FY 2013 ANNUAL REPORT

Bridging disciplines to promote health

July 1, 2012- June 30, 2013
The Oklahoma Tobacco Research Center (OTRC) is committed to reducing the burden of tobacco related health problems in Oklahoma by stimulating the generation and dissemination of knowledge and the implementation and diffusion of effective practices.

Launched on July 1, 2007 with TSET funding, the OTRC is a program of the Peggy and Charles Stephenson Cancer Center. The OTRC funds investigators from institutions and organizations throughout Oklahoma to conduct behavioral and biomedical research in cancer and tobacco-related diseases. This work moves the Cancer Center closer to earning a “comprehensive cancer center” designation from the National Cancer Institute.

The Oklahoma Tobacco Settlement Endowment Trust was established through a constitutional amendment approved by Oklahoma voters in November 2000. While most state governments have failed to keep their promise to use tobacco settlement funds for tobacco prevention and other programs to improve health, Oklahomans have created an endowment to assure that funds will be available for these purposes for generations to come. (TSET website, www.ok.gov/tset/)
Table of Contents

Note from the Director ........................................................................................................1
Meet our Co-Directors & Staff ..........................................................................................2
Education and Training .......................................................................................................4
  Tobacco Research Seminars ...............................................................................................4
  2nd Annual Stephenson Cancer Research Center Retreat .............................................5
  OTRC Journal Club ..........................................................................................................5
  News & Media ..................................................................................................................6
Research .............................................................................................................................7
  OTRC Seed Grant Program ..............................................................................................7
  Advanced Developmental Grants .....................................................................................9
  OTRC Student Scholar Program ....................................................................................13
  OTRC Supports OU Health Sciences Center Students .................................................14
  OUHSC Center for Clinical and Translational Research Summer Scholars Program ....15
  American Journal of Preventative Medicine ....................................................................16
Grants, Presentations, & Publications ................................................................................17
  New Extramural Grants funded FY13 .............................................................................17
  Publications .....................................................................................................................19
  Selected Publications In Press or Under Review ............................................................20
  Conference Presentations ...............................................................................................21
Clinical Training & Services ...............................................................................................26
  Tobacco Dependence Treatment Program (TDTP) ......................................................26
  Oklahoma Tobacco Helpline Program .........................................................................26
  Training Healthcare Providers in Smoking Cessation ...............................................27
  Lung Cancer Navigation Program .................................................................................28
As I reviewed our annual report, I must admit I was impressed by how far we have come in six years. Six years ago, there was very little interest in tobacco issues among researchers and educators on the OU Health Sciences Center. This was changed when TSET funded OTRC as part of the SCC. Under the outstanding leadership of Dr. Laura Beebe, a cadre of interested investigators and educators from around the state was identified. The initial research seed grants helped investigators focus their questions and interests on tobacco-related issues and slowly the necessary “critical mass” of people and programs began growing.

As you can see, the number of successful investigators has grown considerably and they now reside on the OUHSC campus, the OU Norman campus, the Laureate Institute for Brain Research in Tulsa, the OSU campus in Stillwater and at Northeastern State University in Tahlequah. We have successfully recruited investigators from other institutions, including Dr. Theodore Wagener, whose research on alternative tobacco products such as e-cigarettes is quickly gaining national attention. Dr. Stephen Gillaspy, along with Dr. Wagener, is conducting studies on Motivational Interviewing as well as new approaches to smoking cessation. We now have a popular and expanding Summer Scholar Program for students to help educate and influence future investigators in topics related to tobacco use.

Our clinical program is also growing. We have two Certified Tobacco Treatment Specialists who were trained at one of the best-known and oldest programs in the country at the Mayo Clinic, Leslie Chandler and Tanya Kay. We also will be taking over the supervision of the Oklahoma Tobacco Helpline, which will be under Dr. Gillaspy as well as our new Oklahoma Tobacco Helpline Coordinator, Paola Klein. Our Nurse Navigator, Karla Gourley, has been providing help and support for our patients with lung cancer. This program will be of increasing importance with the recruitment of a Thoracic Oncological Surgeon to the SCC, Dr. Subrato Deb.

These are but a few of the highlights in this year’s report. But our vision is grander, more expansive, more exciting. To put it simply, the future goal of OTRC is to become one of the preeminent tobacco centers in the country—training and providing state-of-the-art tobacco cessation services and care, providing tobacco policy evaluation and development to state and national public health officials, and conducting world-class research. A solid foundation has been laid and now we are preparing to make a grand leap forward.

To make this leap, OTRC began to reorganize this Fall into three separate arms: 1) Clinical Training and Services, 2) Research and 3) Policy education and evaluation. Dr. Gillaspy will direct the Clinical Training and Services arm and Dr. Beebe will continue to direct the Research arm. We are currently beginning a search for a Director of the Policy Education and Evaluation. In addition, Dr. Wagener will serve as Director of OTRC Policy and Program Development and will help guide and drive OTRC’s growth and vision in each of these three key areas. Overall, reorganization will facilitate more rapid communication, dissemination of essential information, research and clinical services.

We hope you are impressed as you read our annual report. But stay tuned for an even more exciting future!

Regards,

D. Robert McCaffree, MD
Director, OTRC
OTRC has recently appointed two new directors!

In June of 2013, Dr. Stephen Gillaspy began as Director of the newly established Clinical Training & Services arm of OTRC. In this new position, Dr. Gillaspy oversees the Tobacco Dependence Treatment Program, the Oklahoma Tobacco Helpline, and training of healthcare providers in smoking cessation.

In September, Dr. Theodore Wagener began to officially serve as Director of OTRC Policy & Program Development. In this new position, Dr. Wagener will help guide and develop all the Research, Clinical, and Policy Education arms of OTRC.
Laura DeLongy
Program Coordinator

Paola Klein, MPR
Oklahoma Tobacco Helpline Coordinator

Leslie Chandler, RN, MS
Certified Tobacco Treatment Specialist

Tanya Kay Gattis, MPH, Certified Tobacco Treatment Specialist

Karla Gourley, RN
Lung Cancer Nurse Navigator
Education and Training

Tobacco Research Seminars

One of the goals of the OTRC is to facilitate the dissemination and exchange of knowledge relevant to the reduction of tobacco use and tobacco related health problems. To achieve this goal, OTRC provides a forum for local, national and international experts in tobacco control to interact with researchers and practitioners in Oklahoma. These seminars were attended by hundreds of participants throughout the state and presentations are archived on our website for future use. The following seminars were presented in FY13.

G. Emmanuel Guindon, PhD
University of Waterloo, Propel Centre for Population Health Impact, Waterloo, Ontario, Canada

“Foundations for Analyzing Data from Behavioral Medicine: A Blueprint”
Shira I. Dunsiger, PhD
Centers for Behavioral & Preventive Medicine Brown University

“Data, experience and policy: Hospital campuses as an example of the connections”
J. Gary Wheeler, MD
University of Arkansas for Medical Sciences Department of Pediatrics
2nd Annual Stephenson Cancer Research Center Retreat

OTRC was again a co-sponsor of this year’s Second Annual SCC Research Center Retreat. The retreat was very well attended and had a special seminar on Innovative Research to Enhance Tobacco Control, chaired by Dr. Beebe. Speakers included recent OTRC Seed Grant and Advanced Development Grant recipients.

INNOVATIVE RESEARCH TO ENHANCE TOBACCO CONTROL
SESSION CHAIR: LAURA BEEBE, PHD

Assessing In Vivo DNA Damage to Predict Susceptibility to Tobacco-Induced Disease in Diverse Populations
Lurdes Queimado, PhD

Developing Serum Mass Profiling to Aid in Screening Patients with Small Pulmonary Nodules (SPNs)
Jay Hanas, PhD

Modified Risk Tobacco Products: Burden or Benefit to Individual and Public Health
Theodore Wagener, PhD

OTRC Journal Club

The first year of the journal club was a great success. Along with exciting presentations, OTRC members, students, researchers, and tobacco-health professionals from around the area carried out vigorous and stimulating debate over the most recent and controversial tobacco-related science and policy. In addition, each of our student scholars and a few of our seed grant recipients presented their recent research findings. Some of this year’s presentations include:

- Changes in Smokeless Tobacco Use Over Four Years Following a Campus-Wide Anti-tobacco Intervention. E. Meier et al. Nicotine & Tobacco Research. 2013
News & Media

OTRC Directors were called on throughout the year to give tobacco-related information to local newspapers, magazines, and television stations.

- Medical Minute: OU Health Sciences Center Studies E-Cigarettes. *News 9*
- Medical Minute: Keeping Kids Away From Second Hand Smoke. *News 9*
- Medical Minute: Why Smoking Bans Could Increase Smoke Exposure. *News 9*
- Medical Minute: Secondhand Smoke. *News 9*
- Medical Minute: Third Hand Smoke Dangers. *News 9*
- E-cigarette use among teens doubles, doctors worried. *Fox 25*
- E-cigarettes Gain Popularity with Oklahomans trying to quit smoking. *The Oklahoman*
- Oklahoma State University Eyes Ban on E-cigarettes. *The Oklahoman*
- OU Medicine Magazine. Spring 2013
Research

OTRC Seed Grant Program

Since FY09 the OTRC has solicited applications for research grant funding. Applications are invited for small-scale research projects designed to move forward the field of tobacco-related research, which includes innovative research ideas and the collection of preliminary data that will enable investigators to compete successfully for national research grants. All levels of investigators are invited to compete, but preference is given to Junior Investigators. A Principal Investigator (PI) is considered a Junior Investigator if he/she has not previously competed successfully as PI for a significant NIH independent research award (such as an R01). A letter of intent (LOI) with a brief description of the proposal is required. These LOI submissions are reviewed by the OTRC Scientific Advisory Committee and those identified as most relevant and promising are invited to submit a complete proposal. Proposals are reviewed annually by a multidisciplinary peer review panel, and grant recipients are determined based on competitive scores.

This year’s call for proposals was specifically limited to clinical or population-based studies with direct relevance to the prevention and control of tobacco use or tobacco-related health outcomes. OTRC received 15 letters of intent to submit proposals. Of those, 11 were asked to submit full proposals. Two seed grants were funded in FY13.

Smoking Initiation and Smoking Behaviors in Young Adults

PI: Marshall Cheney, PhD, OU Norman

Young adults are heavily targeted by the tobacco industry. Consequently, young adults (age 18-24) have the highest smoking rate of any age group in the United States. Estimates of prevalence of young adult smoking range from 22% to 32% depending on the measure of smoking used. One in three (38%) current young adult smokers reported that they began smoking regularly after the age of 18. There is little published literature on why young adults initiate smoking. Thus, identifying the personal, social, and environmental influences associated with young adult smoking initiation is an important step in reducing the prevalence of smoking in Oklahoma and reducing health disparities. In order to understand the influences that shape the decision to begin smoking in young adulthood, this study will focus on understanding late initiation of smoking (after age 17) among two groups targeted by the tobacco industry, African Americans and low socioeconomic status young adults. This 2-year formative research study will increase public health's knowledge of risk factors and protective factors in young adult smoking initiation using a 3-part, mixed-methods approach: 1) extend research with African American young adult smokers by conducting interviews and community-based surveys with African American young professionals who initiated smoking as young adults; 2) examine two subpopulations of low-SES young adult smokers who initiated smoking as adults - those entering the workforce after leaving high school (straight-to-work) and young adults receiving vocational-technical training - using interviews and community based surveys; and 3) prospectively examine associations of assets from the longitudinal Youth Asset Study with smoking initiation in young adulthood and determine the role of assets in moderating the association between smoking initiation in young adulthood and subjective...
social status and status inconsistency, neighborhood contextual factors, and negative life events. The results from this research will be used to identify common influences across groups of young adult smokers and unique influences within groups, which can then be used in the development of effective interventions to decrease smoking initiation in young adults.

A Novel Assay to Predict Susceptibility to Tobacco-Induced Disease in Diverse Populations

*PI: M. Lurdes Queimado, MD, PhD, OUHSC, Department of Otorhinolaryngology*

American Indians have a high prevalence of tobacco use and an especially high risk of suffering from tobacco-associated death and disease. Tobacco-exposure causes numerous types of DNA damage and is associated with unique cancer *p53* "mutational fingerprints". Genetic and epigenetic factors, as well as life-style choices, determine the levels of *in vivo* DNA damage and are expected to be the major determinants of tobacco-related diseases. Technical limitations have not permitted measurement of *in vivo* steady-state levels of DNA damage. Recently, we developed a highly sensitive DNA damage detection assay (PADDA) that maps and quantifies *in vivo* endogenous and induced DNA damage that can lead to mutations. Here we propose to use PADDA to study the levels and localization of tobacco-induced DNA damage in American Indians.

We hypothesize that the levels of DNA damage vary significantly between and within ethnic groups, reflecting differential tobacco-susceptibility and cancer risk. Furthermore, we hypothesize that individuals who exhibit persistent DNA damage after smoking cessation have an increased risk of cancer and may benefit from frequent additional preventive measures.

To test these hypotheses, we will first determine if the levels of tobacco-induced DNA damage vary significantly within American Indians (Aim 1). DNA damage will be quantified on the *p53* gene of epithelial cells collected by oral scrapings. To determine if the levels of tobacco-induced DNA damage vary significantly between ethnic groups, we will compare the data obtained in Aim 1 with that obtained in a similar study previously performed in a Caucasian population. Finally, we will determine whether a subgroup of active and former smokers exhibit persistent damage at *p53* cancer mutational hotspots. Diverse statistical analysis approaches will be used to test whether levels of DNA damage are distinct between groups, and whether the sites of damage and reported tobacco-induced mutational hotspots are associated.

This proposal will generate novel data to strengthen the importance of smoking cessation as well as establish a practical population screening assay for the identification of early biomarkers of cancer risk. This could lead to novel personalized preventive and early detection strategies.
Advanced Developmental Grants

The OTRC Scientific Advisory Committee recognizes the need for a flexible funding mechanism that can be responsive to emerging needs and innovative research that enriches the existing body of knowledge in tobacco prevention and control. Advanced Developmental Research grants have been awarded, as funds were available, to support research deemed critical to achieving our mission. During FY13, six such research grants were funded and led by investigators throughout the state.

Preventing, Controlling and Reducing Exposure Related to Tobacco Use
Cherokee Stakeholders

*PI: Heather Basara, PhD, OU Norman, Department of Geography*

The Cherokee plan for smoke free casinos was finalized by the Stakeholder group in May 2012 and will be delivered to the Chief and CEO of Cherokee Nation Entertainment during the summer of 2012. During FY13, transcription of final meetings will be completed for ethnographic analysis. The stakeholder approach will be described in the tobacco control literature as a method for tobacco policy and management planning. Papers are also expected to focus on smoke free worksites and the use of stakeholder focused efforts for development of management planning. While completion of academic aspects of this work is the priority, continued advocacy efforts with Cherokee leadership are planned; to inspire implementation of the smoke free plan. If opportunity to participate and study implementation arises, this will become a focus. Throughout the Stakeholder process, relationships with Healthy Nation were established. In FY13, tribal-academic relationships for public health, specifically for community based efforts focused on tobacco control. We expect to collaborate with Healthy Nation in the development of research that is geographically focused, incorporates a behavioral health perspective, and develops innovative prevention and control efforts. This work will requires academic collaboration but is initiated and led by Cherokee Nation Healthy Nation. We plan to collaborate with Cherokee Nation for CDC and FDA initiatives. Tribal-academic partnership between the Chickasaw Nation Division of Health and the University of Oklahoma, through the Department of Geography and Environmental Sustainability was initiated with Stephenson Cancer Center funding in FY12. This partnership provides administrative, computational, an information resources to support development of research by the Chickasaws. One of the first research projects planned is focused on community based tobacco control. This work will be collaborative between the CNDH, Dr. Toney Wellborne, and the PI. The plan is to develop interventions that engage both tribal health clinics and community stakeholders. This work will be organized geographically and incorporate multidimensional data representing environmental and social determinants for tobacco use along with observation of tobacco use and coincident disease in the population. Proposal development is underway to provide additional support for research.

Novel Methods to Reduce Children’s Secondhand Smoke Exposure

*PI: Ted Wagener, PhD, OUHSC, OTRC/Department of Pediatrics*

The overall aim of the study is to determine if the use of nicotine containing products by caregivers who smoke and who are not interested in quitting, is effective in reducing children’s secondhand smoke exposure. The proposed study could potentially serve a significant public benefit, as few clinical interventions have led to significant reductions in child secondhand smoke exposure. Many caregivers who smoke are uninterested, unwilling, or unable to quit smoking. Therefore, asking caregivers who are not interested in quitting to use Ariva/Stonewall, Nicorette lozenge, or the e-cigarette instead of cigarettes in the home, car, and around their children has the potential to create a 100% smoke-free environment for the child.
Nicotine dependence mediated by “Bottom-up” negative affective modulation of attention

*PI: Patrick Bellgowan, Laureate Institute for Brain Research*

*Introduction:* Negative affective valence bias has been prevalently reported for patients with major depression disorder (MDD). Interestingly, nicotine-dependent smokers in a state of withdraw also show bias toward negatively valenced stimuli. For MDD patients, the amygdala is suggested to be one of the critical regions contributing to this mood-congruent processing bias. Here we investigate the neural network involved in negative affective valence bias and whether this negative valence bias is present in MDD, smokers and how nicotine affects this bias. To determine the brain regions involved in emotional valence specific representation, we conducted an event related fMRI study using repetition suppression effects as a tool. We hypothesized that nicotine consumption reduces the negative valence bias in MDD patients and will potentiate positive affective bias in healthy smokers.

*Methods:* Eighteen healthy volunteers and fifteen MDD patients participated in the study during FY2013. We chose emotive stimulus faces from the FACES database. Subjects discriminated the location of a target superimposed on each face, a task that was unrelated to the face/emotional expression of the stimuli. Before the scan session subjects underwent a practice session during which they saw 3 presentations of the neutral faces whose identity was the same as happy/sad faces used later in the scan session, thereby unconfounding identity in the repetition suppression paradigm. MRI scans were acquired on a 3T GE MR750 scanner with a 32-channel head coil and a gradient-echo EPI pulse sequence. In each 4-second trial, subjects were exposed to two consecutively presented faces (emotion repeated: HH or SS, or emotion changed: HS or SH) or only one face (Hx or Sx) in catch trials. All MRI/fMRI data analyses were conducted in AFNI. The effects of repetition suppression for positive or negative emotion were assessed by testing null hypotheses, HH-Hx=SH-Sx and SS-Sx=HS-Hx, respectively. Using these contrasts, activations to the first face should be subtracted from the two face conditions such that we can compare the activations to the second face for the expression repeated and expression change conditions. The contrasts were made for each individual subject, and the percent signal change and corresponding t-values from each subject were taken to mixed-effects meta-analyses for group data analyses.

*Results:* For the healthy controls group, the contrast of (SS-S) and (HS-H) showed significant attenuation of BOLD responses for repeated sad face compared to sad face preceded by happy face in the right lateral orbitofrontal cortex and bilateral anterior and posterior fusiform gyri (p<0.05, corrected by cluster size). The amygdala’s cluster size did not reach the significant level for the whole brain comparisons. However, when we limited the comparisons within the bilateral amygdala, the right amygdala showed significant attenuation of BOLD responses for repeated sad face (p<0.001, corrected by cluster size). On the other hand, no BOLD signal attenuation was found for repeated happy face compared to happy face preceded by sad face in any regions for the healthy controls. We did not find repetition suppression effects in any brain regions for the MDD patients group as the result of the whole brain analysis. Conclusion and direction for FY2014: Regions showing repetition suppression to sad faces included not only the typical face-responsive regions (fusiform gyrus and STS) but also the lateral orbitofrontal cortex which has been associated with punishment and the amygdala which is associated with mediating responses to negatively valenced emotional stimuli. Consistent with Suzuki et al (2010) we saw no repetition suppression to happy faces. Differences in repetition suppression to sad and happy faces may reflect a stimulus salience bias for negatively valenced stimuli. We propose that the repetition suppression paradigm can be a powerful tool to elucidate representation specific to a certain emotion, and can be used for assessing the mood-congruent processing bias in smokers and patients with MDD. In FY2014, we plan to continue collecting data from healthy controls and MDD patients and most importantly from smokers.

*a7 Nicotinic Receptor Function in Depression: The Impact of Smoking*  

*PI: Jonathan Savitz, PhD, Laureate Institute for Brain Research; Co-PI: Kent Teague, PhD, OUHSC, Tulsa*
Cigarette smoking continues to be a major public health concern for people with mood disorders who smoke at greater rates and are less likely to quit than psychiatrically-healthy individuals. This study addresses a biological mechanism potentially underpinning the epidemiological relationship between smoking and depression. Extant data indicate that people with mood disorders who are currently depressed display abnormalities of immune function including chronic activation of the innate immune system. Nicotine, an acetylcholine agonist, exerts anti-inflammatory effects via the α7 nicotinic receptor. Specifically, activation of the cholinergic anti-inflammatory pathway by electrical stimulation of the vagus nerve reduces the release of proinflammatory cytokines therefore restoring homeostasis and preventing tissue damage after activation of the immune system. If depression is associated with both chronic inflammation and a predisposition to nicotine abuse, then conceivably, this anti-inflammatory cholinergic pathway is functioning abnormally in depressed individuals, leading some patients to compensate by self-medicating with nicotine. Here we assess the function of the α7 nicotinic receptor and the β2-adrenergic receptor in differentiated macrophages from 4 different subject groups: healthy non-smokers, healthy smokers, depressed non-smokers and depressed smokers. Firstly, the gene expression of the α7 nicotinic receptor gene (CHRNA7) and the β2-adrenergic receptor gene (ADRβ2) will be measured with rTPCR, providing a baseline measure of α7 nicotinic receptor and β2-adrenergic receptor function. Secondly, the macrophages will be exposed to in vitro inflammatory stimuli and then subsequently exposed to nicotine and separately to the β2-adrenergic receptor agonist, terbutaline, in order to terminate the inflammatory response. The degree to which nicotine and terbutaline affect LPS-induced STAT3 activation and the secretion of proinflammatory cytokines will be quantified. We expect to find differences in α7 nicotinic receptor and/or β2-adrenergic receptor function that are related to depression and/or smoking. These findings may yield insight into one of the physiological mechanisms underlying the epidemiological relationship between nicotine use and mood disorders, and may provide a molecular target for the development of treatment cessation medications.

Mapping the influence of interoceptive and reward neurocircuitry in nicotine craving

*PI: William Kyle Simmons, Ph.D., Assistant Professor, Laureate Institute for Brain Research; Assistant Professor, The University of Tulsa*

Based on clinical data there is reason to believe that nicotine dependence leads to heightened interoceptive awareness, which in turn creates a state of positive alliesthesa for tobacco-related stimuli. Nicotine craving may thus be associated with elevated activity within interoceptive-selective insular cortex and attendant activity increases within the neurocircuitry underlying either nicotine ‘liking’ (including the ventral pallidum), nicotine ‘wanting’ (including the OFC and ventral striatum), or both. A better understanding at the neural level of the interactions between nicotine craving, interoception, and ‘liking’ and ‘wanting’ will elucidate central nervous system mechanisms influencing tobacco-use and the success of smoking cessation interventions. We are thus undertaking two studies to better understand the involvement of interoceptive and reward circuitry in nicotine addiction. In the first study, moderate to heavy smokers are undergoing functional Magnetic Resonance Imaging (fMRI) both in a nicotine-deprived and nicotine-sated state. In addition, healthy non-smoking adults are also undergoing fMRI. During all scanning session subjects perform a task requiring them to attend to the intensity of interoceptive signals, such as their heartbeat, or stomach and bladder distension. This task has previously been shown to localize interoceptive-selective insular cortex. Our hypothesis is that during fMRI, nicotine-deprived smokers who report strong cigarette cravings will exhibit greater activation of interoceptive-selective insular cortex than when they are in a nicotine-sated state or as compared to the non-smoking group. If so, this will provide the first functional neuroimaging evidence that nicotine craving is specifically associated with heightened activation of interoceptive cortex. In a second study, we will attempt to identify whether nicotine craving is associated with aberrant ‘liking’ and ‘wanting’ activity within the OFC and striatal-pallidal neurocircuit in response to smoking-related visual stimuli. The same individuals participating in the interoceptive mapping task described above will
also perform a reward ‘liking and wanting’ paradigm during which they will provide reward ‘liking’ and ‘wanting’ ratings for tobacco-related images. Our hypothesis is that during fMRI, nicotine-deprived smokers who report strong cigarette cravings will exhibit greater activation within the OFC and striatal-pallidal neurocircuit in response to smoking-related visual stimuli. Finally, because the same subjects will perform both the interoceptive mapping and tobacco ‘liking’ and ‘wanting’ tasks within the same scan session, it will be possible for the first time to test the relationship between clinical self-reports of nicotine craving, interoceptive awareness, and cigarette ‘liking’ and ‘wanting’. In line with models asserting that craving-related interoceptive awareness increases the reward value of drug-related stimuli, we predict that fMRI activity to smoking-related stimuli within the OFC and striatal-pallidal neurocircuit will be positively correlated with both activity in interoceptive-selective insular cortex, and with clinical measures of cigarette craving.
OTRC Student Scholar Program & OTRC Funded Students

OTRC has developed an OTRC Student Scholar-Graduate Research Assistantship Program which currently funds three graduate students from OSU. These student scholars are working under the guidance of Drs. Wagener and Beebe at the University of Oklahoma Health Sciences Center. OTRC plans to expand upon this program in FY14 to include more Graduate Research Assistants that are interested in careers in tobacco related research. The following is an introduction to our new Graduate Research Assistants.

WILLIAM LECHNER, M.S.

William Lechner is a 5th year graduate student studying comorbid psychopathology and substance use. During his time as an OCTR summer scholar William collected, analyzed, and prepared data for publication from studies examining trends in electronic cigarette use. William also collaborated with OCTR summer scholar colleagues to develop an experimental study examining physiological responses to electronic cigarette use in a nicotine dependent sample. William contributed to several manuscripts submitted for publication including "Electronic Cigarette Store Customers: ‘Vaping’ Behaviors and Beliefs" and "Effects of Duration of Electronic Cigarette Use" as well as two posters which will be presented at the Society for Research on Nicotine and Tobacco conference in 2014. William is currently applying for clinical internship but continues to collaborate with OTRC research projects.

ELLEN MEIER, M.S.

Ellen Meier, M.S. is a 4th year Clinical Psychology doctoral student at Oklahoma State University. As an OTRC Summer Scholar she completed several projects examining general tobacco use and e-cigarettes among community members and at “vape” or e-cigarette stores. She also served as an interventionist for two tobacco cessation studies, one in a sample of women diagnosed with cervical dysplasia, and another in a sample of young adults attending smoke-free bar nights. She is currently pursuing a predoctoral internship with a focus in health psychology. Following internship, she plans to pursue a postdoctoral fellowship to gain additional research experience with populations at risk for tobacco use as well as effective tobacco cessation interventions.
ALAYNA TACKETT

Alayna Tackett is a 2nd year graduate student studying secondhand smoke exposure in pediatric chronic illness and health care utilization. During her time as an OTRC summer scholar Alayna collected, analyzed, and prepared data which examined electronic cigarette prevalence and use. During her time with OTRC, Alayna submitted a student grant to the American Psychological Association Graduate Student / Psi Chi Junior Scientist Fellowship to investigate a dose-response relationship between secondhand smoke exposure (measured objectively by children’s urinary cotinine) and lung functioning, carbon monoxide levels, and tobacco-specific carcinogens in children during active cancer treatment. Alayna collaborated with OTRC Summer Scholars in the preparation of several manuscripts including "Electronic Cigarette Store Customers: ‘Vaping’ Behaviors and Beliefs," "Effects of Duration of Electronic Cigarette Use," and "Which Tobacco Products are Gateways to Regular Use? An Examination of First Used Tobacco Products and Current Use in College Students." She will be presenting several posters at the Society for Research on Nicotine and Tobacco conference in 2014. Alayna hopes to continues to collaborate with OTRC throughout her graduate studies.

OTRC Supports OU Health Sciences Center Students

SYDNEY MARTINEZ, SRNT HEALTH DISPARITIES TRAVEL SCHOLARSHIP, 2013

Sydney Martinez is a second year PhD student in the Department of Biostatistics and Epidemiology. In addition to working full-time as an evaluator of numerous components of Oklahoma’s Tobacco Control Program, Sydney is collaborating with OTRC faculty and staff to further advance our understanding of tobacco-related health disparities and to develop a conceptual model and methodology around the “transmission” of smoking.

SHIRLEY JAMES

Shirley James is a third year doctoral student in Epidemiology in the Department of Biostatistics and Epidemiology at OUHSC. She recently submitted a manuscript for publication entitled “Longitudinal Evaluation of the Tobacco Stops with Me Campaign.” She is currently working on her dissertation pilot study comparing traditional nicotine replacement therapy with electronic cigarettes for smoking cessation in women with gynecologically related cancers and dysplasia who must stop smoking for their interventions to be successful. She also has plans to publish an extension of her thesis topic related to attitudes and knowledge about the danger of second hand smoke in Oklahoma – also part of the Tobacco Stops with Me Campaign.
MARY WILLIAMS

Mary Williams’ activities during her tenure as an OTRC student scholar included investigating factors associated with unassisted quit attempts and cessation. Three specific aims investigated various levels of potential influences. The first investigation examined the relationship between state-level factors, including social norms and policies, and unassisted quit attempts and success. The second study was a longitudinal analysis of individual and micro-social influences on smokers’ unassisted quit attempts and success. And the third investigation was an integrated analysis of state-level macro-social factors and micro-social influences on unassisted quit attempts. In addition, during her time as an OTRC student scholar Ms. Williams contributed to an additional publication regarding the concurrent use of cigarettes and smokeless tobacco among men and women in the United States.

OUHSC Center for Clinical and Translational Research Summer Scholars Program

The Clinical and Translational Sciences Summer Scholars Program is an eight week course that was created to encourage highly motivated health professional and graduate students to consider clinical and translational research as a component of their careers. The program includes a 35 hour per week, mentored research experience, in clinical and translational research. Additionally trainees take a didactic course in which they are trained in grant writing and prepare an NRSA-style mini grant and observe a mock review of their proposals, conducted by local faculty who serve on NIH study sections.

KRISTINA SOURSA

Kristina Suorsa is a 2nd year Clinical Psychology doctoral student at Oklahoma State University. As an OCCTR Scholar she worked with Dr. Gillaspy on his current tobacco related OCAST grant, Matching Brief Smoking Interventions to Stages of Change. Since the completion of the summer program, Kristina has continued to work with Dr. Gillaspy on a research project to investigate medical resident attitudes and practices related to smoking cessation.
American Journal of Preventative Medicine

OTRC announced a ‘Call for Abstracts’ for a supplement to the American Journal of Preventative Medicine (AJPM) during FY13. We received and reviewed 32 abstracts in August. Nineteen were accepted, seven were accepted with revisions. In a few cases, we suggested that abstracts on similar topics combine into single manuscripts. We received 19 full manuscripts for review by October 4.

In addition to the editorial team at AJPM, OTRC also convened several guest editors to review abstracts and manuscripts:

Robert McCaffree, MD – Guest Editor
Doug Matheny, MPH, CHES – Guest Editor
Debra Morris, MPH, MCHES – Guest Editor Support
Sarah Anderson-Fiore, MPH, CHES – Guest Editor Support

OTRC will publish a special supplement in the July 2014 American Journal of Preventive Medicine entitled:
Best Practices, Research, and Relationships – Oklahoma’s Investment in Tobacco Control
Grants, Presentations, & Publications

OTRC faculty, staff and grant recipients were very active this year conducting and disseminating results of recent research. Helping the Stephenson Cancer Center achieve its goal of NCI-designated status, three newly funded grants were from the National Cancer Institute. Over the last year, OTRC received approximately $2.5 million dollars in new extramural funding. The productivity of OTRC continues to increase at a rapid rate and will continue to do so with the hiring of even more tobacco researchers.

New Extramural Grants Funded during FY13

NIH/NCI - 1R01CA167516-01A1
Principal Investigator: Rajagopal Ramesh
Project Title: HUR TARGETED NANOTHERAPY FOR LUNG CANCER
Total Cost: $1,823,085

NIH/NCI - R21 CA164521-01
Principal Investigator: Theodore Wagener
Project Title: Novel Methods to Reduce Children's Secondhand Smoke Exposure
Total Cost: $412,337
NIH/NCI – U01 CA154240-01 (subcontract with UCSF, Ling, PI)
Principal Investigator: Laura A. Beebe
Project Title: Promoting Smoking Cessation among Young Non-Daily Smokers
Total Cost: $70,000

Oklahoma Center for the Advancement of Science and Technology - HR 12-020
Principal Investigator: Stephen Gillaspy
Co-Investigator: Theodore Wagener
Project Title: Matching Brief Smoking Interventions to Stage of Change.
Total Cost: $134,419

Veterans Research and Education Foundation
Principal Investigator: Jay S. Hanas
Project Title: Developing serum mass profiling for monitoring Traumatic Brain Injury (TBI) and post-concussion syndrome (PCS), and understanding underlying mechanisms
Total Cost: $45,000

Northeastern State University Seed Grant
Principal Investigator: Fritz Laux
Project Title: Smoke Shop Field Work
Total Cost: $5,000

American Academy of Pediatrics/ Flight Attendant Medical Research Institute
Principal Investigator: Stephen Gillaspy
Project Title: Julius B. Richmond Center AAP/FAMRI Visiting Lectureship Program
Total Cost: $2,351

Mayo Clinic, Spirit of Eagles Hampton Faculty Fellow Program
Principal Investigator: Jessica Blanchard
Total Cost: $5,000

Gordon Conference on Heterocyclic Compounds, Travel Award
Principal Investigator: Syed Hussaini
Project Title: NA
Total Cost: $707.70
Publications during FY13


Selected Publications In Press or Under Review


**Conference Presentations**

**Basara H**, Impact of Weather & Climate on Human Health, Public Health Grand Rounds, University of Oklahoma Health Sciences Center, OKC, OK, Nov 2012

**Basara H**, Impact of Weather & Climate on Human Health, American Meteorological Society, Conference on Artificial Intelligence, Austin, TX, Jan 2013


Cheney M, Smoking Initiation and Smoking Behaviors in African American Young Adults, American Health Association. Oct 2012


A. Roozgard, N. Barzigar, P. Verma, S. Cheng, Lung nodule segmentation using kernel RX algorithm and graph-cuts, Biomedical Engineering International Conference (BME), Hong Kong, Dec 2012


Martinez SA. (April 2013). “Smoking Infection: Modeling Tobacco using Infectious Disease Methods”. Oral presentation at the Graduate Research Education and Technology (GREAT) Symposium in Oklahoma City, OK.

Martinez SA. (March 2013). “American Indian Cancer in Oklahoma”. Oral presentation at the Stephenson Cancer Center Symposium in Oklahoma City, OK.

Martinez SA. (April 2013). “What Can Epidemiology Do For You?” Oral presentation at the Tribal Epidemiology Center Annual Conference in Tulsa, OK.


McCaffree D. R., Testified to a Legislative Committee, “Interim Study on Harm Reduction using Smokeless Tobacco.” Oklahoma State Capitol Room 512, Sep 2012


Ganapathy V, Mills WK, Thavathiru E, Ramachandran I, Chandler L, Reis A and Queimado L. A Novel Assay to Predict Susceptibility To Tobacco-Induced Disease. Graduate Research Education And Technology Symposium (GREAT), Oklahoma City, OK. Apr 2013

Ganapathy V, Mills WK, Thavathiru E, Ramachandran I, Chandler L, Reis A and Queimado L. A Novel Assay to Predict Susceptibility To Tobacco-Induced Disease. Graduate Research Education And Technology Symposium (GREAT), Oklahoma City, OK. Apr 2013

Ganapathy V, Mills WK, Thavathiru E, Ramachandran I, Chandler L, Reis A and Queimado L. A Novel Assay to Predict Susceptibility To Tobacco-Induced Disease. American Association for Cancer Research (AACR) 102st Annual meeting, Washington, DC, April 6-10, 2013

Mills WK, Thavathiru E, Ramachandran I, Chandler L, Tassey J, Reis AMC, Queimado L. A novel DNA damage detection assay to predict head and neck cancer risk. 8th International Conference on Head and Neck cancer, Toronto, ON, Canada. July 2012

Queimado, L., Translational Research: ongoing projects. ORL Grand Rounds, Oklahoma City, OK. Dec 2012

Queimado, L., A novel assay to predict oral cancer risk and treatment efficacy. La Crosse BioResearch Forum, hosted by the Center for Cancer and Blood Disorders, Gundersen Lutheran. Mar 2012


Ross, H., Choate, C., Rhoades, R. Case study: Using local assessment to increase 24/7 policy communication. National Conference on Smoking or Health, Kansas City, MO, August 2012.


Simmons, W.K., Avery, J., Barcalow, J.C., Moseman, S., Bodurka, J., and Drevets, W.C., Major Depressive Disorder is associated with abnormal insula responses in dorsal mid-insula during attention to interoceptive states. Annual Meeting of the American College of Neuropsychopharmacology, Hollywood, FL Dec 2012


Clinical Training & Services

Tobacco Dependence Treatment Program (TDTP)

The TDTP within the OTRC began in January 2011 and is currently staffed by two trained Tobacco Treatment Specialists. Leslie Chandler, RN, MS, CTTS received her tobacco cessation training from the Mayo Clinic in February 2010 and Tanya Kay Gattis, MPH, CTTS, joined the TDTP team in March of 2012. She received her tobacco cessation training from Mayo Clinic the same month. The three main goals of the Tobacco Dependence and Tobacco Treatment program are facilitation of research that impacts tobacco cessation for the reduction of cancer prevalence, dissemination of tobacco cessation education to the community, and provision of cessation services campus-wide for the OU Health Sciences Center, and the community-at-large. These goals are achieved by engaging local, state, tribal and national partners. In May of 2013, Dr. Gillaspy assumed oversight of the TDTP, with the program now falling under the Clinical Training and Services arm of OTRC. Since that time Dr. Gillaspy has been working to strengthen the clinical infrastructure for this program, to allow the Tobacco Treatment Specialist to focus their efforts on providing state of the art and evidence based tobacco treatment, which will increase the programs clinical productivity and reach. We are actively working to improve access to TDTP services through increased integration into the electronic medical record system. Additionally, we have begun to work more collaboratively with the patient navigators at the SCC, so that all patients presenting to the SCC who use tobacco have easy access to the TDTP. Our goal is that any patient that uses tobacco is given the opportunity to meet with one of our Tobacco Treatment Specialists. Dr. Gillaspy has initiated talks with OU Medical Center Leadership about providing TDTP services to tobacco using parents of pediatric patients hospitalized at the Children’s Hospital. Our goal for 2014 is to begin providing services to parents of pediatric cancer patients and assess the feasibility and benefit of this new service. If the service is deemed beneficial and effective, we would like to then target tobacco using parents of children in the Neonatal Intensive Care Unit.

Oklahoma Tobacco Helpline Program

During 2013 it was decided that OTRC would resume the day-to-day management of the Oklahoma Tobacco Helpline Program in 2014. The management of this program will fall under the Clinical Training and Services arm of OTRC and under Dr. Gillaspy’s oversight. Our first step to making this a reality was to recruit a full time coordinator for the Oklahoma Helpline Program.

OTRC is excited to announce that Paola Klein has been named the Oklahoma Tobacco Helpline Program Coordinator and will join OTRC in October of 2013. Her duties will include day-to-day oversight of Helpline Operations. She will assure that the Oklahoma Tobacco Helpline continues to provide state-of-the-art tobacco cessation services. Additionally, she will...
collaborate with state partners, grantees, and stakeholders to assure that Helpline services are coordinated and promote the Oklahoma Tobacco Helpline to health care providers and third party payers.

Paola Klein is a native of Tulsa, Oklahoma. Paola holds a Bachelor’s in Sociology and Spanish as well as a Masters in Human Relations both from the University of Oklahoma, Norman. For the past year and a half she served as the Coalition Coordinator for the Oklahoma County Tobacco Use Prevention Coalition. Prior to working with the Coalition she was the Health Promotion Coordinator for Naval Hospital Sigonella, Italy for over 3 years. In this position she implemented Navy health promotion programs as well as designed and implemented new programs to meet the health and wellness needs of Naval Air Station Sigonella active duty members, their families, local national personnel and NATO forces. Paola helped implement a tobacco free policy on the hospital property, which was one of the first Naval Hospitals in Europe and one of the few across the world to go tobacco free. She worked closely with different departments on the base to develop and implement tobacco free policies. Additionally, along with a registered dietitian, Paola assisted the local day care center and galley in improving healthy food options to consumers. Paola is a certified American Cancer Society Fresh Start tobacco cessation facilitator and trainer, and certified American Lung Association Freedom From Smoking tobacco cessation facilitator. She has a passion for wellness and treating tobacco addition. Paola’s extensive experience in the field of Tobacco Use Prevention and Policy made her the perfect candidate for this new OTRC position.

Training Healthcare Providers in Smoking Cessation

Although dissemination of tobacco cessation education to the community has been a goal of the TDTP and our Tobacco Treatment Specialists provide frequent trainings, we have taken steps to elevate our activity in this area. Dr. Gillaspy provides a lecture to first year medical students on behavior change and currently has a HRSA residency training grant that provides for Motivational Interviewing (MI) training for pediatric medical residents. OTRC’s goal for 2014 is to identify all the healthcare provider training programs at OUHSC and assess the level of training that is provided on tobacco cessation. Once this assessment is complete, we will then be able to identify which program we can assist. Our eventual goal is to ensure that all training programs provide some level of education regarding tobacco. In addition to Dr. Gillaspy’s research investigating training of medical residents in MI. OTRC has begun to investigate medical resident attitudes and practices on smoking cessation. This year we surveyed Pediatrics, Medicine-Pediatrics, and Family Medicine interns on their attitudes and practices on tobacco and smoking cessation. This is a longitudinal research project and we will survey residents each year as they progress through their residency program. This will allow us to assess how resident attitudes and behaviors regarding tobacco and smoking cessation change over time and how we might improve our training efforts with residents. Dr. Gillaspy is currently in discussion with three other sites that are interested in collaborating on this project and
surveying their interns in 2014: OUHSC Tulsa; the University of Arkansas Medical Sciences; and the University of Utah.

**Lung Cancer Navigation Program**

Patient navigation focuses on assessing patient needs and guiding patients through the process of confirming or excluding the diagnosis of malignancy. The goal of the lung cancer navigation program is threefold: to diagnose malignancy and begin appropriate treatment expeditiously, as well as enter patients who qualify into clinical trials; to assess the mental, social and spiritual needs of every patient diagnosed with lung cancer and connect those patients to appropriate resources; and, third, to empower patients through education to ask questions and to seek the most desired course of treatment or definitive care. There should be no barrier to expeditious and appropriate treatment for patients diagnosed with lung cancer.

The Lung Cancer Nurse Navigator Program has had 106 referrals of patients suspected or at high risk of having lung cancer during this period. 61% of the referrals had the diagnosis confirmed expeditiously through the efforts of Karla Gourley, the OTRC Lung Cancer Nurse Navigator. After diagnosis, each patient is presented and discussed at the appropriate tumor board. The lung cancer multidisciplinary tumor board is comprised of appropriate specialists, including pulmonologists, pathologists, a chest radiologist, thoracic surgeons, radiation oncologists, medical oncologists, the lung cancer nurse navigator, a research nurse and a cancer tumor registry representative. The tumor board discusses each patient individually, stages the cancer, discusses any and all relevant past treatments and/or diseases and decides on the best course of treatment to recommend for each patient. The patient is also screened for eligibility for any clinical trials.

The Lung Cancer Nurse Navigator Program has made strides in developing a Lung Cancer Navigation Form to coordinate referral to treating doctor after diagnosis of lung cancer has been made. In addition, the arrival of Dr. Subrato Deb, a thoracic oncologic surgeon, has expanded our expertise in the surgical treatment of lung cancer.

The program has worked to develop better patient education through using the NCI pamphlet “What You Need to Know about Lung Cancer” and also via multiple phone calls documented in EMR system. Our Lung Cancer Nurse Navigator is also working with our tissue bank to contribute cancer tissue for lung cancer research.