant was the training?</td>
<td>4.56</td>
</tr>
</tbody>
</table>

Figure 3: Audrain Medical Center Common Question Data

Discussion and Recommendations

Pre-test scores indicated a lack of knowledge of cancer screening issues. The two-day teaching method including the didactic portion and “hands on” clinical experience was well received. The ability to absorb the course content material obtained during the didactic day was reinforced by the opportunity to apply the knowledge and observe preceptors during the second day. This teaching method mirrors important principles in adult learning theory that promote retention and integration of knowledge and skills into practice.

The pilot site experience was very helpful to Audrain Medical Center. It served as a catalyst for the development of a vision for a statewide training site for Cancer Education, Training and Early Detection for healthcare providers. The structure provided by the logic model, validation template, evaluation tools, and core competencies will facilitate future grant application endeavors. They have also provided a template to use as a model for other future training programs.

Several unintended benefits arose for the lead primary investigator (PI) during the course of the pilot project. Learning how to develop a logic model was a challenging professional development experience and will be useful skill to utilize with future projects. The rigor of these tools added to the credibility of the lead PI in the curriculum development process and delivery of the workshop.

Currently, plans are in place to hold the skin cancer workshop annually. Additional healthcare providers will be invited to participate by utilizing an existing database of all previous conference participants including physicians, nurses, and allied health professionals who have attended CME/CEU events. Plans for developing a training program for other cancer sites or risk factors depending upon available funding of breast cancer education, prevention, and early detection is the next priority topic for an additional training program. Sustainability of the skin cancer
workshop is feasible if participants are charged a course fee, a common practice for earning CEU credit.

Evaluation of the implementation of the course has highlighted the opportunity to make several adjustments with regard to the Program Investigator (PI) and course materials and content in the future. While the PI was experienced in developing professional education programs, the time investment utilizing a more rigorous method was greater than expected. Additional salary allocation will need to be made for this expense when budgeting future program expenses. Request and approval in writing from the hospital administration to have relief time for the lead PI would be requested for at least 8 weeks of this pilot period. Based upon evaluation feedback, handouts will be printed in color format per students’ request. Lastly, additional research and education in the melanoma vaccine would be included in the curriculum.

Plans for submitting additional abstracts as well as additional publication opportunities are underway. The Cancer Screening Program leaders also hope to write an article for publication in a professional journal in the next year. Audrain Medical Center is committed to sharing their experience through various dissemination efforts. Participation in the C-Change Cancer Core Competency Program has allowed the J.B. and Greeta B. Comprehensive Cancer Center to impact the cancer workforce throughout Missouri. The expertise of the project consultants and support of the C-Change staff has also been instrumental in the curriculum development process. These factors coupled with the dedication to serve the needs of the public will allow the Cancer Screening Program to continue to impact the educational process of the cancer workforce in Missouri.

Reference:
Smith A P, Lichtveld MY. A competency-based approach to expanding the cancer care workforce, Nursing Economics: 2007: 25(2); 110-118.
Appendix K-1

Audrain Medical Center
J.B. and Greeta B. Comprehensive Cancer Center
Comprehensive State Wide Cancer Prevention and Early Detection Training Logic Model

Inputs
- Vision developed
- Funding
- Hospital exec staff and administration support
- Project leadership
- Agency collaboration/resource with ACS, State Cancer Consortium, regional county health departments, AMC cancer committee
- Other educational resources: American Academy of dermatology, ACS, expert physicians, literature review

Outputs
- Formative research conducted:
  - Research/Review of current literature
  - Research/Order Reference/resource materials
  - Communication with agency resources/possible partnerships on vision of program
- Curriculum/course developed
- Marketing of course
- Research/develop evaluation tools/pre and post course quiz, and 6 mo follow up

Major Activities
- Implementation of skin cancer education prevention, and early detection course day one didactic portion for 40 health care professionals, primary public health based.
- Day 2 hands on clinical scheduled for 40 participants in AMC CC program
- Mission/Goal:
  The development, implementation, and promotion of a skin cancer education, prevention, and early detection training course for health care professionals will serve as the first phase in developing a comprehensive state wide training program for health care professionals in breast, skin, colon, cervical and prostate cancer education, prevention, and early

Short Term
- Measure change in knowledge, intention, and proficiency of knowledge base of skin cancer education, prevention and early detection in public health professionals via pre and post test

Long Term Outcomes
- Skin cancer screening clinics held independently in regional communities
- Increase in preventative services offered to Mo residents
- Decreased skin cancer incidence, increased skin cancer prevention awareness, with melanoma rates tracked through state cancer registry.
- Hands on visual of Comprehensive Cancer Screening program will facilitate more referrals to this program, thus impacting cancer morbidity and mortality through earlier detection and or prevention through better education
- The curriculum developed for this skin cancer workshop will be a cornerstone/template for developing the future phases of comprehensive state wide training program.
- The current staff at the J.B. and Greeta B Arthur Cancer Screening Services will have increased level of expertise by participating in the training process.

Evaluation of skin cancer course comments, post test scores, and 6 month follow up with attendees to determine regional impact. Utilize these to make improvements modifications for continued course trainings and phase 2 development.
### Project Name:
Comprehensive 2 day advanced training for the health care professional in skin cancer education, prevention, and early detection with day 1 being didactic and day 2 hands on.

### Competency:
Domain 1 B: Screening and Early Detection d: Perform an individualized skin cancer assessment based upon a comprehensive skin health history and current skin status including genetic risk factors.

### Sub-competencies:

### Learner Characteristics:
Health care professionals primarily in the public health work arena

### Learner Preparation:
All students will be RN level or higher and therefore will have a basic knowledge of skin anatomy and physiology as well as basic skin terminology prior to taking course; however this is not a requirement all levels of knowledge will be encouraged to attend.

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
<th>Indicators</th>
<th>Notes to the Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction:</strong> Instructor will provide students with an over view of the vision for this course, objectives, and over view of the cancer screening program. Knowledgebase of skin cancer education, prevention and detection will be assessed of students. Intent to change assessed.</td>
<td>Pretest will be given to all students at beginning of course which will evaluate beginning knowledge as well as intent to changes as evidenced by asking the question if there are any plans to host a skin cancer education workshop or screening in their communities.</td>
<td>Students will verbally share their experience as it relates to skin cancer with the class. Raise of hands by students who plan to host skin cancer screening clinics in their communities.</td>
<td>The test given will be collected and held for comparison with the same post-test which will be given at the end of course.</td>
</tr>
<tr>
<td>Case Study: Example patient cases from our cancer screening clinic will be shared with students. Day 1 of course: Visual pictures of dermatology conditions will be utilized through out the entire didactic lecture to facilitate the recognition of abnormal from normal for the day.</td>
<td>Post test will be given at conclusion of course which will include several photo identification questions. Students will observe nurse examiner doing history and</td>
<td>Tests will be gone over in class with students so that any wrong answers may be corrected. Students will verbally express self confidence in future ability to do skin exams further evidenced by</td>
<td>The post test will be the same test as the pretest given at start of class. Normal from abnormal will be the focus for students, as well as prevention, education, and how to do skin exam clinics. Students will not be alone at any time with a patient, however they will have the opportunity to ask pertinent</td>
</tr>
<tr>
<td><strong>Instructional Activities</strong></td>
<td><strong>Evaluation Strategies</strong></td>
<td><strong>Indicators</strong></td>
<td><strong>Notes to the Instructors</strong></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>---------------</td>
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</tr>
<tr>
<td>student.</td>
<td>PE and will be coached on abnormal skin lesions which may be found. A check list will be utilized to evaluate competency.</td>
<td>asking nurse examiner questions and chiming in with history or noticing and pointing out any unusual skin findings. Successful completion, actual, verbal, or simulated of all areas on check list.</td>
<td>history questions, review collected history, and shadow nurse examiner as skin exam is conducted in a side by side manner.</td>
</tr>
<tr>
<td>Day 2 of course will consist of observation and modeling in cancer screening program.</td>
<td>Post test evaluation.</td>
<td>Student will have a basic understanding of the didactic areas covered as evidenced by successful passing of post test as well as interaction throughout the class time.</td>
<td>Students will be given pocket guide textbook on dermatology conditions, laminated chart on ABCD’E of skin cancer, and skin physical exam example record, and CEU’s. These incentives will be shown on first class day, but not given to students until second hands on day.</td>
</tr>
</tbody>
</table>

**Didactic Exercise:** Students will listen to didactic lectures on
- anatomy and physiology of skin
- dermatology terminology
- primary secondary macular, popular, vesicle, nodule, tumor
- documentation-size, location, duration, color, characteristics of lesions
- benign lesions/common derm conditions erotosis, cherry hemangiomas, lipomas, dermatofibroma, skin tags, epidermal cyst
- premalignant
- malignant
- treatments
- risk factors
- prevention
- sun safety and alternative tanning techniques
- how to perform skin exams
- Template ideas for setting up their own clinic.

6 month follow up survey will be sent to the agency the student is working for to see if any skin screening clinics have been held or any educational workshops on skin cancer screening have been held.

Didactic lecture will be heavily visual with pictures of normal and abnormal skin lesions along with didactic descriptors of these benign vs. malignant conditions.
<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
<th>Indicators</th>
<th>Notes to the Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma video will be watched.</td>
<td></td>
<td></td>
<td>Skin cancer is a very tough learning curve as benign often looks suspicious and malignant often looks benign. Novice to Expert takes great deal of study and experience. Students will have an understanding that error on the side of caution is always recommended in favor of missing a potential serious skin disease. Long term goal of decreased mortality and morbidity will be impacted by increase in educational sessions offered in various communities and earlier detection rates.</td>
</tr>
<tr>
<td>Interactive Exercise: May possibly include ABCD bingo game.</td>
<td></td>
<td></td>
<td>It is understood that not all students may chose to participate in day two of the course; however this will be encouraged as a very unique and special learning opportunity. Tour of the cancer center may stimulate further opportunities for change by stimulating ideas for cancer education in their own communities.</td>
</tr>
<tr>
<td>Closure: Post exam given which will be same as the pretest.</td>
<td>Raise of hand showing how many students performed much better on post test verses the pretest.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review of answers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sign up for second day on site hands on experience in cancer screening clinic and review required HIPPA paperwork.</td>
<td>How many students sign up for the second day of course.</td>
<td>Log will be kept of how many students actually show up for the second day of the course. Three students will be scheduled at a time to help with the insecurity factor of coming alone as well as to facilitate getting all students through in one month.</td>
<td></td>
</tr>
<tr>
<td>If time allows brief tour of the cancer center.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remedial Activities:</td>
<td>Self study course from the American Academy of Dermatology, continuing education courses The Consultant and the Clinician journals have excellent derm case studies for review. Additional on site visit at AMC cancer screening program would also be an option. Reference site for dermatology terminology. ACS web site American Academy of Family Physician dermatology web site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancement Activities:</td>
<td>American Academy of Dermatology professional continuing education modules/CD’s which are available for purchase on the web site. Local community experts such as dermatologist may be willing to have student shadow for a day or serve as resource should regional community skin screenings be held. Resources such as: Color Atlas and Synopsis of Clinical Dermatology authors Fitzpatrick, Johnson, and Wolff.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Questions 1-5 are slide identification

1. Identify the lesion:
   a. basal cell cancer
   b. squamous cell cancer
   c. melanoma
   d. actinic kerotosis
   e. seborrheic kerotosis

2. Identify the lesion:
   a. Basal cell cancer
   b. Squamous cell cancer
   c. Melanoma
   d. Actinic kerotosis
   e. Seborrheic kerotosis

3. Identify the lesion:
   a. Basal cell cancer
   b. Squamous cell cancer
   c. Melanoma
   d. Actinic kerotosis
   e. Seborrheic kerotosis

4. Identify the lesion:
   a. Basal cell cancer
   b. Squamous cell cancer
   c. Melanoma
   d. Actinic kerotosis
   e. Seborrheic kerotosis

5. Identify the lesion:
   a. Basal cell cancer
   b. Squamous cell cancer
   c. Melanoma
   d. Actinic kerotosis
   e. Seborrheic kerotosis

6. Basal Cell cancers are generally found on the head, neck and sun exposed areas.
   True or False

7. The ABCDE’s of skin cancer stand for:
   a. Altitude, base, circumference, detection, and education
   b. Area, body, calculation, dissection, and evaluation
   c. Asymmetry, boarder, color, diameter, and elevation
8. Actinic keratoses is a precancerous condition which is often seen in older adults with fair skin and can lead to basal cell cancer.  
   True or False

9. A farmer tells you that he had a toenail which has been blackened for a few months. He cannot remember the injury to his foot, but he might have injured it on the farm. Should you refer this as a possible case of melanoma?  
   Yes or No

10. Skin cancer can only occur in sun exposed skin.  
   True or False

11. Which of the following statements is false?  
   d. The skin is the largest organ in the body  
   e. The two layers of the skin are the inner dermis and outer epidermis  
   f. A seborrheic keratoses is a harmless wart like growth that is usually black or brown in color.  
   g. Squamous cell carcinoma of the skin is the most painful of all skin cancers.

12. What tools are required for a complete skin exam?  
   a. A magnifier glass, a ruler, and a light  
   b. A blue light, gloves, and hypodermic needle  
   c. A woods light, a flash light, and a pen light

13. Have you ever hosted a skin cancer screening clinic?  
   Yes/No

14. Do you plan to host/participate in a skin cancer screening clinic in your community in the next 6-9 months?  
   Yes, No, Maybe

15. Documentation of skin lesions should include size, color, location and duration of the lesion.  
   True or False

16. A papule is described as:  
   a. A small pus filled lesion  
   b. A solid raised lesion that is usually less than 1 cm in diameter  
   c. A closed sac under the skin that contains fluid  
   d. A raised lesion detectable by touch that is usually 1 cm or greater
The following questions were used on the Post-test and asked participants to rate the characteristics of the training course.

Please select the number that best describes your answer with the number 1 being the lowest response through number 5 = the highest possible score.

1. How relevant was the skin cancer workshop (based upon the competency: to perform an individualized skin cancer assessment based upon a comprehensive skin history and current skin status including genetic risk factors) to your current health care practice?
   1 2 3 4 5 N/A

2. How well did the skin cancer workshop (based upon the competency: to perform an individualized skin cancer assessment based upon a comprehensive skin history and current skin status including genetic risk factors) increase your confidence to provide cancer care in your practice?
   1 2 3 4 5 N/A

3. How likely are you to change your practice as a result of attending this training?
   1 2 3 4 5 N/A

4. How likely are you to suggest to your colleagues that they take a training course based upon the C-Change competencies?
   1 2 3 4 5 N/A

5. Prior to taking this course, how aware were you of the need for more health care providers to become involved in cancer prevention, education, and early detection.
   1 2 3 4 5 N/A
Joan C. Edwards School of Medicine
Marshall University
“Training Tomorrow’s Physicians for the Management of Cancer through Innovative Educational Program”

Jo Ann Raines, Assistant Dean, Academic Affairs
Abstract

As part of a national effort to address shortages in the cancer workforce, the Marshall University School of Medicine served as one of four grant-funded pilot sites to implement the C-Change Cancer Core Competency Initiative. Each pilot site utilized a rigorous set of competency standards, curriculum design tools, and evaluation methods to create their programs. The Marshall Program strengthened the knowledge, skills, and attitudes of second year medical students with regard to breast cancer screening and patient communication. As a supplement to the standard curriculum, students participated in a Women’s Health Workshop which incorporated interactive learning stations in the areas of radiology, pathology, oncology, patient communication and ethics. As a result of the program, participant knowledge regarding breast cancer improved 119%. Observations of medical students by attending physicians indicated skill improvements in performing a history and physical related to breast cancer screening. Standardized patients also indicated skill improvements in communication. Student confidence also improved. All four pilot sites experienced benefits beyond those derived by the participant including positive effects such as professional development, institutional visibility, and community relations, which are discussed in the companion report.
General Introduction & Overview

In February 2007, C-Change, a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations, embarked on a national validation project to address the Cancer Workforce crisis. Integral to providing cancer care across the continuum from prevention to survivorship is having a workforce that is quantitatively robust enough and qualitatively competent to address the needs of our communities locally, nationally, and globally.

In collaboration with a multidisciplinary expert panel, C-Change defined a set of core competencies in cancer care targeting the non-oncology workforce. To achieve the greatest possible uptake of the cancer core competencies in the health care, public health, and academic settings, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to Tier 2 professionals. Tier 2 professionals include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face-to-face contact with patients and their families along the continuum of cancer care (Smith & Lichtveld, 2007).

The scientifically robust methodology deployed in the development of the competencies enabled pilot testing and validation in a fashion that assures the broadest utility across the non-oncology disciplines. The findings and lessons learned will inform the final set of competencies and will be shared with those who can take the next steps towards dissemination and implementation. In addition to the Marshall University School of Medicine, Huntington, WV, the three pilot sites selected were the Audrain Medical Center, Mexico, MO; the California University of Pennsylvania School of Social Work, California, PA; and the University of Pittsburgh Medical Center, Pittsburgh, PA.

Figure 1 illustrates the Cancer Core Competency Program Development Process, which includes three primary phases: Planning, Implementation, and Evaluation. In the Planning Phase, pilot sites defined program goals – to improve the competency of a target professional population on a specific cancer topic. With specific competency objectives in mind, they were able to identify the most appropriate array of educational interventions to achieve the desired knowledge and skills defined by the competency statements. Planning efforts also included the development of curriculum materials and evaluation tools to assess the impact of the educational intervention. The Implementation Phase entailed providing the educational experience for program participants and gathering evaluation data. During the Evaluation Phase, the data were analyzed to assess changes in knowledge, skills, and attitudes, and ultimately, achievement of the competency goals.

Site Specific Background and Rationale

Generally speaking, medical students do not have a great deal of patient contact or the opportunity to apply knowledge learned in the classroom during their first two years of training. As a result, students are academically prepared regarding cancer and other health care issues but are limited in their ability to integrate this knowledge into an actual patient interaction. Most patient encounters are presented in clinical vignette format, a mentoring experience, or through the usage of models or simulators that is limited to a physical examination practice session. Students have limited opportunities to experience continuity with a patient by reviewing the same patient’s test results, delivering bad news to the patient, and reviewing treatment options. This project focused on incorporating several basic competencies of cancer prevention and early detection and providing the medical students with an opportunity to conduct a well women
Cancer Core Competency Program Development Process  
Marshall University School of Medicine – Huntington, WV

**PLANNING**

**Goal:** Strengthen knowledge, skills, and attitudes of 2nd year medical students with regard to breast cancer screening and patient communication.

**Competency Objectives:**
Program participants will be able to (see page 4)

**Design**

- Program curriculum to achieve competency objectives
  - Faculty
  - Curriculum
  - Educational methods
  - Evaluation tools
  - Participant incentives

**IMPLEMENTATION**

**Knowledge**
Interactive learning stations for radiology, pathology, oncology, and ethics

**Skills**
Standardized patient interaction, observation by attending physician

**Attitudes**
Confidence in assessment and interaction

**EVALUATION**

Collect data:

- **Knowledge** improvement
  - 119% improvement from pre-post test
- **Skills** improvement
  - 4.53-4.77 pts (of 5.0) standardized patient evaluation of learner communication skills
- **Attitudes** improvement
  - 4.0 pt (of 5.0) learner confidence in breast cancer screening & early detection during H&P

**Goal:**
Strengthen knowledge, skills, and attitudes of 2nd year medical students with regard to breast cancer screening and patient communication.

**Methods**

A Working Group (comprised of the course directors from the “Pathology and Approach To Patient Care Courses,” the Director of the Standardized Patient Program and Clinical Skills Lab and the Project Coordinator) was established to identify the C-Change Competencies which provided the foundation of the project. Logic models and validation templates (Appendices L-1 & L-2) were also developed to guide curriculum development, educational methods, and evaluation tools that would most effectively strengthen the students’ clinical and interpersonal knowledge, skills, and attitudes. The Curriculum Dean, Radiology and Oncology faculty and the Curriculum Committee Chair were also consulted. The following C-Change Domain I and III Competencies were selected as they relate to breast cancer:
Competency Statements

Domain I: Continuum of Care

A) Prevention and Behavioral Risks
   • Screening and Early Detection
     o General
       • Explain the benefits and risks of screening tests.
       • Explain the possible findings from a screening test.
       • Refer individuals for further assessment based upon screening test results.
       • Perform an individualized cancer risk assessment based upon a comprehensive health history and current health status including genetic risk factors.
       • Refer individuals to resources for cancer screening and risk assessment.
       • Explain the role of diagnostic examinations in the identification of suspected cancer.
       • Incorporate evidence-based cancer prevention guidelines in professional practice.
       • Explain the continuum of comprehensive cancer care: prevention, early detection, treatment, survivorship, and palliative care.
       • Refer individuals to resources for cancer prevention, screening, and management of precancerous conditions.
       • Describe evidence based early detection guidelines based upon risk-factors.
     o Breast
       • Describe the methods of breast cancer detection, including breast self examination, clinical breast examination and mammography.
       • Perform a clinical breast examination.
       • Refer for follow-up assessment.

Upon further review of program design, implementation and evaluation, it became apparent that the following competencies were included in the curriculum development but were not formally cited in the validation template or formally evaluated:

Domain III: Collaboration and Communication

   • Incorporate psychosocial communication strategies in conveying cancer information.
   • Describe common ethical and legal issues in cancer care.
   • Access institutional and other ethics resources.
   • Advocate for the use of advanced directives, including the right to refuse care.

Course directors in Pathology, Microbiology, Approach to Patient Care, Psychopathology and Ethics, incorporated the C-Change Cancer Core Competencies into the Women’s Health Workshop course curriculum. The Curriculum Dean, Radiology and Oncology faculty and the Curriculum Committee Chair were also consulted in the program design. In addition, the course directors developed a case study utilizing a standardized patient. To standardize physical findings, breast and pelvic models were purchased and utilized.

Prior to lectures on women’s health issues, a pre-test was given to assess basic cancer core competency clinical knowledge. The pre-test was comprised of seventeen multiple-choice
questions and written by the appropriate course director. The only exception was the Radiology questions that were developed by a fourth year student. Medical students participated in two standardized patient interactions. The first was a “Well Woman Visit.” Prior to the Women’s Health Workshop, students interviewed standardized patients to obtain a health history and physical examination. Interviews were conducted prior to the Women’s Health Workshop as part of the “Approach to Patient Care” course in an effort to maximize station time during the Women’s Health Workshop. Students conducted a history and physical examination on a standardized patient who portrayed a forty-five year old female presenting for a wellness health check up. A breast mass was placed in the left upper outer quadrant of the anatomical breast model vest for standardization of an abnormal finding. Students were evaluated by standardized patients and attending physicians.

The second standardized patient interaction occurred at the end of the Women’s Health Workshop. First, students were divided into four groups and rotated through a series of “stations” for approximately 25 minutes per station to fulfill the noted competency goals. The faculty reviewed the standardized patient’s test results or case study data pertinent to each particular station including radiology, pathology, ethics, behavioral medicine, oncologic management of disease, and delivering bad news. The pathology and radiology sessions exposed students to a brief lecture and presentation of normal and abnormal findings including indications for further testing. Students viewed pathology slides of breast tissue under microscopes and various mammography, ultrasound, and MRI images. Case studies highlighting possible emotional and ethical issues with a breast cancer diagnosis and treatment were presented. The management of disease station discussed common modalities and agents used in cancer treatment. Finally, the delivering bad news station prepared students for their final standardized patient interaction by discussing effective and appropriate communication strategies. At the conclusion of the workshop, students met with their previously assigned standardized patient to discuss her test results; it was their first experience delivering bad news. Students were then given a post-test (Appendix L-3) at the conclusion of the day to assess their knowledge, skills, and attitudes about breast cancer.

RESULTS

The total number of instructional hours for this project was 2,273. This number was calculated by multiplying the number of instructional hours by the number of people taught. The total number of instruction hours not only indicates the investment made in the program but also the potential impact of the program. The large number of instructional hours for this program indicates both a large investment per person (42 hours) and large number of student participation (54) in both the Health Workshop and standardized patient interactions.

Pre and Post-Test Results

Table 1 indicates changes in the pre and post-test results. Fifty-four second-year students participated in the pre and post-test. The examinations consisted of the same 17 multiple-choice questions. Students were given as much time as needed to complete the examination.

Students increased their overall score by an average of 5 questions or from a 45% correct for the pre-test to 76% for the post-test. Average test scores dropped by 40% for question 10. The low score is attributed to the fact that students had not yet taken the Pharmacology course in which this content is taught. For questions 7 and 10, the post-test scores were lower than the pre-test scores, indicating further intervention.
<table>
<thead>
<tr>
<th>Multiple-Choice Test Questions</th>
<th>Pre-Test # correct of 54</th>
<th>Post-Test # correct of 54</th>
<th>Absolute Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A 45-year-old woman presents with a rash on her right breast, which has been present for months. On examination, you note a red, scaling crusty patch on her right nipple, areola and surrounding area. Left breast is normal. You suspect:</td>
<td>12</td>
<td>52</td>
<td>40</td>
<td>333.3%</td>
</tr>
<tr>
<td>2. A 52-year-old woman is seen for routine breast examination. You note inversion of the left nipple, which was not present last year, and she states she noted it a few weeks ago. You suspect:</td>
<td>25</td>
<td>54</td>
<td>29</td>
<td>116.0%</td>
</tr>
<tr>
<td>3. A 47-year-old female presents with a breast mass. The feature of this mass consistent with fibrocystic disease is:</td>
<td>16</td>
<td>43</td>
<td>27</td>
<td>168.7%</td>
</tr>
<tr>
<td>4. A 45-year-old female complaining of breast tenderness of about one week’s duration. She is on no medicines and has had a tubal ligation. Her last period was 25 days ago and she has a regular 28-day cycle. She started her periods at age 10; she has had two children at age 24 and 27.</td>
<td>34</td>
<td>53</td>
<td>19</td>
<td>55.88%</td>
</tr>
<tr>
<td>5. On examination you note a round, tender mass which is freely movable in the upper outer quadrant of her right breast. She now tells you she notes this every month. You would:</td>
<td>28</td>
<td>45</td>
<td>17</td>
<td>60.71%</td>
</tr>
<tr>
<td>6. A 60-year-old woman presents with a breast mass she noted in the shower last night. She is very worried because her mother had breast cancer. You note a firm, fixed non-tender mass about 2 cm in size in the upper outer quadrant of the right breast. In her examination you evaluate the areas of lymphatic drainage of the breast as well. You examine:</td>
<td>15</td>
<td>23</td>
<td>8</td>
<td>53.33%</td>
</tr>
<tr>
<td>7. A 57 year-old female with a positive family history of breast cancer and a 2 cm mass in the left breast has a Fine Needle Aspiration (FNA) performed and the results reveal no definite malignant cells, the next appropriate step of diagnosis would be:</td>
<td>33</td>
<td>30</td>
<td>-3</td>
<td>-9.09%</td>
</tr>
<tr>
<td>8. You are teaching a fellow classmate about the technique of FNA. Which of the following statements is true?</td>
<td>6</td>
<td>51</td>
<td>45</td>
<td>750.0%</td>
</tr>
<tr>
<td>9. Which cancer chemotherapeutic agent is useful in breast cancer patients because their tumor was estrogen receptor positive?</td>
<td>27</td>
<td>52</td>
<td>25</td>
<td>92.59%</td>
</tr>
<tr>
<td>10. Which cancer chemotherapeutic agent is not normally used to treat non-metastatic breast cancer?</td>
<td>10</td>
<td>6</td>
<td>-4</td>
<td>-40.00%</td>
</tr>
<tr>
<td>11. Which of the following drugs is a monoclonal antibody used in breast tumors over expressing HER2 protein?</td>
<td>8</td>
<td>26</td>
<td>18</td>
<td>225.0%</td>
</tr>
<tr>
<td>12. You are seeing a 45-year-old female for the first time. While discussing the importance of preventive medicine and health screening with the patient, she asks what the advantage of mammography is. You tell her that it can:</td>
<td>40</td>
<td>48</td>
<td>8</td>
<td>20.00%</td>
</tr>
<tr>
<td>13. A 45-year old female presents with a 2-3cm firm, painless, freely movable mass in her left breast. She reports that the mass does not change during her menstrual cycle and has grown slowly over the past year. The patient found the mass during breast self-examination. Mammography showed the following. What is the most likely diagnosis?</td>
<td>29</td>
<td>38</td>
<td>9</td>
<td>31.03%</td>
</tr>
<tr>
<td>14. A 45-year-old woman undergoes routine screening and has an abnormal mammogram with multiple small calcifications in a linear pattern. The mammogram findings are shown below. A fine needle aspiration biopsy of an abnormal density reveals suspicious cells. What is the most likely diagnosis?</td>
<td>27</td>
<td>39</td>
<td>12</td>
<td>44.44%</td>
</tr>
</tbody>
</table>
Table 1 Continued: Marshall University Pre/Post-Test Results

<table>
<thead>
<tr>
<th>Joan C. Edwards School of Medicine</th>
<th>Marshall University</th>
<th>Pre/Post Test Data</th>
<th>n=54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Choice Test Questions</td>
<td>Pre-Test</td>
<td>Post-Test</td>
<td>Absolute Change</td>
</tr>
<tr>
<td># correct of 54</td>
<td># correct of 54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 A 45-year-old woman undergoes</td>
<td>29</td>
<td>38</td>
<td>9</td>
</tr>
<tr>
<td>routine screening and has an</td>
<td></td>
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<tr>
<td>abnormal mammogram with multiple</td>
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<tr>
<td>small calcifications in a linear</td>
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<tr>
<td>pattern. The mammogram findings</td>
<td></td>
<td></td>
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<tr>
<td>are shown below. A fine needle</td>
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<tr>
<td>aspiration biopsy of an abnormal</td>
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<tr>
<td>density reveals suspicious cells.</td>
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<tr>
<td>What is the most likely diagnosis?</td>
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<tr>
<td>16 After extensive evaluation,</td>
<td>34</td>
<td>50</td>
<td>16</td>
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<tr>
<td>the treating physician recommends</td>
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<tr>
<td>surgery to excise a cancerous</td>
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<td>mass, followed by low-level</td>
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<td>radiation treatment and</td>
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<td>aggressive post-treatment</td>
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<tr>
<td>monitoring. However, the patient</td>
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<tr>
<td>asks the physician to provide</td>
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<td>a double mastectomy (which is</td>
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<td>prophylactic for the breast with</td>
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<td>no evident cancer). Her fears</td>
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<td>about the cancer appear to be</td>
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<td>irrationally severe with respect</td>
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<td>to the risk. Although the physician</td>
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<td>expresses confidence that less</td>
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<td>drastic treatment will be</td>
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<td>effective, the patient continues</td>
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<td>to demand a double mastectomy.</td>
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<td>Faced with this circumstance, the</td>
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<td>physician should:</td>
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<tr>
<td>17 During a discussion with a</td>
<td>36</td>
<td>53</td>
<td>17</td>
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<tr>
<td>patient about her breast cancer,</td>
<td></td>
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<tr>
<td>the patient reveals a previously</td>
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<tr>
<td>unknown family history of breast</td>
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<tr>
<td>and ovarian cancer. Subsequent</td>
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<tr>
<td>test results indicate that the</td>
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<tr>
<td>patient is a carrier of the</td>
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<tr>
<td>BRCA2 gene mutation. After</td>
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<td>discussing treatment options, the</td>
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<td>physician recommends that the</td>
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<tr>
<td>patient inform her younger sister</td>
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<tr>
<td>of her potential risk for breast</td>
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<td>and ovarian cancer, given the test</td>
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<td>results. Although the younger</td>
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<td>sister is not a current patient of</td>
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<td>the physician, the physician</td>
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<tr>
<td>knows the sister socially, since</td>
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<tr>
<td>(s)he has lived in the community</td>
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<td>for many years and treated</td>
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<tr>
<td>various members of the patient’s</td>
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<tr>
<td>family. However, the patient</td>
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<tr>
<td>adamantly refuses to inform her</td>
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<tr>
<td>sister. The patient does not trust</td>
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<tr>
<td>her sister, claims her sister is</td>
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<tr>
<td>a liar and uses illicit drugs. The</td>
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<tr>
<td>patient is afraid that if</td>
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<tr>
<td>information about her health</td>
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<tr>
<td>status emerges, then her employment</td>
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<td>opportunities could be affected.</td>
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<td>Faced with this circumstance, the</td>
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<tr>
<td>physician should:</td>
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<tr>
<td>Average:</td>
<td>24.06</td>
<td>41.24</td>
<td>17.18</td>
</tr>
<tr>
<td>Average Percent Correct:</td>
<td>45%</td>
<td>76%</td>
<td>119.25%</td>
</tr>
</tbody>
</table>

Physician Faculty Evaluation History & Physical

Figure 2 represents attending physician evaluations of second year medical students in their interpersonal communication skills with standardized patients. Possible ratings were on a scale from 1-5, with a 1 indicating minimal competency, a 3 indicating average competency, and a 5 indicating maximum competency. Students displayed high levels of competence listening to the patient, maintaining a respectful and non-judgmental tone while less competence was displayed when expressing empathy and exploring patient concerns. Overall, average ratings ranged from 2.84 to 4.56, the lowest average rating pertaining to the student’s ability to explore patient concerns and the highest average pertaining to the student’s ability to listen to the patient.
### Standardized Patient Evaluation History & Physical Results

Figure 3 refers to standardized patient evaluations from the first encounter involving a history and physical exam. Potential ratings for the standardized patient evaluations were on a scale of 1-5, with 1 indicating minimal competency and 5 indicating maximum competency. Average ratings in the overall study tightly ranged from 4.53 to 4.77, the lowest average pertaining to the students' ability to make the patient feel at ease and the highest pertaining to the students' use of language clearly comprehensible by the standardized patient. Unexpectedly, the response rate for the question evaluating the students' ability to explain the diagnosis and treatment plan was only answered for approximately a third of the student encounters by the standardized patients. However, the average rating for the task was 4.65, indicating that those students who made a conscious effort to explain the diagnosis and treatment plan to the patient, did so with confidence and success.

### Standardized Patient Evaluation Results of Delivering Bad News

Figure 4 represents standardized patient evaluations of medical students and their abilities to deliver bad news appropriately with regard to the diagnosis of a new breast malignancy. Possible ratings were on a scale of 1-3, with 1 indicating the student had inadequate communication skills, 2 indicating somewhat adequate skills, and 3 indicating excellent communication skills when related to delivering bad news. The total number of responses for all tasks was 22, with the exception of the task of listening, which received 21 responses. Average ratings for the delivery of bad news checklist ranged from 2.95 to 3.00.
Each pilot site utilized five questions that were common across all pilot sites. The C-Change team developed these questions; pilot sites tailored the questions to reflect site specific training content and were listed at the end of each post-test. The questions allowed for aggregated assessment across sites regarding the relevance of the training, increased in learner confidence to provide cancer care, learner intentions to change practice, learner intentions to suggest the training to colleagues, and level of learner knowledge of the shortages in the cancer workforce. Learner attitudes and intentions are antecedents of behavior, therefore, these measures served as predictive indicators of longer term outcomes, such as changes in practice. Respondents were asked to rank each of the domains using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Figure 5 illustrates student responses to five Common Questions regarding the relevance and impact of the Women’s Health Workshop to their medical education. Students were asked to rate characteristics of the Women’s Health Workshop, with 1 being the lowest and 5 being the highest possible score. Question number four received the highest average score of 3.91 indicating that students would suggest to the faculty that the Women’s Health Workshop should be used for the following academic year. Conversely, question number five indicating the extent to which students were considering Hematology/Oncology or Radiation Oncology as a career choice received the lowest average score of 2.25. Additional questions solicited responses from students regarding their confidence and abilities pertaining to screening and early detection practices.
Figure 4: Delivering Bad News

Figure 5: Marshall University Common Question Data

Appendix L
Lessons Learned from the Program

The innovative use of stations in the Women's Health Workshop provided an extremely effective teaching method to integrate clinical knowledge of breast cancer screening and early detection with patient interactions. In the past, students were taught without the use of standardized patients and there was no opportunity to practice interacting with patients. In addition, breast models were not utilized. Traditionally, curriculum is passive. Students listen to the lectures. This format encouraged students to be active learners and the results from the post-test, faculty, and standardized patient interactions indicated that it was effective.

Early planning and involvement by the course directors is necessary to ensure all objectives are met. It is imperative to have the participation of course directors in the development of all aspects of this project – from the logic model and validation template development to the submission of pre and post-test questions. In the future, test questions will be written by the faculty member who is teaching. This provides continuity and careful application of the competencies as they relate to integrated curriculum design, course objectives, and evaluation tools. It will be beneficial to include the Women’s Health Workshop as part of the academic calendar to allow for an all day event. While our experience was positive, students were tired at the conclusion of the half-day event and not able to effectively transition to a passive lecture planned for the afternoon session.

In addition, it became apparent that students needed to discuss their experiences after delivering bad news of a cancer diagnosis to the standardized patient, as it was emotional for them. A debriefing station could be included to allow students to talk about how this station affected them. An additional consideration for future Women's Health Workshops would be the inclusion of fourth-year medical students in the program design and implementation. This group of students could be helpful as they could help organize, teach at the stations, and evaluate students. Elective credit may be offered to reward the senior students for their participation.

Discussion of Next Steps

Both the program content and methods/format of the Women’s Health Workshop will contribute to the sustainability of the program. In terms of program content, the investment in developing and securing approval for the breast cancer-focused material within the medical school curriculum will be sustained and possibly expanded. The Curriculum Committee is reviewing a request to include a full day Women’s Health Workshop during the next academic year. This daylong event will allow faculty leaders to delve more deeply into course content as well as facilitate greater student involvement. In terms of the program methods/format, the Health Workshop format is now being applied to develop the Men’s Health Workshop that will occur in the Spring term. Key to sustaining the workshop format will be to secure funding for models, standardized patients, and training. Curriculum development has proven to be resource intensive. However, once the course content has been developed, repetition and sustainability year after year will not be as challenging. Health care professional schools could easily adapt this format to fit their curriculum. Different types of “workshops” could be planned to focus on the school’s competencies and learning priorities.
Appendix L-1
MARSHALL UNIVERSITY SCHOOL OF MEDICINE
C-CHANGE LOGIC MODEL

GOAL
To increase Year 2 Medical Students’ knowledge and awareness of the importance of screening and early detection.

INPUTS
COURSE DIRECTORS
- Pathology
- Microbiology
- Approach to Patient Care
- Pharmacology
- Immunology
- Ethics
- Biostats/Epi
- Psychopathology

Plan
- Determine Overall Well Woman Health Workshop Goals
- Determine Competencies to be Achieved
- Plan Order of Lecture Series to Prepare Medical Students
- Determine Training Needs of Standardized Patients
- Determine Clinical Skills Models Needed

MAJOR ACTIVITIES

DEVELOP
- Curriculum for Lecture Series Standardized Patients (SP) Script and Objectives
- Develop Individual Student Goals/Learning Objectives of Stations
- Pre/Post Tests for SP
- Pre/Post Tests for Medical Students
- Develop Competency Assessment Methods for Students & SP

LONG-TERM OUTCOME
- Improved performance on end of Year 2 OSCE and Step 1 Exam
- Improved communication with patients
- Increased interest in field of oncology
- Increased awareness of prevention and screening

STANDARDIZED PATIENTS
- Improvement in Understanding Prevention and Behavioral Risks
- Improvement in Clinical Skills
- Improvement in Screening and Early Detection of Breast Cancer
- Improvement in Understanding Treatment Options for Breast Cancer

MEDIUM-TERM OUTPUTS
- Improved performance on Class Exams
- Improved performance on communication with patients (Approach to Patient Care course)
### Project Name:
Marshall University School of Medicine Women’s Health Workshop

### Competency:
**Prevention and Behavioral Risks**

### Sub-competencies:
1) General
   - Incorporate evidence-based cancer prevention guidelines in their professional practice.
   - Explain the continuum of comprehensive cancer care: prevention, early detection, treatment, survivorship, and palliative care.
   - Refer individuals to resources for cancer prevention, screening, and management of precancerous conditions.
   - Describe evidence-based early detection guidelines based upon risk-factors.

### Learner Characteristics:
MS 2 students

### Learner Preparation:
Students will be front-loaded with lectures on prevention and behavioral risks, on physical exam skills and history taking.

### Instructional Activities

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
<th>Indicators</th>
<th>Notes to the Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Woman Visits</td>
<td>Pre-test/Post SP Checklist</td>
<td>Ability to communicate benefits of screening tests. Ability to ask pertinent questions about risks for breast cancer.</td>
<td>Since these are beginning Year 2 students, this exercise is designed to identify the knowledge base of the students.</td>
</tr>
<tr>
<td>Radiology Station</td>
<td>Pre/Post Test</td>
<td>List indicators for mammography and limitations.</td>
<td></td>
</tr>
<tr>
<td>Instructional Activities</td>
<td>Evaluation Strategies</td>
<td>Indicators</td>
<td>Notes to the Instructors</td>
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<tr>
<td></td>
<td></td>
<td>List alternative radiological evaluation methods</td>
<td></td>
</tr>
<tr>
<td>Pathology Station</td>
<td>Observational</td>
<td>Students will look at histologic slides of mammotome biopsy, excisional breast biopsy, needle biopsy.</td>
<td></td>
</tr>
<tr>
<td>Delivering Bad News</td>
<td>Checklist</td>
<td>Ability to present bad news in appropriate and understood manner</td>
<td></td>
</tr>
<tr>
<td>Remedial Activities:</td>
<td></td>
<td>For those learners who have difficulty completing any component, extra sessions will be scheduled.</td>
<td></td>
</tr>
<tr>
<td>Enhancement Activities:</td>
<td></td>
<td>Extra Sessions can be arranged for STD clinic at Health Department</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Marshall University School of Medicine Women's Health Workshop</td>
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<tr>
<td>Competency:</td>
<td><strong>Screening and Early Detection</strong></td>
<td></td>
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</tr>
</tbody>
</table>

| Sub-competencies: | General |
|                  | Explain the benefits and risks of screening tests.           |
|                  | Explain the possible findings from a screening test.          |
|                  | Refer individuals for further assessment based upon screening test results. |
|                  | Perform an individualized cancer risk assessment based upon a comprehensive health history and current health status including genetic risk factors. |
|                  | Refer individuals to resources for cancer screening and risk assessment. |
|                  | Explain the role of diagnostic examinations in the identification of suspected cancer. |

| Sub-competencies: | Breast |
|                  | Describe the methods of breast cancer detection, including breast self examination, clinical breast examination and mammography. |
|                  | Perform a clinical breast examination. |
|                  | Refer for follow-up assessment. |

<table>
<thead>
<tr>
<th>Learner Characteristics:</th>
<th>MS 2 students/ Standardized Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner Preparation:</td>
<td>Students will be front-loaded with lectures on Screening and Early Detection of Breast Cancer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructional Activities</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Patient Interview (SP encounter, Phys. Exam) Students will be presented with a patient for a Well-Woman visit. A Standardized Patient (SP) will be used.</td>
<td>SP Checklist</td>
<td>Ability to gather history relevant to breast cancer. Ability to communicate benefits and risks of screening tests; possible findings.</td>
<td>SP’s will have to be carefully selected and trained to evaluate the students.</td>
</tr>
<tr>
<td>Instructional Activities</td>
<td>Evaluation Strategies</td>
<td>Indicators</td>
<td>Notes to the Instructors</td>
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<tr>
<td>Breast and pelvic models will be used</td>
<td>Students will detect lump in breast model</td>
<td>Ability to detect lump in breast model and need for screenings.</td>
<td></td>
</tr>
<tr>
<td><strong>Remedial Activities:</strong></td>
<td>For those learners who have difficulty completing the History and Physical Examination, or Communication Skills component, extra sessions will be scheduled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Enhancement Activities:</strong></td>
<td>For students who are interested in learning about cancer care, preceptor sessions can be arranged at Cancer Center.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. A 45-year-old woman presents with a rash on her right breast, which has been present for months. On examination you note a red, scaling crusty patch on her right nipple, areola and surrounding area. Left breast is normal. You suspect:

   A. Intraductal papilloma  
   B. Eczema  
   C. Pagets disease  
   D. Inflammatory carcinoma

2. A 52-year-old woman is seen for routine breast examination. You note inversion of the left nipple, which was not present last year, and she states she just noted it a few weeks ago. You suspect:

   A. Malignancy  
   B. Pagets  
   C. Normal variant with aging  
   D. Fibrocystic changes

3. A 47-year-old female presents with a breast mass. The feature of this mass consistent with fibrocystic disease is:

   A. It goes away after her period  
   B. It is nontender  
   C. It is irregular in its borders  
   D. It is hard and fixed

4. A 45 year-old female complaining of breast tenderness of about one week’s duration. She is on no medicines and has had a tubal ligation. Her last period was 25 days ago and she has a regular 28-day cycle. She started her periods at age 10; she has had two children at age 24 and 27.

   Her most important risk factor for breast cancer would be:

   A. Her current age  
   B. Her age at menarche  
   C. Her age at the birth of her children  
   D. Her tubal ligation

5. On examination you note a round, tender mass which is freely movable in the upper outer quadrant of her right breast. She now tells you she notes this every month. You would:

   A. Send her for biopsy  
   B. Send her for a mammogram
C. Send her for ultrasound of her breast  
D. Re-examine her after her period

6. A 60-year-old woman presents with a breast mass she noted in the shower last night. She is very worried because her mother had breast cancer. You note a firm, fixed nontender mass about 2 cm in size in the upper outer quadrant of the right breast. In her examination you evaluate the areas of lymphatic drainage of the breast as well. You examine:

A. The axillary area  
B. The axillary area and supraclavicular area  
C. The supraclavicular area  
D. The axillary area and the internal mammary nodes

7. A 57 year-old female with a positive family history of breast cancer and a 2 cm mass in the left breast has a Fine Needle Aspiration (FNA) performed and the results reveal no definite malignant cells, the next appropriate step of diagnosis would be:

A. Mastectomy  
B. Excisional biopsy  
C. Assure patient things are okay  
D. CT scan

8. You are teaching a fellow classmate about the technique of FNA. Which of the following statements is true?

A. Use of a large needle ensures a large yield of diagnostic cells  
B. Shearing action of the needle is most critical in obtaining cellular material  
C. Obtaining a large amount of blood guarantees a good diagnostic cell yield  
D. The aspiration component of the technique is most important in ensuring a high yield of cells

9. Which cancer chemotherapeutic agent is useful in breast cancer patients because their tumor was estrogen receptor positive?

A. Doxorubicin  
B. Cyclophosphamide  
C. Tamoxifen  
D. Epirubicin  
E. Fluorouracil

10. Which cancer chemotherapeutic agent is not normally used to treat non-metastatic breast cancer?

A. Cyclophosphamide  
B. Doxorubicin  
C. Epirubicin  
D. Fluorouracil  
E. Vinorelbine
11. Which of the following drugs is a monoclonal antibody used in breast tumors overexpressing HER2 protein?

A. Trastuzumab  
B. Gemcitabine  
C. Racamab  
D. Mitoxantrone  
E. Lucimab

12. You are seeing a 45-year-old female for the first time. While discussing the importance of preventive medicine and health screening with the patient, she asks what the advantage of mammography is. You tell her that it can:

A. Identify suspicious lesions 2 or more years before they are palpable  
B. Assess the degree of spread of malignancy  
C. Differentiate between benign and malignant conditions  
D. Provide reassurance about suspicious masses

13. A 45-year-old female presents with a 2-3cm firm, painless, freely movable mass in her left breast. She reports that the mass does not change during her menstrual cycle and has grown slowly over the past year. The patient found the mass during breast self-examination. Mammography showed the following. What is the most likely diagnosis?

A. Intraductal carcinoma  
B. Fibroadenoma  
C. Ductal ectasia  
D. Fibrocystic changes

14. A 45-year-old woman undergoes routine screening and has an abnormal mammogram with multiple small calcifications in a linear pattern. The mammogram findings are shown below. A fine needle aspiration biopsy of an abnormal density reveals suspicious cells. What is the most likely diagnosis?
15 A 45-year-old woman undergoes routine screening and has an abnormal mammogram showing multiple small areas of increased density, though a single distinctive mass lesion is not detectable by palpation.

A fine needle aspiration reveals cells suspicious for malignancy. An excisional breast biopsy yields a diagnosis of lobular carcinoma in situ. Which of the following is the most likely finding associated with this woman's carcinoma?

A. The neoplasm will remain localized.
B. The opposite breast may also be involved.
C. Paget disease of the nipple probably preceded this lesion.
D. A family history of breast cancer is unlikely.

16. After extensive evaluation, the treating physician recommends surgery to excise a cancerous mass, followed by low level radiation treatment and aggressive post-treatment monitoring. However, the patient asks the physician to provide a double mastectomy (which is prophylactic for the breast with no evident cancer). Her fears about the cancer appear to be irrationally severe with respect to the risk. Although the physician expresses confidence that less drastic treatment will be effective, the patient continues to demand a double mastectomy. Faced with this circumstance, the physician should:

A. Transfer care to a physician who is more comfortable fulfilling the patient's request
B. Provide a surgical referral for double mastectomy, based on respect for patient autonomy
C. Convene a meeting with other physicians, and proceed based on the consensus that emerges from the meeting
D. Recommend a period of reflection about treatment options, schedule a follow-up appointment and suggest options for professional counseling/support groups
E. Consult “House” to determine which rude insults might persuade the patient to change her mind
17. During a discussion with a patient about her breast cancer, the patient reveals a previously unknown family history of breast and ovarian cancer. Subsequent test results indicate that the patient is a carrier of the BRCA2 gene mutation. After discussing treatment options, the physician recommends that the patient inform her younger sister of her potential risk for breast and ovarian cancer, given the test results. Although the younger sister is not a current patient of the physician, the physician knows the sister socially, since (s)he has lived in the community for many years and treated various members of the patient’s family. However, the patient adamantly refuses to inform her sister. The patient does not trust her sister, claims her sister is a liar and uses illicit drugs. The patient is afraid that if information about her health status emerges, then her employment opportunities could be affected. Faced with this circumstance, the physician should:

A. Contact the sister’s physician privately to inform him/her about the sister’s unknown risk, based on the severity of the potential consequences
B. Contact the sister directly to inform her about her cancer risk
C. Threaten to fire the patient if she does not agree to inform her sister
D. Continue to talk with the patient about the importance of disclosure, but honor her refusal to disclose should she remain adamant
E. Discontinue any attempts to persuade the patient to inform her sister, because the potential for employment discrimination is very real
C-Change Cancer Core Competency Program
University of Pittsburgh Medical Center Final Report
Cancer Survivorship

Lyn Robertson, DrPH, MSN, RN
Eileen Milakovic, RN, BSN, MA
Beth Simon, DrPH, MSN, RN
Abstract

As part of a national effort to address shortages in the cancer workforce, the University of Pittsburgh Medical Center (UPMC) served as one of four grant-funded pilot sites to implement the C-Change Cancer Core Competency Initiative. Each pilot site utilized a rigorous set of competency standards, curriculum design tools, and evaluation methods to create their programs. Specifically, the UPMC Program strengthened primary care giver’s knowledge, skills, and attitudes on survivorship issues. The program provided an expert-lead workshop on survivorship issues and orientation to a newly developed survivorship resources toolkit for use in rural and urban clinic settings. As a result of the program, participant confidence in their knowledge and ability to assess and manage issues related to survivorship improved an average of 20%. A webcast of the program offering CME/CEU credit was created and is now available to any health professional. All four pilot sites experienced benefits beyond those derived by the participant including positive effects such as professional development, institutional visibility, and community relations, and are discussed in the companion report.
General Introduction & Overview

In February 2007, C-Change, a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations, embarked on a national validation project to address the Cancer Workforce crisis. Integral to providing cancer care across the continuum from prevention to survivorship is having a workforce that is quantitatively robust enough and qualitatively competent to address the needs of our communities locally, nationally and globally.

In collaboration with a multidisciplinary expert panel, C-Change defined a set of core competencies in cancer care targeting the non-oncology workforce. To achieve the greatest possible uptake of the cancer core competencies in the health care, public health, and academic settings, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to Tier 2 professionals. Tier 2 professionals include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face-to-face contact with patients and their families along the continuum of cancer care. (Smith & Lichtveld, 2007)

The scientifically robust methodology deployed in the development of the competencies enabled pilot testing and validation in a fashion that assured the broadest utility across the non-oncology disciplines. The findings and lessons learned will inform the final set of competencies and will be shared with those who can take the next steps towards dissemination and implementation. In addition to the University of Pittsburgh Medical Centers, Pittsburgh, PA, the three pilot sites that were selected included the Audrain Medical Center, Mexico, MO; the California University of Pennsylvania School of Social Work, California, PA; and the Marshall University School of Medicine, Huntington, WV.

Figure 1 illustrates the Cancer Core Competency Program Development Process, which includes three primary phases: Planning, Implementation, and Evaluation. In the Planning Phase, pilot sites defined program goals – to improve the competency of a target professional population on a specific cancer topic. With specific competency objectives in mind, they were able to identify the most appropriate array of educational interventions to achieve the desired knowledge and skills defined by the competency statements. Planning efforts also included the development of curriculum materials and evaluation tools to assess the impact of the educational intervention. The Implementation Phase entailed providing the educational experience for program participants and gathering evaluation data. During the Evaluation Phase the data were analyzed to assess changes in knowledge, skills, and attitudes, and ultimately, achievement of the competency goals.

Site Specific Background and Rationale

As the population in the United States ages, there is an increase in the need for health services for chronic diseases such as cancer. At the same time, health care professions face serious shortages in their workforces creating challenges for our society. Cancer survivors often receive care from primary care providers, particularly once their cancer treatments have ended and they no longer need specialized oncology care or desire to follow-up with physicians closer to home. Thus, it is important that primary care providers have the education and tools they need to provide for the unique needs of cancer survivors.
The University of Pittsburgh Medical Center (UPMC) Cancer Centers is one of the largest cancer care delivery networks in the country, consisting of 43 locations in twelve counties throughout western Pennsylvania, Ohio, and West Virginia. This unique hub-and-satellite network brings the most advanced medical, surgical, and radiation oncologic care to a large proportion of cancer patients in a 100+ mile radius of Pittsburgh, Pennsylvania. The Hillman Cancer Center, located in Pittsburgh, is the flagship for clinical care and the academic and research headquarters for the University of Pittsburgh Cancer Institute (UPCI), a National Cancer Institute (NCI) designated Comprehensive Cancer Center. In 2006, over 36,000 new patients were seen and treated at the Hillman Cancer Center or one of the community/network locations. This integrated model for dissemination of state of the art care and access to clinical research is particularly important for this region. This largely rural region has an unusually large proportion of elderly cancer patients with difficulties in traveling large distances, and many economically disadvantaged and underserved patients.

The Hillman Cancer Center provides an integration of ambulatory diagnosis, treatment, prevention, and care combined with a large facility for performing innovative translational and clinical cancer research. More than eighty employed clinical oncologists are able to collaborate seamlessly with internationally renowned experts at the UPMC and UPCI to draw upon the full resources available. Any patient diagnosed with cancer can access care for his or her particular type and stage of cancer from specialists who have expertise in treating cancers and provide the full range of therapies, including innovative clinical trials. The comprehensive care that patients receive within the UPMC Cancer Centers Network also includes critical support services such as cancer education and screening, nutrition and genetic counseling,
psychological support, and interaction with our oncology social workers. A newly-developed Healthy Patient Cohort Registry (HPCR) will provide valuable information about the community population which will help steer survivorship efforts.

Some of the major limitations to clinical care and dissemination models are often the following: 1) once cancer patients complete their active treatment, they no longer return to a cancer center routinely, and rely mainly on primary care physicians and other health professionals for ongoing overall care; 2) patients receive insufficient attention in attending to the various physical and emotional consequences of cancer and its treatment; 3) there is a need to develop the health professional infrastructure and competencies to optimize quality of life of the cancer survivors and to return them, as much as possible, to a normal lifestyle, ability to work, and interact effectively with family and community; and 4) there are insufficient processes in place to effectively and comprehensively monitor for the development of new, second primary cancers. Therefore, UPMC Cancer Centers aims to extend an integrated approach to comprehensive cancer care to improve all of the needed multidisciplinary efforts, to enhance substantially the quality and duration of cancer patient survivorship.

This project's content was based on the Cancer Core Competencies as defined by C-Change. This program was directed at Tier 2 caregivers (health professionals with generalized knowledge of cancer who manage cancer patients throughout the continuum of care). Cancer survivorship issues were chosen because tier 2 caregivers will care for much of the oncology population once their initial oncology care is completed.

Methods

This program was coordinated through the efforts of three individuals with advanced degrees in nursing, education, and public health. At the beginning of the funding period, the grantees met weekly to develop logic models (Appendix M-1), validation templates (Appendix M-2), and evaluation tools (Appendix M-4). The logic model provided the framework for implementing and evaluating the program and was designed to reflect all of the activities of the program, short-term, and long-term outcomes. The validation template was prepared to provide an outline of the program goals, target audience, educational objectives for each speaker, and the program content. These tools were reviewed by C-Change and were revised to reflect comments and suggestions.

Program faculty members were chosen from international, national, and regional experts in the fields of cancer survivorship. These experts all represented the University of Pittsburgh and/or the UPMC. The C-Change core competency definitions for survivorship (Smith & Lichtveld, 2007) were the foundation for the speakers’ content; speakers received competency materials so that they could be included in their presentations. The program was scheduled to be held in two areas: New Castle, Pennsylvania, a rural community one hour north of the city of Pittsburgh, and the Hillman Cancer Center in Pittsburgh, Pennsylvania, the hub for the UPMC Cancer Centers. The Lawrence County Cancer Coalition provided marketing assistance to promote the New Castle program. Plans for web casting to create enduring content were made as a way to disseminate this important information remotely in an ongoing manner.

The program contents were submitted and approved by the University of Pittsburgh Quality Improvement Review Committee, which is under the jurisdiction of the University of Pittsburgh Institutional Review Board.
Recruitment of participants for the New Castle program was unsuccessful and therefore the session, originally scheduled for Saturday, October 6, 2007, was cancelled.

On Saturday, October 20, 2007, a program was held at the Hillman Cancer Center entitled: *Supporting the Continuum for Cancer Survivors: The Role of the Community Practitioner.* The stated objectives upon completion of the program were:

**Program Objectives**
- Define cancer survivorship
- Manage continuing and late effects of cancer and its treatment
- Describe the surveillance recommendations for the detection of recurrence and second primary cancers
- Provide ongoing health services that meet age and gender recommendations
- Provide support to cancer survivors and their families as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, etc.
- Advocate for pain and symptom management throughout the course of cancer survivorship
- Assist patients and families in navigating the health care system following cancer treatment

The following program topics were designed to address specific competency statements:

**Competency Statements**
- Cancer surveillance in the cancer survivor
  Competency: Describe the surveillance recommendations for the detection of recurrence and second primary cancers
- The personal impact of cancer
  Competency: Recognize the importance of survivorship in a long-term cancer care plan at the conclusion of active treatment
- The role of rehabilitation in cancer survivorship
  Competency: Refer survivors to rehabilitation services
- Issues of childhood cancer survivors
  Competency: Provide support for cancer survivors and their families and caregivers as they cope with daily living including lifestyle, employment, school, sexual relationships, fertility issues, and personal intimacy”, and “Provide ongoing health services that meet age and gender recommendations
- The role of nutrition in cancer survivorship
  Competency: Recognize the importance of survivorship in a long-term cancer care plan at the conclusion of active treatment”, and “Provide support for cancer survivors and their families and caregivers as they cope with daily living including lifestyle, employment, school, sexual relationships, fertility issues, and personal intimacy
- Pain and other symptoms after cancer treatment
  Competency: Manage continuing and late effects of cancer and cancer treatment

Faculty included a physical medicine and rehabilitation physician, physician-epidemiologist, pediatric nurse practitioner, oncology nurse educator, naturopathic physician, and a psychologist. These individuals received an overview of the C-Change competency statements for guidance in preparing their presentations. The program began with an overview of the C-Change Cancer Core Competency Program, followed by a presentation from a cancer survivor titled “From the Eyes of a Cancer Survivor”. Continuing Education Credit was provided to
physicians, nurses, and social workers completing the program once pre-tests, post-tests and course evaluations were completed. As care of cancer survivors is not a local issue, all lectures from this program were recorded and are being made available as an archived webcast. Participants of this format learn at their convenience and are eligible for both continuing education credit and to receive a toolkit (Appendix M-3). These participants are required to complete the same pre-test, post-test and evaluations as attendees at the live presentation. There is no cost for participants to access this format. The program is available at http://cme.health.pitt.edu (refer to “All Modules” tab).

Results

Eleven participants including physicians, nurses, social workers, and a dietician attended the on-site program. A total number of 44 instructional hours were accumulated. This number is calculated by multiplying the number of hours of participation in the program by the number of people taught. The total number of instructional hours not only indicates the investment made in the program but also the potential impact of the program. The webcast provides the opportunity to accrue additional instructional hours since this enduring content remains available on the UPMC website and more people will participate after the initial program date. Instructional hours in this program illustrate the depth of the program investment per participant as well as the number of participants reached with its content.

Participants were asked the question, “What is the approximate percentage of your patient population who has been diagnosed with cancer at some time?” The participant responses ranged evenly from 5% to 100% of the patient population indicating varying needs for cancer competency with regard to survivorship issues.

Two of the short-term outcomes were reached with those who participated in the program. Scores on the post-test (Table 1) showed improved knowledge of the definition of cancer survivorship; increased confidence in the participants’ ability to refer patients to state, local and national resources to assist them with issues related to cancer survivorship; increased confidence in the ability to manage continuing and late effects of cancer and its treatment; increased confidence in the ability to articulate surveillance recommendations for detecting recurrent and second primary cancers; increased confidence in the ability to provide or recommend ongoing health services that meet age and gender recommendations; increased confidence in the ability to provide support to cancer survivors and their families as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues; increased confidence in the ability to manage/advocate for the management of pain and other symptoms throughout the course of cancer survivorship and; increased confidence in the ability to assist patients and their families in navigating the health care system following cancer treatment.

The greatest improvement in post-test scores were seen in the following two questions: “I am confident in my ability to articulate the surveillance recommendations for the detection of recurrence and second primary cancers” with a 32% change from pre to post-test; and “I am confident in my ability to provide or recommend ongoing health services that meet age and gender recommendations” with a 25% change.
<table>
<thead>
<tr>
<th>UPMC Cancer Centers Pre/Post Data</th>
<th>Pre-Test Level of Agreement (of 55)</th>
<th>Post-Test Level of Agreement (of 55)</th>
<th>Absolute Change</th>
<th>Percent Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Confident in my knowledge of the definition of cancer survivorship</td>
<td>46</td>
<td>48</td>
<td>2</td>
<td>4.35%</td>
</tr>
<tr>
<td>2 Confident in my ability to refer patients and families to state, local, and national resources and services to assist them with issues related to cancer survivorship</td>
<td>41</td>
<td>50</td>
<td>9</td>
<td>21.95%</td>
</tr>
<tr>
<td>3 Confident in my ability to manage the continuing and late effects of cancer and its treatment</td>
<td>36</td>
<td>41</td>
<td>5</td>
<td>13.89%</td>
</tr>
<tr>
<td>4 Confident in my ability to articulate the surveillance recommendations for the detection of recurrence and second primary cancers</td>
<td>34</td>
<td>45</td>
<td>11</td>
<td>32.35%</td>
</tr>
<tr>
<td>5 Confident in my ability to provide or recommend ongoing health services that meet age and gender recommendations</td>
<td>36</td>
<td>45</td>
<td>9</td>
<td>25.00%</td>
</tr>
<tr>
<td>6 Confident in my ability to provide support to cancer survivors and their families as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, etc.</td>
<td>40</td>
<td>49</td>
<td>9</td>
<td>22.50%</td>
</tr>
<tr>
<td>7 Confident in my ability to manage/advocate for the management of pain and other symptoms throughout the course of cancer survivorship</td>
<td>37</td>
<td>43</td>
<td>6</td>
<td>16.22%</td>
</tr>
<tr>
<td>8 Confident in my ability to assist patients and families in navigating the health care system following cancer treatment</td>
<td>39</td>
<td>48</td>
<td>9</td>
<td>23.08%</td>
</tr>
<tr>
<td><strong>Average:</strong></td>
<td>38.63</td>
<td>46.13</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td><strong>Average Percent Agreement</strong></td>
<td>70.23%</td>
<td>83.86%</td>
<td>19.92%</td>
<td></td>
</tr>
</tbody>
</table>
Responses to UPMC Common Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider a career in Cancer?</td>
<td>4.55</td>
</tr>
<tr>
<td>How likely are you to suggest to your colleagues?</td>
<td>4.45</td>
</tr>
<tr>
<td>How likely are you to change your practice?</td>
<td>4.36</td>
</tr>
<tr>
<td>How well did training increase confidence?</td>
<td>4.73</td>
</tr>
<tr>
<td>How relevant was the training?</td>
<td>4.64</td>
</tr>
</tbody>
</table>

Figure 2: UPMC Common Question Data

Each pilot site utilized five questions that were common across pilot sites. These questions were developed by the C-Change team; pilot sites tailored the questions to reflect site specific training content and were listed at the end of each post-test. The questions allowed for aggregated assessment across sites of the relevance of the training, increases in learner confidence to provide cancer care, learner intentions to change practice, learner intentions to suggest the training to colleagues, and level of learner knowledge of the shortages in the cancer workforce. Learner attitudes and intentions are antecedents of behavior, therefore, these measures served as predictive indicators of longer term outcomes, such as changes in practice. Respondents were asked to rank each of the domains using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Figure 2 displays responses to the common questions. Responses to the five common questions indicated that all participants agreed or strongly agreed that the training was relevant to their current health care practices; the training increased their confidence to provide cancer care in their practices. Eighty-two percent answered that they were likely to change their practice as a result of attending this training (two respondents were undecided). Ninety-one percent answered that they were likely to recommend to a colleague that they take a training course based upon the C-Change core competencies (one respondent was undecided). Eighty-nine percent responded that the course would encourage them to consider a career in cancer care (one respondent was undecided).

Program evaluations were very good with participants scoring the teaching methods, organization of the program, and overall quality of the program highly. Follow-up phone calls to assess toolkit usage are pending.
Two participants further commented as to the program’s usefulness:

- “(This is a) very interesting and comprehensive approach to (cancer survivorship issues.) (This information) needs to be presented to others at Hillman Cancer Center. We’re so busy trying to get patient through treatment that survivorship gets neglected.”
- “Because my current patient population is < 5-10% cancer survivors or newly diagnosed with cancer coming for C/S re: fertility preservation, it is difficult to assess how my practice will change based on info today except to say that I am much more informed on acute/sub acute / chronic sequella & resources available for these sequella.”

Discussion and Recommendations

Post-tests and program evaluations received from participants suggested benefit was gained from attending this program. The two post-test questions showing the greatest change represent some of the most important content of the program. Since attendance was low, a more thorough evaluation of the program will be available after new participants take part in the program via web casting. UPMC has excellent support for programs such as these as the facilities are state-of-the-art.

Unintended Benefits

The cancer core competencies along with the development of the logic model and validation template provided a rigorous method for curriculum design further ensuring that the competencies were integrated into the curriculum and presented to program participants. In addition, this framework will be translated to future educational cancer projects. This program may be utilized nationally in the future for Graduate Medical Education in survivorship.

Lessons Learned

Several lessons were learned throughout this process. If time had allowed, a thorough needs assessment of the medical professionals in this area could have helped to determine the level of interest in this topic as well as the best geographic locations in which to hold the programs. This type of assessment would also have provided information regarding a willingness and readiness to learn prior to marketing efforts. The field of cancer survivorship is growing exponentially and there is a tremendous demand to keep up with the growth. This insight supports the reasoning for an educational series on survivorship issues. There is a great need to learn about cancer survivorship issues in the non-oncology medical community. However, there has been no formal determination if cancer survivorship issues are an important educational need to the non-oncology community. Oncology professionals within the UPMC system can benefit from viewing the webcast of the program. Marketing efforts are underway to reach oncology and non-oncology providers.

The web-based program will be aggressively marketed to primary care providers throughout Western Pennsylvania utilizing mailings, telephone, and email communication with health centers and community health organizations. Through the Pennsylvania Cancer Control Consortium (PAC3) and C-Change, this program will also be marketed to statewide and national audiences. Participants who utilize this method of education will also be required to take a pre
and post-test and complete the course evaluation in order to receive Continuing Education Credit. Upon completion of the course, these participants will be mailed a survivorship toolkit. The resources contained in the toolkit will support clinical practice.

Utilizing web casting provides a unique opportunity to continue to market the program regionally and nationally. Understandably, many health care providers are unable to attend live programs held on weekends even though this time provides less interruption of office and clinic schedules. The ability to view an important program such as this one, at a time that is convenient to the health provider will be well-received especially with the added bonus of earning Continuing Education Credit.

Issues Remaining/Next Steps

This project will be strengthened by soliciting peer review from three sources: The course faculty as stakeholders in this endeavor; medical oncologists at UPMC Cancer Centers, both from the hub and the network and; the Association of American Medical Colleges. Funding will be sought for the peer review, updates and revisions to the webcast, and for development of evaluations tools for peer reviewers and future participants (community health care providers) in this program. The activities to date are the beginning of an ongoing effort to educate community physicians and health care providers in the issues facing cancer survivors.

Reference:
Appendix M-1
CANCER CORE COMPETENCY PROGRAM – UPMC SURVIVORSHIP LOGIC MODEL

**Inputs**

- Management Support
- Funding
- Scientific Evidence
- Staffing
- Technical Support

**Major Activities**

1. Marketing planning
2. Site identification
3. Tool kit development
4. Review evidence-based survivorship literature
5. Speaker identification
6. Content development
7. Development of process for webcasting

**Outputs**

1. Market Program
2. Provide tool kit
3. Administer pre & post-test
4. Conduct programs and webcast
5. Conduct program evaluation

**Short-Term Outcomes**

- Attendance will be high (Approx. 200 participants)
- Toolkits are utilized as measured by follow-up phone calls to sites and monitoring of requests for replacement materials
- Scores on post-tests will show improved understanding of survivorship issues
- Website will show activity of at least 100 participants with post-test scores showing improved understanding of survivorship
- Program evaluations will indicate quality of new information received

**Outcomes**

- Health professionals can easily recognize issues experienced by cancer survivors and intervene as appropriate
- Health professionals recognize the importance of encouraging survivors to maintain long-term follow-up with oncologist. We will measure this through EPIC appointment records
- Health professionals utilize the toolkit in their patient interactions
- Patients completing cancer treatment are equipped with a long-term plan for survivorship which will result in improved QOL
- Cancer survivors utilize resources related to survivorship:
  - management of later effects of cancer
  - programs for screening and prevention
  - insurance resources
  - needs of special populations
  - rehabilitation and behavioral medicine
  - improved comfort with intimacy & relationship issues

**EVALUATION**
### Cancer Core Competency Programs – Survivorship

**Domain:** Continuum of Care  
**Sub-Domain:** Survivorship

**Competencies:**
- Define cancer survivorship  
- Assess that resources for cancer services and insurance coverage are consistent with current recommendations  
- Assist patients and families in navigating the health care system following cancer treatment  
- Provide ongoing health services that meet age and gender recommendations  
- Manage continuing and late effects of cancer and cancer treatment  
- Describe the surveillance recommendations for the detection of recurrence and second primary cancers  
- Refer survivors to rehabilitation services  
- Provide support for cancer survivors and their families and caregivers as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, and personal intimacy  
- Advocate for pain and symptom management throughout the course of survivorship

**Learner Characteristics:**
- Primary care physicians and nurses  
- Mid-level practitioners  
- Genetic counselors  
- Parish nurses  
- School nurses  
- Gynecologists and gynecologic nurses  
- Any other health professionals who care for individuals with cancer or with an interest in cancer survivorship issues  
- Psychologists  
- Social workers  
- Insurance case managers  
- Health educators  
- Rehabilitation physicians  
- Physical and occupational therapists

**Learner Preparation:** (none)
<table>
<thead>
<tr>
<th>Instructional Activities/ Speaker</th>
<th>Evaluation Strategies</th>
<th>Indicators/Educational Objective</th>
<th>Notes to the Instructors/ Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction: Program overview Pre-test</td>
<td>Observational and interactive</td>
<td>Define cancer survivorship</td>
<td></td>
</tr>
<tr>
<td>Survivor Commentary Jo Anne Boyd Linda Evans</td>
<td>Observational</td>
<td>Define cancer survivorship – a survivors view</td>
<td>Genetic risk factors for family members – who is at risk and how to guide them Issues in age, gender, and special populations A. Risk factors for recurrence and second primaries in different groups B. Group-specific surveillance plans a. The elderly b. Pregnancy</td>
</tr>
<tr>
<td>Emmanuelle Taoli</td>
<td>Observational</td>
<td>List surveillance recommendations for the early detection of cancer recurrence or second primary cancers and identify appropriate referral options for management</td>
<td></td>
</tr>
<tr>
<td>Kay Lowmaster Ellen Ormond</td>
<td>Observational</td>
<td>List local and regional resources available for services, insurance coverage, and support for both patients and their families and be able to direct them to these resources Have an improved comfort level in discussing intimacy and relationship issues with cancer survivors</td>
<td>Resources for survivors and their families A. Support systems – the known and the untapped B. Support groups – local options for referral Financial issues in survivorship A. Insurability – the role of the insurance case manager B. Employability – job re-training opportunities thru BVR C. Where to turn – aid programs for financial and medical assistance Local resources Effects of cancer and its treatment on personal relationships A. Infertility issues B. Sexuality – libido, impotence C. Intimacy impactors – disfiguring surgeries, bowel and urinary ostomies, tracheostomies, mastectomy, limb amputation D. Fatigue and personal relationships</td>
</tr>
</tbody>
</table>
### Instructional Activities / Speaker

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Evaluation Strategies</th>
<th>Indicators/Educational Objective</th>
<th>Notes to the Instructors/ Content</th>
</tr>
</thead>
</table>
| Rebecca Garrett     | Observational         | Recognize the role and availability of rehabilitation services for these patients | The role of rehabilitation  
  A. How will your patient benefit from a rehab referral  
  B. Rehab options for cancer survivors in your area |
| Aimee Kemmerer      | Observational         | Provide health services specific to age, gender and any other special population-related variables | A. Children as cancer survivors (special concerns for school nurses)  
  B. Other special populations |
| Linda Evans         | Observational         | Identify and be able to manage ongoing and late effects of cancer and its treatment | Pain and other symptoms after cancer treatment  
  A. Residual pain after treatment  
  B. Issues in long-term narcotic use  
  C. Neurological damage – the impact of neuropathies on lifestyle and safety  
  D. Cognitive dysfunction or “chemo brain”  
  E. Nutritional deficiencies or cancer cachexia |
| John Laird          |                       |                                  |                                  |

**Closure:**
Overview of Toolkit contents
Post test, Evaluation

| Interactive         | Establish a long term cancer care plan for the patient who has concluded cancer treatment with assistance of the contents of the “toolkit” | Resources for survivors and their families  
  A. Local – Regional – National resources  
  B. How, when and why to access resources (guiding the patient/ family to navigate the Options) |

Remedial Activities: Resources and email access to speakers will be made available to participants if further communication is required.

Enhancement Activities: Toolkit of resources will be provided along with information to keep contents current and replenished.
Appendix M-3

Tools for Caring for the Cancer Survivor - Tool Kit Contents

Sections and Inclusions:

- Fertility
- Sexuality and Cancer (for Men) – American Cancer Society
- Sexuality and Cancer (for Women) – American Cancer Society
- Fertile Hope – www.fertilehope.org
- Financial
- Financial Health Matters – Leukemia & Lymphoma Society
- Financial Assistance and Other Resources for People with Cancer – National Cancer Institute
- Insurance
- National Coalition for Cancer Survivors Health Insurance for Cancer Survivorship
- A Consumers Guide for Getting and Keeping Health Insurance in Pennsylvania – A White Paper from Georgetown University Health Policy Institute
- Childhood Cancers
- Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent and Young Adult Cancers – Children’s Oncology Group
- National Cancer Institute Resources
- Taking Time – Support for People with Cancer
- Facing Forward – When Someone You Love has Completed cancer Treatment
- Facing Forward – Life After Cancer Treatment
- Facing Forward Series – Ways You Can Make a Difference in Cancer
- Medication Assistance
- Directory of Pharmaceutical Manufacturers’ Patient Assistance Programs
- Nutrition
- For Cancer Survivors – www.aicr.org
- Nutrition Guidelines for Cancer and Cancer Prevention – J. Laird, ND
- Patient Resources – J. Laird, ND
- Patient Advocate Foundation (www.patientadvocate.org)
- Complimentary and Alternative Medicine
- Evaluate Internet Info
- How to Evaluate Health Information on the Internet – National Cancer Institute Fact Sheet
- Survivorship
- Quality of Care for Cancer Survivors: The Case for Comprehensive Cancer Care – A White Paper of the National Coalition for Cancer Survivorship
- Cure (magazine) – Cancer Updates, Research and Education (www.curetoday.com)
Please take a few minutes to complete this course evaluation tool. Your comments are important to us. Please mark your choice.

Please write additional comments at the end of this form.

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<tbody>
<tr>
<td>I am confident in my ability to refer my patients and families to state, local and national resources and services to assist them with issues related to cancer survivorship</td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>I am confident in my ability to manage the continuing and late effects of cancer and its treatment</td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>I am confident in my ability to articulate the surveillance recommendations for the detection of recurrence and second primary cancers</td>
<td>SD</td>
<td>D</td>
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<td>A</td>
<td>SA</td>
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<tr>
<td>I am confident in my ability to provide or recommend ongoing health services that meet age and gender recommendations</td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
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<tr>
<td>I am confident in my ability to provide support to cancer survivors and their families as they cope with daily living, including lifestyle, employment, school, sexual relationships, fertility issues, etc.</td>
<td>SD</td>
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<td>SA</td>
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<tr>
<td>I am confident in my ability to manage/advocate for the management of pain and other symptoms throughout the course of cancer survivorship</td>
<td>SD</td>
<td>D</td>
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<td>A</td>
<td>SA</td>
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<tr>
<td>I am confident in my ability to assist patients and families in navigating the health care system following cancer treatment</td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
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<tr>
<td>Joanne Boyd was effective in her presentation: <em>From the Eyes of the Cancer Survivor</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
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<tr>
<td>Emanuela Taioli was effective in her presentation: <em>Cancer Surveillance in the Cancer Survivor</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>Ellen Ormond was effective in her presentation: <em>The Personal Impact of Cancer</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>Rebecca Garrett was effective in her presentation: <em>The Role of Rehabilitation</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>John Laird was effective in his presentation: <em>The Role of Nutrition</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td>Eileen Milakovic was effective in her presentation: <em>Pain and Other Symptoms after Cancer Treatment</em></td>
<td>SD</td>
<td>D</td>
<td>U</td>
<td>A</td>
<td>SA</td>
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</tbody>
</table>
Please take a few minutes to complete this course evaluation tool. Your comments are important to us. Please mark your choice.

Please write additional comments at the end of this form.

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</tbody>
</table>

**How relevant was the training to your current health care practice?**

**How well did the training increase your confidence to provide cancer care in your practice?**

**How likely are you to change your practice as a result of attending this training (based upon the C-Change competencies)?**

**How likely are you to suggest to your colleagues that they take a training course based upon the C-Change competencies.**

**Based on your experience, to what extent would this course encourage you to consider a career in cancer care?**

**Prior to taking this course, how aware were you of the need for the primary care providers to become involved in cancer care?**

**How would you rate the teaching methods used? (Are they consistent with your needs as an adult learner?)**

**How would you rate the degree which information was presented in an unbiased manner, i.e., information was presented in a scientifically balanced, rigorous manner, free of commercial bias?**

**How would you rate your satisfaction with the overall quality of the program?**

**How would you rate the program’s organization?**

**How would you rate the location?**

**How would you rate the facilities?**

**What is the approximate percentage of your patient population who have been diagnosed with cancer at some time?_____%**

**Discipline: (MD, nurse, SW, etc. Please specify): ____________________________**

**What other suggestions/ comments do you have related to this program?**
Appendix N

C-Change Cancer Core Competency Program
Cancer Care Assessment, Intervention, and Training Program
California University of Pennsylvania

Margaret Christopher, PhD, MPH
Sheri Boyle, MSW
Abstract

As part of a national effort to address shortages in the cancer workforce, the California University of Pennsylvania (CUP) served as one of four grant-funded pilot sites to implement the C-Change Cancer Core Competency Initiative. Each pilot site utilized a rigorous set of competency standards, curriculum design tools, and evaluation methods to create their programs. The CUP Program strengthened knowledge, skills, and attitudes of social work students and field faculty with regard to cancer-related anxiety and depression. The program provided an online course, lectures for students, and faculty workshops. As a result of the program, participant knowledge in their ability to recognize and manage anxiety and depression in cancer patients and their families increased 177%. Participants also indicated an increase in their confidence to practice. All four pilot sites experienced benefits beyond those derived by the participant including positive effects such as, professional development, institutional visibility, and community relations, which are discussed in the companion report.
General Introduction

In February 2007, C-Change, a 501(c)(3) organization comprised of the top leaders from public, private, and non-profit organizations, embarked on a national validation project to address the Cancer Workforce crisis. Integral to providing cancer care across the continuum from prevention to survivorship is having a workforce that is quantitatively robust enough and qualitatively competent to address the needs of our communities locally, nationally and globally.

In collaboration with a multidisciplinary expert panel, C-Change defined a set of core competencies in cancer care targeting the non-oncology workforce. To achieve the greatest possible uptake of the cancer core competencies in the health care, public health, and academic settings, C-Change released a Request for Proposals (RFP), soliciting proposals from organizations that supported educational offerings to Tier 2 professionals. Tier 2 professionals include licensed, registered, or certified members of health professions who have not specialized in cancer yet whose scope of practice includes face-to-face contact with patients and their families along the continuum of cancer care (Smith & Lichtveld, 2007)

The scientifically robust methodology deployed in the development of the competencies enabled pilot testing and validation in a fashion that assures the broadest utility across the non-oncology disciplines. The findings and lessons learned will inform the final set of competencies and will be shared with those who can take the next steps towards dissemination and implementation. In addition to the California University of Pennsylvania School of Social Work, California, PA, the three pilot sites that were selected included Audrain Medical Center, Mexico, MO; the University of Pennsylvania Medical Center Cancer Centers, Pittsburgh, PA; and the Marshall University School of Medicine, Huntington, WV.

Overview

Figure 1 illustrates the Cancer Core Competency Program Development Process, which includes three primary phases: planning, implementation, and evaluation. In the planning phase, pilot sites defined program goals – to improve the competency of a target professional population on a specific cancer topic. With specific competency objectives in mind, they were able to identify the most appropriate array of educational interventions to achieve the desired knowledge and skills defined by the competency statements. Planning efforts also included the development of curriculum materials and evaluation tools to assess the impact of the educational intervention. The implementation phase entailed providing the educational experience for program participants and gathering evaluation data. During the evaluation phase the data were analyzed to assess changes in knowledge, skills, attitudes, and ultimately, achievement of the competency goals.

Site Specific Background and Rationale

The Cancer Care Assessment, Intervention and, Training (CCAIT) Program was initially funded by C-Change to help the Social Work Department at California University of Pennsylvania (CUP) develop a program that would teach MSW students and their field instructors how to apply psychosocial communication skills in the context of individuals at risk for or living with cancer.
Specifically, the purpose of this training was to improve the ability of social workers to effectively assess cancer-related depression and anxiety in families experiencing cancer. Additionally, the training was designed to improve their ability to explain how to identify and use coping skills to manage depression and anxiety.

This Program targeted the following C-Change Cancer Core Competencies from Domain IIIB1a, b and c:

**Competency Statements:**

Incorporating Psychosocial Communication Strategies in Conveying Cancer Information
- Recognize the signs and symptoms of cancer-related depression and anxiety
- Explain the management of depression and anxiety in patients with cancer
- Explain the useful coping mechanisms following a cancer diagnosis

The Tier two health care professionals targeted by this pilot program fell into two groups. The first group was comprised of Master of Social Work (MSW) students currently enrolled in the MSW program at CUP, particularly those enrolled in the Differential Assessment course, as well as other students who expressed an interest in participating. The second group included the social work field instructors who work with the Masters and Bachelors degree social work students. While most field instructors are highly experienced, all of the field instructors are MSW graduates with a minimum of two years postgraduate work, employed full-time at human service...
agencies, including hospitals, outpatient health and mental health care programs, schools, family service agencies, private agencies and government-affiliated agencies in Southwestern Pennsylvania. The CCAIT Program identified with C-Change’s overall national goal to strengthen the knowledge and skills of non-oncology health professionals because social workers, particularly those with the MSW degree, encounter cancer patients and their families in a variety of settings. Social workers also work with the various manifestations of anxiety and depression on a daily basis. The problem that the CCAIT Program addresses is that social workers do not always recognize the degree to which the anxiety and/or depression is cancer-related. They also have a difficult time measuring anxiety and/or depression in a way that can be quantified. As a result, it is difficult to know whether interventions are effective. If social workers are going to be effective interdisciplinary team members in the diagnosis and treatment of cancer and cancer-related disorders, their skills in identifying and managing cancer-related depression and anxiety must be sharpened.

This rationale for the CCAIT Program is further strengthened by the fact that MSW Program at California University of Pennsylvania is an advanced generalist program, serving students from approximately eight counties in Southwestern Pennsylvania. The majority of the students come from rural and small town environments and work with field instructors from these counties. Many students are likely to return to these areas upon graduation. In these settings, they will not have the advantage of working closely with psychiatric consultants to help them recognize the degree to which anxiety and depression might be related to a cancer diagnosis and/or cancer-related medical trauma. Learning the core competencies prior to graduation will better prepare them for practice and benefit the communities where they will work.

The CCAIT Program recognized the importance of focusing its efforts on the educational needs of both the MSW students and field instructors. The University has approximately 60 MSW students and a database of 250 field instructors. During the pilot phase, the CCAIT Program aimed to have all 60 MSW students successfully complete the core competency training and have each field instructor currently working with a student also complete the training so that s/he can help the student apply the competencies in his or her agency-based field education experience.

Methods

C-Change provided a structured program development process that involved the definition of a logic model (Appendix N-1) and a curriculum validation template (Appendix N-2) that drove course content development and evaluation methods for the program. The development of the logic model was an extremely useful exercise in creating realistic goals and objectives, and sequencing planning tasks.

A thorough literature review was completed, providing the basis for the development of the CCAIT on-line training and evaluation tools. The literature review further highlighted the differences between general and cancer-related anxiety and depression:

- Cancer-related anxiety and depression were associated with existential issues, an individual’s worldview and a desire to leave a legacy
- New programs that integrate these differences into interventions that maximize effective coping have been developed
• A significantly higher rate of suicidal ideation exists among cancer patients. This highlights the important role social workers can have in recognizing and accurately measuring suicidal ideation and applying interventions focused on more adaptive coping.

• Importance of educating social workers and other health care providers to recognize medical non-adherence that might be related to suicidal ideation, depression and anxiety

• Relevance of issues related to cultural competence in working with individuals and families affected by cancer and barriers to access to care

• Significance of Acute Stress Disorder and Post-Traumatic Stress Disorder associated with cancer diagnosis and treatment. Both of these conditions involve anxiety and depression, but and the effective coping interventions dependent on both internal and external risk and protective factors

• More accurate measures that could be used to identify cancer-related anxiety and depression to differentiate them from the more common sadness and worry

Based upon this research and theory-driven findings, the on-line course, lectures for students, and faculty workshops were developed. In addition, a pre/post test was developed to assess knowledge, beliefs, and opinions before and after completing the on-line course. This curriculum content information was also incorporated into the materials developed to promote the program and encourage participation among students and field faculty.

For students, the CCAIT program offered in-class lectures as well as the on-line course. For faculty, the CCAIT program offered a faculty workshop followed by the on-line course. The online course involved numerous theory and case-based modules that participants could complete at their own pace. A hard copy of the course was also made available at the request of the field instructors. All participants were expected to complete the pre and post tests.

Participation incentives for the students and faculty were also established. Student participants received course credit for completing the CCAIT competency curriculum. They did not receive a letter grade for this particular work but it was integrated into a Differential Assessment class, providing them with an opportunity to apply this knowledge in their work with cancer patients. Field instructors were offered continuing education credits for completing the competency training and post-test.

Results

By December 12, 2007, more than 400 individuals were exposed to the CCAIT program as a result of the initial marketing efforts which contained educational materials based upon the competency goals. This figure includes approximately 250 social work field instructors, 60 MSW students, social work alumni, and a large number of faculty and staff at CUP. From the initial student population, 13 MSW students in the Differential Assessment course took the pre-test and completed the on-line training and post-test. During the Spring 2008 semester, an additional group of 31 students began the program by completing the pre-test and are currently completing the on-line training. For the faculty, the competencies and on-line training were introduced at an October 12, 2007, SW Scholarship Conference hosted by the Social Work Department. Approximately 50 social workers from seven Southwestern Pennsylvania counties
attended the conference, but only 20 completed the pre-test. Follow-up e-mails were sent to participants encouraging them to complete the training and post-test. Approximately fifteen of the social work field instructors are nearing completion of the training with some having scheduled their post-tests. Numerous other students and field faculty have indicated an interest in the program.

Table 1 illustrates responses to the pre-post test. The pre/post-test consisted of 21 opinion-based and nine knowledge-based questions related to the core competencies. A Likert scale was used with these questions, with the higher numbers more favorable in terms of knowledge and use of the core competencies. Questions 1-21 focused primarily on the respondents' beliefs about social work education and the degree to which social workers are prepared for work with cancer patients. Percentages of change from pre- to post-test were relatively low for these questions, with the exception of questions six, seven, and ten, focusing on suicide and depression among cancer patients. The table also demonstrates a very high percentage of change on all nine of the knowledge-based questions, Questions 22-30.

Using independent sample t-tests, statistically significant differences between the responses of MSW students and the responses of field instructors were found on two of the opinion-based questions (Q2 and Q9) and on one (Q22) of the knowledge-based questions. Too few post-test results from field instructors have been received for analysis. The first group of MSW post-test results (n=13) suggest that the students scored significantly higher on the post-test on three opinion-based questions (Q6, Q7 and Q10) and on all nine of the knowledge-based questions (Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30). These results are all based on the use of independent, two-tailed, t-test comparisons of group response means.

Several similarities and differences exist between the MSW students and the social work field instructors who completed the pre-test. Similarities include (1) all consider themselves social workers and have completed a minimum of 18 credits of foundation-level social work classes (most have completed far more than this) accredited through the Counsel on Social Work Education; (2) all currently reside and/or work in non-urban areas in western Pennsylvania; (3) all have learned how to use psychosocial communication skills and demonstrated competence in this area; and (4) all have had some degree of exposure to cancer-related anxiety and depression. The differences between the two groups include (1) social work field instructors are employed full-time in direct practice settings and have been out of school for at least two years while MSW students are currently in school. (2) The MSW students, on average, are younger than the field instructors; (3) The MSW students have had less experience in paid human service positions and no post-graduate experience as paid social workers; and (4) the MSW students have relatively easy access to University resources, including high-speed Internet access and computers equipped with the latest technology whereas most of the field instructors rely on agency or home-based computers and Internet access.

From a qualitative perspective, the MSW students appeared more highly motivated to complete the on-line training and pre and post-tests as compared with the field instructors. The MSW students also appeared to be more agreeable with opinion-based questions related to the use of the competencies. Discussion of their own experiences with cancer during class also differed. MSW students spontaneously discussed personal situations involving family and friends. During the faculty workshop, although, field instructors also discussed personal situations involving relative, the primary focus of their discussion was job-related compassion fatigue, vicarious traumatization, and burn-out.
# Table 1: CUP Pre/Post Data

<table>
<thead>
<tr>
<th>Cancer Care Assessment, Intervention, and Training Program</th>
<th>Pre-Test Level of Agreement of 52 Points</th>
<th>Post-Test Level of Agreement of 52 Points</th>
<th>Total Points Possible (each question)</th>
<th>Absolute Change</th>
<th>Percent Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N=13</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social work education adequately prepares practitioners with the skills needed for effective psychosocial communication with individuals and families affected by cancer.</td>
<td>31</td>
<td>37</td>
<td>52</td>
<td>6</td>
<td>19.35</td>
</tr>
<tr>
<td>2. Social workers take time to assess the symptoms of depression each time they meet with a client.</td>
<td>37</td>
<td>42</td>
<td>52</td>
<td>5</td>
<td>13.51</td>
</tr>
<tr>
<td>3. Social workers differentiate symptoms of depression from symptoms associated with loss.</td>
<td>37</td>
<td>40</td>
<td>52</td>
<td>3</td>
<td>8.11</td>
</tr>
<tr>
<td>4. Social workers routinely screen for indicators of suicidal ideation.</td>
<td>41</td>
<td>45</td>
<td>52</td>
<td>4</td>
<td>9.76</td>
</tr>
<tr>
<td>5. Cancer patients are at higher risk of having suicidal ideation.</td>
<td>39</td>
<td>46</td>
<td>52</td>
<td>7</td>
<td>17.95</td>
</tr>
<tr>
<td>6. Cancer patients are at higher risk of successfully completing suicide.</td>
<td>33.5</td>
<td>41</td>
<td>52</td>
<td>7.5</td>
<td>22.39</td>
</tr>
<tr>
<td>7. Non-compliance with medical treatment among cancer patients can be considered a type of passive suicide.</td>
<td>34.5</td>
<td>43</td>
<td>52</td>
<td>8.5</td>
<td>24.64</td>
</tr>
<tr>
<td>8. Social workers take time to assess symptoms of anxiety each time they work with clients.</td>
<td>37</td>
<td>37</td>
<td>52</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>9. Social workers take time to assess symptoms of traumatic stress each time they work with clients.</td>
<td>39</td>
<td>37</td>
<td>52</td>
<td>-2</td>
<td>-5.13</td>
</tr>
<tr>
<td>10. Social workers can improve the health outcomes of cancer patients by monitoring the degree of depression associated with the diagnosis.</td>
<td>40</td>
<td>49</td>
<td>52</td>
<td>9</td>
<td>22.50</td>
</tr>
<tr>
<td>11. Social workers can improve the health outcomes of cancer patients by helping them manage depression associated with the diagnosis.</td>
<td>44</td>
<td>47</td>
<td>52</td>
<td>3</td>
<td>6.82</td>
</tr>
<tr>
<td>12. Social workers can improve the health outcomes of cancer patients by monitoring the degree of anxiety associated with the diagnosis.</td>
<td>42</td>
<td>47</td>
<td>52</td>
<td>5</td>
<td>11.90</td>
</tr>
<tr>
<td>Pre/Post Data Questions</td>
<td>Pre-Test Level of Agreement of 52 Points</td>
<td>Post-Test Level of Agreement of 52 Points</td>
<td>Total Points Possible (each question)</td>
<td>Absolute Change</td>
<td>Percent Change %</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>13. Social workers can improve the health outcomes of cancer patients by helping them manage anxiety associated with the diagnosis.</td>
<td>44</td>
<td>47</td>
<td>52</td>
<td>3</td>
<td>6.82%</td>
</tr>
<tr>
<td>14. Social workers are effective members of multidisciplinary health care assessment teams involved with cancer.</td>
<td>45</td>
<td>44</td>
<td>52</td>
<td>-1</td>
<td>-2.22%</td>
</tr>
<tr>
<td>15. Social workers are effective members of multidisciplinary health care intervention teams involved with cancer.</td>
<td>43</td>
<td>48</td>
<td>52</td>
<td>5</td>
<td>11.63%</td>
</tr>
<tr>
<td>16. Social workers are expected to help family members and significant others manage depression associated with a patient’s cancer diagnosis.</td>
<td>44</td>
<td>45</td>
<td>52</td>
<td>1</td>
<td>2.27%</td>
</tr>
<tr>
<td>17. Social workers are expected to help family members and significant others manage anxiety associated with a patient’s cancer diagnosis.</td>
<td>44</td>
<td>43.5</td>
<td>52</td>
<td>-0.5</td>
<td>-1.14%</td>
</tr>
<tr>
<td>18. Social workers apply psychosocial communication strategies to monitor relationships between cancer patients and their health care providers.</td>
<td>39</td>
<td>41</td>
<td>52</td>
<td>2</td>
<td>5.13%</td>
</tr>
<tr>
<td>19. Social workers apply psychosocial communication strategies to improve relationships between cancer patients and their health care providers.</td>
<td>39</td>
<td>45</td>
<td>52</td>
<td>6</td>
<td>15.38%</td>
</tr>
<tr>
<td>20. Social workers should explain coping skills to cancer patients.</td>
<td>48</td>
<td>43</td>
<td>52</td>
<td>-5</td>
<td>-10.42%</td>
</tr>
<tr>
<td>21. Social work education has adequately prepared social workers to have a repertoire of effective coping skills to share with cancer patients.</td>
<td>35.5</td>
<td>43</td>
<td>52</td>
<td>7.5</td>
<td>21.13%</td>
</tr>
<tr>
<td>Question</td>
<td>Short Answer Concordance</td>
<td>Level of Agreement</td>
<td>Total Points Possible (each question)</td>
<td>Absolute Change</td>
<td>Percent Change</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>--------------------</td>
<td>---------------------------------------</td>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>22. What is C-Change?</td>
<td></td>
<td>0</td>
<td>39</td>
<td>52</td>
<td>100.00%</td>
</tr>
<tr>
<td>23. What are the signs and symptoms of cancer-related depression?</td>
<td></td>
<td>40</td>
<td>93</td>
<td>130</td>
<td>132.50%</td>
</tr>
<tr>
<td>24. What are the signs and symptoms of cancer-related anxiety?</td>
<td></td>
<td>28</td>
<td>62</td>
<td>130</td>
<td>121.43%</td>
</tr>
<tr>
<td>25. How is depression best managed when working with patients with cancer?</td>
<td></td>
<td>15</td>
<td>33.5</td>
<td>65</td>
<td>123.33%</td>
</tr>
<tr>
<td>26. How is anxiety best managed when working with patients with cancer?</td>
<td></td>
<td>12</td>
<td>36</td>
<td>65</td>
<td>200.00%</td>
</tr>
<tr>
<td>27. List and briefly describe the five most useful coping mechanisms you are familiar with for use in working with direct victims of cancer (the patient with the diagnosis).</td>
<td></td>
<td>15</td>
<td>73</td>
<td>130</td>
<td>386.67%</td>
</tr>
<tr>
<td>28. List and briefly describe the five most useful coping mechanisms you are familiar with for use in working with indirect victims of cancer (family members and significant others).</td>
<td></td>
<td>11</td>
<td>51</td>
<td>130</td>
<td>363.64%</td>
</tr>
<tr>
<td>29. Name at least five clinical measures that social workers can use to assess depression when working with individuals and families affected by cancer.</td>
<td></td>
<td>10</td>
<td>62</td>
<td>65</td>
<td>520.00%</td>
</tr>
<tr>
<td>30. Name at least five clinical measures that social workers can use to assess depression when working with individuals and families affected by cancer.</td>
<td></td>
<td>2</td>
<td>65</td>
<td>65</td>
<td>3150.00%</td>
</tr>
</tbody>
</table>

**AVERAGE SCORE**

|                          | 74.58 | 109.62 | 148 |

**AVERAGE % AGREEMENT OR CORRECT**

|                          | 50%   | 74%    |     |

In addition to the pre and post-test questions that were specific to the competency goals of the CCAIT program, each of the four pilot sites utilized five questions that were common across sites. These questions were developed by the C-Change team, tailored by the sites to reflect their training content, and were included at the end of the post-test. The common questions allowed for aggregated assessment across sites of the relevance of the training, increases in learner confidence to provide cancer care, learner intentions to change practice, learner...
intentions to suggest the training to colleagues, and level of learner knowledge of the shortages in the cancer workforce. Learner attitudes and intentions are antecedents of behavior; therefore, these measures served as predictive indicators of longer term outcomes, such as changes in practice. Respondents were asked to rank each of the questions using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

As seen in Figure 2, participants found the training to be very relevant and appeared to be willing to suggest it to their colleagues. This data is consistent with anecdotal comments made by many of the participants.

![Responses to CCAIT Common Questions](image)

**Figure 2: CUP Common Question Data**

The total number of instructional hours for this program was 476. This number is calculated by multiplying the educational program length in hours by the number of participants. A total of 44 students and 20 field instructors have already completed the pre-test and are in various stages of completing the on-line competency training curriculum (64 individuals x 5 additional hours = 320 instructional hours). Of the 64 additional participants, 13 of the MSW students have already completed the CCAIT on-line competency-based training curriculum and the post-test (13 individuals x 12 additional hours = 156 instructional hours). The total number of instructional hours not only indicates the investment made in the program but also the potential impact of the program. Instructional hours in this program illustrate the depth of the program investment per participant as well as the number of participants reached with its content. There is also a potential to accrue additional instruction hours in the future as more students and field instructors utilize the web-based component of the program.
Discussion

The findings from the pilot project lead to several conclusions regarding the relevance of the cancer competency topic to the learners, optimal instructional methods for improving competency, and logistical consideration for ensuring participation among students and field instructors. In many cases, the conclusions for students and field instructors were quite different due to unique characteristics of each group.

For students, integrating competency-based content into an assessment class and through an on-line course was an ideal approach for teaching how to identify and measure cancer-related depression and anxiety. In intervention classes, students can learn strategies for managing anxiety and depression to ensure that neither of these psychosocial issues becomes an obstacle to treating cancer or other cancer-related medical conditions. Social work students expect to learn competencies and are highly motivated to apply them to case study and/or real life situations. In the context of a general assessment course, they could also learn how to relate the anxiety and depression to cancer-related issues and concerns, with cancer-related medical trauma and with existential issues associated with mortality. The format of the on-line course was also effective with the MSW students who have ready access to on-campus computers and are accustomed to computer-based learning. The students also benefited from in-class contact and the ability to collaborate and/or motivate one another during the duration of the pilot.

For field instructors, the program content and competency goals were also relevant. In fact, the pre-test scores suggested that the field instructors did not appear to be any more knowledgeable in applying psychosocial communication strategies to identify and manage cancer-related depression and anxiety, than second-year MSW students. Although experienced social workers recognized that the identification and management of anxiety and depression is an important aspect of their role in working with individuals and families affected by cancer, they did not really know how to use specific measures for quantifying either anxiety or depression. They also tended to be vague in their responses about how to manage cancer-related depression and anxiety. They were not able to explain specific coping skills. In fact, the majority could not list five coping skills. The students did equally as well on the pre-test in these areas.

Despite these indications that the program content was relevant and needed by the field instructors, course completion rates for the faculty were low. When the field instructors were surveyed to learn more about why they did not complete the course before the end of the semester, they stated that time constraints driven by their personal and professional lives and slow computers interfered with program completion. This feedback led the program coordinators to offer a hard copy version of the on-line competency-training curriculum. Of those contacted to date, 100% indicated that this would help them complete the training and prepare for the post-test.

When comparing the experience of the students with the field instructors, the differences in the learning environment were further considered. The students were together weekly for a class after the pre-test was completed and the competencies were introduced. Classroom interaction and readings could possibly have motivated students to complete the on-line training. In-class case study applications reinforced the material in the training. Although the field instructors also had access to case study application and on-line discussion through their website access to the training, the interactions could be asynchronous. In addition, the field instructors were more likely to be isolated from other social workers when completing the training. Due to the
spontaneous discussion regarding vicarious traumatization and compassion fatigue that surfaced at the faculty conference when the cancer core competencies were initially introduced, the field instructors demonstrated that they valued group interactions.

In addition to the challenge of learning in an asynchronous format, the field instructors might have been daunted by training that challenged them to integrate new research, theory, and practice skills. Also noted, the on-line format emphasized research and theory at the beginning of the course and presented case-based practice application at the end of the course. The field instructors might have found the beginning of the program less relevant to their practice and/or intimidating considering the elapsed time since their last academic experience.

Lessons Learned From the Program

Several lessons were learned during the pilot phase of the CCAIT Program. Some of these lessons support continuing aspects of the program as designed during the pilot and others indicate the need to make modifications to the program. Perhaps, the most important lessons learned were that curriculum design was highly effective in teaching MSW students, but not field instructors, and that the field instructors did not have any more initial knowledge than the MSW students regarding cancer-related anxiety and depression.

The MSW students are highly motivated to learn specific core cancer care competencies and to relate psychosocial communication skills to identifying and managing anxiety and depression associated with cancer. As evidenced by their responses to the opinion-based pre-test questions and to differences in the spontaneous discussion that occurred between the two groups, they also appear to be slightly more optimistic about their ability to be able to find the time to integrate these skills while working in direct practice settings. Although some of the students discussed personal experiences related to cancer (e.g., family members, friends, etc.), very few had any direct social work practice experience with cancer patients and/or their families. The MSW students appear to be more willing to invest time mastering and applying the on-line competency curriculum than the field instructors. For the field instructors, the major lessons learned related technical, personal, and professional issues, which all appear to have interfered with their low rates of course completion. Slow computers, poor internet access, and the on-line course format all deterred field instructors from course completion. In addition to the practical barrier of time constraints, performance anxiety, the perceived need to spend more time studying and mastering the material, and/or their own compassion fatigue, burn-out, and/or vicarious traumatization could have contributed to their low completion rates during the pilot period. Field instructors’ spontaneous discussion about how exposure to cancer patients and their families affect their own well-being during the faculty workshop supports this conclusion. Avoidance is one symptom of both compassion fatigue and vicarious traumatization. A more specific deadline and more individualized help in working with the on-line curriculum may be beneficial in the future.

Based upon the experience with the field instructors, several course changes are indicated: At a minimum, a more synchronous opportunity is clearly needed to discuss the training materials. In addition, efforts to modify the on-line course format to intersperse theory and practice with an emphasis on practical, clinical skills might be less daunting than a program that is so rich in theory and research. Access to higher speed computers would also be beneficial. Conducting the training on campus as an in-service program might address the both the interpersonal and technical barriers to timely completion.
Plans for Program Repetition or Expansion of the CCAIT Program

The CCAIT Program would also like to extend the competencies to future classes of MSW students, to undergraduate social work students, and to other social work providers throughout the Southwestern Pennsylvania area. During the Spring 2008 semester, the CCAIT Program will extend this competency training program to a sample of approximately 25 of its 168 undergraduate social work students enrolled at the University. If the pilot competency training is successful with the sample of 25 undergraduate students, it will be incorporated into the curriculum on a permanent basis so that all of the undergraduate students can enroll.

The CCAIT Program will also be expanded to include a direct practice component in a clinic setting where students and field instructors who successfully completed the training will apply the competencies with cancer patients and their families. Training videos will be used to supplement the on-line training. MSW students will also work in a cross-disciplinary simulated or actual clinic setting, applying the competencies with students from other health-related fields.

The on-line competency-training curriculum will be revised and adapted for social workers and field instructors who are already in agency settings if funding is obtained to continue the training beyond this academic year.

Perspectives on Sustainability

Logic models will be used for curriculum development and service-learning projects in the Department of Social Work at CUP in the future. This planning method provide a rigorous approach to developing curriculum content, appropriate teaching methods, and evaluation tools. CCAIT Program curriculum will continue to be updated and included as a continuing education opportunity for field instructors and as a component of the Differential Assessment class in the MSW Program. If funding is available, the CCAIT Program will continue beyond May 2008. Even without additional funding, the competencies will continue to be integrated into the MSW curriculum. If the Spring 2008 undergraduate pilot training program is successful, it will also be integrated into the undergraduate social work curriculum at this University. Publication and publicity regarding the CCAIT Program cancer-care competency training will likely encourage other social work education programs to integrate the cancer core competencies into their curriculum.

Funding for the CCAIT Program allowed CUP to develop a social work skills lab that allows both graduate and undergraduate students, in partnership with field instructors, to use psychosocial communication skills to identify and manage anxiety and depression associated with cancer and other chronic conditions and to help those afflicted learn adaptive coping skills. At the current time, the skills lab is operational, involving at least one graduate assistant. Students from the Theatre Department provide role-playing acting as the clients and client systems involved in the CCAIT Program case study vignettes. Social work students practice and refine these competencies through the role-plays. Efforts will be made to keep the skills lab functioning as a permanent outcome to this pilot program.

Reference:

Smith A P, Lichtveld MY. A competency-based approach to expanding the cancer care workforce, Nursing Economics: 2007: 25(2); 110-118.
Appendix N-1

CCAIT PROGRAM LOGIC MODEL

Context
- Anxiety & depression associated with cancer
  - Dx & Rx

Inputs
- Field instructors
- MSW students
- S.W. Literature
- Assessment measures
- Competencies
- Grant funding
- Clinic

Activities
- Review literature
- Assemble measures
- Create training videos
- Set-up clinic

Recruit Participants
- Units I-3

Design & implement on-line competency training & simulated clinic practice

Conduct Training
- Pre – Post scores
- Clinic observation rubric
- Application of competencies for Domain IIIB 1 a-b-c in role play & with clients

University facilities & on-line website

Outcome
- Improved psychosocial communication leads to better s.w. care for clients affected by cancer.

Short Term (e.g. knowledge)
- Units I-3

Medium (e.g. behavior)
- Units 4-5

Long Term (e.g. economic status)
- (e.g. social status)

Goal
- (e.g. social status)
### Project Name:
Cancer Care Assessment, Intervention & Training (CCAIT) Program

### Competency:
Psycho-social aspects of cancer

### Sub-competencies:
IIIB 1a-b-c Recognizing signs & symptoms of cancer related depression & anxiety. Explaining management of depression and anxiety with patients with cancer. Explaining useful coping mechanisms after cancer diagnosis

### Learner Characteristics:
A MSW social worker who is affiliated with the Field Education Program at California University of PA.

### Learner Preparation:
A Master level social worker with a minimum of two year post graduate social work practice in a human service agency in southwestern Pennsylvania.

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
<th>Indicators</th>
<th>Notes to the Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction:</strong> Review the goals &amp; objectives of the training. Introduce C-Change and the psycho-social competencies along with relevant theory and research (CBT, DBT, PIE, Crisis Intervention, Traumatology,</td>
<td>Pre Test</td>
<td>Degree of change in score between pre and post test.</td>
<td>Instructor will make sure that participants have a clear understanding of C-Change and their goals &amp; objectives. Carefully review only the competencies that we are charged with addressing.</td>
</tr>
<tr>
<td></td>
<td>Post test</td>
<td></td>
<td>Instructor will initially apply Freire’s Learning for Social Change Theory to help field instructors recognize need for competencies. Mezirow’s</td>
</tr>
<tr>
<td><strong>Instructional Activities</strong></td>
<td><strong>Evaluation Strategies</strong></td>
<td><strong>Indicators</strong></td>
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</table>
| Problem-Solving, Empowerment)                     | Case-related discussion questions with individual responses initially submitted through on-line format to insure that each response is original. | 1. Field Instructor’s ability to accurately identify the level of anxiety &/or depression. \ 2. Completion of embedded assignments in power point presentation. \ 3. Ability to select appropriate measure for anxiety &/or depression \ 4. Ability to apply appropriate theory to individual situation. \ 5. Ability to explain management of anxiety &/or depression \ 6. apply theory in explaining coping skills | Theory of Tranformative Learning and Knowles Principles of Andragogy will be used for the actual training.  
Instructor will begin with inquiry about participant’s experience with working with an individual and/or family affected by cancer (direct or indirect victim).  
Dialog with field instructor to explore use of psychosocial communication related to the identification of, management of and coping skills for anxiety and depression to identify any past experiences with C-Change competencies.  
Apply Freire’s Learning for Social Change theory to help field instructors identify their own strengths, the strengths of the individuals involved in the case study, and the problems/deficiencies with the current types of communication related to anxiety and depression associated with practice involving individuals and families affected by cancer. |
| **Case Study:**                                   |                                                                                          |                                                                                |                                                                                                                                                                                                                            |
| Power point on at least four case studies of people affected by cancer. Will present a case using a child, an adolescent, an adult and an older adult. |                                                                                          |                                                                                |                                                                                                                                                                                                                            |
**Didactic Exercise:**
Power point discussion on appropriate social work theories, measures, interventions & coping mechanisms for use when applying competency IIIB 1 a-b-c

| Complete embedded assignments. | Individual evidence of application of theory, measures, interventions and coping mechanisms | Engage participants throughout the presentations and through assignments. Keep it interactive. |

**Interactive Exercise:**
Simulated interviews using various case studies.

| Individualized review of transcript | Appropriate psychosocial communication is used. | Instructor should acknowledge MSW’s past experience and knowledge, while incorporating new competencies. |
| | Able to recognize signs & symptoms of depression & anxiety. | |
| | Able to explain the management of depression & anxiety. | |

**Closure:**
Field Instructors will demonstrate effective application of psychosocial communication

<table>
<thead>
<tr>
<th>Rubric</th>
<th>3.5 to 5 range on scale of zero to five</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured independently by two separate evaluators.</td>
<td></td>
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</tbody>
</table>

**Remedial Activities:**
View video

**Enhancement Activities:**
Participate in dialogue on-line, introduce their own case study for discussion, use discussion board on-line to reinforce skills & receive feedback on their assessment. Paid work in clinic with students & clients.

**Project Name:**
Cancer Care Assessment, Intervention & Training (CCAIT) Program
<table>
<thead>
<tr>
<th>Competency:</th>
<th>Psycho-social aspects of cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner Characteristics:</td>
<td>An advanced graduate student enrolled in the MSW Program at California University of PA</td>
</tr>
<tr>
<td>Learner Preparation:</td>
<td>Student will have completed most or all of the foundation component of the MSW Program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Evaluation Strategies</th>
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<tr>
<td><strong>Introduction:</strong> Review the goals &amp; objectives of the training. Introduce C-Change and the psycho-social competencies along with relevant theory and research (CBT, DBT, PIE, Crisis Intervention, Traumatology, Problem-Solving, Empowerment)</td>
<td>Pre Test Post test</td>
<td>Degree of change in score between pre- and post test.</td>
<td>Instructor will make sure that participants have a clear understanding of C-Change and their goals &amp; objectives. Carefully review only the competencies that we are charged with addressing. Instructor will apply Mezirow’s Theory of Transformative Learning and Knowles Principles of Andragogy. Instructor will assess individual student learning styles and apply this understanding to individualized work with each student.</td>
</tr>
<tr>
<td><strong>Case Study:</strong></td>
<td>Case-related discussion questions with individual</td>
<td>1. Field Instructor’s ability to accurately identify the</td>
<td>Instructor will inquire about student’s experience with individuals and/or families affected by</td>
</tr>
<tr>
<td>Instructional Activities</td>
<td>Evaluation Strategies</td>
<td>Indicators</td>
<td>Notes to the Instructors</td>
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<tr>
<td>Power point on at least four case studies of people affected by cancer. Will present a case using a child, an adolescent, an adult and an older adult.</td>
<td>responses initially submitted through online format to insure that each response is original</td>
<td>level of anxiety &amp;/or depression. 2. Completion of embedded assignments in power point presentation. 3. Ability to select appropriate measure for anxiety &amp;/or depression 4. Ability to apply appropriate theory to individual situation. 5 Ability to explain management of anxiety &amp;/or depression 6. apply theory in explaining coping skills</td>
<td>cancer. Use past experiences with C-Change competencies. (direct or indirect victim). Instructor will inquire about student's social work interventions and communication with individuals and families affected by cancer. Students will be asked to evaluate the quality of the social work interventions demonstrated through the Power Point presentations of case studies. Students will move from dependence to independence in focusing on and examining the assumptions that underlie feelings, beliefs, actions and communications and in testing the validity of each communication exchange</td>
</tr>
</tbody>
</table>

Appendix N-2 Page 20
<table>
<thead>
<tr>
<th>Didactic Exercise:</th>
<th>Complete embedded assignments.</th>
<th>Individual evidence of application of theory, measures, interventions and coping mechanisms.</th>
<th>Engage participants throughout the presentations through assignments. Keep it interactive.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power point discussion on appropriate social work theories, measures, interventions &amp; coping mechanisms for use when applying competency IIIB 1 a-b-c</td>
<td>Individualized review of transcript</td>
<td>Appropriate psycho-social communication is used. Able to recognize signs &amp; symptoms of depression &amp; anxiety. Able to explain the management of depression &amp; anxiety.</td>
<td>Instructor should acknowledge MSW’s past experience and knowledge, while incorporating new competencies.</td>
</tr>
<tr>
<td>Interactive Exercise:</td>
<td>Simulated interviews using various case studies.</td>
<td>Rubric</td>
<td>3.5-5 range</td>
</tr>
<tr>
<td></td>
<td>Individualized review of transcript</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Appropriate psycho-social communication is used.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Able to recognize signs &amp; symptoms of depression &amp; anxiety.</td>
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<td></td>
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<tr>
<td></td>
<td>Able to explain the management of depression &amp; anxiety.</td>
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<tr>
<td>Closure:</td>
<td>Field Instructors will demonstrate effective application of psychosocial communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rubric</td>
<td>Measured independently by two separate evaluators.</td>
<td></td>
</tr>
<tr>
<td>Remedial Activities:</td>
<td>View video</td>
<td></td>
<td></td>
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<tr>
<td>Enhancement Activities:</td>
<td>Participate in dialogue on-line, introduce their own case study for discussion, use discussion board on-line to reinforce skills &amp; receive feedback on their assessment. Paid work in clinic with students &amp; clients.</td>
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</table>
The following questions will be used to better understand the attitudes and knowledge that social work field instructors and MSW students are bringing to the CCAIT Program. The same questions will be asked at the end of the program to measure any changes that have taken place. There are a total of 30 questions. The first 21 questions will ask participants to simply check their choice of response. The next 9 questions will ask participants to write what they already know about each topic.

Responses are confidential and will not be used for the purpose of individual evaluation. Rather, they will be used for program evaluation purposes. Please answer each question to the best of your ability before beginning Unit One.

<table>
<thead>
<tr>
<th>STRONGLY AGREE</th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>STRONGLY DISAGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social work education adequately prepares practitioners with the skills needed for effective psychosocial communication with individuals and families affected by cancer.</td>
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<tr>
<td>2. Social workers take time to assess the symptoms of depression each time they meet with a client.</td>
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<tr>
<td>3. Social workers differentiate symptoms of depression from symptoms associated with loss.</td>
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<tr>
<td>4. Social workers routinely screen for indicators of suicidal ideation.</td>
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<tr>
<td>5. Cancer patients are at higher risk of having suicidal ideation.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Cancer patients are at higher risk of successfully completing suicide.</td>
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<tr>
<td>7. Non-compliance with medical treatment among cancer patients can be considered a type of passive suicide.</td>
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<tr>
<td>8. Social workers take time to assess symptoms of anxiety each time they work with clients.</td>
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<td></td>
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</tr>
<tr>
<td>9. Social workers take time to assess symptoms of traumatic stress each time they work with clients.</td>
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<td></td>
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<tr>
<td>10. Social workers can improve the health outcomes of cancer patients by monitoring the degree of depression associated with the diagnosis.</td>
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</table>
11. Social workers can improve the health outcomes of cancer patients by helping them manage depression associated with the diagnosis.

12. Social workers can improve the health outcomes of cancer patients by monitoring the degree of anxiety associated with the diagnosis.

13. Social workers can improve the health outcomes of cancer patients by helping them manage anxiety associated with the diagnosis.

14. Social workers are effective members of multidisciplinary health care assessment teams involved with cancer.

15. Social workers are effective members of multidisciplinary health care intervention teams involved with cancer.

16. Social workers are expected to help family members and significant others manage depression associated with a patient’s cancer diagnosis.

17. Social workers are expected to help family members and significant others manage anxiety associated with a patient’s cancer diagnosis.

18. Social workers apply psychosocial communication strategies to monitor relationships between cancer patients and their health care providers.

19. Social workers apply psychosocial communication strategies to improve relationships between cancer patients and their health care providers.

20. Social workers should explain coping skills to cancer patients.

21. Social work education has adequately prepared social workers to have a repertoire of effective coping skills to share with cancer patients.

This ends the first part of the pre/post test. The last nine questions are on the pages that follow. Stretch and take a short-break if needed, before beginning the next section. To complete the last nine questions, please write as much as you know about each topic. If additional space is needed, the blank pages at the end of the test can be used.

22. What is C-Change?

23. What are the signs and symptoms of cancer-related depression?

24. What are the signs and symptoms of cancer-related anxiety?

25. How is depression best managed when working with patients with cancer?

26. How is anxiety best managed when working with patients with cancer?

27. List and briefly describe the five most useful coping mechanisms you are familiar with for use in working with direct victims of cancer (the patient with the diagnosis).

28. List and briefly describe the five most useful coping mechanisms you are familiar with for use in working with indirect victims of cancer (family members and significant others).

29. Name at least five clinical measures that social workers can use to assess depression when working with individuals and families affected by cancer.

30. Name at least five clinical measures that social workers can use to assess anxiety when working with individuals and families affected by cancer.
Appendix N-4

QUESTIONS USED WITH EACH CASE VIGNETTE

1. What signs and symptoms of depression do you recognize?
2. Briefly explain how you would manage each depression symptom?
3. For each symptom, provide at least one adaptive coping skill that the individual with cancer could use.
4. What signs and symptoms of depression do you still need to look for?
5. What signs and symptoms of anxiety do you recognize?
6. Briefly explain how you would manage each symptom?
7. For each symptom, provide at least one adaptive coping skill that the individual with cancer could use.
8. What signs and symptoms of anxiety do you still need to look for?
9. Are there any additional coping skills for depression that you would recommend?
10. Are there any additional coping skills for anxiety that you would recommend?

A content analysis will be used with two independent evaluators who will code responses individually and obtain a percentage of agreement to measure reliability.