



Vermont Center on Behavior & Health

The University of Vermont

YEAR IN REVIEW 2018-2019



From The Director



I am delighted to have another opportunity to share our latest accomplishments in this 2018-2019 Year in Review for the Vermont Center on Behavior and Health, which includes the UVM Center of Tobacco Regulatory Science (TCORS) and the UVM Center of Biomedical Research Excellence (COBRE). As the subsequent pages will attest, we continue making great strides in elucidating relationships between personal behavior patterns and risk for chronic disease and premature death,

developing more effective behavior-change interventions, and reducing health disparities.

Our studies surrounding unhealthy behavior – tobacco use, physical inactivity, and prescription opioid abuse – are impacting scientific understanding and potential clinical treatments of these pressing and expensive public health problems. In the last year alone, our investigators have published more than 50 peer-reviewed articles in these important topic areas. We are also thrilled to announce that we have successfully renewed our TCORS and COBRE awards that will provide critical support for the VCBH through August, 2023.

To further disseminate the latest research examining these critical national and international issues, we sponsor an annual national conference on behavior and health and publish an annual Special Issue of Preventive Medicine based on the conference proceedings.

We deeply appreciate the outstanding support and dedication of all VCBH faculty, fellows, and staff members, UVM Academic Departments, Colleges, and Administrative Offices, Brown University, Johns Hopkins University School of Medicine, and other university collaborators, and the NIH and FDA without whom none of this would be possible. To follow VCBH progress over the next year, we encourage you to visit the VCBH website: www.med.uvm.edu/behaviorandhealth.

Sincerely,

Stephen T. Higgins, Ph.D.

Director, Vermont Center on Behavior and Health

Vice Chair, UVM Department of Psychiatry

Virginia H. Donaldson MD '51 Endowed Professor of Translational Science

Departments of Psychiatry and Psychological Science



Year in Review 2018–2019

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7th ANNUAL VCBH BEHAVIOR & HEALTH CONFERENCE, OCTOBER 10-11, 2019

COMPLEMENTARY CONTRIBUTIONS OF TOBACCO CONTROL AND REGULATORY SCIENCE RESEARCH TO PROTECTING THE PUBLIC HEALTH



Stephen Higgins, Ph.D.

The exclusive focus of this year's conference is the intersection between tobacco regulatory science and tobacco control- two of the major fields in tobacco research. The 2-day program will feature renowned researchers in both fields to discuss topics on:

1. Goals of tobacco control and regulatory science and the tools to achieve them
2. Advances and challenges of reducing tobacco use in vulnerable and poly-vulnerable populations
3. Tobacco and nicotine use in those with medical comorbidities
4. Tobacco control and regulatory issues

regarding e-cigarettes and non-combusted nicotine delivery systems

Opening remarks by:

Richard L. Page, M.D., Dean, Larner College of Medicine, University of Vermont

Patrick J. Leahy, J.D., Vermont US Senator

Mark A. Levine M.D., Vermont Commissioner of Health

2019 Keynote Speaker: Dorothy K. Hatsukami, PhD

Dorothy K. Hatsukami, Ph.D., is the Forster Family Chair in Cancer Prevention at the Masonic Cancer Center of the University of Minnesota and Professor of Psychiatry. She is the Associate Director of Cancer Prevention and Control at the University of Minnesota Masonic Cancer Center and Director of the Tobacco Research Programs. Her areas of expertise include nicotine addiction and its treatment, including testing medications such as nicotine vaccine and combination medications, in smokers. She has over 400 publications



Dorothy K. Hatsukami, Ph.D.

and is currently PI/Co-PI of two large NIH-funded cooperative agreements/PO1 that involve assessing the toxicity, appeal and addictiveness of various tobacco products. She has served on numerous scientific advisory boards for the U.S. government including the Food and Drug Administration's Tobacco Product Scientific Advisory Committee. She is currently a member of the World Health Organization Study Group on Tobacco Product Regulation.

2019 VCBH CONFERENCE: PROGRAM TOPICS/ SPEAKERS

**Subject to change. See conference program online for complete schedule.*

OCTOBER 10

KEYNOTE: Role of Tobacco Harm Reduction in Tobacco Control

Dorothy K. Hatsukami, Ph.D., Forster Family Chair in Cancer Prevention, Professor of Psychiatry, Associate Director of the Masonic Cancer Center, University of Minnesota

Panel on Goals of Tobacco Control and Regulatory Science and the Tools to Achieve Them

■ Strategies for Effective Regulation

David L. Ashley, Ph.D., RADM (retired), US Public Health Service, Research Professor, Department of Population Health Sciences, Georgia State University

■ Tobacco Control: The Past is Not the Future

Kenneth M. Cummings, Ph.D., MPH, Professor, Department of Psychiatry and Behavioral Sciences, Co-Lead of Cancer Prevention and Control, Hollings Cancer Center, Medical University of South Carolina

■ Policy-making in the Face of Uncertainty: How to Balance Competing Objectives?

Steven A. Schroeder, M.D., Distinguished Professor of Health and Health Care, Division of General Internal Medicine, Department of Medicine, Director, Smoking Cessation Leadership Center, University of California San Francisco

■ The Nature of Choice and the Role of Regulation

Eric C. Donny, Ph.D., Professor of Physiology and Pharmacology, Wake Forest School of Medicine

● SPECIAL EVENT: FDA Funding Opportunities for Early Career Investigators

Ami L. Bahde, MPH, Program Analyst, Research Branch, Office of Science, Center for Tobacco Products, US Food and Drug Administration
Kay L. Wanke, PhD, MPH, Deputy Director, Tobacco Regulatory Science Program, Office of Disease Prevention, National Institutes of Health

Panel on Advances and Challenges of Reducing Tobacco Use in Vulnerable and Poly-vulnerable Populations

■ Which Youth Populations are At Risk for Use of Non-cigarette Products and do they Possess Similar Vulnerability Factors to those At Risk for Cigarettes?

Jessica L. Barrington-Trimis, Ph.D., Assistant Professor of Preventive Medicine, Keck School of Medicine, University of Southern California

■ Modeling how Motivation for Cigarette Smoking Changes with Poly-vulnerability

Stephen T. Higgins, Ph.D., Vermont Center on Behavior and Health, Professor, Departments of Psychiatry and Psychological Science, University of Vermont

■ A Randomized Trial of Counseling and Nicotine Replacement Therapy (NRT) for Treatment of African American Non-daily Smokers

Nikki L. Nollen, Ph.D., Professor, Department of Population Health, University of Kansas Medical Center

■ The Environmental Risk Factors for Tobacco Experienced by Rural and Urban Youth

Megan E. Roberts, Ph.D., Assistant Professor, Department of Health Behavior and Health Promotion, College of Public Health, The Ohio State University

OCTOBER 11

Panel on Tobacco and Nicotine Use in those with Medical Comorbidities

■ Hospitalization: The Opportunity to Initiate Tobacco Cessation Treatment

Nancy A. Rigotti, M.D., Associate Chief, General Medical Division, Director of Tobacco Research and Treatment Center, Massachusetts General Hospital, Professor, Harvard Medical School

■ Effects of Very Low Nicotine Content Cigarettes in those with Psychiatric Disorders

Jennifer W. Tidey, PhD, Professor, Departments of Behavioral and Social Sciences, and Psychiatry and Human Behavior, Brown University

■ Prevalence, Reasons for Use, and Risk Perception of E-Cigarettes among Cardiac Event Patient

Andrew M. Busch, Ph.D., Associate Professor, Department of Medicine, University of Minnesota

■ Smartphone-based Financial Incentives to Promote Smoking Cessation Among Pregnant Women

Allison N. Kurti, Ph.D., Assistant Professor, Departments of Psychiatry and Psychological Science, University of Vermont

Panel on Tobacco Control and Regulatory Issues Regarding e-Cigarettes and Non-combusted Nicotine Delivery Systems

■ Preventing Teens from Using E-Cigarettes (Marijuana Use Disorders)

Kathleen Crosby, B.A., Director, Health Communications and Education, FDA Center for Tobacco Products

■ Evolution of Products and E-Cigarette Market

Richard J. O'Connor, Ph.D., Professor of Oncology, Department of Health Behavior, Division of Cancer Prevention and Population Sciences, Roswell Park Comprehensive Cancer Center, Professor of Community Health and Health Behavior, State University of New York at Buffalo

■ Public Health Impact of E-cigarettes

Andrea C. Villanti, Ph.D., M.P.H., Vermont Center on Behavior and Health, Associate Professor, Departments of Psychiatry and Psychological Science, University of Vermont

■ E-cigarettes for Smoking Cessation: Where Have we Been and Where are we Going?

Theodore L. Wagener, PhD, Director, Center for Tobacco Research and Co-Leader, Cancer Control Program, Ohio State University Comprehensive Cancer Center; Associate Professor, Division of Medical Oncology, Ohio State University Wexner Medical Center



Thomas Ahern, Ph.D.

COBRE PROJECT DIRECTORS

Thomas Ahern, Ph.D.,
Assistant Professor, Division of Surgical Research and Department of Biochemistry, *Measuring the Impact of Lifestyle and Behavior on Breast Cancer Incidence in High-risk Women*; Mentor: Brian L. Sprague, Ph.D.



Christopher Brady, M.D.

Christopher Brady, M.D.,
Assistant Professor, Department of Ophthalmology: Retina Division, *Improving Linkage to Care after Ocular Telehealth Screening in Diabetic Adults*; Mentor: Stephen T Higgins, Ph.D.



Allison Kurti, Ph.D.

Allison Kurti, Ph.D.,
Assistant Professor, Departments of Psychiatry and Psychological Science, *Smartphone-based Financial Incentives to Promote Smoking Cessation among Pregnant Women*; Mentor: Stephen T. Higgins, Ph.D.



Kelly Peck, Ph.D.

Kelly Peck, Ph.D.,
Research Assistant Professor, Department of Psychiatry, *Treating Posttraumatic Stress Disorder in Patients with Opioid Use Disorder*; Mentor: Stacey C. Sigmon, PhD



Andrea C. Villanti, Ph.D.

Andrea C. Villanti, Ph.D.,
Associate Professor, Departments of Psychiatry and Psychology, *Improving Smoking Cessation in Socioeconomically Disadvantaged Young Adults*; Mentor: Stephen T. Higgins, Ph.D.

COBRE

The Center of Biomedical Research Excellence

The Center of Biomedical Research Excellence (COBRE) award funded by NIH's National Institute on General Medical Sciences (NIGMS), is well underway in its second phase. We continue to focus on investigating relationships between personal behaviors and risk for chronic disease and premature death. Unhealthy personal behaviors (e.g. substance abuse, physical inactivity) account for 40% of premature deaths in the U.S. annually and substantially increase healthcare costs and health disparities.

There is a tremendous need for (a) greater scientific understanding of the mechanisms underpinning vulnerability to these risk behaviors and (b) more effective interventions to promote behavior change. We approach these challenges using the concepts, principles, and methods of behavioral economics and behavioral pharmacology. This effort involves key interdisciplinary collaborations (a) across multiple academic departments and colleges within UVM, (b) with key Vermont community healthcare leaders, and (c) with other national and international university collaborators, including Brown University, University of Kentucky, Laureate Institute for Brain Research, University of Nebraska, and University of Oviedo (Spain).

An overarching priority of our COBRE project is to continue to support the selection and career development of excellent UVM junior faculty (see sidebar). We support and mentor a maximum of five junior faculty projects at any one time. The COBRE junior faculty, referred to as Project Directors (PDs), receive generous research funding and mentoring by senior faculty with the overarching goal of having them succeed in obtaining their first NIH independent research grant (RO1 or equivalent).

TCORS

The Vermont Center on Tobacco Regulatory Science

The Vermont Center on Tobacco Regulatory Science at UVM is one of fourteen Tobacco Centers on Regulatory Science (TCORS) in the United States supported through a cooperative agreement of the National Institutes of Health (NIH) and the U.S. Food and Drug Administration (FDA). The Family Smoking Prevention and Tobacco Control Act has given the federal government the authority to bring science-based regulation to the manufacturing, marketing and distribution of tobacco products.

UVM's Center addresses three of the research priorities established by the FDA Center for Tobacco Products. Projects have been designed to provide the agency with critically important empirical evidence on the impact of tobacco products in vulnerable populations relevant to its regulatory responsibilities, while also contributing new scientific knowledge on reducing the addictiveness of tobacco products and associated adverse health consequences in vulnerable populations.

"We approach these priorities using the concepts, principles, and methods of behavioral economics and behavioral pharmacology," says Principle Investigator and Program Director **Stephen T. Higgins, Ph.D.** "We work closely with collaborators and consultants from Brown University, Johns Hopkins University, University of Minnesota, and University of Pittsburgh."

Researching the impact of tobacco products in vulnerable populations includes studying women of childbearing age/pregnant women, individuals with comorbid other substance use disorders, and

RESEARCH SNAPSHOT

My research broadly focuses on measuring and improving health-related behaviors in vulnerable populations. In one large study, we look at the effects of different levels of nicotine in cigarettes among several vulnerable groups including those with depression and anxiety. I lead another large study that examines the use of incentives and case-management to improve attendance at cardiac rehabilitation among lower socio-economic-status patients. My lab also conducts several other research projects including several at the intersection of tobacco use and cardiac health as well the use of e-cigarettes in vulnerable populations.

DIANN E. GALEMA, PH.D.,

VCBH Assistant Professor

Departments of Psychiatry and Psychology



individuals with comorbid serious mental illness. Each of these populations is at increased risk for tobacco use and dependence or tobacco-related adverse health outcomes. Yet despite these serious vulnerabilities, these populations are typically excluded from tobacco regulatory studies. For the FDA to effectively execute its tobacco regulatory responsibilities, having sound scientific evidence on how new tobacco products impact vulnerable populations is critically important.

Furthermore, the UVM Center conducts research on reducing the addiction potential of cigarettes and other tobacco products by lowering their nicotine content. Regulating the nicotine content of cigarettes and other products is an important responsibility of the FDA that has tremendous potential to reduce smoking prevalence and improve public health in the U.S.

FORMER VCBH TRAINEES DIRECT NEW CENTER ON ADDICTION RESEARCH

Richard Yi, Ph.D., former UVM T32 fellow, is the Director of the new Cofrin Logan Center for Addiction Research and Treatment, at the University of Kansas. The Center serves as a hub for research, training, education, and outreach that seeks to understand, prevent, and treat addiction and related disorders. VCBH Director, Stephen

Higgins, Ph.D., had the pleasure of giving the inaugural lecture as part of the Cofrin Logan Center spring seminar series.





Sigmon Awarded HRSA Center Grant to Reduce Impact of Opioid Epidemic in Rural Communities

Stacey Sigmon, Ph.D., has been awarded a \$6.7 million grant from the Health Resources and Services Administration (HRSA) in the Department of Health & Human Services (DHHS) to establish the University of Vermont Center on Rural Addiction. This center will aim reduce impact of the opioid epidemic, specifically in rural communities as there is a critical need to leverage evidence-based tools to expand opioid use disorder (OUD) treatment capacity and reduce opioid-related morbidity and mortality in rural communities, which have been disproportionately impacted. The Center will work to identify, translate, disseminate and implement science-based practices to address the rural OUD epidemic, as well as future substance use disorder epidemics as they emerge.

Sigmon and colleagues will bring a science-based

approach to addressing OUD in rural communities through dissemination of best practices, enhanced and integrated clinical care services, development and evaluation, epidemiological surveillance, and rural addiction prevention. The collaborating partners include the University of Vermont, University of Vermont Medical Center, University of New Hampshire, and University of Southern Maine. Through close collaboration with partners in each state, a common “menu” of technological-based tools, and a comprehensive surveillance and evaluation infrastructure, we will aim to support expansion of evidence-supported OUD treatment capacity in rural communities.

Gaalema Receives NIH Grant to Examine Interventions to Increase Cardiac Rehab Participation among Low-SES Patients

Diann Gaalema, Ph.D., has received funding for an NIH-sponsored R61 award that will examine the efficacy of using early case management and financial incentives, alone and in combination, for increasing cardiac rehabilitation (CR) participation among lower

Fifth Preventive Medicine Special Issue on Behavior, Health and Health Disparities

The *December 2018 Special Issue of Preventive Medicine (PM)* is the fifth in a series that focuses on behavior change, health, and health disparities. Unhealthy behavior patterns (i.e., lifestyle choices) including cigarette smoking and others undermine U.S. population health by increasing risk for chronic disease and premature death. This Special Issue brings together 15 scholarly contributions from the emerging area of tobacco regulatory science to examine current topics of critical importance to reducing the burden of cigarette smoking on U.S. population health. Specifically, this issue examines three related topics including:

- 1) Current research examining the effects of a potential national policy that would reduce the nicotine levels in cigarettes to minimally addictive levels.
- 2) Increasing scientific understanding on the risk and patterns of cigarette smoking and other tobacco use in vulnerable populations.

- 3) Potential role of e-cigarettes and other non-combusted sources of nicotine as less harmful substitutes for combusted products for those unwilling or unable to quit nicotine use.

Stephen T. Higgins, Ph.D., Professor of Psychiatry and Psychological Science and Director of the Vermont Center on Behavior and Health (VCBH) at the Larner, College of Medicine at the University of Vermont, notes that, “While tremendous progress has been made in reducing overall U.S. smoking prevalence and its adverse health impacts, more needs to be done. This Special Issue offers some ideas that have the potential to make a substantive contribution towards that goal.”





Diann Gaalema, Ph.D.

socioeconomic status (SES) patients. Participation in outpatient CR has been shown to decrease morbidity and mortality for patients hospitalized for various heart conditions. However, only 10-35% of patients for whom CR is recommended choose to participate. Lower-SES is a strong indicator of non-CR participation, therefore there is a strong need to increase CR participation within this population. Both case management and financial incentives are proven effective in altering behaviors and promoting adherence to health-related regimens. While incentives can help make a focus on current health a priority and help overcome some financial barriers, case management can help with navigating the medical system and stabilizing other needs within the patient's life.

RESEARCH SNAPSHOT



I am working closely with Diann E. Gaalema, Ph.D., on an NIH-supported study (Gaalema PI) evaluating and comparing the effects of financial incentives vs early case-management on cardiac rehabilitation participation rates in lower socio-economic cardiac patients. Our recent COBRE-funded study on incentives and cardiac rehabilitation participation has been completed and published in the Journal of the American College of Cardiology. I am also mentoring Sherrie Khadanga M.D., who has just come on as junior faculty in Cardiology on a study looking to determine behavioral factors that result in lower cardiac rehabilitation rates for women vs. men. COBRE pilot funding will support this work. We are also working on a randomized-controlled trial optimizing exercise-training results for women in cardiac rehabilitation. I continue my work with the CDC working on methods to increase cardiac rehabilitation participation across the U.S. In 2016 I became the first University of Vermont Philip Ades M.D. Endowed Professor of Cardiovascular Prevention.

PHILIP ADES, M.D.,

VCBH Associate Director,
Professor of Cardiovascular Medicine

NIDA Notes Features Sigmon's Research on Interim buprenorphine during Treatment Delays



Joanna Streck



Stacey Sigmon, Ph.D.,

NIDA Notes, an online news platform providing in-depth coverage of research findings on drug abuse and addiction, featured the work of **Stacey Sigmon, Ph.D.**, on interim treatment with buprenorphine for those awaiting treatment for opioid use disorder (OUD). Dr.

Sigmon, along with VCBH TCORS Graduate Research Assistant, **Joanna Streck**, and colleagues, developed and tested the interim treatment in a 12-week study. The prevalence of psychiatric disorders among those with OUD is very high, and this treatment has been shown to mitigate psychological distress in addition to reducing opioid use. Dr. Sigmon notes, "It is exciting that providing just some basic pharmacotherapy and technology-assisted monitoring may attenuate psychiatric distress in this vulnerable group while they await more comprehensive treatment." Joanna was the first author on the manuscript summarizing the study findings.

(Streck, J.M., Ochalek, T.A., Badger, G.J., & Sigmon, S.C. (2018). Interim buprenorphine treatment during delays to comprehensive treatment: Changes in psychiatric symptoms. Experimental and Clinical Psychopharmacology, 26(4), 403-409. doi: 10.1037/pha0000199)

Gaalema's Research on Cardiac Rehabilitation Featured in the Journal of the American College of Cardiology

Diann Gaalema, Ph.D., is the first author on a new paper, "Financial Incentives to Increase Cardiac Rehabilitation Participation Among Low-Socioeconomic Status Patients", which is featured in the Journal of the American College of Cardiology (JACC), which ranks as one of the highest impact journals on cardiovascular disease. The peer-reviewed manuscript discussed the results of her study as a former COBRE Project Director, which sought to examine the efficacy of financial incentives to increase Medicaid patient participation in and completion of cardiac rehabilitation (CR). The results suggest that financial incentives do indeed improve CR participation among lower-SES patients following a cardiac event. Dr. Gaalema's work was also the subject

of an editorial in JACC that, "commend[ed] Gaalema et al. for taking on the formidable challenge of improving CR adherence and for evaluating the use of financial incentives to achieve this goal."

Most recently, Dr. Gaalema's research was featured in the CV News Digest, which is the official briefing of the American College of Cardiology.



JACC
JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

Higgins and Rawson Chair Symposium on U.S. Opioid Epidemic at the Northeast Regional IDEa Conference



Stephen Higgins, Ph.D.



Richard Rawson, Ph.D.

VCBH Director, **Stephen Higgins, Ph.D.**, and Research Professor, **Richard Rawson, Ph.D.**, chaired a panel on the U.S. opioid use disorder epidemic and specifically its impact in rural northern New England.

The multidisciplinary panel brought together clinical researchers to discuss efforts to curtail this epidemic. Panel participants included: **Kelly Peck, Ph.D.**, University of Vermont; **Charles MacLean, M.D.**, University of Vermont; **Tara Higgins, M.D.** & **Daisy Goodman, C.N.M., D.N.P., M.P.H.**, Dartmouth-Hitchcock Medical Center; **Scott Mackey, Ph.D.**, University of Vermont; and **Kerry Nolte, Ph.D.**, University of New Hampshire. The speakers presented on a broad spectrum of research addressing the epidemic including the use of buprenorphine to bridge the gap in treatment access, treating perinatal opioid use disorder, initiation of medication assisted therapy in the emergency department, and the Vermont Hub & Spoke model.

SAMHSA Grant Aims to Expand Medication Assisted Treatment for Opioid Use Disorder

University of Vermont (UVM) Assistant Professor **Scott Mackey, Ph.D.**, University of Vermont Medical Center (UVMCMC) Psychiatrist **Sanchit Maruti, M.D.**, Emergency Medicine Physician **Daniel Wolfson, M.D.**, and VCBH Research Professor, **Richard Rawson Ph.D.**, have been awarded a 3-year grant aimed at expanding medication assisted treatment (MAT) for opioid use disorder (OUD) in emergency departments (EDs) around the state. The current practice of providing ED patients with OUD with a referral to treatment is often a missed opportunity to engage patients in MAT. Funded by the Substance Abuse and Mental Health Services Administration (SAMHSA), this grant will allow three Vermont medical centers the opportunity to establish a new intervention to initiate treatment for those presenting with OUD at the ED, then transfer these patients to a community treatment center.

LECTURE SERIES

Monthly Lecture Series Brings National Behavior & Health Experts to UVM

The VCBH Lecture Series is a monthly event that brings national and international scholars in the area of behavior, substance abuse, neurobiology, tobacco regulatory science, and health to UVM's Larner College of Medicine. The invited guest spends a day visiting with VCBH student trainees and faculty members, in addition to giving a public lecture. Speakers for 2018-2019 included: **Sherry Grace, Ph.D.**, York University, **Mary Brunette, M.D.**, Geisel School of Medicine at Dartmouth College, **Andrew Stokes, Ph.D.**, Boston University, **Benjamin Bearnot, M.D.**, Massachusetts General Hospital, **Elizabeth Evans, Ph.D.**, University of Massachusetts Amherst, **Timothy Lash, DSc., M.P.H.**, Emory University, **Daniel Forman, M.D.**, University of Pittsburgh, and **Gregory Miller, Ph.D.**, Northwestern University. The VCBH also partners with the University of Vermont Psychiatry Grand Round's program to bring in additional guest speakers including **JoEllen Tarallo, Ed.D.**, Vermont Suicide Prevention Center, **Thomas Delaney, Ph.D.**, University of Vermont, **Hedy Kober, Ph.D.**, Yale University, **Roger Weiss, M.D.**, McLean Hospital, and **Hamad Ekhtiari, Ph.D.**, Laureate Brain Research Institute, and **Michael Fiore, M.D.**, University of Wisconsin.

RESEARCH SNAPSHOT



My current research has two primary areas of focus. I have a clinical opioid research program aimed at developing and expanding access to efficacious treatments for opioid use disorder.

This includes ongoing randomized clinical trials evaluating our recently-developed interim buprenorphine dosing regimen for reducing illicit opioid use, injection drug use and related risk behaviors in untreated opioid abusers. I also have a longstanding research interest aimed at leveraging behavioral economic principles to support healthy behaviors, especially among disadvantaged populations. Currently this involves tackling cigarette smoking among the challenging population of opioid-dependent patients, part of a series of studies being conducted with vulnerable populations in our Center on Tobacco Regulatory Science. Finally, I am the Director of Vermont's first and largest opioid treatment program, which currently delivers methadone or buprenorphine maintenance treatment to approximately 1,000 Vermonters.

STACEY C. SIGMON, PH.D.

*VCBH, Associate Professor
Departments of Psychiatry and Psychology*





VCBH Faculty Participates in UVM’s Community Medical School seminar series

Andrea Villanti, Ph.D., M.P.H., participated in the **University of Vermont (UVM) Community Medical School** seminar series and spoke on the implications of non-combustible tobacco use. Her lecture, titled “Vaping, JUULing and E-cigarettes: Public Health Implications”, discussed these increasingly popular forms of tobacco

use and the public health concerns they raise. Dr. Villanti focuses her research on young adult tobacco use, including predictors and patterns of use, and interventions to reduce tobacco use in the young adult population.

Villanti Partners with Vermont Department of Health to Launch PACE Study



Andrea Villanti, Ph.D., M.P.H., has partnered with the Vermont Department of Health to launch the Policy and Communication

In spring 2019, this study enrolled over 1,500 Vermont youth and young adults aged 12-25. PACE Vermont participants will complete three brief online surveys over a six-month period that include questions about tobacco, alcohol, and substance use beliefs and behaviors, awareness of and support for substance-related policies, and exposure to statewide tobacco substance use prevention initiatives. Data collected in this study will guide recruitment and retention efforts in other studies of youth and young adults, as well as informing and evaluating population-level substance use prevention efforts in Vermont.

Evaluation (PACE Vermont) study to understand the impact of state-level policies and communication campaigns on substance use beliefs and behaviors in young Vermonters.

Heil Partners with UVMMC and African Community Center to Improve Reproductive Health Efforts in Uganda

Sarah Heil, Ph.D. is collaborating with colleagues from the **UVMMC Department of Obstetrics, Gynecology, and Reproductive Sciences** and the **African Community Center for Social Sustainability (ACCESS)** in Nakaseke, Uganda on a project to reduce rapid repeat pregnancy among newly postpartum women in rural Uganda. Rapid repeat pregnancies (RRP) occur within 24 months of a prior pregnancy and are associated with a number of adverse outcomes, including double the rate of infant and child under-five mortality and significant maternal morbidity and mortality. Although 95% of postpartum women in Uganda wish to avoid RRP, only 25% use birth control and those who do use contraception often use the least effective methods such as condoms, withdrawal and periodic abstinence. Dr. Heil developed and has tested a



promising intervention to reduce unintended pregnancy among women in opioid agonist treatment (Heil et al., 2016) and is completing a fully randomized dismantling trial with this population. Working with Drs. Anne Dougherty (UVMCC) and John Mundaka (ACCESS), the team completed mixed methods work to inform the adaptation of the intervention for use with the Ugandan population. They published their first paper together on Ugandan men's knowledge and use of family planning (Dougherty et al., 2018) and in March 2019, Drs. Heil and Dougherty traveled to Nakaseke to spend a week working and training with the ACCESS team. An initial pilot study of five women provided encouraging results and the team will soon embark on a small-randomized controlled trial.

VCBH Director Comments in U.S. News & World Report

Stephen Higgins, Ph.D., is quoted in a **U.S. News & World Report** article, titled "A Barren Landscape for Meth Treatment." Dr. Higgins comments on the evidence supporting the use of contingency management strategies - providing small rewards to people who stay in treatment programs and abstaining from drug use - to treat substance use disorders.

VCBH Trainee Presents Research on Contraceptive Use Among Women with Opioid Use Disorder at International Conference



In November of 2018, pre-doctoral trainee **Heidi Melbostad, M.S.**, traveled to the International Conference on Family Planning in Kigali, Rwanda to present preliminary results from an NIH-funded trial led by her advisor, **Dr. Sarah Heil**, aimed at improving contraceptive use

among women receiving medication treatment for opioid use disorder.

RESEARCH SNAPSHOT



The lab has increased over the last year. We received R01 funding for ENIGMA-Addiction, a data-pooling project in which labs from all over the world contribute structural and functional MRI data for large-scale meta- and mega-analyses. The focus is to understand the neurobiological basis of substance dependence and its genetic correlates. The lab also has a new T32 which trains pre- and postdoctoral fellows on the application of machine-learning methods to the analysis of large neuroimaging-genetic datasets. The ABCD study, a longitudinal study of adolescents, has completed recruitment and already generated numerous papers arising from its open science data release. Finally, we continue to work with the large European dataset of adolescent development, IMAGEN, which now includes longitudinal data on over 1,000 participants imaged at three points between ages 14 and 23. All these ongoing projects focus primarily on understanding the causes and consequences of substance use and related psychopathology.

HUGH GARAVAN, PH.D.

Professor, Departments of Psychiatry and Psychology, VCBH Director of Neuroimaging

This conference is actively supported by the Bill & Melinda Gates Institute for Population and Reproductive Health at the Johns Hopkins Bloomberg School of Public Health, David and Lucile Packard Foundation, William and Flora Hewlett Foundation, as well as more than 60 other organizations. Over 3,000 researchers, scientists, policy makers and program managers convened from approximately 120 countries around the world to share research and clinical information to expand access to family planning services. Heidi was also a recipient of UVM's Ronald Suiter prize, a merit-based award, which supported her attendance at this conference.



Rawson Partners with World Health Organization to Provide Addiction Services in Middle East

VCBH Research Professor, **Richard Rawson, Ph.D.**, is continuing to participate in a decade-old effort led by the World Health Organization to assist in the development of evidence-based addiction services in the Middle East. In November 2019, Dr. Rawson will be part of an ongoing series of WHO meetings designed to develop and disseminate standards of care for the treatment of substance use disorders in the Middle East and Gulf region. This effort, which includes 22 countries in the region from Morocco to Iran and south to Sudan, is attempting to promote the use of evidence-based treatment efforts (including addiction medications) throughout the region. Dr. Rawson will also give a keynote presentation at the Saudi Al Amal, National Addictions Conference in Jeddah, Saudi Arabia.

Rawson Leads Efforts to Implement Substance Use Prevention in Palestinian Communities

Research in Palestinian communities in West Bank and Gaza has documented increasing rates of tobacco, alcohol and drug use. Substance use prevention efforts in Palestinian communities are minimal. Lack of trained personnel, lack of translated materials, and resistance from some sectors of society to discussing substance use are all obstacles to prevention efforts. **Richard Rawson Ph.D.**, a research professor with VCBH, has recently completed an innovative effort to help schools in the West Bank develop the capacity to bring in evidence-based prevention curricula. With funding from Healing Across the Divides, a US Foundation, Palestinian training personnel from Al Magdese, a Palestinian NGO, were trained in the delivery of “Unplugged,” a prevention curriculum developed by the EU and translated into Arabic. The Unplugged curriculum was conducted in 10 schools in West Bank with over 500 students. Results suggested changes in attitudes and behavior and are currently in press for publication.

Trainee Highlights

The VCBH is proud of its multi-faceted training program supported by the NIH TCORS Center grant and a T32 training grant, which has continuously been funded since 1990 from the National Institute on Drug Abuse. Graduates of our training program have gone on to become successful researchers in academia, government, and health departments, as well as clinical psychologists and social scientists. 2019 was a big year for VCBH as 7 of our trainee graduates are taking the next step in their career!

T32 postdoctoral fellow, **Kelly Peck, Ph.D.**, accepted an Assistant Professor position with the VCBH at **University of Vermont, Department of Psychiatry.**

TCORS postdoctoral fellow, **Maria Parker, Ph.D.** accepted an Assistant Professor position at **Indiana University’s School of Public Health.**

TCORS predoctoral fellow, **Danielle Davis, Ph.D.** accepted a postdoctoral fellowship at the **Yale School of Medicine Drug Abuse Clinical Research Training Program.**

TCORS predoctoral fellow, **Joanna Streck**, accepted a fellowship for her doctoral internship at **Harvard Medical School/Massachusetts General Hospital.**

TCORS predoctoral fellow, **Philip Spechler, Ph.D.**, accepted a postdoctoral associate position at the **Laureate Institute for Brain Research.**

T32 predoctoral fellow, **Ivori Zvorsky**, accepted a fellowship for her doctoral internship at **Denver Health Medical Center.**

T32 predoctoral fellow, **Taylor Ochalek, Ph.D.**, accepted a postdoctoral fellowship at **Virginia Commonwealth University in the Department of Pharmacology and Toxicology.**

We wish nothing but continued success and happiness for all of our training program graduates!

NOTEWORTHY NEWS & AWARDS

VCBH Faculty **Andrea Villanti, Ph.D., M.P.H.**, was awarded the **Society for Nicotine and Tobacco Research 2018 Jarvik-Russell Early Career Award**, which honors members early in their careers who have made extraordinary contributions to the field of nicotine and tobacco research

TCORS Predoctoral Trainee **Danielle Davis, M.A.**, was awarded a **COBRE pilot study** that examines the association between maternal smoking and relative reinforcing value of food in infants.

TCORS Postdoctoral Fellow **Maria Parker, Ph.D.**, received a highly competitive **2019 CPDD Travel Award for Early Career Investigators**.

Former VCBH Trainee **Alan Budney, Ph.D.**, received the **2019 American Psychological Association Div 28 MED Associates Brady-Schuster Award**. This award honors a mid-career or senior scientist who conducts outstanding research underscoring the fundamental importance of behavioral science to psychopharmacology or substance abuse. Dr. Budney is Professor in the Department of Psychiatry and the Center for Technology and Behavioral Health at the Geisel School of Medicine at Dartmouth.

VCBH Faculty **Allison Kurti, Ph.D.**, received the **2019 American Psychological Association (APA) Div 28 Young Psychopharmacologist Award**. This award honors a young scientist doing original, meritorious work in psychopharmacology and encourages excellence in research at the interface between the disciplines of pharmacology and psychology.

VCBH Faculty **Stacey Sigmon, Ph.D.**, has been elected as the **2020-2021 College of Problems on Drug Dependence (CPDD) President**. CPDD is the oldest and largest organization in the US dedicated to advancing a scientific approach to substance use and addictive disorders. CPDD's mission is to provide a national and international forum for scientists of diverse backgrounds to advance the understanding of molecular-neurobiological aspects of addictive disorders and, by the application of new scientific knowledge, to improve and develop treatments utilizing novel behavioral and pharmacological therapies.

RESEARCH SNAPSHOT



My research focuses broadly on designing and implementing behavioral interventions to promote health among vulnerable populations, with an emphasis on cigarette smoking cessation among socioeconomically disadvantaged women. I am also interested in incorporating technology in behavioral interventions (e.g., Smartphones, remote behavior monitoring devices) to increase their attractiveness and their reach. I am currently preparing to lead a study examining the feasibility, efficacy, and cost-effectiveness of a Smartphone-based financial incentives intervention to promote smoking cessation among pregnant women. In addition, as a member of a working group focused on tobacco use cessation in vulnerable populations, I am leading projects examining use of tobacco and nicotine products in national samples of women of reproductive age, as well as how patterns of tobacco and nicotine use change upon transitioning into and out of pregnancy.

ALLISON KURTI, PH.D.,

Assistant Professor, Department of Psychiatry

A new paper published in JAMA Internal Medicine on the "Association of Cumulative Socioeconomic and Health-related Disadvantage with Disparities in Smoking Prevalence in the United States, 2008-2017", is a collaborative effort of the USC and UVM TCORS with **Adam Leventhal, Ph.D.**, (USC TCORS) as lead author and **Stephen Higgins, Ph.D.**, (UVM TCORS), as co-author.

VCBH Faculty, **Diann Gaalema, Ph.D.**, was promoted to **Associate Professor** on the Research Scholar Pathway, in the Department of Psychiatry at UVM.

VCBH held **29th Annual Trainee Scientific Retreat** at Basin Harbor Resort in Vergennes, VT. The annual retreat features oral and poster presentations from all of our pre and postdoctoral fellows as well as presentations from two external guests. This year's guests were **Margaret Haney, Ph.D., Professor, Columbia University**, and former T32 predoctoral fellow, **Matthew Carpenter, Ph.D., Assistant Professor, Medical University of South Carolina**.



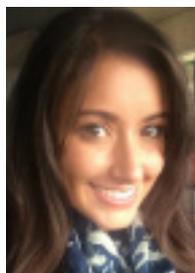
Trainee Research Snapshots



I completed my predoctoral training at the VCBH in 2018 and will be returning as a postdoctoral trainee in August 2019. My research as a postdoc will primarily focus on improving interventions for people who are not ready to quit smoking cigarettes and implementation of treatments for opioid use disorder among vulnerable and underserved populations. Most recently I

completed a clinical internship at the Yale School of Medicine where my primary focus was on addiction treatment among people in the criminal justice system.

- Elias Klemperer, VCBH T32 Postdoctoral Fellow



My primary research focus includes smoking cessation, financial incentives, and psychiatric comorbidities in pregnant and newly postpartum women. Beyond examining whether financial incentive impacted psychiatric symptoms in this population, I have also examined whether depressive symptoms impact the relative reinforcing value of cigarettes

from a behavioral economic perspective. Finally, I have submitted for publication a systematic literature review examining the ability of hypothetical purchase task indices to detect individual differences in substance-related outcomes.

- Ivori Zvorsky, VCBH T32 Predoctoral Fellow



My research focuses on substance use disorders and women's health. More specifically, I am interested in contraceptive use and pregnancy outcomes among women with opioid use and tobacco use disorders.

- Heidi Melbostad, VCBH T32 Predoctoral Fellow



My current research involves behavioral economic approaches to promoting smoking cessation among socioeconomically disadvantaged pregnant women and mothers of young children. As part of this research, I have investigated the intersection of the Cigarette Purchase Task (CPT) and Delay Discounting (DD) on predicting quitting among pregnant women

who smoke, have been involved in a systematic review on purchase tasks, and am currently investigating the ability of the CPT to distinguish between mothers of young children with and without opiate-use disorder. Additionally, I am investigating differences in the substitutability of combustible and non-combustible nicotine products for cigarettes among vulnerable populations. Finally, I have used national samples of pregnant women to investigate urban versus rural differences in smoking prevalence and the impact of common between-study variables on smoking prevalence estimates.

- Tyler Nighbor, Ph.D., VCBH T32 Postdoctoral Fellow



I have been focusing on projects related to smoking and co-occurring or comorbid drug use and affective disorders at the population level. I have also worked on estimating the opioid use disorder cascade of care to address the current opioid public health epidemic using large, nationally representative survey data.

- Maria Parker, Ph.D., VCBH TCORS Postdoctoral Fellow



My research involves studying the effects of low-nicotine content cigarettes on the structural and functional neurobiology of individuals from vulnerable populations. Additional projects include identifying predictors of behavioral health problems in adolescence using longitudinal multimodal datasets.

- Philip Spechler, TCORS Predoctoral Fellow



In my last year at UVM as a graduate student, I investigated how smoking and related behaviors are affected by reducing nicotine content in cigarettes in populations especially vulnerable to smoking. Specifically, I investigated how unit price can be used a mechanism to describe and understand changes in smoking behavior. In addition to this work, I led a pilot study

investigating the impact that smoking has on food reinforcement using an operant choice task. Following my training at UVM, I'm starting a postdoctoral fellowship at Yale University under Drs. Suchitra Krishnan-Sarin and Stephanie O'Malley investigating tobacco regulatory science

- Danielle Davis, TCORS Graduate Research Assistant



As a fifth year clinical psychology doctoral student working with Stacey Sigmon, my research interests are in better understanding different problematic health behaviors including tobacco and opioid abuse. I work on projects related to the intersection between substance use and psychopathology and tobacco regulatory science-focused projects examining

different harm reduction strategies.

- Joanna Streck, TCORS Graduate Research Assistant



As a second-year post-doctoral fellow at the University of Vermont, I am supervising a randomized comparative effectiveness trial using incentives to promote smoking cessation in disadvantaged mothers of young children. Additionally, I was awarded the Cardiovascular Research Institute of Vermont Early Career Research Award for my project entitled "Extending

Contingency Management for Smoking Cessation to Patients with Established Cardiovascular Disease: A Pilot Study Using Ecological Momentary Assessment," and I am preparing to recruit for that study. I am also leading two manuscripts: one manuscript examines the intersection of common risk factors for current smoking among U.S. college and non-college educated adults and compares risk factor profiles between

RESEARCH SNAPSHOT



My research is focused on youth and young adult tobacco and substance use, including prevention and cessation. One of my current studies, supported by the COBRE (P20GM103644), focuses on improving cessation in socioeconomically-disadvantaged young adult smokers. For the past several years, I have also conducted rapid, responsive research to inform tobacco-related policies, particularly the FDA regulation of tobacco products. A focus of my work in this area has been on the disproportionate prevalence of menthol and other flavored tobacco product use in young people and I co-lead a study on the substitutability of other tobacco products for menthol cigarettes in the event of a menthol ban (R21DA046333). I also conduct research on health communication related to substance use and policies, including a study to examine perceptions of nicotine and relative harm of tobacco products in U.S. young adults (R03CA212694) with the goal of informing public education on nicotine. I also collaborate with the Vermont Department of Health on a cohort study of Vermont youth and young adults focused on evaluating state-level substance use-related policies and communication efforts (www.pacevt.org).

ANDREA VILLANTI, PH.D., MPH

Associate Professor, Department of Psychiatry

these two subpopulations, and the second manuscript examines how changes in smoking status associate with psychiatric symptoms over consecutive waves of the Population Assessment of Tobacco and Health (PATH) Study.

- Sulamunn Coleman, T32 Postdoctoral Fellow



In my first year as a graduate student, I've studied the use and effects of reduced nicotine content cigarettes among pregnant women and disadvantaged women of childbearing age. Additionally, I have been investigating anticipated vs. actual postpartum contraception use among pregnant cigarette smokers.

- Roxanne Harfmann, TCORS Graduate Research Assistant



Trainee Research Snapshots



As a first-year Postdoctoral Fellow at the University of Vermont, I am working on trials examining how individuals from vulnerable populations, specifically those with mental illness, respond to different tobacco products. I am currently working on a manuscript using publicly available data to examine how self-perceived mental health is associated with tobacco use over

time.

-Hypatia Boliver, TCORS Postdoctoral Fellow



As an experimental psychology predoctoral trainee working with Stacey Sigmon, my research interests are focused on leveraging behavioral health, technological, and pharmacological approaches for treatment of opioid use disorder. My dissertation project examined sucrose subjective response among individuals receiving opioid agonist treatment for opioid use disorder to

understand further the behavioral and pharmacological mechanisms that may be associated with significant weight increases often observed in methadone and buprenorphine treatment. Following my training at UVM, I will begin a postdoctoral fellowship at Virginia Commonwealth University with Drs. F. Gerard Moeller,

William Dewey, and Hamid Akbarali, investigating innovative treatment approaches for opioid use disorder.

-Taylor Ochalek, T32 Predoctoral Fellow



As a first year graduate student, I am working with Dr. Stacey Sigmon and my research will focus on the effects of cigarettes with very low nicotine content.

-Rhiannon Wiley, TCORS Graduate Research Assistant

I'm a first year graduate student, working with Dr. Diann Gaalema, and am investigating predictive models for changes in body composition during secondary cardiac rehabilitation programs. I plan to examine the efficacy of resistance weight training as a method of increasing participants overall fitness in said programs over the course of the year.

-William Middleton, T32 Predoctoral Fellow





As a first-year graduate student, I will be working with Stacey Sigmon in researching behavioral and pharmacological treatments for opioid abuse and dependence. I am particularly interested in investigating the therapeutic promise of pharmacotherapies, behavioral economics approaches, and psychosocial interventions, in mitigating problematic opioid use and associated psychopathology.

-Tatum Oleskovicz, T32 Predoctoral Fellow

Working with Dr. Allison Kurti, my research generally focuses on the practicability of financial incentives to reduce nicotine dependency in pregnant women. I am interested in incorporating a bio-psychosocial model to study the cognitive, environmental, and behavioral agencies involved in tobacco abuse for pregnant and postpartum women.

-Carolyn Evemy, T32 Predoctoral Fellow



My research interests focus on youth and young adult substance use, particularly nicotine and tobacco use. We primarily conduct population-level research through large online surveys with the aim of informing nicotine- and tobacco-related policies.

-Julia West, TCORS Graduate Research Assistant

As an incoming TCORS Postdoctoral Fellow, I will be examining the effects of low-nicotine cigarettes in pregnant women. In addition to my work on TCORS, I will also be working on other projects related to women's reproductive health and opioid use disorder.

-Anthony Oliver, Ph.D., TCORS Postdoctoral Fellow

My research is focused on longitudinal neuroimaging. We look at the changes in brain structure over time in different populations as a result of substance use and behavior. I'm specifically interested in the effects of nicotine use on areas of the brain indicated in stress regulation."

-Amanda Sidwell, TCORS Graduate Research Assistant

RESEARCH SNAPSHOT

My research mainly focuses on investigating the relationship between psychiatric disorders and the adolescent brain using structural and functional neuroimaging. I am currently co-investigator on the ongoing longitudinal Adolescent Brain Cognitive Development (ABCD) project, the largest neuroimaging study ever conducted, where I am involved in the quality control and processing of the imaging data. In one project, I'm looking at functional brain activation patterns associated with the neuroimaging tests of cognitive control, reward and working memory. Further, I'm assessing the reliability of these activation patterns and their sensitivity to individual differences in performance. In another project, I'm looking at the impact of video gaming and other screen time measures on the brain in a large sample of children. Alongside my current research, I am also interested in applying novel machine learning techniques on big data sets to identify the neurobiological, genetic and behavioral risk factors underlying substance use and psychiatric diseases. investigating the relationship between psychiatric disorders and the adolescent brain using structural and functional neuroimaging. I am currently co-investigator on the ongoing longitudinal Adolescent Brain Cognitive Development (ABCD) project, the largest neuroimaging study ever conducted, where I am involved in the quality control and processing of the imaging data. In one project, I'm looking at functional brain activation patterns associated with the neuroimaging tests of cognitive control, reward and working memory. Further, I'm assessing the reliability of these activation patterns and their sensitivity to individual differences in performance. In another project, I'm looking at the impact of video gaming and other screen time measures on the brain in a large sample of children. Alongside my current research, I am also interested in applying novel machine learning techniques on big data sets to identify the neurobiological, genetic and behavioral risk factors underlying substance use and psychiatric diseases.



BADER CHAARANI, PH.D.

Assistant Professor, Department of Psychiatry



VCBH PUBLICATIONS

September 2018 - October 2019

The following publications are representative of VCBH faculty research in chronological order. VCBH Members in Bold Print.

Parker MA, Streck JM, Bergeria CB, Bunn JY, **Gaalema DE, Davis DR, Barrows AJ, Sigmon SC, Tidey JW, Heil SH, Higgins ST**. Reduced nicotine content cigarettes and cannabis use in vulnerable populations. *Tob Reg Sci*. 2018 Sept;4(5), 84-91

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RESEARCH SNAPSHOT



My research interests are two-fold. I have conducted research focused on the development and evaluation of novel treatments for opioid misuse and use disorder. Most recently, this has included work on two randomized clinical trials evaluating a novel interim buprenorphine treatment for reducing illicit opioid use and other high-risk behaviors among adults with untreated opioid use disorder. I also have a research interest focused on the delivery and evaluation of cognitive-behavioral treatments for posttraumatic stress disorder in individuals with concurrent substance use disorders. I am currently preparing to integrate these two areas of research as I direct a study investigating the contribution of prolonged exposure therapy, an efficacious manualized cognitive-behavioral treatment for posttraumatic stress disorder, above and beyond opioid agonist treatment alone for reducing posttraumatic stress disorder symptoms among patients with concurrent posttraumatic stress disorder and opioid use disorder.

KELLY PECK, PH.D.,

Assistant Professor, Department of Psychiatry

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