

## **Integrating tobacco cessation interventions in the routine of care of a rehabilitation hospital serving a rural population in Washington State**

**Grant ID: 16949251**

### **Main collaborators:**

**Beatriz H. Carlini**, PhD, MPH. Research Scientist at University of Washington Alcohol and Drug Abuse Institute and Affiliate Associate Professor at UW School of Public Health, Health Sciences.

**Gregory T. Carter**, MD, MS. Medical Director, St. Luke's Rehabilitation Institute.

**Chris Greer**, B Pharm. Manager of the Pharmacy and Inpatient Respiratory Therapy departments at St. Luke's Rehabilitation Institute.

**Douglas L. Weeks**, PhD. Senior Researcher for St. Luke's Rehabilitation Institute.

### **Abstract**

The primary goal of this proposal is to implement a tobacco cessation program to ensure that smokers admitted to St. Luke's Rehabilitation Institute (SLRI) receive evidence-based tobacco cessation interventions during their hospitalization and after discharge. SLRI is located in Spokane, Washington, and is the only level 1 trauma rehabilitation hospital in the Inland Northwest.

SLRI overall tobacco use prevalence is 18% among inpatients and exceeds 34% among those less than 65 years of age. Patients identified as tobacco users have a higher length of hospital stay and require a significantly higher number of doses of pain medication than patients who do not use tobacco.

In working towards the proposed goal, the project will provide training for clinical staff on tobacco dependence and cessation interventions; modify inpatient health records to prompt and document tobacco cessation interventions and implement an evidence-based pharmacist-assisted inpatient tobacco use treatment program and a discharge protocol that includes the provision of prescription for medication and referral to support for continued cessation support after hospital discharge. The project is based on the Joint Commission-recommended measures for tobacco treatment among hospitalized smokers

The project team is highly qualified to plan, implement and evaluate the project and includes tobacco cessation specialists, clinicians and researchers. The hospital administration supports the project.

If funded, this proposal would improve clinical practices and systems as they relate to tobacco use and dependence for a hospital that serves primarily a rural population from eastern Washington, northern Idaho, western Montana, and northeast Oregon.

## Table of Contents

C. Main section of the Proposal .....	3
C.3. Overall Goal & Objectives .....	3
C.4. Technical Approach.....	4
C.4a. Current Assessment of Need in Target Area .....	4
C.4.b. Project Design and Methods .....	5
C.4.c. Evaluation Design .....	8
C.5. Detailed Workplan and Deliverables Schedule .....	12
D. Organizational Details .....	15
D.1. Leadership and Organizational Capability.....	15
D.2. Staff Capacity.....	16
E. Detailed Budget (see spreadsheet) and Budget Justification.....	18
F. Staff Biosketches .....	21
G. Letters of Commitment (see attached) .....	26

## **C. Main section of the Proposal**

### **C.3. Overall Goal & Objectives**

The primary goal of this proposal is to implement a tobacco cessation program to ensure that tobacco users admitted to St. Luke's Rehabilitation Institute (SLRI) receive evidence-based tobacco cessation interventions during their hospitalization and after discharge, based on Joint Commission recommendations (see Flowchart, Figure 1).

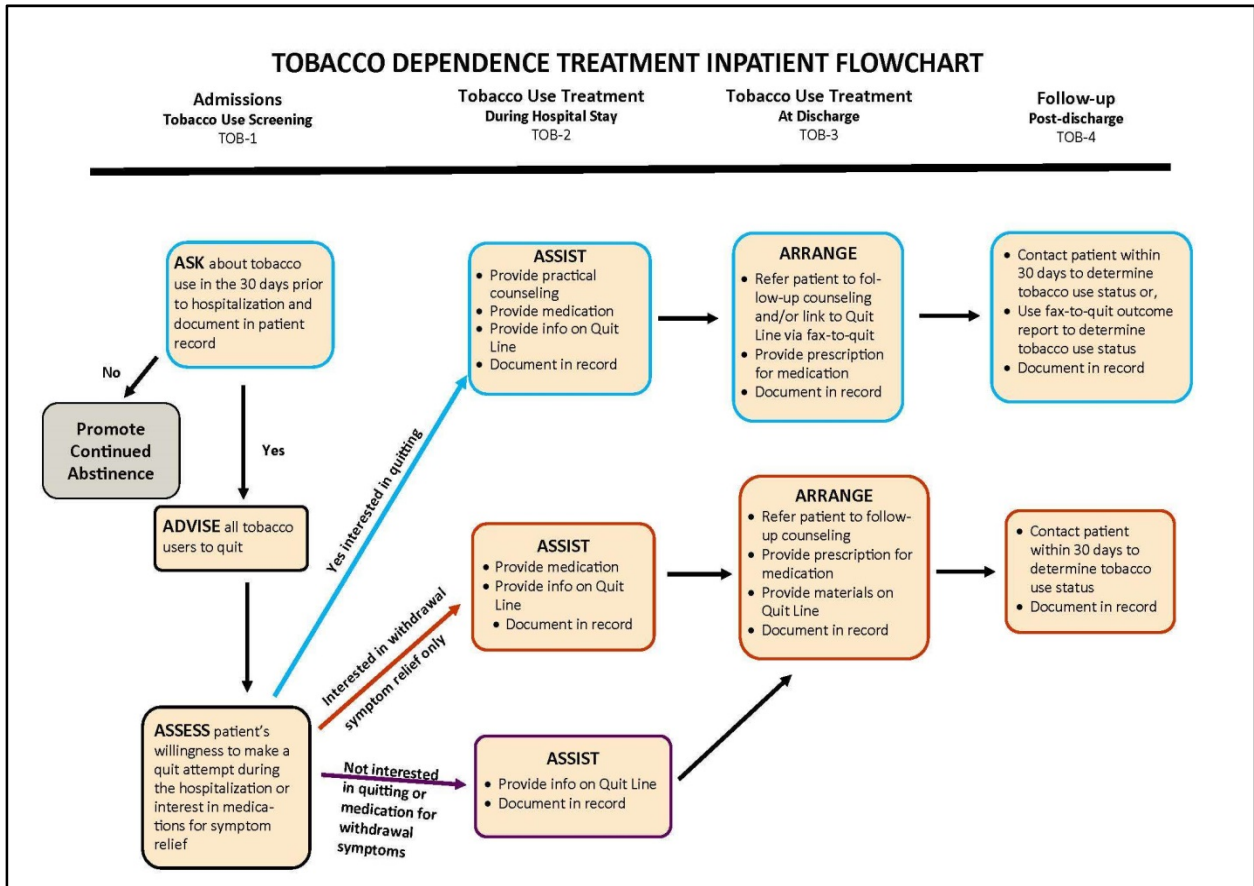
This goal is in alignment with Pfizer Independent Grants Request for Proposals (RFP) focus on smoking cessation, as it proposes to improve the competence of health care professionals and the performance of health care systems of a hospital located in a rural area. The proposal is also aligned with SLRI's leadership plans to work towards full compliance with the Joint Commission (Joint Commission, 2012) recommendations for tobacco treatment among hospitalized smokers. Lastly, this project is consistent with the mission of the University of Washington's Alcohol and Drug Abuse Institute to disseminate evidence-based and scientifically proven effective treatment for substance abuse disorders, including tobacco addiction.

In order to achieve this goal, the key objectives of the proposal are to:

1. Educate clinical staff on evidence-based tobacco dependence screening, cessation advice and assessment for hospitalized patients (TOB-1, see Figure 1)
2. Modify inpatient medical record systems to prompt and document tobacco cessation interventions during and after hospitalization (TOB-1, TOB-2, TOB-3 and TOB-4, Figure 1)
3. Implement an evidence-based, pharmacist-assisted inpatient tobacco use treatment program (TOB-2, Figure 1)
4. Implement a discharge protocol that includes the provision of prescriptions for medication and referral to support for continued cessation support after hospital discharge (TOB-3, Figure 1)

We carefully considered adding the implementation of the fourth Joint Commission measure (documenting tobacco use at follow-up post discharge - TOB-4) as a key objective in this project, but decided it would be too ambitious for the project's timeline and resources. We will be able, however, to add a field to document TOB-4 in the Electronic Health Records and plan to develop a TOB-4 implementation plan in partnership with case managers, pharmacists and discharge nurses.

Figure 1



#### C.4. Technical Approach

This project is in response to an RFP on Smoking Cessation by Pfizer Independent Grants for Learning and Change. If funded, this proposal will address the goal of this RFP of improving clinical practices and systems as they relate to tobacco use treatment. It would also be consistent with the RFP focus by working with special populations disproportionately burdened by tobacco use. SLRI is a hospital that serves primarily a rural population from eastern Washington, northern Idaho, western Montana and northeast Oregon. Increasing the rates of tobacco abstinence in this high risk group has the potential to save lives and decrease health care costs.

##### C.4a. Current Assessment of Need in Target Area

SLRI is the largest free-standing physical rehabilitation hospital and the only level 1 trauma rehabilitation hospital in the Inland Northwest (Spokane, WA). SLRI has 102 beds and had 1503 inpatient admissions in 2013 covering 20,634 patient days. Stroke, brain injury, spinal cord injury, neurological, cardiac, pulmonary, and orthopedic conditions are the most common inpatient diagnoses. Average hospital stay varies from 14 to 17 days, depending on the diagnosis. A much longer length of stay than in an acute hospital setting, coupled with the fact that tobacco use is a risk factor for recurrent illness in common rehabilitation conditions, such

as stroke, cardiac conditions, and pulmonary conditions, makes the inpatient rehabilitation setting an ideal venue for evidence-based tobacco cessation efforts.

There is great potential for improvement in SRLI clinical practices for hospitalized tobacco users. Currently, tobacco use status is recorded in a systematic way during admission, but no clear protocol or policies exist beyond that point to consistently address tobacco cessation. Cessation counseling assistance may be provided, but is not systematically documented, and no staff have been trained or assigned to perform this task. Medications to manage nicotine withdrawal may be offered and provided, but adherence is variable. There are no protocols in place to assure smokers have access to continued cessation support after discharge.

SLRI recently analyzed inpatient tobacco status data by researching their Electronic Health Records (EHR) from 2010 to 2013. It was found that overall tobacco use prevalence was 18% among inpatients, which is slightly higher than WA State prevalence of 16.1% (CDC, 2014). Tobacco use prevalence exceeded 34% among the 30% of patients under 65 years old. Patients identified as tobacco users had a higher length of hospital stay (1.5 days longer) than non-tobacco users and required a significantly higher number of doses of pain medication. Patients admitted for stroke, spinal cord injury and traumatic brain injury were more likely to be tobacco users than those admitted for other diagnoses.

The primary audiences for this project are clinicians directly involved with patient care at SLRI. Pharmacists and clinicians involved in discharge plans and procedures will receive more intensive training than the overall SLRI clinical body, as they will be assigned prominent roles in the implementation of SLRI tobacco cessation program.

#### **C.4.b. Project Design and Methods**

The proposed project is designed to implement an evidence-based tobacco cessation program that assures that patients are screened and assessed about their tobacco use, receive counseling and medication during hospital stay and follow-up care after discharge (medication prescription and referral). The project is based on Joint Commission-recommended measures for tobacco treatment among hospitalized smokers.

The project team will base its work on two manuals: *Treating Tobacco Use and Dependence in Hospitalized Patients – a Practical Guide* and *Helping Patients Quit* (University of Wisconsin, 2012) and *Implementing the Joint Commission Tobacco Measure Set in Your Hospital* (Partnership for Prevention, 2012). Online training tools provided by Smoking Cessation Leadership (Rx for Change) and University of Wisconsin Center for Tobacco Research and Intervention (CITRI) will be leveraged to train clinical staff in communicating with patients and delivering counseling.

SLRI leadership has offered to support the project by designating key staff members in the Pharmacy and Respiratory Care Departments and will involve other departments as needed (Nursing, Psychology, Quality Improvement, Discharge staff) to collaborate with the project team (PI/project manager/clinical director/senior researcher).

First project step- Assessment and Planning: In this first phase, the goal is to understand processes and coordination of care from Admission to Discharge, as well information systems (Electronic Health Records) that support them. Assessment activities will include a hospital walk-through, interviews and meetings with a wide array of clinicians and administrative staff.

We will also interview clinical leadership and key staff as it relates to their knowledge, perceived barriers to deliver smoking cessation interventions, beliefs and attitudes towards cessation and knowledge of evidence-based smoking cessation practices.

The results of this assessment will inform our project team on making decisions about tobacco cessation program improvement plans. Based on what we learn, we will collaborate with hospital leadership and our hospital team in developing a realistic tobacco cessation program and training/capacity-building activities tailored to SLRI staff needs.

Details of the project's next steps will be defined during the Assessment and Planning phase. The next steps will be:

Delivery of tobacco cessation education to clinical staff: This step is necessary to assure clinical staff can comply with TOB-1 (Ask, Advise and Assess tobacco use). The training will address health consequences of smoking and evidence-based tobacco cessation approaches and will be made available to all SLRI clinical staff. To maximize attendance, we plan to deliver training on three different occasions: two face-to-face workshops delivered in the SLRI auditorium at different times and days of the week and a webinar, to be recorded and made available for future reference in SLRI intranet. These opportunities will be widely disseminated and offered as an on-job training opportunity.

Tobacco cessation specialist and respiratory therapist Deb Miller (consultant in this project) will work with Dr. Carlini on developing training content and will be responsible for training delivery. Online modules produced by Rx for Change, a program that equips practicing clinicians with evidence-based knowledge and skills for assisting patients with quitting, will be used to illustrate suggested clinical practices (<http://rxforchange.ucsf.edu>). Topics will include: tobacco use as a cause of hospitalization and its impact on recovery; evidence-based treatments (including counseling and a general overview of FDA-approved pharmacotherapy); and clinicians role in addressing tobacco use with patients, a how to screen, advise and assess willingness to quit among hospitalized tobacco users. The clinical significance of documenting these procedures in the EHRs and the upcoming changes in EHRs prompts to support these practices will also be addressed.

Modification of Electronic Health Records: The modification of EHRs will support, prompt and remind clinicians to deliver tobacco cessation interventions during hospitalization and discharge. It will also support documentation and allow assessing compliance with tobacco cessation support per Joint Commission recommendations. The specifics of these modifications will be decided after initial assessment and pilot testing of some options. It will likely include hardwire prompting and scripts related to tobacco cessation interventions and capability to generate daily standing orders for tobacco cessation counseling and medication. We also anticipate including fields in health records to document tobacco use status, interventions, referral and prescription at discharge, and subsequent follow-up. The versatility of SLRI

Electronic Health Record systems makes it possible to customize processes for this project in a relatively short period of time - SLRI utilizes the Meditech EHR as its main platform and Medilinks for nursing, therapy, case management and medical staff documentation. Meditech provides robust order management, transcription, radiology, laboratory, and pharmacy modules. Medilinks provides highly customizable patient care documentation for nursing, therapy, case management, and medical staff.

Implementation of a pharmacist-based tobacco use treatment program. The delivery of evidence-based tobacco use treatment to hospitalized smokers (TOB-3) will be responsibility of SLRI pharmacists. Mr. Chris Greer, manager of the SLRI Pharmacy and Inpatient Respiratory Therapy and other three pharmacists designated by him will be the “champions” on implementing a pharmacist-based tobacco use treatment program. Planning, testing and implementation of a tobacco use treatment program will involve a) capacity building in the area of tobacco cessation interventions to the pharmacists’ champions, b) collaborative work with Dr. Carlini and consultants to develop and test a tobacco use treatment protocol, c) implementation of tested protocol in the routine of care, and d) development of a sustainable plan to ensure that the protocol adopted is consistently delivered to SLRI hospitalized smokers.

a) Capacity Building – This phase will be comprised of training and tailored mentoring. Training will be provided through the Washington State Pharmacy Association (WSPA) online program, designed to train pharmacists to provide tobacco cessation services to eligible patients (<http://www.wsparx.org/event/tobaccocessation>). Faculty members are Stan Weber, Pharm.D., Professor, University of Washington School of Pharmacy and Jeff Rochon, Pharm.D., Chief Executive Officer, Washington State Pharmacy Association. Training goals are aligned with this project and include identifying the role of the pharmacist in tobacco cessation, understanding the relationship between educational, behavioral, and pharmacological smoking cessation interventions, learning about different cessation products, and understanding frequently prescribed drugs whose pharmacokinetics are altered by smoking and effectiveness of current drug therapies for smoking cessation.

Tailored mentoring will be provided Mr. Frank Vitale, National Director of the Pharmacy Partnership for Tobacco Cessation. Mr. Vitale will consult by telephone and will be available to discuss specific clinical cases and share his clinical experience. Dr Carlini and Ms. Miller will be available during the mentorship phase to provide extra support as needed.

b) Development of SLRI tobacco use treatment protocol – The changes made in SLRI EHR systems will support the delivery of tobacco use treatment by generating automatic standing orders for counseling and medication. The treatment protocol will be developed in discussions with the pharmacy team and tested on a small scale before being fully implemented. Dr. Carlini has extensive experience in assisting health care teams to develop and test changes in the routine of care, using the Model of Improvement, “Plan-Do-Study-Act” approach (Langley et al, 2009). She will work closely with the hospital champion team on this phase. Mr. Frank Vitale will assist in troubleshooting protocol implementation.

The treatment protocol will detail when, how often and under which circumstances tobacco use treatment will be provided and documented, define specific components of tobacco use treatment according to patient interest in quitting (see Figure 1: wants to quit, not

interested in quitting but wants medication, declines medication and does not want to quit) and suggest training procedures for new hires and quality assurance mechanisms. Other components will be added as needed if not already integrated in the EHR (quick reference to FDA-approved medications, work-flow and communication procedures with Discharge staff, etc.).

c) Implement a discharge protocol that includes the provision of prescription for medication and referral to support for continued cessation support after hospital discharge (TOB-3) – The pharmacy department and project team will work in collaboration with Discharge Case Managers to ensure the provision of FDA-approved prescription medications at discharge, allowing patients to have adequate pharmacotherapy support when they conclude their hospital stay. Referral to tobacco cessation community resources or primary care physicians will also be incorporated as an element of discharge procedures. Fax and electronic referrals to quitlines will be one of the options of support and follow-up. We also anticipate that many other resources will become available, as several provisions of the Affordable Care Act (ACA) are designed to assure that smokers can get tobacco use treatment through Medicaid, Medicare and private insurances (McAfee et al., 2015).

Videos produced by the University of Wisconsin and featuring patients receiving tobacco use referral and support at hospital discharge will serve as training tools for nurses and case managers. These videos illustrate appropriate communication with smokers leaving the hospital and encourage compliance to new discharge protocol procedures. These videos were made freely available by the University of Wisconsin Center for Tobacco Research and Intervention ([http://www.ctri.wisc.edu/HC.Providers/healthcare\\_ondemand\\_hospital.htm](http://www.ctri.wisc.edu/HC.Providers/healthcare_ondemand_hospital.htm))

d) Sustainability – SLRI leadership is committed to integrating tobacco cessation protocols in their routine of care. They are also interested in making changes beyond this project to become fully compliant with the tobacco treatment measures approved by Joint Commission in 2012. The changes in EHR and training provided should result in a self-sustaining system.

#### **C.4.c. Evaluation Design**

Changes in clinical practices will be assessed by EHR analysis. An interrupted time series (ITS) analysis (Biglan et al, 2000; Wagner et al, 2002; Huitema et al, 2002) will be utilized to evaluate project effectiveness at implementing the tobacco cessation program, measured by EHR documentation before and after implementation.

To date, SLRI has one brief dedicated EHR field to assess tobacco use at admission and a “branch” field that optionally allows for other entries (suggested entries are “type of tobacco use” and “frequency”). The EHR will be modified during the life of this project to become more comprehensive in the information collected and better support tobacco cessation assistance per national guidelines. The ITS analysis will depend on historical data available prior to and after the EHR modification. Tobacco-related EHR extracts will be requested from 36 months prior to the start of baseline activities and for the 18 months following project initiation. The EHR information to be collected for the ITS analysis will be:



- Documentation of tobacco use at admission – variables are “Documented” (field indicates Yes, No or Unknown) or “Not Documented”.

Among documented tobacco users (EHR with Tobacco Use field=yes), the following information will be collected:

- Provision of tobacco cessation assistance – Advise: Variables are Yes (defined by containing notes related to advice to quit) or No (absence of notes)
- Provision of tobacco cessation assistance – Assessment of willingness to quit: Variables are Yes (defined by containing notes related to willingness to quit) or No (absence of notes)
- Provision of tobacco cessation assistance – Counseling provided/educational materials supplied: Variables are Yes (defined by containing notes related to counseling or materials) or No (absence of notes)
- Medication to manage withdrawal symptoms prescribed during hospitalization offered: variables are Yes (Medication order of FDA-approved pharmacotherapy fulfilled), Declined (Medication offered but declined) or No (absence of notes about medication)
- Referral to cessation support at discharge: variables are Yes (Discharge plan includes referral to state Quitlines, in-person support groups or instructions to outpatient provider to follow up on tobacco cessation support) or No (absence of referral in discharge plan)

ITS analysis will evaluate changes in the proportions of each outcome before and after exposure to the project activities. The ITS data consists of a sequence of values of the particular outcome taken at regularly spaced intervals over time. For this study, the proportion of tobacco use status at screening will be determined out of all hospital admissions; whereas, the proportion of the remaining 5 outcomes will be determined out of all identified tobacco users at screening. All proportions will be measured in one month windows. For the ITS analysis, the series of proportions of each monthly outcome for the 36 months prior to the start of the intervention (referred to as the baseline phase) will be compared to the series of proportions of referral for the 18 months following training initiation (post-intervention-phase data) to evaluate patterns of change over time.

The major purpose of this ITS design is to evaluate possible differential performance between the baseline and post-intervention phases. The model specified includes a 4-parameter regression that will provide estimates of the level of change and slope change between the two phases. There will be 1 through  $n_1$  observations in the baseline phase and  $n_1 + 1$  through  $n_1 + n_2$  during the intervention phase, where  $n_1 = 36$  months and  $n_2 = 18$  months. It is hypothesized that the intervention will produce a substantial immediate change in level and slope (trend) when compared to the pre-intervention temporal pattern on all 5 outcomes. The specific model to be utilized is as follows:

$$Y_t = \beta_0 + \beta_1 * T_t + \beta_2 * D_t + \beta_3 * [T_t - (n_1 + 1)] * D_t + e_t, \text{ where}$$

$Y_t$  is the outcome variable at time  $t$ ,

$T_t$  is the value of the measurement occasion variable  $T$  at time  $t$ ,

$D_t$  is the value of the dummy variable indicating the treatment phase (0 = baseline, 1 = post-intervention) at time  $t$ ,

$[T_t - (n_1 + 1)] * D_t$  is the value of the slope change variable at time  $t$ ,  
 $\beta_0$  is the baseline phase intercept,  
 $\beta_1$  is the baseline phase slope,  
 $\beta_2$  is the level change estimate,  
 $\beta_3$  is the slope change estimate, and  
 $e_t$  is the error of the model at time  $t$ .

With this model,  $\beta_2$  is the coefficient providing information on the immediate change to the level of the series of observations that takes place in the baseline phase after the intervention is introduced. The coefficient  $\beta_3$  is a measure of the change in slope, or trend from the baseline to the post-intervention phases. The post-intervention slope is equal to the sum  $\beta_1 + \beta_3$ . Both the  $\beta_2$  and  $\beta_3$  coefficients are required to provide a sufficient description of the change from the baseline to the post-intervention phases.

Graphical presentation of the results will be provided for visual inspection of the series over time on each outcome. In addition to assessing the statistical significance of each regression coefficient in the 4-parameter regression model presented above, we will compare post-intervention values of the level and slope to values estimated at that phase but based on baseline level and trend only, as if the intervention had not occurred. The intervention effect will therefore be expressed as the absolute difference between the predicted outcome based on this effect and the actual post-intervention effect, and as the ratio of the two predicted effects, expressed as a percentage increase or decrease after the project initiation.

The Durbin-Watson statistic will be used to test for autocorrelation among the errors of the 4-parameter model, and the type of statistical model will depend on the assessment of the autocorrelation of errors with this statistic. That is, the ITS model will be estimated using either ordinary least squares (for the case of approximately independent errors) or a more complex time-series approach (for autocorrelated errors).

Expected changes – We expect increases of high magnitude in the performance and documentation of tobacco cessation intervention after the project is fully implemented (12 months after its initiation). As described earlier, currently SLRI EHRs systems require only tobacco use status documentation. We expect that – among documented tobacco users – tobacco cessation advice, assessment, treatment delivery and referral at discharge will increase at least 50% during the last six months of the project as compared to the baseline assessment (36 months before project initiation).

Target audience involvement – The goal of this project is to change clinical practices and the evaluation design is designed with this goal in mind. As suggested by the RFP, we will also track and report indicators of our target audience engagement (SLRI clinicians) in the many steps of the project. This will be accomplished by documenting attendance to training events, planning meetings and working committees that may be formed to assist in the project implementation.

Dissemination of findings – We will develop a webinar to inform SLRI leadership and clinical body of the project findings. We will also disseminate project findings in other hospitals. SLRI works closely with Providence Sacred Heart Medical Center and they have established a

strong referral partnership. Sacred Heart has already expressed interest in learning more about SLRI plans in the area of smoking cessation. Furthermore, SLRI and its parent company - Inland Northwest Health Services (INHS) – are affiliated with Providence Health Care. Providence Health Care has many hospitals in Washington State that have not adopted protocols for tobacco use treatment. The implementation of a solid tobacco cessation program at SLRI coupled with changes in our health care landscape brought about by ACA will make the dissemination of this project very likely.

## C.5. Detailed Workplan and Deliverables Schedule

SLRI project	2015									2016								
Deliverables and timeline	Q1			Q2			Q3			Q4			Q5			Q6		
Months	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Clinical practices assessment	X	X	X															
Team discussion and identification of needs	X	X	X															
Interview clinical and administrative key leadership	X	X	X															
EHR assessment	X	X	X															
Inventory: referral options at discharge	X	X	X															
<b>7/31/15 Deliverable 1: Assessment and Planning</b>																		
Workshops and webinars - on the job training					X	X												
<b>9/30/15 Deliverable 2: Education of clinical staff</b>																		
Develop modification plan and gather feedback			X	X														
EHRs modifications				X	X													
Launch EHR changes: staff communication and training					X	X												
<b>10/31/15 Deliverable 3: EHR modifications</b>																		
Capacity Building						X	X											
Develop/ test protocol						X	X	X										
Implement protocol								X	X									
<b>01/31/16 Deliverable 4 : Pharmacy-based treatment</b>																		
Protocol: referral at discharge										X	X	X						
Protocol: medication prescription procedures										X	X	X						
Plan 30-day follow up										X	X	X						
<b>04/30/16 Deliverable 5: Referral system at discharge</b>																		
Extract tobacco data from EHR										X	X	X	X	X	X			
Collect data on training participation												X						
Analysis and write-up										X	X	X	X	X	X	X	X	X
<b>10/31/16 Deliverable 6: Evaluation</b>																		

### Quarter 1, May – July 2015

The goal of the first quarter is to assess SLRI systems, staff and leadership. The learnings of this first quarter will inform the work to be developed in future quarters. Dr. Carlini will conduct her first site visit during this time, followed by phone and email communication with hospital leadership and teams.

The assessment will include a hospital walk-through to understand current processes/practices and coordination of care from Admission to Discharge. This will be followed by interviews with department representatives and staff. We will also meet with the staff in charge of requesting changes to the two EHR programs and with the staff designated to work on data extraction and analysis plans. We will work with discharge staff to investigate potential local resources for referral to support tobacco users after discharge. Based on what we learn, we will collaborate with hospital leadership and our hospital team in developing a realistic tobacco cessation program and training/capacity building activities tailored to SLRI staff needs.

### Quarter 2, August – October 2015

The goals of the second quarter are to: a) deliver two workshops and one webinar to SLRI clinical staff and b) change EHR systems to support the implementation of a tobacco cessation program.

In order to achieve these goals, Dr. Carlini will work with Ms. Miller and SLRI project manager on trainings' logistics, content, dissemination and delivery. Concomitantly, Dr. Carlini will work with SLRI team on developing a plan, requesting changes and launching EHRs modifications that support a tobacco cessation program per JC guidelines and measures. Staff communication and training on the new EHRs capabilities will be also delivered during this quarter, probably through webinars and electronic communication from the leadership.

### Quarter 3, November 2015 – January 2016

The project's third quarter will focus on implementing a pharmacist-based tobacco use treatment program. This will involve intensive training of four pharmacists on evidence-based tobacco cessation treatment (counseling and medication) and working with them and other clinical staff on developing and testing a protocol that assures identified tobacco users receive treatment in a timely manner.

Dr. Carlini will work directly and in person with the team of pharmacists during this phase (site visits, emails and phone meetings) on testing protocol prototypes. The pharmacist team will also consult with Mr. Vitale and Ms. Miller on defining procedures that are evidence-based and realistic. The development of a sustainability plan to assure that the protocol adopted is consistently delivered to SLRI hospitalized smokers will conclude the activities of this quarter.

### Quarter 4, February – April 2016

The fourth quarter goal is to implement discharge procedures for tobacco users. With the new EHRs already in place, tobacco users will be automatically flagged for discharge purposes. Dr. Carlini and designated SLRI team, including pharmacists, will meet with discharge staff to define procedures on medication prescription and follow up support to tobacco users.

Medication and follow-up support should be customized to tobacco users' interest in quitting and take into account their overall health condition.

A plan for future implementation of TOB-4 (follow up after 30 days of discharge to assess tobacco use status) will also be developed, identifying possible opportunities and challenges and a tentative timetable for addressing this last JC requirement.

All components of SLRI tobacco cessation program should become functional by the end of Quarter 4.

#### Quarter 5 and 6, May – July 2016 and August – October 2016

The goal of these last two quarters is to assure the project is properly evaluated and its successes and challenges reported for purposes of sustainability and dissemination.

Activities include analysis planning, data extract, data analysis and preparation of reports and power point presentations for SLRI leadership.

#### **References**

1. Biglan, A., D. Ary, and A. Wagenaar (2000). The Value of Interrupted Time-Series Experiments for Community Intervention Research. *Prevention Science* 1(1): p. 31-49
2. CDC – Centers for Disease Prevention and Control (2014), State Tobacco Activities Tracking and Evaluation (STATE) System, Cigarette Use, Adult current smokers at <http://apps.nccd.cdc.gov/statesystem/InteractiveReport/InteractiveReports.aspx?MeasureID=1>
3. Huitema, B.E. and J.W. Mckean (2000), Design Specification Issues in Time-Series Intervention Models. *Educational and Psychological Measurement*, 60(1): p. 38-58.
4. Joint Commission, 2012 – Tobacco treatment Measures at [http://www.jointcommission.org/assets/1/6/Tobacco\\_Treatment\\_Measures\\_List.doc.pdf](http://www.jointcommission.org/assets/1/6/Tobacco_Treatment_Measures_List.doc.pdf)
5. Langley GL, N.K., Nolan TW, Norman CL, Provost LP (2009). *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance.* , San Francisco, California, USA: Jossey-Bass Publishers.
6. McAfee T, Babb S, McNabb S, Fiore MC. (2015) Helping smokers quit—opportunities created by the Affordable Care Act. *N Engl J Med.* 1;372(1):5-7.
7. Partnership for Prevention (2012) Helping Patients Quit - Implementing the Joint Commission Tobacco Measure Set in Your Hospital. Available at <http://www.prevent.org/data/files/resourcedocs/hpq,%20full,%20final,%2010-31-11.pdf>
8. University of Wisconsin, CITRI (2012). *Treating Tobacco Use and Dependence in Hospitalized Patients: A Practical Guide.*
9. Wagner, A.K., et al. (2002) Segmented regression analysis of interrupted time series studies in medication use research. *J Clin Pharm Ther*, 27(4): p. 299-309.