ENGAGING MULTIDISCIPLINARY TEAMS TO IMPROVE PATIENT OUTCOMES WITH NSCLC USING EDUCATIONAL RESOURCES (EMPOWER)

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Submitted By:

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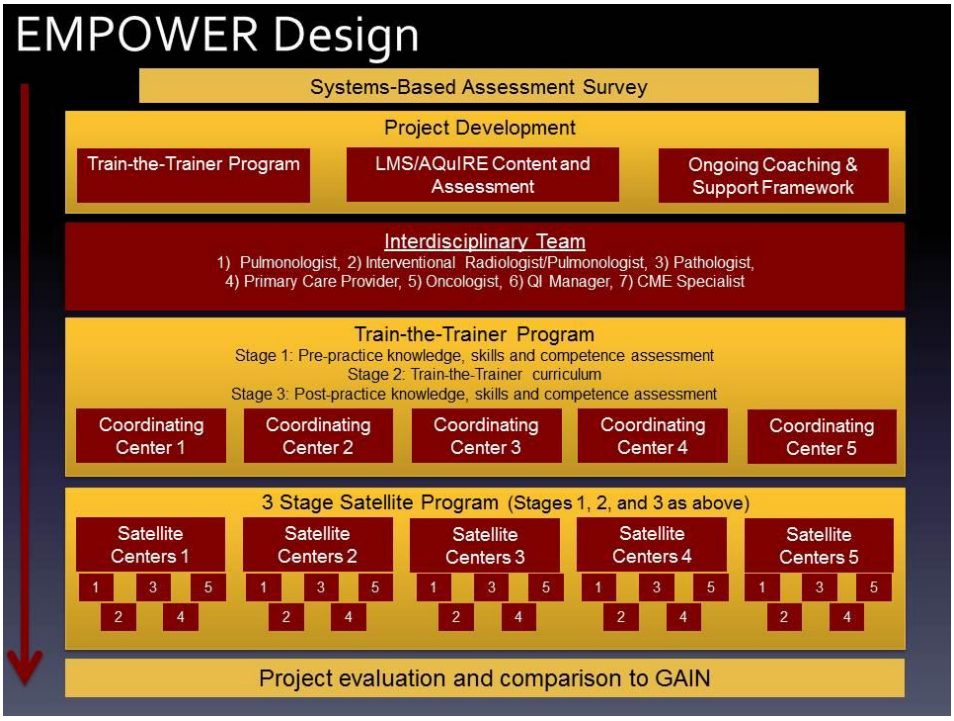
D. Main Section of the Proposal

1. Overall Aim & Objectives

The **aim** of the **E**ngaging **M**ultidisciplinary Teams to Improve **P**atient **O**utcomes **W**ith NSCLC using **E**ducational **R**esources (EMPOWER) initiative is to determine optimal methods to evaluate and treat patients with non-small cell lung cancer (NSCLC) using assessment of the molecular biology of the tumor.

To achieve this goal, the following project **objectives and assessments** were developed:

- Identify barriers in community-based systems for collecting proper tissue samples and performing assays for biomarkers;
    - Assess the current state of interdisciplinary NSCLC diagnosis and medical practice, including the patterns of patient movement through the healthcare system, collaboration among medical teams, the availability of high-level molecular diagnostics across health-care systems, and organization-level barriers to providing personalized care
- Conduct team-based train-the-trainer programs using evidence-based education and assessment tools that serve as change agents for community-based systems and larger networks;
    - Assess the development and implementation of a train-the-trainer program that will address practice-based gaps through the use of interdisciplinary community-based programs in the evaluation and management of patients with NSCLC.
- Provide operational and educational support to multidisciplinary teams working collaboratively in the evaluation and management of patients with NSCLC within these systems;
    - Assess project outcomes and implementation



2. Technical Approach

a. Assessment of Need

Lung cancer is the leading cause of cancer-related mortality in the US, responsible for more deaths than colon, breast, and prostate cancers combined. The average age at diagnosis for lung cancer is 71 years with 68% of patients diagnosed over the age of 65.[1] Non-small cell lung cancer (NSCLC) is the most common cell type accounting for approximately 82% of all lung cancers.[2] The average five-year survival rate for all stages of NSCLC is abysmally low at 15%.[2] These poor outcomes drive an urgent need for innovative research. New models of targeted therapies and personalized care are developing, but their use is impeded by gaps in knowledge and practice related to anatomic staging and assessment of genetic molecular markers of specific cancers. There is also a need for coordinated care among interdisciplinary specialists, including pulmonologists, pathologists, medical oncologists, thoracic surgeons, primary care clinicians, quality improvement (QI) management, and the CME department. Clinicians must have the knowledge and procedural skills to provide suitable biopsies for analysis for assessment of molecular markers by the clinical pathologists.[3]

The ACCP Quality Improvement Registry, Evaluation, and Education (AQuIRE) includes two relevant resources: (1) the Interventional Bronchoscopy Registry; and (2) the Diagnostic Bronchoscopy Registry.[4] As additional cases continue to be entered into the registry databases, current review indicates that the initial diagnosis of lung cancer has been made in 57% of the samples from a total of 1,600 patients representing 3,676 anatomical sites. In more than 10% of the remaining cases, a diagnosis of lung cancer was made by a subsequent bronchoscopy procedure. These data illustrate the need to improve physicians' ability to obtain adequate samples for diagnosis. In a recent survey of barriers to proper preparation and storage of NSCLC tissue specimens, almost 50% of pathologists cite lack of an adequate tissue, illustrating the need to improve physicians' ability to obtain them.[5]

The term NSCLC refers to a group of tumors, with different histologies, mutations, and responses to medication and pathologists must differentiate among cell types and molecular characteristics. Commenting on the pathologist's role in the diagnosis of NSCLC, Dr. Maureen Zakowski noted "the pathologist's primary role is to identify the type of tumor that a patient has, and to stage that patient. In addition, the pathologist must be prepared to forward that

[1] Howlader N, Noone AM, Krapcho M, et al. SEER Cancer Statistics Review, 1975-2008, National Cancer Institute. Bethesda, MD. 2011; http://seer.cancer.gov/csr/1975_2008/, based on November 2010 SEER data submission. Accessed October 15, 2012.

[2] Cancer Monthly. Lung Cancer (NSCLC). 2012; http://www.cancermonthly.com/cancer_basics/lung.asp. Accessed Accessed October 15, 2012.

[3] Personal Communication between Dr. David Ost and the ACCP.

[4] American College of Chest Physicians. AQuIRE - The ACCP Quality Improvement Registry. 2011; http://www.chestnet.org/accp/quality-improvement/aquire. Accessed October 15, 2012

[5] Zakowski MF. Defining the Pathologist's Role in the Modern, Integrated Management of Advanced NSCLC: From Personalized Medicine to Frontline and Maintenance Therapy. 2011; http://www.peerviewpress.com/program_content_page?program_id=8915. Accessed October 15, 2012

tissue on for studies beyond the light microscope that will further enable the clinicians to administer the appropriate therapy."[5]

In addition to this information, ACCP and its collaborators analyzed the outcomes from the GAIN (En**GA**ging an **I**nter-Disciplinary Team for **N**SCLC Diagnosis, Personalized Assessment, and Treatment) project; an educational curriculum designed to improve the knowledge, competence, and performance of a team of interdisciplinary specialists responsible for assessing and managing patients with NSCLC. The overall GAIN curriculum included 10 live Regional Summits and performance improvement modules (PIMs). The PIM for pulmonologists linked to the ACCP AQuIRE data system and is approved for American Board of Internal Medicine (ABIM) Maintenance of Certification (MOC) Part II (self-assessment of medical knowledge) and Part IV (assessment of performance in practice) credits. GAIN also included the ASCP e-learning module delivered through its LMS and CheckPath modules for pathologists. ASCP provided Pathologists with 10.0 MOC Part II, 10.0 MOC Part IV, and 1.5 eLearning credits through its post-Summit online learning activities.

The educational interventions in GAIN focused on reaffirming and improving baseline clinical knowledge, providing skills-based training and reinforcement through problem-based learning and self-study of evidence-based recommendations in the clinical guidelines. The outcomes compiled from GAIN are indicative of improved knowledge, competence and skills. Initial outcomes results from GAIN indicate 99% of the participants had an improvement in competence and performance with a subsequent positive effect on patient outcomes. Post-program evaluations collected immediately after the activities revealed that 87% of the learners were considering changes to their practice. Among the expected changes were ensuring that adequate biopsy samples will be obtained, maintaining a high knowledge and competence level in the use of biomarkers and targeted therapy, using biomarkers to improve diagnosis, utilizing a multidisciplinary approach to lung cancer, and using biomarkers to guide therapy. Long-term survey data revealed self-reported actual changes to practice in all of these areas.[6] These results confirmed that education provided through the GAIN project may improve the evaluation of patients with NSCLC, but there is still a need to educate a multidisciplinary group of clinicians on the importance of accurate tissue diagnosis. GAIN also revealed the importance of addressing the barriers to change identified by participants, including issues of cost, reimbursement, insurance, staffing, and a need for further training.[6]

Two critical issues addressed by the GAIN initiative were team communication and obtaining adequate biopsy specimens. These were addressed by the well-received skills-based simulation training in bronchoscopy and engagement in the problem-based learning case discussions.

Based on review of the GAIN project, it became clear that:

- Most patients present with symptoms that suggest lung cancer, or with abnormal chest radiographs ordered for another reason;
- CT and/or PET imaging are usually performed early in the diagnostic process;

[6] GAIN Outcomes Report. 2012. Data on file at ACCP.

- Most patients are diagnosed in advanced and inoperable stages of lung cancer;
- Bronchoscopy with transbronchial needle aspiration and endobronchial ultrasound are recognized as important tests, but there is considerable variability in training, experience, competence and availability of equipment.

Primary Audiences—Individuals from the following disciplines have been identified as the primary intended audience for EMPOWER:

- Pulmonary Medicine and Interventional Pulmonology
- Primary Care (Including Internal Medicine, Family Medicine, and Nurse Practitioners)
- Pathology
- Oncology
- Quality Improvement (QI) Management
- Continuing Medical Education

The following disciplines have been identified as secondary audiences since they also contribute as members of the cancer care team. These audiences may participate in the EMPOWER initiative if deemed appropriate for their individual institutions:

- Interventional Radiology
- Thoracic Surgery

Additionally, while individual members of the cancer care team are the primary and secondary audiences, institutions and centers, as groups, also hold a key role. Systems factors are critical to the quality of patient care; however system and process gaps can limit the delivery of optimal care. Therefore, EMPOWER was designed to identify and address the system-based barriers on both an individual and systems level.

Steering Committee—A Steering Committee of up to 13 members will be formed to guide the development of the EMPOWER project. The Committee members will represent the target audiences and include content experts representing the primary audiences, ACCP and ASCP members, and others identified for their expertise. The Steering Committee will meet shortly after grant approval to begin planning for the project.

b. Intervention Design and Methods

EMPOWER is designed to build on the GAIN project to provide a multidisciplinary, systems-based approach to improve the evaluation of patients with suspected NSCLC. The design for this project echoes the approach recommended by the International Association for the Study of Lung Cancer/American Thoracic Society/European Respiratory Society in their international recommendations for the classification of lung adenocarcinoma[7] and the ACCP diagnosis and

[7] Travis WD, Brambilla E, Noguchi M, et al. International Association for the Study of Lung Cancer/American Thoracic Society/European Respiratory Society's International Multidisciplinary Classification of Lung Adenocarcinoma. *J Thorac Oncol*. 2011;6(2):244-285.

management of lung cancer (update anticipated in 2013).[8] Experts concluded that the diagnosis of lung adenocarcinomas requires a multidisciplinary approach. A new classification developed by pathologists in collaboration with clinical, radiology, molecular, and surgical colleagues, led to new terminology and criteria that not only define pathologic entities, but also improves communication of critical information that is relevant to patient management.[7]

The diversified educational approach proposed for EMPOWER is also based on ACCP's evidence-based educational guidelines[9] which recommend the use of multimedia CME interventions in preference to single medium interventions, the use of multiple instructional techniques in preference to a single technique, and multiple exposures (sessions) to CME content in preference to a single exposure, all to improve physician knowledge and competence. Utilizing this approach EMPOWER will facilitate sustained improvement through the professional training curriculum outlined below and will be useful following the conclusion of the grant period. In its design, EMPOWER will be developed to be adopted by clinicians and institutions beyond those engaged in this specific initiative. Providers and institutions who wish to use it for enhancing their NSCLC professional training and communication will have access to the EMPOWER curriculum and tools.

1. Systems-Based Assessment Survey—The first component of the EMPOWER project is a systems-based survey which will be distributed to the ACCP and ASCP memberships to determine the current state of interdisciplinary NSCLC medical practice. To ensure a broad range of feedback on systems-based approaches to NSCLC assessment, diagnosis and treatment, the survey will also be sent to oncology and primary care providers in the US. Specifically, the survey will gather data about variations in local practice patterns and hospital system capabilities, including patient identification, referral patterns, collection and analysis of tissue specimens to characterize tumor biology and pathology staging, processing of specimens, and composition of local interdisciplinary NSCLC teams. These variables were specifically identified in data collection and review of barriers throughout the GAIN project and a need to obtain common denominators through many healthcare systems is necessary to include in the educational curriculum. In addition, the variation of current diagnosis patterns and clinician skills will be assessed.

The University of Nebraska Medical Center's College of Public Health, Center for Collaboration on Research and Design, will facilitate the development of the survey with the EMPOWER Steering Committee. The approach to survey development will ensure that survey items maintain an interdisciplinary perspective. Designing a survey to assess the state of medical practice requires a systematic process. Table 1 provides an overview of the eight-phase survey development process that will be in place for the EMPOWER project:

[8] Milroy R. New American College of Chest Physicians Lung Cancer Guidelines: An Important Addition to the Lung Cancer Guidelines Armamentarium. *CHEST*. 2007;132(3):744-746.

[9] Moores LK, Dellert E, Baumann MH, Rosen MJ. Effectiveness of Continuing Medical Education: American College of Chest Physicians Evidence-Based Educational Guidelines. *CHEST.* 2009;135(3_suppl):5S-7S.

Table 1: Phases of Survey Development

Phase	Major Steps of Phase	Deliverable(s)
Define the research problem to be measured	• Discussion of problems with EMPOWER Steering Committee • Identification of problem attributes • Size of populations • Demographics of population	• Statement of problem
Crafting of research questions	• Qualitative description of research questions	• Research questions
Literature review (as needed)	• Conduct scientific review to identify best practices associated with attributes, content and audience	• Review of relevant medical survey research literature
Develop research questions and draft survey	• Initial question development • EMPOWER Steering Committee review of questions • Refinement of questions • Create draft survey instrument	• Beta test version of research questions
Beta test	• Upload questions into online survey tool • Distribute beta survey to sample audience • Revise instrument based on feedback	• Ready to deploy survey
Deploy survey	• Upload survey into a survey deployment tool	• Deployed survey
Analysis of results	• Analyze data • Calculate significance levels • Prepare an executive summary of survey findings • Conduct a review of findings with EMPOWER Steering Committee	• Prepare findings reports • Distribute survey report

The results of the systems-based survey will be used to modify existing educational content from the GAIN project or develop new content that will be incorporated into the ACCP LMS for a train-the-trainer curriculum. This content can include bronchoscopy videos, computer-based simulation applications, pathology and radiology images, problem-based learning discussions, and slide content used at the live GAIN Summits and post-conference tutorials.

The ACCP CourseStage LMS is based on the open-source platform Module, which makes it available to PC, Mac and Linux platforms, assuring that the largest number of users can access the system with limited technical difficulty on a variety of platforms including smartphones and tablets. The LMS will be available to all participants (ie, ACCP and non-ACCP members) who will be given login credentials to access the materials within the LMS. This LMS will be able to track the users information including time spent on particular tasks, the number of correct and incorrect responses as well as additional feedback given to each participant. ACCP will also

leverage its electronic content management system to provide additional resources for participants. The goal is to provide the learners with a number of academic and clinical resources to provide reference information and best practices to them. Evidence has shown that creating a community for e-learners increases their acceptance and participation within the program platform.[10]

2. Train-the-Trainer Program—It has been shown that train-the-trainer programs are an effective way to disseminate knowledge and information to health care professionals.[11] A review of 13 studies showed that train-the-trainer programs significantly helped improve clinical behavior, increase knowledge, and resulted in better patient outcomes.[11]

Therefore, following the systems-based assessment survey, ACCP and the collaborators will conduct an in-person Train-the-Trainer workshop with representatives of the target audience from the five Coordinating Centers: UNMC, Duke University, MD Anderson Cancer Center, Johns Hopkins Medical School, and the University of Nevada Las Vegas (or Reno). UNMC, as a collaborator on this project, is a confirmed Coordinating Center while others listed have been identified based on their participation in GAIN, their geographical representation, smoking prevalence, and access to large community-based healthcare systems.

The faculty for the Train-the-Trainer workshop may be drawn from the exceptional group of experts from the GAIN project, as well as from other national experts identified by the collaborators. As noted above ACCP and the collaborators will also work with IHI to assist in the development of lectures for the training, the development of interactive work sessions, and the enduring modules that will be placed on the LMS. It is expected that the Train-the-Trainer faculty will include (1) Pulmonologists, (2) Pathologists, (3) QI experts, and (4) Coaching and mentoring experts.

Each of the Coordinating Centers will identify persons from each of the target disciplines to participate at ACCP for the one-day Train-the-Trainer workshop. These individuals will then in turn become the trainers for their institutions and their affiliated institutions. The Train-the-Trainer workshop will focus on four areas:

- Knowledge
    - Latest guidelines and outcomes from the GAIN project. These include an overview of ACCP's "Diagnosis and Management of Lung Cancer: ACCP Evidence-Based Clinical Practice Guidelines (3rd ed)," expected to be released in early 2013 and the "CAP/IASLC/AMP Molecular Testing Guidelines for Selection of Lung Cancer Patients for EGFR and ALK Tyrosine Kinase Inhibitors," expected in 2013.
    - Pre-course introductory material
    - Case and simulation-based didactic and interactive sessions

[10] Palloff R, Pratt K. Building virtual communities: Techniques that work! *Proceedings from the 23rd Annual Conference on Distance Teaching and Learning.* 2007. University of Wisconsin.

[11] Pearce J, Mann MK, Jones C, et al. The most effective way of delivering a train-the-trainers program: a systematic review. *JCEHP.* 2012;32(3):215-226.

- Science of QI
    - PDSA (Plan, Do, Study, Act) Modeling
    - Goal setting
    - QI planning
    - Coaching frameworks
- Coaching and Mentoring
    - Instructional design
    - Theories of coaching and mentoring
- Introduction to the Guides/Tools
    - Instructor's Guide
    - Participant's Guide
    - Virtual Room(s)

Following the Train-the-Trainer workshop, videos (15-30 minutes each) will be developed addressing each of the key content topics presented during the live meeting. These will serve as **online enduring content modules** for Coordinating Centers that do not have adequate technical or skilled instructors to teach the subjects, for those who require a refresher on the content and for clinicians or organizations who wish to use the information on their own.

3. Operational/Educational Support to Multidisciplinary Teams—Upon completion of the training, each of the 5 Coordinating Centers will initiate programs in their area with up to 5 Satellite Centers. These Centers will be chosen based on criteria defined by the Steering Committee and will be chosen through a brief application process. For their participation, each Satellite Center will receive a stipend to cover administrative and expense costs associated with the project commitment.

Criteria to become a participating Center are expected to be based on the Center's ability and willingness to evaluate the following areas:

- Patterns of patient movement through the healthcare system
- How medical teams work collaboratively
- Common barriers to providing interdisciplinary and personalized care
- Coordination of care among clinicians in practice settings based on their individual institution's capabilities
- Availability of current and high-quality molecular diagnostics across health care systems
- Implementation of ACCP/ASCP curricula that address practice gaps through the use of interdisciplinary community-based programs (including a team-based train-the-trainer program to inform and improve practice)

Satellite Centers, working in collaboration with the Coordinating Centers, will define a "Plan for Change" for their institution. To facilitate this process a planning template will be developed for use by all the Centers. Pre-assessment data and plans for change will be entered in ACCP's LMS which will also track the post-assessment data and actual change plan documentation. Over the course of the project Coordinating Centers will work with the Satellite Centers to provide

guidance, support, and mentoring in order to achieve the goals outlined in the individual institutions' "Plan for Change."

To facilitate the identification of challenges in implementing changes and to develop solutions the Coordinating Centers will hold regular teleconferences and/or webinars with the Satellite Centers. It is expected that this regular communication be used to coach the institutions and facilitate educational sessions, discuss cases, or evaluate and confront systems-based challenges to practice improvement.

To assist the Centers, ACCP and its collaborators will facilitate the delivery of training opportunities and encourage the use of the LMS components. These training opportunities will include **regularly-scheduled teleconferences or web conferences** that provide overall education and training for the entire group of Coordinating and Satellite Centers as well as reinforce critical elements from the curriculum training. These monthly conferences will also be an opportunity to address key performance-related topics and to discuss strategies to overcome barriers to quality improvement.

In addition to the regularly scheduled conferences and LMS opportunities, a **Virtual Classroom** will be developed to address the challenge of geographically dispersed clinicians participating in the ongoing project. Virtual education is a term describing online education using the Internet. "Virtual" is used here to characterize the fact that the course is not taught in a classroom face-to-face but through the Internet. This platform allows real-time, social interaction between clinician participants. Participants work collectively on a learning task designed by the virtual classroom instructor. Individual microphones, screen sharing, videos, polling, whiteboard/drawing tools, and instant messaging/chats are suggested ways participants communicate with one another during virtual sessions. Outside of the virtual classroom setting collaborative communication may also occur through various technologies including blogs and wikis. Other benefits include the ability to record, edit, and replay training sessions either online or offline.

Plan for Change Conference

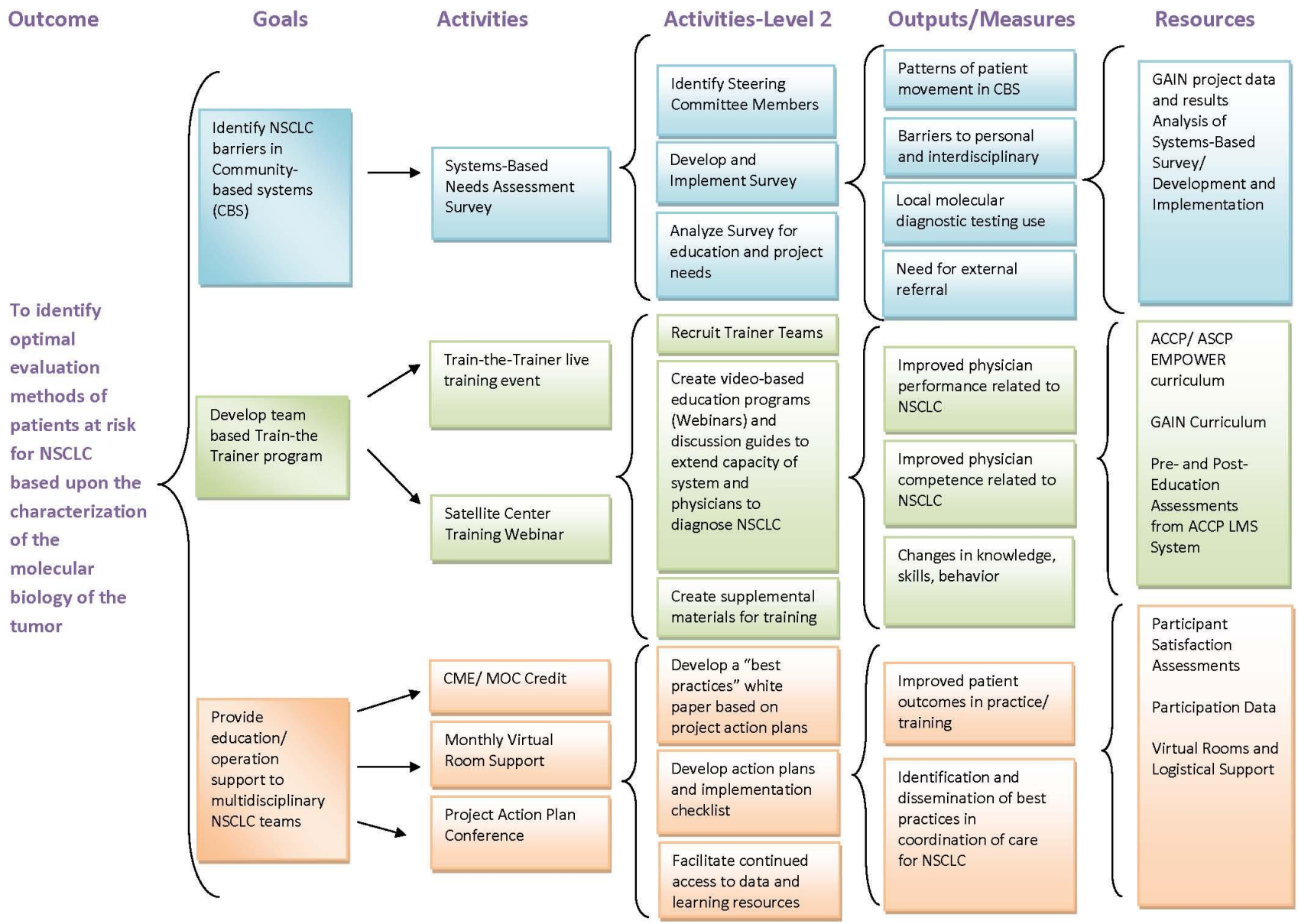
To encourage participants to share experiences and best practices, ACCP and the collaborators will implement a virtual conference at the end of the project. The conference will focus on best practices for NSCLC quality improvement and medical practices across all satellite sites. A white paper will be authored documenting best practices and disseminated through ACCP and ASCP.

c. Evaluation Design

Project Logic Model

The collaborators acknowledge and practice current educational interventions that identify a series of levels for outcomes-based evaluation of continuing education. In order to implement a holistic approach to project assessment from goals to outcomes we have built a logic model to visually represent the components of the project. The logic model provides an overall intervention and assessment approach that aligns with project goals and outcomes.

EMPOWER Logic Model



Evaluation Approach

The evaluation plan for our proposed project includes both formative and summative evaluation of project activities and outcomes. Our hierarchal approach to outcomes assessment is from the principles developed by Donald E. Moore, Jr, PhD and colleagues, updated in the 2009 publication Achieving Desired Results and Improved Outcomes: Integrating Planning and Assessment throughout Learning Activities. Moore and colleague's principles define seven distinct levels of outcomes evaluation.

The overall project evaluation, including both formative and summative evaluations, will assess education and project outcomes as described in the logic model as well as Moore and colleagues' work. Outcomes will be measured for both individuals participating in the program, as well as for the institutional partners. Table 2 describes the outcome levels, what will be measured, some specific data that will be collected, and the measurement tools that will be employed to evaluate the various deliverables described within this grant request:

Table 2: Project Outcomes and Measurement Tools

Outcome Level	What will be measured	Data to be Collected	Measurement Tools
Level 1: Participation	Number of Participants	Total # of participants Demographic info for participants	Participation Records Evaluation Surveys
Level 2: Satisfaction	Degree to which expectations of participants are met	% of participants indicating appropriate content level % of participants who indicate the learning objectives are met	Evaluation surveys
Level 3: Declarative knowledge	Degree to which participants state how to do what the activity intended them to know	Baseline levels of knowledge Improvement in procedural knowledge over baseline in post activity	Multiple choice questionnaire for pre-/post- medical context
Level 3b: Procedural knowledge	Degree to the which participants state what the activity intended them to do	Documentation of intent to change clinical practice Creation of implementation plan	Change plan and "intent to change form" Participation in on-line communities
Level 4: Competence	Attestation of intent to change clinical practice	Documentation of specific aspects of practice change	Intent to change form, including a checklist of practice-based changes to be adjusted
Level 5: Performance	The degree to which the participants do in practice what the activity intended	Documentation of short-term changes in patient care (i.e. referral numbers) and state of practice related-	Project outcomes survey
Level 6: Patient Health	The degree to which the health status of patients improves as a results of participant's behavioral changes.	Documentation of patient care changes	Health status measures recorded in administrative database.

The results of the evaluation will be used to assess satisfaction with the project (Levels 1 and 2) and changes in clinician skills, knowledge, and competence related to the education content (Levels 3a, 3b, and 4) over the course of the project. After the completion of the project, changes in Performance (Level 5) will be assessed through an outcomes survey that will assess changes in practice and patient care. The 2-year implementation of this project does not offer adequate time to assess changes in patient health (Level 6) at the end of this project. However, after completion of this project, a future phase of the project may be undertaken to document long-term patient health outcomes as a result of this project.

The evaluation plan in intended to correspond to both Moore's outcome levels correspond and the evaluation goals as described in the logic model. For example, Project Goal #1—identification of barriers in community-based systems for collecting tissue samples and performing assays for bio-markers—will be assessed through evaluation of changes in physician practice through the course of the project (Level 5). Moore's levels 3a, 3b, & 4, and their measurement, will assess changes in physician knowledge, skills, and competence as a result of the education component of the project (Project Goal #2). Finally, Project Goal #3—providing support to multidisciplinary teams working with NSCLC patients—will be assessed through evaluation of Levels 1, 2, and 5.

EMPOWER Assessment Methods and Analysis

EMPOWER includes both formative and summative evaluations of the project's outcomes and implementation. Overall, we propose two distinct assessment components to the project evaluation: (1) the assessment of education and support activities and (2) the assessment of project outcomes and implementation.

(1) Assessment of EMPOWER Education and Support Activities—The proposed project involves several education components that will be assessed in the project evaluation. Table 3 lists each project education component, related deliverables, outcomes measurement methodologies, and benchmarks.

Table 3: Project Deliverables, Outcomes Methodology, & Benchmarks

Project Education Component	Deliverable	Outcome Methodology	Benchmarks
Project (Train-the-Trainer) and Satellite Center Training Events	Webinar(s)	Pre-/Post Test Participant Survey # of Attendees	Significant differences in test scores. Customer satisfaction
	Participant workbooks Instructor guides	Pre/Post Test Participant Survey	Significant difference in test scores Customer satisfaction
	CME Credit/ MOC Credit	Performance Assessment	Performance indicators for adequate tissue samples
	Satellite Site Training	Pre-Post Test Participant Surveys # of attendees	Significant differences in test scores Customer satisfaction

Project Education Component	Deliverable	Outcome Methodology	Benchmarks
Monthly Teleconference/ Web Calls	Virtual Rooms	Measure unique # of participants Measure number of contributions Measure # of best practices identified	Standards goals to be set from Steering Committee
Plan for Change Conference	Participant Conference	Measure unique # of participants Qualitative Assessment of best practices Participant Satisfaction	Qualitative Evaluation criteria to be set by Steering Committee

All measurement tools will be designed by ASCP/ACCP and delivered on-line through the ACCP LMS.

The evaluation will utilize several statistics methodologies to assess the outcomes of the education interventions. Changes in physician declarative and procedural knowledge (Level 3a and 3b) will be assessed using mean testing (t-tests/chi-squared testing) from pre-/post-education assessments. Level 4 changes (competence) will be assessed through intent to change documents and the evaluation of the best practices conference.

(2) Assessment of EMPOWER Goals and Implementation—The assessment of overall EMPOWER outcomes will require the collection of additional data from each project site at the end of the project. This data will be collected by ASCP through a survey of program participants. The development of the survey will be guided by the EMPOWER Steering Committee. This survey will ask participants about changes in their professional practice (referrals, diagnosis, etc.), systems-based barriers to their practice, and the ability to implement NSCLC-related skill and knowledge acquired during EMPOWER.

EMPOWER participants' satisfaction and training quality (Moore's Level 1 and 2) will be assessed using descriptive and inferential statistics of trainee participation/satisfaction surveys and other data collected from the ACCP LMS.

Moore's Level 5, Performance Outcomes, will be analyzed using the Hierarchical Linear Model (HLM).[12] HLM modeling may be used to assess the effect of the system and the individual practitioner on patient outcomes. HLM has been employed successfully in large-scale medical and clinical outcomes studies of the effects of administrative and systems-based factors on

[12] Hierarchical Linear Modeling (HLM) is a type of regression model used frequently in order to assess overall, individual, and systems based effects on specific education intervention outcomes. In the HLM model, information about individuals is correlated within the system (such that physicians from the same project sites would have similar characteristics in their ability to facilitate change within their community-based medical system).

patient outcomes. For example, Chan and colleagues used HLM to assess physician and community factors affecting referrals to Ontario specialists.[13] Other HLM studies looked at the effects of community and nurse staffing characteristics[14] or the effect of administrative indicators and clinical characteristics on patient outcomes.[15] Overall, the HLM model will allow assessment of both individual and system-based factors in patient outcomes. In addition, HLM modeling may be used to assess changes in practice by comparing the responses of a sample of practitioners from the Systems-based assessment with the responses to the outcomes survey.

Monitoring of Evaluation Activities

The EMPOWER evaluation draws from Moore and colleagues' outcomes levels and project goals to develop a comprehensive assessment of project activities and outcomes. The formative evaluation activities will be used to monitor project activities (Level 1, 2, and 3a) throughout the project performance period. Data collected in the formative evaluation will be monitored on an on-going basis in order to make adjustments to project education activities as needed. The summative evaluation will assess the impact of the project on patient outcomes (Level 5) and physician practice (Level 3b and 4).

Evaluation activities will be monitored by an Outcomes and Impacts sub-committee of the EMPOWER Steering Committee. This group will be responsible for:

- Identifying measurement criteria;
- On-going monitoring of project formative evaluation data;
- Providing evidence-based suggestions for project improvement based on formative evaluation data;
- Developing evaluative criteria for EMPOWER Plan for Change Conference entries; and
- Developing the EMPOWER outcomes survey.

The Outcomes and Impacts committee will be staffed by ASCP.

Detailed Workplan and Deliverables Schedule

The following page includes a workplan and schedule that have been developed to illustrate a systematic approach to plan and implement the EMPOWER initiative.

[13] Chan B, Austin P. Patient, Physician, and Community Factors Affecting Referrals to Specialists in Ontario, Canada: A Population-based, Multi-level Modeling Approach. *Medical Care,* 2003;41(4):500-11.

[14] Hall L, Doran D, Baker, GR, Pink G, Sidani S, et. al. Nursing Staffing Models as Predictors of Patient Outcomes. *Medical Care.* 2003;41(9):1096-1109.

[15] Rosenheck R, Fontana A, Stoler M. Assessing Quality of Care Administrative Indicators and Clinical Outcomes in PTSD. *Medical Care*, 1999;37(2):180-88.

ACTIVITY/DELIVERABLE/MILESTONE	2012	2013				2014				2015
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Conference call and planning among collaborators										
Steering Committee invited										
Steering Committee meeting confirmed										
Live Steering Committee held										
Systems-based assessment survey developed										
Systems-based assessment survey deployed										
Coordinator Center identification and recruitment										
Train-the-Trainer meeting confirmed										
Systems-based assessment survey results compiled										
Systems-based assessment survey report completed										
Train-the-Trainer meeting held at ACCP										
LMS content development begins										
Satellite Center identification and recruitment										
LMS content launch										
“Plan for Change” identified by Satellite Centers										
Monthly web/teleconferences begin between Coordinating Centers and Satellite Centers										
Virtual classroom launched										
Continuation of monthly web/teleconferences										
Program data collection (ongoing)										
Final monthly web/teleconferences										
“Plan for Change” conference and post-assessment data entered into LMS										
Collection of final program data										
Analysis of program data										
Final outcomes report delivered										
White paper development for EMPOWER results										