

**SARAH H. HEIL
CURRICULUM VITAE**

Position: Professor with Tenure
Vermont Center on Behavior and Health
Department of Psychiatry (primary)
Department of Psychological Science (secondary)

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EDUCATION

1999-2002	University of Vermont (Stephen T. Higgins, Ph.D.)	Postdoctoral fellow	National Institute on Drug Abuse (NIDA) Training Grant
1997-1999	Wayne State University (Marappa G. Subramanian, Ph.D.)	Postdoctoral fellow	National Institute on Alcohol Abuse and Alcoholism (NIAAA) Training Grant
1992-1997	Dartmouth College (Catherine P. Cramer, Ph.D.)	Ph.D.	Research Assistant (1992-1997)
1988-1992	Wittenberg University (Josephine F. Wilson, Ph.D.)	B.A.	Phi Beta Kappa; Research Assistant (1991-1992)

LICENSES, CERTIFICATION

2021 – 2023 One Key Question certification

FACULTY POSITIONS HELD

Years	Institution	Academic Title	Department
2018 – present	University of Vermont	Professor	Psychiatry Psychological Science
2016 - 2018	University of Vermont	Associate Professor with Tenure	Psychiatry Psychological Science

2014 - 2016	University of Vermont	Associate Professor	Psychiatry Psychological Science
2009-2014	University of Vermont	Research Associate Professor	Psychiatry Psychological Science
2006-2009	University of Vermont	Research Assistant Professor	Psychological Science
2003-2009	University of Vermont	Research Assistant Professor	Psychiatry

OTHER POSITIONS AND MAJOR ADMINISTRATIVE POSITIONS HELD

Years	Location/program name	Role
2019-present	Health Resource and Services Administration, Rural Center of Excellence on Substance Use Disorders	Associate Director
2014-present	National Institute on Drug Abuse, Food and Drug Administration Tobacco Center of Regulatory Science training grant (P50 DA036114)	Associate Director
2013-present	National Institute on Drug Abuse training grant (T32 DA07242)	Associate Director
Across both training grants, serve as:		
- Coordinator of predoctoral and postdoctoral recruitment (currently 13 positions)		
- Liaison with Department of Psychological Science to coordinate predoctoral fellow training (currently 7 students)		

HONORS AND AWARDS

Year	Name of Award
1995	Sandra G. Wiener Developmental Psychobiology Student Investigator Award
2003	National Institute on Drug Abuse Women and Gender Junior Investigator Travel Award
2011	Elected Fellow in Division 28 (Psychopharmacology and Substance Abuse) of the American Psychological Association
2015	Elected Fellow in Division 50 (Society of Addiction Psychology) of the American Psychological Association
2016	Recipient of inaugural University of Vermont College of Medicine Dean's Excellence in Research Award at the Associate Professor level

KEYWORDS/AREAS OF INTEREST

Substance-related disorders, pregnancy, postpartum period, cigarette smoking, nicotine withdrawal, opioids, neonatal abstinence syndrome, contraception

SUMMARY OF PROFESSIONAL ACTIVITIES- OVERALL

I joined the Psychiatry faculty in 2003 as a Research Assistant Professor and was promoted to Research Associate Professor in 2009. Consistent with this, my focus initially was primarily on research, but I steadily and significantly increased my teaching and service responsibilities over the years while maintaining a high level of productivity in research. This set the stage for my transition to the Tenure Pathway in January of 2014 with tenure granted in 2016. I was promoted to Professor in 2018. Overall, in my 19 years as a faculty member, I have obtained 7 grants as sole Principal Investigator (PI), including 4 R01s, worth \$10 million in extramural funds. I have also worked successfully with others to obtain NIH grants as a Co-PI (\$5 million) and Co-Investigator (\$15 million). I have published nearly 125 manuscripts in peer-reviewed scientific journals which have been cited more than 5,000 times and result in a current ISI Web of Science h-index of 38. I present my research at 2-3 national and international peer-reviewed scientific meetings annually and have also been invited to present my work to prestigious groups (e.g., Johns Hopkins Behavioral Pharmacology Research Seminar Series; Expert Meeting on Perinatal Illicit Substance Abuse at the Centers for Disease Control and Prevention; Norwegian Centre for Addiction Research at the University of Oslo). I also serve as Associate Director of a \$13 million Health Resources and Services Administration Regional Center of Excellence that disseminates evidence-based services and resources in rural northern New England. In terms of professional service, I am a consistently active member of the College of Problems of Drug Dependence, the longest standing group in the US addressing problems of drug dependence and abuse. I have served on a number of committees and the board of directors for this organization and am currently a Fellow. I have also been active in the American Psychological Association as an elected Fellow of two divisions (Division 28 Substance Abuse and Psychopharmacology and Division 50 Society of Addiction Psychology) and as a member of the consulting editorial board of the journal of each division. I am an ad hoc reviewer for more than 30 other scientific journals. I have served as an ad hoc reviewer on NIH study sections and was a permanent member of the Interventions to Prevent and Treat Addictions Standing Study Section. My service work also includes being appointed by the governor to the Vermont Tobacco Evaluation and Review Board, joining the medical advisory board of Planned Parenthood of Northern New England, serving as an expert discussant for the Vermont Oxford Network's initiative to address controversies in caring for infants exposed to opioids prenatally and their families, and being appointed to the Vermont Maternal Mortality Review Panel. With regard to teaching, I have served as the primary mentor and advisor for 11 pre- and postdoctoral fellows as part of our two federally funded training programs. As Associate Director of these training programs, I also oversee all recruitment for the 13 training positions. I have served on more than 20 second year project, Master's, preliminary exam, and doctoral committees for many students, am regularly asked to lecture in undergraduate, graduate, medical student, and resident courses at the University of Vermont, have been invited to give more than 15 CE/CME presentations throughout the US, and frequently collaborate with colleagues on chapters in textbooks and handbooks (e.g., Barlow's Clinical Handbook of Psychological Disorders).

SUMMARY OF ACCOMPLISHMENTS

- \$10 million in NIH funding as PI, another \$5 million as Co-PI, and another \$15 million as co-I; continuously funded since 2004
- Nearly 125 publications to date cited more than 5,000 times; ISI Web of Science h-index=38

- High-impact research includes a report in New England Journal of Medicine (see Jones, Kaltenbach, Heil et al., 2010); results have influenced international practice guidelines in US, Australia, Denmark, Norway, Sweden and other countries
- Invited presentations to prestigious groups (e.g., Centers for Disease Control and Prevention's Expert Meeting; Johns Hopkins Research Seminar Series)
- Significant service, including election to board of directors of College on Problems of Drug Dependence, oldest and largest organization dedicated to advancing the scientific study of substance use, and other professional organizations; current Fellow
- Service to NIH as permanent and ad hoc reviewer for multiple study sections; also on editorial boards of Psychology of Addictive Behaviors and Experimental and Clinical Psychopharmacology and serve as an ad hoc reviewer for more than 30 journals, including New England Journal of Medicine, JAMA
- Associate director of two federally-funded research training grants; oversee recruitment for 13 positions and have served as primary mentor for eight pre- and postdoctoral fellows
- Elected fellow in two divisions of American Psychological Association

PROFESSIONAL SERVICE

DEPARTMENTAL SERVICE

Years	Department		
2009-present	Psychiatry	Faculty Review Committee	Member
2010-2013	Psychiatry	University Faculty Senate	Elected Representative
2021-present	Psychiatry	Chair Search Committee	Appointed Member

COLLEGE SERVICE

Fall 2010	Vermont Child Health Improvement Program		Reviewed and commented on their guidelines "Management of Neonatal Opioid Withdrawal"
2012-2014	Faculty Standards Committee		Elected Member
2016-2018	Research Incentive Program Working Group		Appointed Member
Fall 2017	Reappointment, Promotion, and Tenure Mentoring Group		Served on panel discussing how to prepare for RPT
Fall 2017	Ad Hoc Review Committee for Faculty Research and Mentorship Awards		Reviewed nominations for four research awards
2019	LCME Self-Study Sub-Committee for Standard 2: Leadership and Administration		Appointed Member

MEDICAL CENTER SERVICE

Not applicable

UNIVERSITY SERVICE

2003-present	Graduate College	Member
2008-2010	General Clinical Research Center Scientific Advisory Committee	Member
Spring 2013	Undergraduate Research Mini-Grants	Reviewer
Summer 2013	Undergraduate Research Grants	Reviewer

GOVERNMENT**State**

2011-2013	Vermont Tobacco Evaluation and Review Board	Appointed Member
2015-2019	Vermont Maternal Mortality Review Panel	Appointed Member

Federal

2007	National Institutes of Health	Member, Special Emphasis Panel on Specialized Centers of Interdisciplinary Research on Sex and Gender Factors Affecting Women's Health
2011	National Institute on Drug Abuse	Member, Protocol Review Board for Clinical Trials Network
2011	National Institutes of Health	Member, Special Emphasis Panel/Scientific Review Group 2012/01 ZRG1 RPHB-P (90) A Academic Research Enhancement Awards (AREA) R15 Review Group
2013	National Institutes of Health	Member, National Institute of General Medical Sciences (NIGMS) Special Emphasis Panel ZGM1 TWD-C(C1) Centers of Biomedical Research Excellence (COBRE) P20 Review Group
2014	National Institutes of Health	Member, Scientific Review Group 2014/10 ZRG1 RPIA-N-09 F Risk, Prevention and Intervention for Addictions Overflow Review Group
2014	National Institutes of Health	Scientific Review Group 2015/01 ZRG1 RPIA-N-09 F Risk, Prevention and Intervention for Addictions Overflow Review Group
2015-2019	National Institutes of Health	Charter Member, Interventions to Prevent and Treat Addictions Study Section, Center for Scientific Review; Co-Chair for October 2016 meeting
2016	National Institutes of Health	Chair, Scientific Review Group 2016/05 ZRG1 RPHB-U (90) S Interventions to Prevent and Treat Addictions Review Group

SOCIETY MEMBERSHIPS

1992 - present	Phi Beta Kappa
1996 - present	Sigma Xi; Associate Member
2003 - present	College on Problems of Drug Dependence; Fellow
2003 - present	American Psychological Association Division 50 - Society of Addiction Psychology (2004-present; Fellow) Division 28 - Psychopharmacology and Substance Abuse (2006-present; Fellow)
2005 - present	Society for Research on Nicotine and Tobacco; Full Member
2016 - present	Society for Family Planning; Full Fellow

SERVICE TO PROFESSIONAL ORGANIZATIONS

2001	American Psychological Association	Program Committee for Division 28
2001	College on Problems of Drug Dependence	Liaison for community-based treatment providers attending the annual research conference
2002	American Psychological Association	Program Committee for Division 28
2002	College on Problems of Drug Dependence	Liaison for community-based treatment providers attending the annual research conference
2003	College on Problems of Drug Dependence	Liaison for community-based treatment providers attending the annual research conference
2004-2006	College on Problems of Drug Dependence	Appointed member, Human Research Committee
2006	American Psychological Association	Program Committee for Division 28
2007-2010	College on Problems of Drug Dependence	Appointed chair, Human Research Committee
2012-2015	College on Problems of Drug Dependence	Appointed member, Awards Committee
2013	Sigma Xi	Grants-in-Aid of Research Review Panel
2014	Sigma Xi	Grants-in-Aid of Research Review Panel
2014-2018	College on Problems of Drug Dependence	Elected member, Board of Directors
2015	Sigma Xi	Grants-in-Aid of Research Review Panel

SERVICE TO PROFESSIONAL PUBLICATIONS

2014-2019	Psychology of Addictive Behaviors	Consulting Editorial Board
2019-present	Experimental and Clinical Psychopharmacology	Consulting Editorial Board

- Ad hoc reviewer for more than 30 journals, including:

Addiction, Addictive Behaviors, Alcohol, Alcoholism: Clinical and Experimental Research, The American Journal of Drug and Alcohol Dependence, The American Journal of Obstetrics and Gynecology, The American Journal of Psychiatry, The American Journal on Addictions, Archives of General Psychiatry (now JAMA Psychiatry), CNS Drugs, Contraception, Drug and Alcohol Dependence (rated in the top 5% of ~900 reviewers in 2010), Drugs, European Journal of Obstetrics and Gynecology and Reproductive Biology, Experimental and Clinical Psychopharmacology, JAMA, Journal of Applied Behavior Analysis, Journal of Addiction Medicine, Journal of Consulting and Clinical Psychology, Journal of Maternal-Fetal and Neonatal Medicine, Journal of Pediatrics, Journal of Studies on Alcohol and Drugs, Journal of Substance Abuse Treatment, Journal of the International Neuropsychological Society, Journal of Women's Health, New England Journal of Medicine, Nicotine and Tobacco Research, Pediatrics, Pharmacology Biochemistry and Behavior, Preventive Medicine, Psychology of Addictive Behaviors, Psychopharmacology, Substance Use and Misuse, and Translational Issues in Psychological Science

OTHER:

- Invited by the New England Journal of Medicine to serve as an expert for a 10-day online interactive discussion (NEJM Group Open Forum) about an NEJM article on increasing neonatal abstinence syndrome in US neonatal intensive care units (Tolia et al., 2015); posts viewed by more than 1,000 participants
- Invited mail reviewer of grant application in my area of expertise for Glasgow Children's Hospital Charity Research Fund (October 2016)

PUBLIC SERVICE

2012-2014 Planned Parenthood of Northern New England Medical Advisory Board

SUMMARY OF SERVICE ACTIVITIES

I have pursued numerous service opportunities throughout my time as a faculty member. I have served on committees at the department, college, and university level, including serving on my department's Faculty Review Committee, representing my department on the Faculty Senate, and being elected to the College of Medicine Faculty Standards Committee. Related to my discipline, I have served professional organizations of which I am a member, such as being elected to the board of directors of the College on Problems of Drug Dependence. I have also served as a reviewer on NIH study sections including serving as a permanent member of a standing study section. I am also a reviewer for more than 30 scientific journals, including high-impact journals like New England Journal of Medicine, JAMA, JAMA Psychiatry, and Journal of Consulting and Clinical Psychology and currently serve on the consulting editorial board of the journal Experimental and Clinical Psychopharmacology. Other service includes appointment by the governor to the Vermont Tobacco Evaluation and Review Board, membership on the medical advisory board of Planned Parenthood of Northern New England, and appointment to the Vermont Maternal Mortality Review Panel.

TEACHING

FORMAL SCHEDULED CLASSES

Year	Course Title	Course R E	Hours	Number of Learners	Learner Level

2003-2013	Trainee Journal Club	x		1 weekly	8-16	Graduate and Postdoctoral
2007	Selected Topics on Substance Use Disorders (PSYC 380)		x	4	7	Graduate
2011	Selected Topics in Behavior, Neurobiology, & Health (PSYC 380)		x	4	7	Graduate
2013	Reporting Clinical Research (CTS 315)	x		1	2	Graduate
2014	Reporting Clinical Research (CTS 315)	x		1.5	4	Graduate
2014	Addressing Substance Abuse in Social Work (SWSS 380)		x	1.5	5	Undergraduate
2014	Neural Science (MD 577)	x		1	100	Medical Student
2015	Addressing Substance Abuse in Social Work (SWSS 380)		x	1.5	12	Undergraduate
2015	Psychopharmacology (PSYC 223; Sect. A)		x	0.75	27	Undergraduate and Graduate
2015	Psychopharmacology (PSYC 223; Sect. B)		x	0.75	40	Undergraduate and Graduate
2015	Neural Science (MD 577)	x		1	100	Medical Student
2016	Addressing Substance Abuse in Social Work (SWSS 380)		x	1.5	18	Undergraduate
2016	Neural Science (MD 577)	x		1	100	Medical Student
2017	Neural Science (MD 577)	x		1	100	Medical Student

POSTGRADUATE AND OTHER COURSES

Year	Course Title	Course R E		Hours	Number of Learners	Learner Level
2003-present	Trainee Journal Club	x		1 weekly	8-16	Graduate and postdoctoral
2006	Department of Psychiatry Substance Abuse Seminar	x		1.5	3	Resident
2008	Department of Psychiatry Substance Abuse Seminar	x		1.5	7	Resident
2009	Department of Psychiatry Substance Abuse Seminar	x		1.5	4	Resident
2010	Department of Psychiatry Substance Abuse Seminar	x		1.5	3	Resident
2014	Department of Psychiatry Substance Abuse Seminar	x		1.25	10	Graduate and Resident

OTHER:

- Resident Teaching Session, Department of Obstetrics and Gynecology, University of California San Francisco General Hospital. Sat on a panel with two UCSF providers and

answered questions from ~15 residents about treating opioid-dependent pregnant women (October 2011).

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

Dates	Name	Program School	Role	Current Position
2008 - 2013	Evan Herrmann	Psychological Science, University of Vermont	M.A. Advisor Ph.D. Advisor	Health Scientist Administrator, National Institute on Drug Abuse
2013 - 2018	Cecilia Bergeria	Psychological Science, University of Vermont	M.A. Advisor Ph.D. Advisor	Assistant Professor, Johns Hopkins University
2014 - 2020	Heidi Melbostad	Psychological Science, University of Vermont	M.A. Advisor Ph.D. Advisor	Postdoctoral Fellow, University of Vermont
2015	Tara Higgins	College of Medicine University of Vermont	Scholarly Project Co-Advisor	Attending Physician, University of Pittsburgh Medical Center
2018 – 2019	Gena Zollman	Nursing, University of Vermont	Scholarly Project Co-Advisor	Nurse Practitioner, Planned Parenthood of Northern New England
2018 – present	Roxanne Harfmann	Psychological Science, University of Vermont	M.A. Advisor Ph.D. Advisor	

OTHER:

Undergraduate students supervised

- Samantha Heller, '10, supervised her Psychological Science Independent Study project for Fall 2008
- Mariel Golden, '15, supervised her Undergraduate Spring 2012 Mini Research Grant project

DISSERTATION/THESIS COMMITTEE MEMBERSHIP

Dates	Name	Program School	Role
2003 - 2004	Matt Johnson	Psychological Science, University of Vermont	Ph.D. Thesis Committee (Chair)
2003 - 2004	Jennifer Lussier Plebani	Psychological Science, University of Vermont	Ph.D. Thesis Committee (Chair)
2006	Laura Chivers	Psychological Science, University of Vermont	M.A. Thesis Committee
2008 - 2009	Kelly Dunn	Psychological Science, University of Vermont	Preliminary Project Committee Ph.D. Thesis Committee

2008 - 2012	Matt Bradstreet	Psychological Science, University of Vermont	M.A. Thesis Committee Preliminary Project Committee Ph.D. Thesis Committee
2011 - 2014	Mollie Patrick	Psychological Science, University of Vermont	M.A. Thesis Committee Preliminary Project Committee Ph.D. Thesis Committee
2012 - 2014	Alexa Lopez	Psychological Science, University of Vermont	M.A. Thesis Committee Preliminary Project Committee Ph.D. Thesis Committee
2015 – 2019	Ivori Zvorsky	Psychological Science, University of Vermont	Second Year Project Committee Ph.D. Thesis Committee
2015 - 2016	Joanna Streck	Psychological Science, University of Vermont	Second Year Project Committee
2017 - 2019	Taylor Ochalek	Psychological Science, University of Vermont	M.A. Thesis Committee Preliminary Exam Committee Ph.D. Thesis Committee
2017 - 2018	Danielle Davis	Psychological Science, University of Vermont	Preliminary Exam Committee Ph.D. Thesis Committee
2020	Carolyn Evemy	Psychological Science, University of Vermont	M.A. Thesis Committee

OTHER:

- Served as invited “first opponent” in Dr. Gabrielle Welle-Strand’s dissertation defense at the Norwegian Centre for Addiction Research, Oslo University, Oslo, Norway (October 2015)

POSTDOCTORAL FELLOWS AND RESIDENTS DIRECTLY SUPERVISED OR MENTORED

Dates	Name	Fellow	Faculty Role	Current Position
2006 - 2009	Teresa Linares Scott, Ph.D.	Postdoctoral Fellow	Research Supervisor	Clinical Assistant Professor, University of Vermont
2010 - 2012	Diann Gaalema, Ph.D.	Postdoctoral Fellow	Research Supervisor	Research Associate Professor, University of Vermont
2012 - 2015	Dennis Hand, Ph.D.	Postdoctoral Fellow	Research Supervisor	Research Assistant Professor, Thomas Jefferson University
2014 - 2017	Chris Arger, Ph.D.	Postdoctoral Fellow	Research Supervisor	Behavioral Health Specialist, Iora Health
2015 – 2017	Alexis Matusiewicz, Ph.D.	Postdoctoral Fellow	Research Supervisor	Parental leave
2017 – 2020	Catalina Rey, Ph.D.	Postdoctoral Fellow	Research Supervisor	Assistant Professor, University of Nebraska Medical Center
2019 – 2021	Anthony Oliver, Ph.D.	Postdoctoral Fellow	Research Supervisor	Pear Therapeutics

2020 - 2021	Heidi Melbostad, Ph.D.	Postdoctoral Fellow	Research Supervisor	Director, Chittenden Clinic Opioid Treatment Program, Burlington, VT
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CE/CME TEACHING

1. Heil, S.H. (December 2005). Smoking cessation during pregnancy. Participated in workshop, "Managing Pregnant Patients who have Tobacco and Opioid Dependence: Behavioral and Pharmacotherapy Advances" (H.E. Jones, chair) held at the 16th annual meeting of the American Academy of Addiction Psychiatry in Scottsdale, AZ (CME).
2. Heil, S.H. (July 2006). Contingency management to promote smoking cessation and prevent relapse among pregnant women. Invited presentation, 2006 National Conference on Women, Addiction, and Recovery: News You Can Use, sponsored by SAMSHA-NIDA-NIAAA in Anaheim, CA (CE).
3. Heil, S.H. (December 2008). Smoking cessation during pregnancy. Participated in symposium, "Pregnant Women Using Opioids: Update on Clinical Treatment and Research" (S. Stine, chair) held at the 19th annual meeting of the American Academy of Addiction Psychiatry in Boca Raton, FL (CME).
4. Heil, S.H. (October 2011). Opioid dependence during pregnancy: Improving neonatal and maternal outcomes. University of California San Francisco General Hospital Medicine Grand Rounds, San Francisco, CA (CME).
5. Heil, S.H. (October 2011). Opioid dependence during pregnancy: Improving neonatal and maternal outcomes. University of California San Francisco General Hospital OB/GYN Grand Rounds, San Francisco, CA (CME).
6. Heil, S.H. (March 2011). Contingency management: Why it works and the latest research. Invited workshop, Vermont Addictions Professionals Association, Colchester, VT (CE).
7. Heil, S.H. (April 2011). Opioid dependence during pregnancy: Improving neonatal and maternal outcomes. University of Vermont Psychiatry Grand Rounds, Burlington, VT (CME).
8. Heil, S.H. (April 2012). Prenatal care for opioid-dependent pregnant women. Participated in symposium, "Prenatal Care and Neonatal Withdrawal Approaches in Opiate Dependence" (A. Paredes, J. Khalsa, chairs) at the 43rd Annual Medical-Scientific Conference of the American Society of Addiction Medicine, Atlanta, GA (CME).
9. Heil, S.H. and Higgins, S.T. (May 2012). Smoking cessation strategies during pregnancy. University of Vermont College of Medicine Women's Health Conference, Burlington, VT (CME).
10. Heil, S.H. (August 2012). Medications to treat opioid dependence and withdrawal in pregnant women and their infants. Participated in session, "Medications to treat opioid withdrawal and dependence in neonates, adolescents, pregnant women & adults" (E. Winstanley, organizer) at the Addiction Studies Institute, Columbus, OH (CE).
11. Heil, S.H. (March 2014). Research on opioids and the maternal/neonatal dyad: Data from controlled trials and the real world. Presented at the 15th Annual NeoFest, University of Cincinnati, Cincinnati, OH (CME).

12. Heil, S.H. (June 2014). Exploring the next generation of scoring: Innovative tools and techniques. Vermont Oxford Network iNICQ 2014 Structuring Success in the Care of Infants and Families Affected by Neonatal Abstinence Syndrome webinar series (CME).
13. Heil, S.H. (September 2014). Understanding the psychosocial context. Vermont Oxford Network iNICQ 2014 Structuring Success in the Care of Infants and Families Affected by Neonatal Abstinence Syndrome webinar series (CME).
14. Heil, S.H. (February 2015). Opioid dependence during pregnancy: Improving outcomes. Dartmouth Psychiatric Research Center Seminar, Dartmouth College, Lebanon, NH (CME).
15. Heil, S.H. (March 2015). Continuing efforts to improve results among pregnant cigarette smokers: Primary outcomes and secondary analyses. Keynote speaker at University of North Carolina Horizons 11th annual conference, The Art of Women Working Recovery, University of North Carolina, Chapel Hill, NC (CME).
16. Heil, S.H. (March 2015). Meeting the reproductive health care needs of women in treatment for substance used disorders. Workshop presentation at University of North Carolina Horizons 11th annual conference, The Art of Women Working Recovery, University of North Carolina, Chapel Hill, NC (CME).
17. Heil, S.H. (December 2015). Methadone and buprenorphine for opioid dependence during pregnancy: A retrospective cohort study. Participated in symposium, "The Use of Medication to Treat Opioid Dependence During Pregnancy" (K. Kaltenbach, chair) at the 26th Annual Meeting and Scientific Symposium of the American Academy of Addiction Psychiatry, Huntington Beach, CA (CME).
18. Heil, S.H. (September 2017). Improving effective contraceptive use among opioid-maintained women at risk for unintended pregnancy. Presented at the Patient Centered Medical Home/Neighborhood Learning Collaborative, St. Albans, VT (CE).
19. Heil, S.H., Matusiewicz, A.K., Melbostad, S.C., Sigmon, S.C., Badger, G.J., MacAfee, L.K., Rey, C., & Higgins, S.T. (March 2018). Increasing effective contraceptive use among opioid-maintained women at risk for unintended pregnancy. Presented in symposium at the 2nd Annual Women in Behavior Analysis Conference, Nashville, TN (CE).
20. Heil, S.H. (March 2019). Research on opioids and the maternal/neonatal dyad. Presentation at the Center for Technology and Behavioral Health, Dartmouth College, Lebanon, NH (CME).
21. Heil, S.H. (September 2021). Improving outcomes among opioid-exposed neonates. Presented at the 5th Vermont Association of Women's Health, Obstetrics, and Neonatal Nursing Section Conference, Burlington, VT (CE).

INFORMAL TEACHING

1. Heil, S.H. (April 2002). The science of addiction. Drug Awareness Day, Burlington High School, Burlington, VT.
2. Heil, S.H. (November 2007). The MOTHER Study: Current progress. Invited in-service presentation, Labor and Delivery Unit, Fletcher Allen Health Care, Burlington, VT.

3. Heil, S.H. (May 2009). Promoting smoking cessation during pregnancy and postpartum. Invited presentation, Maternal Child Health Coalition, Fletcher Allen Health Care, Burlington, VT.
4. Heil, S.H. (March 2010). Financial incentives for increasing breastfeeding. Invited presentation, Maternal Child Health Coalition, Fletcher Allen Health Care, Burlington, VT.

FACULTY MENTORED

Dates	Name	Position While Mentored	Faculty Role	Current Position
2016-present	Anne M. Dougherty, M.D.	Clinical Assistant Professor, OB/GYN University of Vermont	Research Collaborator and Mentor	Clinical Associate Professor, OB/GYN University of Vermont

OTHER VISITING FACULTY SUPERVISED

Not applicable

TEACHING AIDS

Not applicable

TEACHING AWARDS AND NOMINATIONS

Not applicable

SUMMARY OF TEACHING ACTIVITIES

My teaching responsibilities lie primarily in mentoring. As a member of the training faculty on our National Institute on Drug Abuse (NIDA) T32 Training Grant in drug abuse research and more recently, our FDA/NIDA P50 Tobacco Center on Regulatory Science training program, I serve as the primary mentor and advisor for pre- and postdoctoral fellows, now totaling 11. In this role, I meet regularly with each trainee to discuss scholarly readings and ongoing clinical research projects. I support trainee professional development through various activities including co-authoring and co-reviewing manuscripts for peer-reviewed scientific journals and textbooks, analyzing and discussing research data, preparing data presentations for professional meetings, and providing them with opportunities to serve various professional/scientific organizations. I also participate in a weekly behavioral pharmacology journal club with our trainees and serve on other students' second year project, Master's, preliminary examination and dissertation committees. To more broadly support our educational mission, I also serve as Associate Director of the T32 and P50 training programs, overseeing all recruitment for the 13 pre- and postdoctoral training positions and coordinating with the Department of Psychological Science on predoctoral fellow training.

Regarding classroom teaching, I have co-taught a biobehavioral seminar for graduate students in the Department of Psychological Science and a seminar on substance abuse for Psychiatry residents. I am also frequently invited to give lectures on topics related to substance abuse and treatment to undergraduate, graduate, and medical students.

I have also been invited to give more than 15 CE/CME presentations locally, regionally, and nationally, including the UVM College of Medicine's Women's Health Conference, the Dartmouth Psychiatric Research Center Seminar, and Grand Rounds at University of California San Francisco General Hospital.

Additionally, in order to disseminate scientific knowledge on drug abuse and treatment, I have given presentations to a broad range of non-academic audiences in the community, such as Burlington High School students on Drug Awareness Day, Fletcher Allen Maternal Child Health Coalition meetings, and statewide meetings of VCHIP's Improving Care for Opioid-exposed

Neonates (ICON) project. I have also been a co-author on a number of contributions to textbooks, handbooks, and encyclopedias in the field (see pgs. 31-32).

RESEARCH AND SCHOLARLY ACTIVITIES

RESEARCH AWARDS AND GRANTS

Ongoing Research Support

R01DA036670 Heil (PI) 07/01/14–05/31/22 (NCE)

National Institute on Drug Abuse

Improving Effective Contraceptive Use Among Opioid-Maintained Women: Stage II

This study will more fully test a contraceptive management intervention that aims to increase use of more effective contraceptives among opioid-maintained women. The proposed project will dismantle the intervention to examine the contribution of each component and will further our overarching goal of developing an efficacious, empirically based contraceptive management program that can be disseminated to drug treatment facilities throughout the country.

Role: Principal Investigator

Total costs: \$2,963,874

R01DA047867 Heil (Co-PI) 07/15/18-03/31/23

National Institute on Drug Abuse

(Originally R01HD096780 through National Institute of Child Health and Human Development)

Medically-supervised Withdrawal vs. Agonist Maintenance in the Treatment of Pregnant Women with Opioid Use Disorder: Maternal, Fetal, and Neonatal Outcomes

While opioid agonist treatment is the recommended standard of care for the treatment of opioid use disorder during pregnancy, medically-supervised withdrawal ('detoxification') is a common treatment approach in this population. The extant literature suggests a mixed picture with regards to outcomes following medically-supervised withdrawal, with generally poor maternal outcomes while neonatal outcomes appear more positive. Conclusions are further complicated by the fact that the literature is methodologically weak. The proposed study will be a multi-site, controlled, prospective, longitudinal, matched cohort study comparing maternal, fetal, and neonatal outcomes among women who choose medically-supervised withdrawal vs. opioid agonist treatment at treatment entry.

Role: Co-Principal Investigator

Total costs: \$2,681,658 through 2021

P50DA036114 Heil (Project PI) 06/01/18-05/31/23

National Institute on Drug Abuse and Food and Drug Administration

Low Nicotine Content Cigarettes in Vulnerable Populations: Pregnant Women

The prevalence of smoking remains high (~25%) among disadvantaged pregnant women and is associated with significant smoking-related morbidity and mortality. This project will investigate the effects of extended exposure to reduced-nicotine cigarettes on smoking rate, toxicants, maternal and fetal health effects, and other measures in disadvantaged pregnant smokers. This information will help to determine whether a public health policy of reducing the nicotine content of cigarettes would be effective and safe for this challenging population of vulnerable smokers

Role: Project Principal Investigator

Total costs: \$1,455,587 through 2021

U01DA055354 Potter, Garavan (Co-PIs) 09/30/21-06/30/26

National Institute on Drug Abuse

20/24 The HEALTHy Brain and Child Development National Consortium

This second phase of the HEALTHy Brain and Child Development Study will recruit a large cohort of pregnant women from regions of the country significantly affected by the opioid crisis

and follow them and their children through early childhood, including structural and functional brain imaging; anthropometrics; medical history; family history; biospecimens; and social, emotional, and cognitive development. The results, linked and harmonized across many sites, will be used to better understand and ultimately prevent or attenuate the harms of prenatal and postnatal exposure to drugs or other adverse environmental conditions.

Role: Co-Investigator

Total costs: \$4,632,795

R01DA42790

Sigmon (PI)

09/01/17-07/31/21 (NCE)

National Institute on Drug Abuse

Interim Buprenorphine Treatment to Bridge Waitlist Delays: Stage II Evaluation

We have developed a novel Interim Buprenorphine Treatment that leverages pharmacotherapy, state-of-the-art technology and rigorous methodology to bridge existing delays in treatment access. In an initial NIH-funded R34 randomized pilot study, we demonstrated reductions in illicit opioid use and risk behaviors among waitlisted opioid abusers receiving IBT. This project will seek to replicate those highly promising results while simultaneously evaluating generality of our findings to additional rural settings outside our single academic medical center.

Role: Co-Investigator

Total costs: \$3,005,932

UD9RH33633

Health Resources and Services Administration Sigmon (Director) 09/01/19 – 08/31/22

The Regional Centers of Excellence in Substance Use Disorder Education Program

The current US opioid epidemic represents one of the most devastating public health crises of our time. 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. This award establishes the University of Vermont Center on Rural Addiction (UVM CORA) which seeks 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.

Role: Associate Director

Total costs: \$13,699,254

Ongoing Educational/Training Support

T32DA07242

Higgins (PI)

07/01/08-06/30/26

National Institute on Drug Abuse

Training in Behavioral Pharmacology of Human Drug Dependence

This training program focuses on human behavioral pharmacology, which fills a unique niche in addiction research. Our fellows learn to identify basic behavioral and pharmacological processes underpinning addiction and to translate that knowledge into effective clinical interventions and policy.

Role: Mentor, Associate Director

Total costs: \$4,691,056 through 2021

P50DA036114

Higgins (PI)

09/01/13-08/31/23

National Institute on Drug Abuse and Food and Drug Administration

Research Training/Education (Core B)

The primary educational mission of the Vermont Center on Tobacco Regulatory Science (VCTRS) is to develop an exemplary predoctoral and postdoctoral training program in tobacco regulatory science, including training related to premarketing studies on the addictiveness and adverse health effects of new tobacco products among vulnerable populations.

Role: Mentor, Associate Director

Total costs: \$3,395,452 through 2021

Completed Research Support

R34DA050283

Heil (Co-PI)

09/30/19-03/31/21

National Institute on Drug Abuse

(Originally R34HD101037 through National Institute of Child Health and Human Development)

Site 3 of 4, Investigation of Opioid Exposure and Neurodevelopment (iOPEN)

Understanding the consequences of early exposure to illicit substances on the developing brain has increased dramatically given the current opioid epidemic. This proposal lays a foundation for a large-scale effort to address this imperative by testing strategies for recruitment and retention of high-risk pregnant women, implementing a multi-site standardized protocol to characterize brain development from the fetal period through early childhood, and evaluating strategies for improving neuroimaging data quality, usability and integration. The proposed activities, linked and harmonized across four sites, will provide critical information to support Phase II of the HEALthy Brain and Child Development Study.

Role: Co-Principal Investigator

Total costs: \$263,250

Laura and John Arnold Foundation

Sigmon (PI)

08/10/17 – 07/31/19

Interim Buprenorphine Treatment to Reduce Individual and Societal Harm during Delays to Opioid Treatment: Extended Duration

We have developed a novel Interim Buprenorphine Treatment that leverages pharmacotherapy, state-of-the-art technology and rigorous methodology to bridge existing delays in treatment access. In an initial NIH-funded R34 randomized pilot study, we demonstrated reductions in illicit opioid use and risk behaviors among waitlisted opioid abusers receiving IBT. This project will seek to replicate those highly promising results while simultaneously evaluating generality of our findings to a longer treatment duration.

Role: Co-Investigator

R01HD075669

Higgins (PI)

09/15/13–05/31/18

National Institute of Child Health and Human Development

Financial Incentives for Smoking Cessation among Disadvantaged Pregnant Women

The overarching goal is to investigate how improving smoking cessation among pregnant women may reduce health disparities. We will experimentally examine whether adding financial incentives to current best practices for smoking cessation during pregnancy increases cessation rates, birth outcomes, breastfeeding duration, and infant growth and overall health during the first year postpartum. We will conduct a cost-effectiveness analysis of incentive-based intervention. We will also include a sociodemographically comparable group of pregnant non-smokers in the study to estimate how much more cessation rates and health outcomes could be increased through use of larger monetary incentive values before exceeding cost effectiveness.

Role: Co-Investigator

Total costs: \$3,639,417

P50DA036114

Heil (Project Co-PI)

09/01/13-05/31/18

National Institute on Drug Abuse and Food and Drug Administration

Low Nicotine Content Cigarettes in Vulnerable Populations: Childbearing Age Women

The prevalence of smoking among disadvantaged women of childbearing age is four-fold that of the U.S. adult population and associated with significant smoking-related morbidity and mortality. This project will investigate the acute and extended effects of reduced-nicotine cigarettes on smoking rate, toxicants, health effects, cognitive functioning and other measures in disadvantaged pregnant and non-pregnant smokers. This information will help to determine whether a public health policy of reducing the nicotine content of cigarettes would be effective and safe for this challenging population of vulnerable smokers

Role: Project Principal Investigator

Total costs: \$3,916,980

R01DA031928 Heil (PI) 09/15/12-07/31/17 (NCE)

National Institute on Drug Abuse

Testing the Reliability and Validity of Pupil Diameter in Opioid-exposed Neonates

The aim of this project is to test the reliability and discriminant, concurrent, construct, and predictive validity of pupil diameter as a measure of opioid effects in neonates exposed to opioids in utero. Establishing the reliability and validity of pupil diameter in opioid-exposed neonates has potential to substantially improve assessment and treatment of opioid-exposed neonates in both clinical and research settings, reducing morbidity, shortening hospital stays, and decreasing costs.

Role: Principal Investigator

Total costs: \$1,237,528

R34DA037385 Sigmon (PI) 04/01/14–03/31/16

National Institute on Drug Abuse

Interim Treatment: Leveraging Buprenorphine & Technology to Bridge Waitlist Delays

We propose to leverage efficacious pharmacotherapy, state-of-the-art technology and rigorous methodology to develop a novel Interim Buprenorphine Treatment that can bridge these delays in treatment access. The proposed project will produce a highly innovative technology-assisted pharmacotherapy protocol that can be widely disseminated to increase access to life-saving opioid treatment.

Role: Co-Investigator

Total costs: \$651,938

R34DA030534 Heil (PI) 08/01/11–06/30/14 (NCE)

National Institute on Drug Abuse

Improving Effective Contraceptive Use among Opioid-maintained Women

The objective of this study is to develop and pilot test an intervention that aims to promote the use of more effective contraceptives among opioid-maintained women at risk for unintended pregnancy. Development of such an intervention has the potential to reduce the vast economic and societal costs associated with unintended pregnancy among drug-dependent women.

Role: Principal Investigator

Total costs: \$603,900

R01DA019550 Sigmon (PI) 06/01/07-05/31/13 (NCE)

National Institute on Drug Abuse

Incentive-Based Smoking Cessation for Methadone Patients

This project aims to develop a voucher-based smoking cessation intervention in opioid-maintained cigarette smokers. First, we will develop and test a voucher-based intervention to promote smoking abstinence during the initial 2 weeks of the cessation effort. Second, we will develop and test the efficacy of a voucher-based intervention that seeks to sustain smoking abstinence after the intensive 2-week program is discontinued. The overall goal is to produce an efficacious, empirically-based smoking cessation intervention that can be easily disseminated to clinics throughout the country.

Role: Co-Investigator

Total costs: \$1,755,931

R01DA022491 Heil (PI) 05/01/08-02/28/12 (NCE)

National Institute on Drug Abuse

Characterizing Nicotine Withdrawal in Pregnant Smokers

The objectives of this study are to 1) perform a thorough examination of elevated baseline nicotine withdrawal symptomatology in pregnant smokers and 2) provide a comprehensive characterization of nicotine withdrawal following a quit attempt. Results will have implications for

the treatment of smoking during pregnancy, particularly pharmacotherapies whose mechanism of action is the reduction of withdrawal symptomatology.

Role: Principal Investigator

Total costs: \$1,012,677

R01DA14028 Higgins (PI) 04/30/01-05/31/11

National Institute on Drug Abuse

Voucher-based Incentives to Treat Pregnant Smokers

The major goal of this project is to increase the efficacy of voucher-based incentive programs for promoting smoking cessation and preventing relapse during pregnancy and postpartum as our recent trials suggested that vouchers may be efficacious for increasing smoking cessation among pregnant smokers. Postpartum relapse rates are strikingly high in this population even among those abstinent during pregnancy. Thus, this population also offers a potentially enlightening exception to the pattern of initial abstinence begetting later abstinence.

Role: Co-Investigator

Total costs: \$5,964,946

R01DA019989 Sigmon (PI) 06/16/06-03/31/11 (NCE)

National Institute on Drug Abuse

Effective Treatment for Prescription Opioid Abuse

The overarching goal of this project is to develop a manualized, efficacious treatment for prescription opioid abuse. Despite the alarming recent increase in prescription opioid abuse, we know of no published studies evaluating treatments for this emerging population. Two experimental studies are proposed to programmatically evaluate a combined behavioral (Community Reinforcement Approach) and pharmacological (buprenorphine detoxification followed by a regiment of naltrexone therapy) treatment for prescription opioid abuse.

Role: Co-Investigator

Total costs: \$2,409,677

R01DA018410 Heil (Site PI) 09/24/04-06/30/09

National Institute on Drug Abuse

Maternal Opioid Treatment: Human Experimental Research

The objective of this multi-site clinical trial is to evaluate the possible differential impact of buprenorphine and methadone on both neonatal and maternal outcomes in opioid-dependent pregnant women. Results from this study will also provide data to guide FDA review of these medications for the treatment of opioid dependence during pregnancy.

Role: Principal Investigator

Total costs: \$2,211,838

051801 Heil (PI) 09/01/04-08/31/06

Robert Wood Johnson Smoke-Free Families Program

Examining Nicotine Withdrawal and Craving as Predictors of Relapse in Pregnant and Recently Postpartum Smokers

The objective of this study is to provide an initial characterization of nicotine withdrawal and craving among pregnant and postpartum smokers. Results will have implications for the treatment of smoking during pregnancy, particularly pharmacotherapies whose mechanism of action is the reduction of withdrawal symptomatology.

Role: Principal Investigator

Total costs: \$100,000

R03DA017813 Heil (PI) 05/15/04-04/30/06

National Institute on Drug Abuse

Early Abstinence's Effect on Later Abstinence in Smokers

The proposed study is designed to rigorously and experimentally evaluate whether a period of early abstinence from cigarette smoking, induced using financial incentives contingent on biochemically-verified abstinence, decreases longer-term relapse risk.

Role: Principal Investigator

Total costs: \$151,500

R33DA18424 Higgins (PI) 09/01/04-08/31/05

National Institute on Drug Abuse

Future Directions in Contingency Management Research

The purpose of this application is to obtain support to hold a small scientific meeting on the use of contingency management (CM) for treatment of substance use disorders and associated problems and to discuss the future of CM research.

Role: Co-Investigator

Total costs: \$25,000

Grant-In-Aid of Research Heil (PI) 1995

Sigma Xi

Activational Hormones and Prolactin's Sexually Dimorphic Effects on Food Intake

Results of previous studies indicate that there is a sex-specific feeding response to prolactin (PRL) by rats: only female rats significantly increase their food intake. The possible role of the activational actions of the gonadal hormones in this sex difference will be explored in this study.

Role: Principal Investigator

Total costs: \$500

Grant-In-Aid of Research Heil (PI) 1994

Sigma Xi

Organizational Hormones and Prolactin's Sexually Dimorphic Effects on Food Intake

Results of previous studies indicate that there is a sex-specific feeding response to prolactin (PRL) by rats: only female rats significantly increase their food intake. The possible role of the organizational actions of the gonadal hormones in this sex difference will be explored in this study.

Role: Principal Investigator

Total costs: \$500

Graduate Women in Science Fellowship Alternate Heil (PI) 1994

Sigma Delta Epsilon

Organizational Hormones and Prolactin's Sexually Dimorphic Effects on Food Intake

Results of previous studies indicate that there is a sex-specific feeding response to prolactin (PRL) by rats: only female rats significantly increase their food intake. The possible role of the organizational actions of the gonadal hormones in this sex difference will be explored in this study.

Role: Principal Investigator

Total costs: \$250

Summer Research Grant Heil (PI) 1991

Wittenberg University Faculty Research Fund

Dietary Self-selection in Rats: Influence of Sex, Gonadal Hormones and Diet Type

The objective of this study is to examine the interaction between sex (female vs. male), gonadal hormones (estrogen vs. testosterone) and diet type (high vs. low protein) on dietary self-selection in rats.

Role: Principal Investigator

Total costs: Not available

Pending

None

Selected Unfunded Grant Submissions

None

SCHOLARSHIP**Peer Reviewed Publications**Original Research

1. **Heil, S.H.**, & Subramanian, M.G. (1998). Alcohol and the hormonal control of lactation. Alcohol Health and Research World, *22*, 178-184.
2. **Heil, S.H.** (1999a). Sex-specific effects of prolactin on food intake by rats. Hormones and Behavior, *35*, 47-54.
3. **Heil, S.H.** (1999b). Activational and organizational actions of gonadal hormones and the sex-specific effects of prolactin on food intake by rats. Developmental Psychobiology, *35*, 61-67.
4. **Heil, S.H.**, Hungund, B.L., Zheng, Z.H., Jen, K.-L.C., & Subramanian, M.G. (1999). Ethanol and lactation: Effects on milk lipids and serum constituents. Alcohol, *18*, 43-48.
5. **Heil, S.H.**, & Subramanian, M.G. (2000). Chronic alcohol exposure and lactation: Extended observations. Alcohol, *20*, 1-6.
6. **Heil, S.H.**, Badger, G.J., & Higgins, S.T. (2001). Alcohol dependence among cocaine-dependent outpatients: Demographics, drug use, treatment outcome and other characteristics. Journal of Studies on Alcohol, *62*, 14-22.
7. **Heil, S.H.**, Holmes, H.W., Bickel, W.K., Higgins, S.T., Badger, G.J., Laws, H.F. & Faries, D.E. (2002). Comparison of the subjective, physiological, and psychomotor effects of atomoxetine and methylphenidate in recreational drug users. Drug and Alcohol Dependence, *67*, 149-156. Note: one of the Top 10 Journal Articles downloaded from Drug and Alcohol Dependence in 2002-2003
8. Subramanian, M.G., **Heil, S.H.**, Kruger, M.L., Collins, K.L., Buck, P.O., Zawacki, T., Abbey, A.D., Sokol, R.J., & Diamond, M.P. (2002). A three-stage alcohol clamp procedure in human subjects. Alcoholism: Clinical and Experimental Research, *26*, 1479-1483.
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10. Higgins, S.T., Sigmon, S.C., Wong, C.J., **Heil, S.H.**, Badger, G.J., & Donham, B.D. (2003). Community reinforcement therapy for cocaine-dependent outpatients. Archives of General Psychiatry, *60*, 1043-1052.
11. Higgins, S.T., **Heil, S.H.**, Plebani Lussier, J. (2004). Clinical implications of reinforcement as a determinant of substance use disorders. Annual Review of Psychology, *55*, 431-461.
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13. Higgins, S.T., **Heil, S.H.**, Solomon, L., Plebani Lussier, J., Abel, R., Lynch, M.L. & McHale, L. (2004). A pilot study on voucher-based incentives to promote abstinence from cigarette

- smoking during pregnancy and postpartum. Nicotine and Tobacco Research, *6*, 1015-1020.
14. **Heil, S.H.**, Sigmon, S.C., Mongeon, J.A., & Higgins, S.T. (2005). Characterizing and improving HIV/AIDS knowledge in cocaine-dependent outpatients. Experimental and Clinical Psychopharmacology, *13*, 238-243.
 15. **Heil, S.H.**, Johnson, M.W. Higgins, S.T., & Bickel, W.K. (2005). Delay discounting in currently using and currently abstinent cocaine-dependent outpatients and non-drug-using matched controls. Addictive Behaviors, *31*, 1290-1294.
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 17. Lussier, J.P., **Heil, S.H.**, Mongeon, J.A., Badger, G.J., & Higgins, S.T. (2006). A meta-analysis of voucher-based reinforcement therapy for substance use disorders. Addiction, *101*, 192-203.
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 21. Higgins, S.T., **Heil, S.H.**, Badger, G.J., Mongeon, J., Solomon, L., McHale, L., & Bernstein, I.M. (2007). Biochemical verification of smoking status in pregnant and recently postpartum women. Experimental and Clinical Psychopharmacology, *15*, 58-66.
 22. **Heil, S.H.**, & Scott, T. (2007). Voucher-based reinforcement therapy for drug-dependent pregnant women. Heroin and Related Clinical Problems, *9*, 27-38.
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In Review

1. Rey, C.N., Badger, G.J., Dolan, J., Bergeria, C.L., & **Heil, S.H.** (under review). Breast/chestfeeding and marijuana use: Recommendations from the field post-marijuana legalization in Vermont.
2. Melbostad, H.S., Wachtel, D., Lipke, K.A., Rey, C.N., MacAfee, L.K., Dougherty, A.K., & **Heil, S.H.** (under review). Safety and tolerability of hormonal contraception among women receiving medication treatment for opioid use disorder.
3. Higgins, S.T., Nighbor, T.D., Slade, E.P., Shepard, D.S., Kurti, A.N., **Heil, S.H.**, Solomon, L.J., Lynch, M.E., Johnson, H.K., Markesich, C., Rippberger, P.L., Skelly, J.M., DeSarno, M.,

Bunn, J., Hammond, J.B., Roemhildt, M.L., Williams, R.K., O'Reilly D.M., Bernstein, I.M. (under review). Financial incentives increase smoking cessation and improve other maternal-infant outcomes among pregnant and newly postpartum women.

In Preparation

4. Snell, L.M., Reed, G., Tidey, J.W., Bunn, J.Y., Harfmann, R.F., **Heil, S.H.**, Sigmon, S.C., Gaalema, D., Lee, D.C., Hughes, J.R., & Higgins, S.T. (in preparation). Predictors of adherence among vulnerable populations of adults assigned to smoke very low nicotine content cigarettes.
5. Oliver, A.C., Melbostad, H.S., Matusiewicz, A.K., Rey, C.N., Badger, G.J., & **Heil, S.H.** (in preparation). Correspondence of verified and self-reported contraceptive use.

Non-Peer Reviewed Publications and Other Creative Activities

Review Articles

Not applicable

Books and Chapters

Books

Higgins, S.T., Silverman, K., & **Heil, S.H.** (Eds.) (2008). Contingency Management in the Treatment of Substance Use Disorders: A Science-Based Treatment Innovation. New York, NY: Guilford Press.

Chapters

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2. Higgins, S.T., Budney, A.J., & **Heil, S.H.** (2001). Contingency management. In R. Carson-DeWitt (Ed.), Encyclopedia of Drugs, Alcohol, and Addictive Behavior (2nd ed., Vol.3, pp. 1231-1233). Farmington, MI: Macmillan.
3. Higgins, S.T., Silverman, K. & **Heil, S.H.** (2003). Behavioral interventions for problem drinking: Community reinforcement and contingency management. In B. Johnson, P. Ruiz and M.J. Galanter (Eds.), Alcoholism: A Practical Handbook (pp. 111-118). Baltimore: Lippincott, Williams & Wilkins.
4. Higgins, S.T., & **Heil, S.H.** (2004). Principles of learning in the study and treatment of substance abuse. In M. Galanter & H.D. Kleber (Eds.) Textbook of Substance Abuse Treatment (3rd ed., pp. 81-87). Arlington, VA: American Psychiatric Publishing, Inc.
5. Higgins, S.T. & **Heil, S.H.** (2004). Drug abuse: behavioral treatment. In N.B. Anderson (Ed.), Encyclopedia of Health and Behavior (Vol. 1, pp. 265-269). Thousand Oaks, CA: Sage Publications, Inc.
6. Higgins, S.T., **Heil, S.H.**, & Sigmon, S.C. (2007). A Behavioral Approach to the Treatment of Substance Use Disorders. In P. Sturmey (Ed.) Functional Analysis in Clinical Treatment (pp. 261-282). Amsterdam: Elsevier Press.

7. Higgins, S.T., **Heil, S.H.**, & Rogers, R.E. (2008). Contingency management. In P. Korsmeyer & H.R. Kranzler (Eds.), Encyclopedia of Drugs, Alcohol, and Addictive Behavior (3rd ed., Vol. 4, pp. 159-162). Farmington, MI: Gale Group.
8. Higgins, S.T., Sigmon, S.C., & **Heil, S.H.** (2008). Drug Abuse and Dependence. In D.H. Barlow (Ed.), Clinical Handbook of Psychological Disorders (4th ed., pp. 547-577). New York: Guilford Publications, Inc.
9. **Heil, S.H.**, Yoon, J.H., & Higgins, S.T. (2008). Pregnant and postpartum women. In S.T. Higgins, K. Silverman & S.H. Heil (Eds.) Contingency Management in the Treatment of Substance Use Disorders: A Science-Based Treatment Innovation (pp.182-201). New York, NY: Guilford Press.
10. Higgins, S.T., **Heil, S.H.**, Rogers, R.E., & Chivers, L. (2008). Cocaine. In S.T. Higgins, K. Silverman & S.H. Heil (Eds.) Contingency Management in the Treatment of Substance Use Disorders: A Science-Based Treatment Innovation (pp. 19-41). New York, NY: Guilford Press.
11. Higgins, S.T., & **Heil, S.H.** (2009). Contingency management. In G.L. Fisher & N Roget (Eds.), The Encyclopedia of Substance Abuse Prevention, Treatment, and Recovery, (pp. 228-231). Thousand Oaks, CA: Sage Publications.
12. Higgins, S.T., **Heil, S.H.** & Sigmon, S.C. (2010). Contingency management in drug dependence. In I. Stolerman (Ed.), Encyclopedia of Psychopharmacology (pp. 350-354). Heidelberg, Germany: Springer Science and Business Media.
13. Higgins, S.T., Sigmon, S.C., & **Heil, S.H.** (2011). Contingency management in the treatment of substance use disorders: Trends in the literature. In P. Ruiz & E. Strain (Eds.), Lowinson and Ruiz's Substance Abuse: A Comprehensive Textbook (5th ed., pp. 603-621). Baltimore, MD: Lippincott Williams & Wilkins.
14. Higgins, S.T., **Heil, S.H.** & Sigmon, S.C. (2012). Voucher-based contingency management in the treatment of substance use disorders. In G.J. Madden, T. Hackenberg, & K.A. Lattal (Eds.), American Psychological Association Handbook of Behavior Analysis (pp.481-500). Washington, D.C.: American Psychological Association.
15. Higgins, S.T., Sigmon, S.C., & **Heil, S.H.** (2014). Drug use disorders. In D.H. Barlow (Ed.), Clinical Handbook of Psychological Disorders (5th ed., pp 588-616). New York: Guilford Publications, Inc.
16. Higgins, S.T., **Heil, S.H.** & Sigmon, S.C. (2015). Contingency management in the treatment of substance use disorders. In I. Stolerman & L.H. Price (Eds.), Encyclopedia of Psychopharmacology (2nd ed., pp. 441-446). Heidelberg, Germany: Springer-Verlag.
17. **Heil, S.H.**, Davis, D.R., Arger, C.A., & Higgins, S.T. (2018). Contingency management and the Community Reinforcement Approach. In S.C. Miller, D.A. Fiellin, R.N. Rosenthal, & R. Saitz (Eds.), The ASAM Principles of Addiction Medicine (6th ed., pp. 934-950). Philadelphia, PA: Wolters Kluwer.
18. **Heil, S.H.**, Arger, C.A., Davis, D.R., & Higgins, S.T. (2019). Contingency management and the community reinforcement approach. In A.J. Herron & T.K. Brennan (Eds.), The ASAM Essentials of Addiction Medicine (3rd ed., pp. 369-373). Philadelphia, PA: Wolters Kluwer.

19. **Heil, S.H.**, Rey, C.N., Davis, D.R., & Higgins, S.T. (2020). Contingency management and the community reinforcement approach. In P. Sturmey (Ed.), Functional Analysis in Clinical Treatment (2nd ed. pp. 294-314). Amsterdam: Elsevier.
20. Higgins, S.T., **Heil, S.H.**, & Peck, K.R. (in press). Substance use disorders. In D.H. Barlow (Ed.), Clinical Handbook of Psychological Disorders (6th ed.). New York: Guilford Publications, Inc.
21. **Heil, S.H.**, Melbostad, H.S., & Cioffredi, L.-A. (in press). Neonatal abstinence syndrome. In K.E. Dunn (Ed.), The Oxford Handbook of Opioids and Opioid Use Disorder (1st ed.). Oxford: Oxford University Press.

Other Scholarly Publications

1. **Heil, S.H.**, Wong, C.J., & Higgins, S.T. (2000). Community reinforcement approach combined with contingent vouchers for the treatment of cocaine dependence. The Addictions Newsletter, 7, 24-26.
2. Higgins, S.T. & **Heil, S.H.** (2003, May/June). Urine the money: Voucher-based incentive scheme for drug treatment. Druglink, 18, 11-12.
3. **Heil, S.H.**, Coyle, M.G., Fischer, G., Jones, H.E., Kaltenbach, K., Martin, P.R., Selby, P., & Stine, S.M. (2006). The MOTHER (Maternal Opioid Treatment: Human Experimental Research) Study. The Addictions Newsletter, 13 (2), 7-9.
4. Jones, H.E., Kaltenbach, K., Coyle, M.G., **Heil, S.H.**, Martin, P.R., O'Grady, K.E., Arria, A.M., Fischer, G., Stine, S.M., & Selby, P. (2009). Re-building lives: Helping women recover from opioid addiction during pregnancy. Counselor, 10, 10-19.
5. **Heil, S.H.**, & Higgins, S.T. (2012). The scientific and ethical rationale for using incentives to promote contraceptive use among drug-abusing women. Invited commentary on Lucke and Hall (2012). Addiction, 107, 1044-1046.
6. Jones, H.E., **Heil, S.H.**, Kaltenbach, K., Stine, S.M., Coyle, M.G., Arria, A.M., O'Grady, K.E., Selby, P., & Martin, P.R. (2012). Comments on: Efficacy versus effectiveness of buprenorphine and methadone maintenance in pregnancy. Journal of Addictive Diseases, 31, 1-6.
7. Jones, H.E., Kaltenbach, K., **Heil, S.H.**, Stine, S.M., Coyle, M.G., Arria, A.M., O'Grady, K., Selby, P., Martin, P.R., Jansson, L., Fischer, G. (2012). Comment on: Intrauterine abstinence syndrome (IAS) during buprenorphine inductions and methadone tapers: can we assure the safety of the fetus? Journal of Maternal-Fetal and Neonatal Medicine, 25, 1197-1201.
8. Higgins, S.T., & **Heil, S.H.** (2015). Continuing efforts to improve cessation outcomes with pregnant cigarette smokers. Addiction, 110, 690-692.
9. Jones, H.E., **Heil, S.H.**, & O'Grady, K. (2015). Comment on: Infants of opioid-dependent mothers: Neurodevelopment at six months. Early Human Development.
10. Higgins, S.T., **Heil, S.H.**, & Solomon, L.J. (2015). A larger context for considering the Tappin et al. report on financial incentives for smoking cessation in pregnant and newly postpartum women. BMJ Rapid Response: (<http://www.bmj.com.ezproxy.uvm.edu/content/350/bmj.h134/rapid-responses>).

Abstracts

Oral – Regional

1. Linares Scott, T. & **Heil, S.H.** (March 2007). The MOTHER study. University of Vermont Graduate Research Day, University of Vermont, Burlington, VT. Won “Best Presentation” award.
2. Herrmann, E.S., **Heil, S.H.**, Higgins, S.T., Solomon, L.J., & Bernstein, I.M. (May 2009). Natural history of changes in cigarette smoking upon learning of pregnancy. University of Vermont Graduate Research Day, University of Vermont, Burlington, VT.
3. Herrmann, E.S., **Heil, S.H.**, Higgins, S.T., Washio, Y.T., Donham, R.F., Ironside, K.R. (June 2011). Improving HIV/AIDS knowledge among cocaine-dependent outpatients. Psychiatry Research Day, University of Vermont, Burlington, VT.
4. **Heil, S.H.**, Sigmon, S.C., Meyer, M.C., & Higgins, S.T. (May 2012). Improving effective contraceptive use among drug-dependent women. Psychiatry Research Day, University of Vermont, Burlington, VT.

Oral - National

1. **Heil, S.H.** (June 2000). Effects of contingent reinforcement on smoking abstinence and nicotine withdrawal. Contingency Management Working Group, College on Problems of Drug Dependence, San Juan, Puerto Rico.
2. **Heil, S.H.** (June 2001). Previous abstinence as a determinant of future abstinence from smoking. Contingency Management Working Group, College on Problems of Drug Dependence, Scottsdale, AZ.
3. **Heil, S.H.**, & Higgins, S.T. (June 2004). Characterizing nicotine withdrawal and craving in pregnant cigarette smokers. Paper presentation at the 66th Annual Meeting of the College on Problems of Drug Dependence (CPDD) in San Juan, Puerto Rico.
4. Lussier, J.P., **Heil, S.H.**, & Higgins, S.T. (June 2004). An analysis of effect sizes in clinical trials of voucher-based incentives. Contingency Management Working Group, College on Problems of Drug Dependence, San Juan, Puerto Rico.
5. Heil, S. H., Higgins, S.T., & Badger, G.J. (September 2004). Characterizing nicotine withdrawal and craving in pregnant cigarette smokers. Robert Wood Johnson Foundation Smoke-Free Families Program Phase III Grantees Meeting, Princeton, NJ.
6. **Heil, S.H.**, Chivers, L., & Higgins, S.T. (June 2005). Efficacy of contingency management with treatment-seeking cigarette smokers. Contingency Management Working Group, College on Problems of Drug Dependence, Orlando, FL.
7. Lussier, J.P., **Heil, S.H.**, Mongeon, J.A., Badger, G.J., & Higgins, S.T. (June 2005). A meta-analysis of voucher-based reinforcement therapy for substance-use disorders. Paper presentation at the 67th Annual Meeting of the College on Problems of Drug Dependence, Orlando, FL.
8. **Heil, S.H.**, Remillard, A., & Higgins, S.T. (February 2006). Early abstinence’s effect on later abstinence in cigarette smokers. Participated in symposium, “Smoking and Drug/Alcohol Use: Developing Models, Interventions, and Environments that Promote

- Change and Cessation” (C. McNamara Spitznas, chair) held at the 11th annual meeting of the International Conference on Treatment of Addictive Behaviors in Santa Fe, NM.
9. **Heil, S.H.**, & Trifiletti, L. (June 2006). A computer program to track earnings and purchases in VBRT interventions. Contingency Management Working Group, College on Problems of Drug Dependence, Scottsdale, AZ.
 10. **Heil, S.H.** (August 2006). Organized and chaired symposium, “Innovative Adaptations to Identify and Treat Licit and Illicit Drug Use by Pregnant Women” held at the 114th annual meeting of the American Psychological Association in New Orleans, LA.
 11. **Heil, S.H.**, Higgins, S.T., Solomon, L.J., Lynch, M.E., McHale, L., Dumeer, A., Jacuzzi, N., Shapiro, L., & Bernstein, I.M. (February 2007). Voucher-based incentives for abstinence from cigarette smoking in pregnant and postpartum women. Participated in and co-chaired symposium, “Pregnancy and Post-partum” held at the 13th annual meeting of the Society for Research on Nicotine and Tobacco, Austin, TX.
 12. Heil S, Scott T, Sigmon S, Higgins, S. (June 2008). Characterizing methadone dose during late pregnancy and postpartum. Paper presentation at the 70th Annual Meeting of the College on Problems of Drug Dependence, San Juan, PR.
 13. Sigmon, S.C., Dunn, K., Heil, S., & Higgins, S.T. (June 2008). Developing a treatment for prescription opioid abuse. Paper presentation at the 70th Annual Meeting of the College on Problems of Drug Dependence, San Juan, PR.
 14. Jones, H.E, O’Grady, K.E, Kaltenbach, K., Fischer, G., **Heil, S.H.**, Martin, P.R., Stine, S.M., Coyle, M.G., Selby, P., & Arria, A.M. (June 2008). Smoking in pregnant patients screened for an agonist medication study: comparisons to other pregnant and/or drug dependent female patients. Paper presentation at the 70th Annual Meeting of the College on Problems of Drug Dependence, San Juan, PR.
 15. Rogers, R.E., Higgins, S.T., & **Heil, S.H.** (August 2008). Voucher-based incentives promote abstinence from smoking during pregnancy and postpartum. Participated in symposium, “Expanding Contingency Management Interventions – Treating Smokers, Pregnant Women, and Adolescents” held at the 116th annual meeting of the American Psychological Association, Boston, MA.
 16. Sigmon, S.C., Dunn, K., Saulsgiver, K., Heil, S., & Higgins, S. (June 2009). Randomized, double-blind trial evaluating buprenorphine taper for prescription opioid abuse. Paper presentation at the 71st Annual Meeting of the College on Problems of Drug Dependence, Reno, NV.
 17. Stine, S., Arria, A., O’Grady, K., Kaltenbach, K., Fischer, G., Martin, P., Heil, S., Coyle, M., Selby, P., & Jones, H. (June 2009). Characteristics associated with cocaine use in pregnant opioid-dependent women: Preliminary results from the Maternal Opioid Treatment: Human Experimental Research study. Paper presentation at the 71st Annual Meeting of the College on Problems of Drug Dependence, Reno, NV.
 18. Tuten, M., Jones, H., O’Grady, K., Fitzsimons, H., Heil, S., & Chisolm, M. (June 2009). Delivery and neonatal outcomes of pregnant methadone stabilized patients with and without a current mood disorder. Paper presentation at the 71st Annual Meeting of the College on Problems of Drug Dependence, Reno, NV.

19. Higgins, T.M., Higgins, S.T., **Heil, S.H.**, & Badger, G.J. (June 2009). Smoking cessation and breastfeeding. Paper presentation at the 71st Annual Meeting of the College on Problems of Drug Dependence, Reno, NV.
20. **Heil, S.H.** (June 2010). Predictors of maternal treatment outcome in methadone and buprenorphine maintained pregnant women. Participated in and co-chaired workshop, "Methadone and Buprenorphine: Results of the Maternal Opioid Treatment: Human Experimental Research (MOTHER) Trial" (I. Montoya, chair; S. Heil, co-chair) held at the 72nd annual meeting of the College on Problems of Drug Dependence in Scottsdale, AZ.
21. Herrmann, E.S., **Heil, S.H.**, Higgins, S.T., Solomon, L.J., & Bernstein, I.M. (June 2010). Natural history of changes in cigarette smoking upon learning of pregnancy. Paper presentation at the 72nd Annual Meeting of the College on Problems of Drug Dependence in Scottsdale, AZ.
22. Gaalema, D., Higgins, S., Heil, S., Hanson, J., Lopez, A., Solomon, L., & Naylor, A. (May 2011). The use of contingency management to promote breastfeeding in low income women. Paper presentation at the Annual Meeting of the Association for Behavior Analysis International in Denver, CO.
23. Sigmon, S.C., Higgins, S.T., **Heil, S.H.** & Saulsgiver, K.A. (June 2011). Investigating a genetic marker of vulnerability for stimulant abuse. Paper presentation at the 73rd Annual Meeting of the College on Problems of Drug Dependence in Hollywood, FL.
24. Chisolm, M.S., Acquavita, S.P., Kaltenbach, K., Winklbaur, B., **Heil, S.H.**, Martin, P.R., Stine, S.M., Coyle, M., Leoutsakos, M.S., Jansson, L.M., Tuten, M., Jones, H. (June 2011). Cigarette smoking and neonatal abstinence syndrome in opioid-dependent agonist-maintained pregnant patients on methadone vs. buprenorphine. Paper presentation at the 73rd Annual Meeting of the College on Problems of Drug Dependence in Hollywood, FL.
25. Bradstreet, M.P., Higgins, S. T., **Heil, S.H.**, Badger, G.J., Skelly, J.M. (June 2011). Delay discounting predicts smoke status during pregnancy. Paper presentation at the 73rd Annual Meeting of the College on Problems of Drug Dependence in Hollywood, FL.
26. Herrmann, E., Heil, S., Higgins, S., Washio, Y., Donham, R., Ironside, K. (June 2011). Improving HIV/AIDS knowledge among cocaine-dependent outpatients. Paper presentation at the 73rd Annual Meeting of the College on Problems of Drug Dependence in Hollywood, FL.
27. Gaalema, D.E., Higgins, S.T., Lopez, A.A., Saulsgiver, K.A., **Heil, S.H.**, & Bernstein, I.M. (May 2012). Differentiating abstinent and non-abstinent pregnant smokers using patterns of voucher reimbursement and impulsivity measures. Participated in symposium, "Recent advances in contingency management research I: Incentivizing healthy choices" (S. Meredith, chair) at the Association for Behavior Analysis International Annual Convention, Seattle, WA.
28. **Heil, S.H.** (June 2012). Behavioral treatments for pregnant smokers: The need for more intensive and effective interventions. Participated in symposium, "Do we under-treat the most prevalent form of substance abuse among pregnant women?" (S.T. Higgins, chair) at the 74th Annual Meeting of the College on Problems of Drug Dependence, Palm Springs, CA.
29. **Heil, S.H.**, Sigmon, S.C., Meyer, M.C., & Higgins, S.T. (June 2012). Improving effective contraceptive use among drug-dependent women. Contingency Management Working

Group, College on Problems of Drug Dependence, Palm Springs, CA.

30. Gaalema, D.E., **Heil, S.H.**, Metayer, J., Johnston, A. (June 2013). Difference in time to treatment in neonates exposed to buprenorphine or methadone in utero. Paper presentation at the 75th Annual Meeting of the College on Problems of Drug Dependence, San Diego, CA.
31. **Heil, S.H.**, Hand, D.J., Sigmon, S.C., Meyer, M.C., & Higgins, S.T. (August 2013). Financial incentives to promote effective contraceptive use among drug-dependent women. Participated in symposium, "Behavioral economics and maternal/infant health among substance abusers" (S.D. Noursi and S.T. Higgins, chairs) at the 121st Annual Meeting of the American Psychological Association, Honolulu, HI.
32. **Heil, S.H.**, Hand, D.J., Sigmon, S.C., Meyer, M.C., Badger, G.J., & Higgins, S.T. (April 2014). Improving effective contraceptive use among opioid-maintained women. Paper presentation at the 35th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Philadelphia, PA.
33. **Heil, S.H.**, Hand, D.J., Bergeria, C.L., Gaalema D.E., Badger, G.J., Johnston, A.M., Sigmon S.C., & Higgins, S.T. (June 2014). Reliability of pupil diameter measurements in neonates. Paper presentation at the 76th Annual Meeting of the College on Problems of Drug Dependence, San Juan, Puerto Rico.
34. Bergeria, C.L. & **Heil, S.H.** (November 2014). Surveying lactation professionals regarding marijuana use and breastfeeding. Originally slated as a poster presentation, was later elevated to a platform presentation for the 19th Annual International Meeting of the Academy of Breastfeeding Medicine, Cleveland, OH.
35. **Heil, S.H.**, Solomon, L.J., Skelly, J.M., Bernstein, I.M., & Higgins, S.T. (June 2015). Correspondence between self-reported and biochemical measures of cigarette smoking in pregnant women. Paper presentation at the 77th Annual Meeting of the College on Problems of Drug Dependence, Phoenix, AZ (Session Chair).
36. Bergeria, C.L. & **Heil, S.H.** (June 2015). Surveying lactation professionals regarding marijuana use and breastfeeding. Paper presentation as part of the "What's Hot" Media Forum at the 77th Annual Meeting of the College on Problems of Drug Dependence, Phoenix, AZ. Video of summary of presentation posted on the National Institute on Drug Abuse's YouTube site has been viewed nearly 1,400 times.
37. Bergeria, C.L. & **Heil, S.H.** (June 2015). Surveying lactation professionals regarding marijuana use and breastfeeding. Paper presentation at the 77th Annual Meeting of the College on Problems of Drug Dependence, Phoenix, AZ.
38. Arger, C.A., Heil, S.H., Sigmon, S.C., Tidey, W.J., Stitzer, M.L., Gaalema, D.E., DeSarno, M.J., Durand, H.J., Ruggieri, E.K., & Higgins, S.T. (October 2015). Preliminary validity of the modified cigarette evaluation questionnaire in predicting the reinforcing effects of cigarettes that vary in nicotine content under double-blind conditions. Paper presentation at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, M.D.
39. **Heil, S.H.** (December 2015). Methadone and buprenorphine for opioid dependence during pregnancy: A retrospective cohort study. Participated in symposium, "The use of medications to treat opioid dependence during pregnancy" (K. Kaltenbach, chair) at the 26th Annual Meeting and Scientific Symposium of the American Academy of Addiction Psychiatry, Huntington Beach, CA.

40. Bergeria, C., Heil, S., Solomon, L., Skelly, J., Bernstein, I., & Higgins, S. (March 2016). Correspondence between self-reported and biochemical measures of cigarette smoking in pregnant women. Paper presentation at the 22nd Annual International Meeting of the Society for Research on Nicotine and Tobacco, Chicago, IL.
41. Redner, R., Zvorsky, I., Heil, S., Sigmon, S., Tidey, J., Stitzer, M., Gaalema, D., DeSarno, M., Durand, H., & Higgins, S. (March 2016). Demand for cigarettes varying in nicotine content in smokers from vulnerable populations: A pilot study. Paper presentation at the 22nd Annual International Meeting of the Society for Research on Nicotine and Tobacco, Chicago, IL.
42. Matusiewicz, A.K., **Heil, S.H.**, Melbostad, H.S., Hand, D.J., Sigmon, S.C., Meyer, M.S., Badger, G.J., & Higgins, S.T. (April 2016). Improving prescription contraceptive use among opioid-maintained women: Stages I & II. Presented in focus session, "Health Care Reform and Integration: Women's Reproductive Health in SUD Treatment" at the 47th Annual Conference of the American Society of Addiction Medicine, Baltimore, MD.
43. Streck, J.M., Sigmon, S.C., **Heil, S.H.**, Stitzer, M.L., Tidey, J.W., Gaalema, D.E., DeSarno, M.J., Balas, K., Durand, H.J., & Higgins, S.T. (May 2016). Subjective effects of smoking among opioid-maintained individuals: Results from a pilot study examining reduced nicotine content cigarettes. Paper presentation at the annual NIH Tobacco Regulatory Science Conference, Bethesda, MD.
44. **Heil, S.H.** (June 2016). The assessment and treatment of neonatal abstinence syndrome: What do we know? Participated in symposium, "Neonatal abstinence syndrome: Context and consequences in 2016" (K. Kaltenbach, chair) at the 78th Annual Meeting of the College on Problems of Drug Dependence, Palm Springs, CA.
45. Sigmon, S.C., Ochalek, T.A., Hruska, B., **Heil, S.H.**, Higgins, S., Rose, G., & Moore, B.A. (June 2016). Interim buprenorphine treatment for reducing illicit opioid use during treatment delays. Paper presentation at the 78th Annual Meeting of the College on Problems of Drug Dependence, Palm Springs, CA.
46. Arger, C.A., **Heil, S.H.**, Sigmon, S.C., Tidey, J.W., Stitzer, M., Gaalema, D., DeSarno, M., Durand, H., Ruggieri, E., & Higgins, S.T. (June 2016). Validity of the modified cigarette evaluation questionnaire in predicting the reinforcing effects of cigarettes that vary in nicotine content under double-blind conditions. Paper presentation at the 78th Annual Meeting of the College on Problems of Drug Dependence, Palm Springs, CA.
47. Higgins, S.T., Redner, R., **Heil, S.H.**, Sigmon, S.C., Tidey, J.W., Gaalema, D.E., Stitzer, M.L. (August 2016). Reducing the burden of cigarette smoking in vulnerable populations. Presented in symposium, "Using behavioral science to evaluate the feasibility of a national nicotine reduction policy," at the 124th Annual Meeting of the American Psychological Association, Denver, CO.
48. Streck, J., Sigmon, S., **Heil, S.**, Stitzer, M., Tidey, J., Gaalema, D., Bergeria, C., Davis, D., Naud, S., Bunn, J., Hughes, J., & Higgins, S. (October 2017). Characterizing nicotine withdrawal across vulnerable populations: Data from a trial examining reduced nicotine content cigarettes. Presented in panel session, "Research on reduced nicotine content cigarettes," at the at the annual NIH Tobacco Regulatory Science Conference, Bethesda, MD.
49. **Heil, S. H.**, Matusiewicz, A.K., Melbostad, H. S., Sigmon, S. C., Badger, G. J., MacAfee, L.

K., Rey, C. N., & Higgins, S. T. (March 2018). Increasing effective contraceptive use among opioid-maintained women at risk for unintended pregnancy. Presented in symposium at the 2nd Annual Convention of Women in Behavior Analysis, Nashville, TN.

50. Bergeria, C., **Heil, S.H.**, Harfmann, R.F., Bunn, J., Tetreault, H.J., & Higgins, S.T. (March 2020). Addiction potential of cigarettes with reduced nicotine content in pregnant women. Presented in symposium at the 26th Annual International Meeting of the Society for Research on Nicotine and Tobacco, New Orleans, LA.
51. **Heil, S. H.**, Matusiewicz, A.K., Melbostad, H. S., Sigmon, S. C., Badger, G. J., MacAfee, L. K., Rey, C. N., & Higgins, S. T. (June 2020). Increasing effective contraceptive use among receiving medication for opioid use disorder and at risk for unintended pregnancy. Paper presentation at the 82nd Annual Meeting of the College on Problems of Drug Dependence, Hollywood, FL (virtual due to COVID-19 pandemic).

Oral – International

1. **Heil, S.H.**, McHale, L., Higgins, S.T. (June 2002). Saliva and urine cotinine testing in a CM intervention for pregnant cigarette smokers. Contingency Management Working Group, College on Problems of Drug Dependence, Quebec, Canada.
2. **Heil, S.H.** & Higgins, S.T. (August 2003). Voucher-based incentives in the treatment of substance abuse. Participated in symposium, “Contingency management incentives in the treatment of substance abuse” (C.E. Hughes, chair) held at the 111th annual convention of the American Psychological Association in Toronto, Ontario.
3. **Heil, S.H.** (October 2006). Voucher-based incentives to reduce drug use during pregnancy. Participated in symposium, “New Approaches in the Treatment of Opioid Dependency During Pregnancy” (K. Kaltenbach, chair) held at the 7th annual meeting of the European Opiate Addiction Treatment Association (EUROPAD) in Bratislava, Slovak Republic.
4. Rogers, R., **Heil, S.H.**, & Higgins, S.T. (June 2007). Smoking during pregnancy: A contingency management intervention. International Committee Workshop, “Pregnancy and Addiction” (G. Fischer & H. Jones, chairs), College on Problems of Drug Dependence, Quebec City, Quebec.
5. **Heil, S.H.**, Higgins, S.T., & Sigmon, S.C. (October 2009). Incentives and reinforcers to promote drug abstinence and other health behavior change. Invited speaker at NIDA R13 Workshop at the 8th International Conference on Urban Health in Nairobi, Kenya.
6. **Heil, S.H.** (May 2010). Predictors of maternal treatment outcome in methadone and buprenorphine maintained pregnant women. Participated in symposium, “Opioid Addiction and Pregnancy: The MOTHER Study” (K. Kaltenbach, chair) held at the 9th annual meeting of the European Opiate Addiction Treatment Association (EUROPAD) in Zagreb, Croatia.
7. Meyer, M., Johnston, A., **Heil, S.**, & Crocker, A. (May 2012). Induction onto buprenorphine during pregnancy: Evidence from real life experience. Participated in symposium, “Treating opioid-dependent women: new horizons” (I.O. Lund, H. Jones, chairs) held at the 10th annual meeting of the European Opiate Addiction Treatment Association (EUROPAD) in Barcelona, Spain.
8. **Heil, S.H.**, Matusiewicz, A.K., Hand, D.J., Melbostad, H.S., Sigmon, S.C., Meyer, M.C., Badger, G.J., & Higgins, S.T. (May 2016). Improving prescription contraceptive use among opioid-maintained women: Stages I & II. Presented in symposium, “Women with opioid use

disorder and reproductive health: Dispelling myths and addressing unmet needs” (M. Terplan, chair) at the 12th annual meeting of the European Opiate Addiction Treatment Association (EUROPAD) in Leiden, The Netherlands. Due to travel problems, was presented by the chair on behalf of the first author.

9. Arger, C., Taghavi, T., **Heil, S.**, Skelly, J., Tyndale, R., & Higgins, S. (June 2017). Influence of pregnancy on the nicotine metabolite ratio: Changes during antepartum and postpartum. Paper presentation at the 79th Annual Meeting of the College on Problems of Drug Dependence, Montreal, Canada.
10. Davis, D., Bergeria, C., Streck, J., Bunn, J., Gaalema, D., **Heil, S.**, Sigmon, S., Stitzer, M., Tidey, J., & Higgins, S. (June 2017). The influence of mentholation on usual brand and research cigarettes of varying nicotine content in vulnerable populations. Paper presentation at the 79th Annual Meeting of the College on Problems of Drug Dependence, Montreal, Canada.

Poster – Regional

1. Gaalema, D.E., Linares Scott, T., **Heil, S.H.**, Coyle, M.G., Kaltenbach, K., Badger, G.J., Arria, A., Stine, S.M., Martin, P.R. & Jones, H.E. (2011). Differences in the profile of neonatal abstinence syndrome signs in methadone vs. buprenorphine-exposed infants. Presented at Psychiatry Research Day, Burlington, VT.
2. **Heil, S.H.**, Gaalema, D.E., Higgins, S.T., Sigmon, S.C., & Johnston, A.M. (2011). Infant pupil diameter in response to opioid administration. Presented at Psychiatry Research Day, Burlington, VT.
3. Lopez, A.A., Higgins, S.T. Higgins, **Heil, S.H.**, Washio, Y., Badger, G.J., Skelly, J.M., Lynch, M.E., Solomon, L.J., & Bernstein, I.M. (2011). Does depression interfere with contingency-management treatment for pregnant cigarette smokers? Presented at Psychiatry Research Day, Burlington, VT.
4. Higgins, T., Dougherty, A., & **Heil, S.** (2016). Long-acting reversible contraception insertion rates in women with Medicaid vs. private insurance in a clinic with a two-visit protocol. Presented at the University of Vermont Graduate Research Day, Burlington, VT.
5. Deans, S., Dougherty, A., Kayongo, A., Mundaka, J., Nassali, F., Sewanyana, J., Migadde, E., Kiyemba, R., Katali, E., Holcombe, S., **Heil, S.**, & Kalyesubula. (2017). Knowledge, attitudes, and use of family planning among rural women and men in Nakaseke District, Uganda. Presented at the University of Vermont College of Medicine Global Health Day, Burlington, VT.

Poster - National

1. **Heil, S.H.** & Wilson, J.F. (1992). Sex, gonadal hormone levels, and type of diet affect dietary self-selection in rats. Presented at the annual meeting of the Midwestern Psychological Association Poster Session, Chicago, IL.
2. **Heil, S.H.** & Cramer, C.P. (1993). Prolactin injections result in dose-dependent protein consumption in rats. Presented at the annual meeting of the International Society for Developmental Psychobiology Poster Session, Alexandria, VA.

3. **Heil, S.H.** & Cramer, C.P. (1995). Prenatal testosterone exposure increases the efficiency of nipple-shifting behavior in rats. Developmental Psychobiology, *28*, 186.
4. **Heil, S.H.**, & Cramer, C.P. (1996). Activational hormones are not necessary for expression of prolactin's sexually dimorphic effects on food intake in rats. Developmental Psychobiology, *29*, 37.
5. **Heil, S.H.**, & Cramer, C.P. (1996). Litter size and its effects on dam macronutrient self-selection during lactation. Society for Neuroscience.
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8. **Heil, S.H.**, Wang, R., & Subramanian, M.G. (1999). Prolactin secretion in lactating rats following chronic alcohol exposure: The effects of extended suckling. Journal of the Society for Gynecologic Investigation, *6* (Suppl. 1), 206A.
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95. Melbostad, H.S., & **Heil, S.H.** (2015). Postpartum contraceptive behavior of opioid-maintained pregnant women. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
96. Arger, C.A., Higgins, S.T., & **Heil, S.H.** (2015). Correspondence between self-reported and biochemical measures of smoking in opioid-dependent pregnant women. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
97. Hand, D.J., & **Heil, S.H.** (2015). Contraceptive use and risky sexual behavior varies with frequency of cocaine, crack cocaine, or methamphetamine use. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
98. Bergeria, C.L., **Heil, S.H.**, Solomon, L. J., Skelly, J. M., Bernstein, I. M., Durand, H.J., & Higgins, S.T. (2015). Correspondence between self-reported and biochemical measures of

- cigarette smoking in pregnant women. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, Maryland.
99. Streck, J.M., Sigmon, S.C., **Heil, S.H.**, Stitzer, M.L., Tidey, J.W., Gaalema, D.E., DeSarno, M.J., Balas, K., Durand, H.J., & Higgins, S.T. (2015). Does nicotine function differently among opioid-dependent versus nondependent smokers? Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, Maryland.
 100. Bergeria, C. L., & **Heil, S.H.** (2015). Surveying lactation professionals regarding marijuana use and breastfeeding. Presented at the annual National Conference and Exhibition of the American Academy of Pediatrics, Washington, D.C.
 101. Arger, C., **Heil, S.**, Sigmon, S., Tidey, J., Stitzer, M., Gaalema, D., DeSarno, M., Durand, H., Ruggieri, E., & Higgins, S. (2016). Validity of the Cigarette Evaluation Questionnaire in predicting the reinforcing effects of cigarettes that vary in nicotine yield under double-blind conditions. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
 102. Davis, D., **Heil, S.**, Sigmon, S., Tidey, J., Stitzer, M., Gaalema, D., DeSarno, M., Durand, H., Tromblee, M., & Higgins, S. (2016). Investigating changes in smoking topography upon initial exposure to very low nicotine content cigarettes. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
 103. Streck, J., Sigmon, S., **Heil, S.**, Stitzer, M., Tidey, J., Gaalema, D., DeSarno, M., Balas, K., Durand, H., & Higgins, S. (2016). Subjective effects of smoking among opioid-maintained individuals: Results from a pilot study examining reduced nicotine content cigarettes. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
 104. Higgins, S., **Heil, S.**, Sigmon, S., Tidey, J., Gaalema, D., Stitzer, M., Vandrey, R., Arger, C., Miller, M., & Pacek, L. (2016). Response to varying nicotine content levels in cigarettes: Acute effects in vulnerable populations. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
 105. Brown, A., Skelly, J.M., **Heil, S.H.**, Higgins, S.T., & Bernstein, I.M. (2016). Effect of maternal smoking cessation on blood pressure during pregnancy. Reproductive Sciences, 23(Suppl.).
 106. Bergeria, C.L., **Heil, S.H.**, Sigmon, S.C., Durand, H.J., Bunn, J., & Higgins, S.T. (2016). Comparing the Smoking Topography of Usual Brand Cigarettes in Pregnant and Non-Pregnant Smokers. Presented at the NIH Tobacco Regulatory Science Conference, Bethesda, Maryland.
 107. Matusiewicz, A.K., Melbostad, H.S., & **Heil, S.H.** (2016). Barriers to long-acting reversible contraceptive use among opioid-maintained women. Presented at the 9th annual International Women's and Children's Health and Gender Group conference, La Quinta, CA. Won "Best Poster" award.
 108. Matusiewicz, A.K., Melbostad, H.S., & **Heil, S.H.** (2016). Barriers to long-acting reversible contraceptive use among opioid-maintained women. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
 109. Ochalek, T.A., Pusey, J.D., Hruska, B., **Heil, S. H.**, Higgins, S.T., Rose, G., Moore, B.A., & Sigmon, S.C. (2016). Within-subject evaluation of interim buprenorphine vs. waitlist on

- illicit opioid use. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
110. Bergeria, C.L., **Heil, S.H.**, Sigmon, S.C., Durand, H., & Higgins, S. (2016). Comparing smoking topography of usual brand cigarettes in pregnant and non-pregnant women. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
 111. Melbostad, H.S., Badger, G.J., Matusiewicz, A.K., & **Heil, S.H.** (2016). Contraceptive use among female smokers. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
 112. Ochalek, T.A., Hruska, B., **Heil, S. H.**, Higgins, S.T., Rose, G., Moore, B.A., & Sigmon, S.C. (2016). Interim buprenorphine treatment for reducing illicit opioid use during delays to treatment entry. Presented at the 124th Annual Meeting of the American Psychological Association, Denver, CO.
 113. Bergeria, C.L., **Heil, S.H.**, Sigmon, S.C., Durand, H., & Higgins, S. (2016). Comparing smoking topography of usual brand cigarettes in pregnant and non-pregnant smokers. Presented at the 124th Annual Meeting of the American Psychological Association, Denver, CO.
 114. Melbostad, H.S., **Heil, S.H.**, Matusiewicz, A.K., & Wachtel, D. (2016). Contraception use and pregnancy intention among opioid-maintained women. Presented at the 124th Annual Meeting of the American Psychological Association, Denver, CO.
 115. Matusiewicz, A.K., Melbostad, H.S., & **Heil, S.H.** (2016). Barriers to long-acting reversible contraceptive use among opioid-maintained women. Presented at the 124th Annual Meeting of the American Psychological Association, Denver, CO.
 116. **Heil, S.H.**, Matusiewicz, A.K., Melbostad, H.S., Sigmon, S.C., Meyer, M.C., & Higgins, S.T. (2016). Increasing effective contraceptive use among opioid-maintained women at risk for unintended pregnancy. *Contraception*, *94*, 403-404.
 117. Higgins, T., Dougherty, A., & **Heil, S.H.** (2016). Long-acting reversible contraception insertion rates in women with Medicaid vs. private insurance in a clinic with a two-visit protocol. *Contraception*, *94*, 413. Won a "Top Poster Abstract" award.
 118. Bergeria, C.L., **Heil, S.H.**, Sigmon, S.C., Bunn, J., & Higgins, S.T (2016). Comparing the Smoking Topography of Usual Brand Cigarettes in Pregnant and Non-Pregnant Smokers. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
 119. Arger, C.A., Taghavi, T., **Heil, S.H.**, Skelly, J., Tyndale, R.F., & Higgins, S.T. (2016). Influence of pregnancy on the nicotine metabolite ratio: Examining changes of nicotine metabolism and enzyme pathways during antepartum and postpartum. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
 120. Streck, J.M., Davis, D.R., Bergeria, C.L., Bunn, J.Y., Sigmon, S.C., **Heil, S.H.**, Gaalema, D., & Higgins, S.T. (2016). Characterizing smokers who use American Indian reservation cigarettes. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
 121. Villanti, A., Gaalema, D., Tidey, J., **Heil, S.**, Sigmon, S, Hughes, J., & Higgins, S.

- (2017). Co-occurring vulnerabilities and menthol use in U.S. young adult cigarette smokers: Findings from the 1st wave of the PATH study, 2013-2014. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
122. Bergeria, C., **Heil, S.**, Sigmon, S., Tidey, J., Gaalema, D., Hughes, J., Stitzer, M., Bunn, J., Miller, M., Davis, D., Streck, J., & Higgins, S. (2017). Characterizing responses to cigarettes with varying levels of nicotine in women vulnerable to smoking during pregnancy. Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
123. Davis, D., Bergeria, C., Streck, J., Bunn, J., Gaalema, D., Heil, S., Sigmon, S., Stitzer, M., Tidey, J., & Higgins, S. (2017). Examining how users of mentholated and non-mentholated cigarettes rate Spectrum research and usual brand cigarettes. (2017). Presented at the annual Tobacco Centers of Regulatory Science Grantee Meeting, Bethesda, MD.
124. Deans, S., Dougherty, A., Kayongo, A., Mundaka, J., Nassali, F., Sewanyana, J., Migadde, E., Kiyemba, R., Katali, E., **Heil, S.H.**, & Kalyesubula, R. (2018). Knowledge, attitudes, and use of family planning in rural Uganda: Comparing the female and male perspective. Presented at the annual meeting of the Consortium of Universities for Global Health, New York, NY.
125. Melbostad, H.S., Hack, M.A., MacAfee, L.K., & **Heil, S.H.** (2018). Contraceptive knowledge of patients receiving medication for opioid use disorder. Presented at the 49th Annual Medical-Scientific Conference of the American Society of Addiction Medicine, San Diego, CA.
126. Bergeria, C., **Heil, S.**, Sigmon, S., Tidey, J., Gaalema, D., Hughes, J., Stitzer, M., Durand, H., Bunn, J., Priest, J., Arger, C., Miller, M., Davis, D., Streck, J., Tromblee, M., & Higgins, S. (2018). Characterizing response to cigarettes with varying levels of nicotine in women vulnerable to smoking during pregnancy. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
127. Streck, J., Sigmon, S., Parker, M., **Heil, S.**, Stitzer, M., Tidey, J., Gaalema, D., Bergeria, C., Davis, D., Naud, S., Hughes, J., & Higgins, S. (2018). Characterizing nicotine withdrawal across vulnerable populations: Data from a trial examining reduced nicotine content cigarettes. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
128. Davis, D., Streck, J., Bergeria, C., Miller, M., Bunn, J., Gaalema D., **Heil, S.**, Sigmon, S., Stitzer, M., Tidey, J., & Higgins, S. (2018). Examining the influence of mentholation on relative reinforcing efficacy of cigarettes at varying nicotine doses. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
129. **Heil, S.**, Zvorsky, I., Kurti, A., Bernstein, I., & Higgins, S.T. (2018). Anticipated vs. actual postpartum contraceptive use among pregnant cigarette smokers. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
130. Rey, C., Melbostad, H., Sigmon, S., MacAfee, L., Dougherty, A., & **Heil, S.** (2018). Familiarity, knowledge and barriers to long-acting reversible contraceptives among opioid-maintained women. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.

131. Melbostad, H., Rey, C., Sigmon, S., MacAfee, L., Dougherty, A., & **Heil, S.** (2018). Contraceptive knowledge of men and women receiving medication-assisted treatment for opioid use disorder. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
132. Bergeria, C., **Heil, S.** Sigmon, S., Tidey, J., Gaalema, D., Hughes, J., Stitzer, M., Arger, C., Miller, M., Durand, H., Bunn, J., Priest, J., Davis, D., Streck, J., Skelly, J., Tromblee, M., & Higgins, S. (2018). Assessing correspondence between subjective effects measures and concurrent choice data in a laboratory study evaluating the effects of cigarettes with varying levels of nicotine. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
133. Davis, D., Bergeria, C., Streck, J., Miller, M., Bunn, J., Gaalema, D., **Heil, S.**, Sigmon, S., Stitzer, M., Tidey, J., & Higgins, S. (2018). Impact of mentholation as a moderator of nicotine dose on relative reinforcing and subjective effect. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
134. Streck, J., Sigmon, S., Parker, M., Stitzer, M., Tidey, J., **Heil, S.**, Gaalema, D., Bergeria, C., Davis, D., Priest, J., Barrows, A., Rothman, M., Hughes, J., & Higgins, S. (2018). Subjective effects of cigarettes varying in nicotine content among opioid-maintained individuals. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
135. Harfmann, R., **Heil, S.**, Zvorsky, I., Nighbor, T., Bernstein, I., & Higgins, S. (2019). Anticipated vs. actual postpartum contraception use among pregnant cigarette smokers. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
136. Streck, J., Sigmon, S., **Heil, S.**, Stitzer, M., Tidey, J., Gaalema, D., Bergeria, C., Davis, D., Parker, M., Priest, J., Hughes, J., & Higgins, S.T. (2019). Investigating tobacco withdrawal in smokers with opioid dependence and other vulnerabilities. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
137. Melbostad, H., Shepard, D., Rey, C., Matusiewicz, A., Sigmon, S., MacAfee, L., Higgins, S., & **Heil, S.** (2019). Preliminary analyses of benefits and costs of family planning interventions for women enrolled in medication treatment for opioid use disorder. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
138. Zollman, G., O'Meara, A., & **Heil, S.** (2019). Family planning among female syringe exchange clients. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
139. Harfmann, R., **Heil, S.**, Zvorsky, I., Nighbor, T., Bernstein, I., & Higgins, S. (2019). Anticipated vs. actual postpartum contraception use among pregnant cigarette smokers. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
140. Rey, C., Kurti, A, Badger, G., Cohen, A., & **Heil, S.** (2019). Stigma, discrimination, treatment effectiveness, and policy support: Comparing behavior analysts' views on substance use disorders and mental illness. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.

141. Higgins, S.T., Kurti, A.N., Nighbor, T., Redner, R.N., Solomon, L., **Heil, S.**, Lynch, M.E., Markesich, C.T., Johnson, H.K., Skelly, J., Bernstein, I., & Phillips, J. (2020). A comparative effectiveness trial examining financial incentives for smoking cessation among pregnant women. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
142. Melbostad, H., Wachtel, D., Lipke, K., Matusiewicz, A., Rey, C., MacAfee, L., & **Heil, S.** (2020). Safety and tolerability of hormonal contraception among women receiving medication treatment for opioid use disorder. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
143. Rey, C., Dolan, J., Melbostad, H., Bergeria, C., & **Heil, S.** Breastfeeding and marijuana use: Recommendations from the field post-marijuana legalization in Vermont. (2020). Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
144. Oliver, A., Melbostad, H., Matusiewicz, A., Rey, C., Badger, G., & **Heil, S.** (2020). Verified contraceptive use among a sample of women receiving medication for opioid use disorder and at risk for unintended pregnancy. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
145. Harfmann, R., MacAfee, L., Melbostad, H., Rey, C., Rylant, D., & **Heil, S.** (2020). Perceptions of contraceptive autonomy and coercion in the setting of financial incentives for women with opioid use disorder. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.

Poster – International

1. Laws, H.F., **Heil, S.H.**, Bickel, W.K., Higgins, S.T., Faries, D.E., & Badger, G. (2001). Subjective responses to LY139603 (atomoxetine) and methylphenidate. European Neuropsychopharmacology, *11*(Suppl. 3), s318.
2. Higgins, S.T., **Heil, S.H.**, Rogers, R.E., Solomon, L.J., & Badger, G.J. (2009). Voucher-based contingency management in treating pregnant cigarette smokers. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
3. Arger, C., Taghavi, S., Higgins, S., Tyndale, R., & **Heil, S.** (2017). Examining the time course of the nicotine metabolite ratio and enzyme pathways during antepartum and postpartum. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
4. Bergeria, C., Higgins, S., Sigmon, S., Durand, H., Bunn, J., & **Heil, S.** (2017). Comparing smoking topography of usual brand cigarettes in pregnant and non-pregnant smokers. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
5. Streck, J., Davis, D., Bergeria, C., Bunn, J., Sigmon, S., **Heil, S.**, Gaalema, D., & Higgins, S. (2017). Characterizing smokers who use American Indian reservation cigarettes. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.
6. Davis, D., Bergeria, C., Streck, J., Bunn, J., Gaalema, D., **Heil, S.**, Sigmon, S., Stitzer, M., Tidey, J., & Higgins, S. (2017). Examining the influence of mentholation on the

reinforcing effects of usual brand and research cigarettes of varying nicotine content in vulnerable populations. Retrieved from the Society for Research on Nicotine and Tobacco Past Annual Meetings web page.

7. **Heil, S.**, Matusiewicz, A., Melbostad, H., Sigmon, S., MacAfee L., & Higgins, S. (2017). Increasing effective contraceptive use among opioid-maintained women at risk for unintended pregnancy. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
8. Melbostad, H., Matusiewicz, A., & **Heil, S.** (2017). Knowledge and attitudes about pregnancy prevention among women who are opioid-maintained. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
9. Bergeria, C., **Heil, S.**, Kurti, A., Ochalek, T., & Higgins, S. (2017). Cannabis use in pregnant and recently postpartum cigarette smokers and nonsmokers. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
10. Sigmon, S., Streck, J., **Heil, S.**, Stitzer M., Tidey, J., Gaalema D., & Higgins, S. (2017). Subjective effects of smoking among opioid-maintained individuals: Results from a pilot study examining reduced nicotine content cigarettes. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
11. Higgins, S., **Heil, S.**, Sigmon, S., Tidey, J., Gaalema, D., Hughes, J., Stitzer, M., Durand, H., Bunn, J., Priest, J., Arger, C., Patrick, M., Bergeria, C., Davis, D., Streck, J., Reed, D., Skelly, J., & Tursi, L. (2017). Evaluating reduced-nicotine standards on the addiction potential of cigarettes in vulnerable populations. Retrieved from the College on Problems of Drug Dependence Annual Meeting Program and Abstracts web page.
12. Melbostad, H.S., Matusiewicz, A.K., Rey, C.N., Badger, G.J., MacAfee, L.K., Sigmon, S.C., Higgins, S.T., and **Heil, S.H.** (2018). Increasing contraceptive use among women with opioid use disorder at risk for unintended pregnancy. Presented at the 5th International Conference on Family Planning, Kigali, Rwanda.

Patents Issues for Pending

Not applicable

Other Creative Activities

Quality Improvement and Patient Safety Activities

Vermont Oxford Network

Expert Discussant, iNICQ 2013: Controversies in Caring for Infants and Families
Affected by Neonatal Abstinence Syndrome

Faculty Member, iNICQ 2014: Structuring Success in the Care of Infants and Families
Affected by Neonatal Abstinence Syndrome

Expert Discussant, iNICQ 2015: Universal Training Solutions Improving Outcomes for
Infants and Families Affected by Neonatal Abstinence Syndrome

SUMMARY OF SCHOLARLY ACTIVITIES

Throughout my career, my overarching interest has been in conducting rigorous, empirical research that will improve the lives of women with substance use disorders and their children. A

primary area of interest and expertise is opioid use disorder during pregnancy. I was the PI of the University of Vermont site of the MOTHER (Maternal Opioid Treatment: Human Experimental Research) trial, an eight-site, international, randomized clinical trial comparing the safety and efficacy of methadone and buprenorphine for the treatment of opioid use disorder during pregnancy. The results indicated that buprenorphine-exposed infants had significantly better outcomes and were published in the New England Journal of Medicine (Jones, Kaltenbach, Heil et al., 2010). These data have influenced clinical practice guidelines in many countries, including the United States, Norway, Denmark, Sweden, and Australia. Among many other publications in this area, I collaborated with Marjorie Meyer, MD, in the Department of Obstetrics, Gynecology, and Reproductive Sciences, to replicate the MOTHER trial results in a large (600+) retrospective cohort study of pregnant women receiving medication for opioid use disorder who delivered at University of Vermont Medical Center (Meyer et al., 2015), extending the generalizability of the randomized trial results. I have pursued a related line of research developing an intervention to reduce the rate of unintended pregnancy, which is a startling 86% among opioid-dependent women (Heil et al., 2011). In a pilot trial funded by an R34 Clinical Trial Planning Grant, none of the women in the experimental condition experienced unintended pregnancy vs. 20% of control condition participants (Heil et al., 2016). A subsequent R01-funded, three-arm randomized clinical trial tested the efficacy of different components of the intervention. The results indicated a graded reduction in unintended pregnancy (5% among women who received the full intervention vs. 17% of those who received part of the intervention vs. 22% of control condition participants) and were published in JAMA Psychiatry (Heil et al., 2021). I have also been a Co-Investigator on a number of grants with opioid-dependent patients, including trials examining smoking cessation, taper durations, and an interim treatment approach for patients on waitlists for agonist maintenance.

Another major area of interest has been reducing harm among women who smoke cigarettes, especially during pregnancy. I have been a Co-Investigator on a series of clinical trials to develop an incentive-based intervention for pregnant cigarette smokers. Most pregnant smokers are unable to quit, and cessation rates produced by existing interventions are low (< 20%). Our research group has reliably shown that an incentive-based intervention significantly increases smoking cessation (38% vs. 10% in experimental vs. control conditions, respectively) (Higgins, Heil et al., 2004; Heil et al., 2008; Higgins et al., 2010, 2014, in press). US states, including Wisconsin and Oregon, and the National Health Service of the UK have tested this approach in routine clinical practice. I am also currently the project PI on a P50 center grant funded by the National Institute on Drug Abuse and the Food and Drug Administration (FDA) that is investigating whether reducing the nicotine content of cigarettes reduces their addiction potential among less educated women of childbearing age. Results of this work, which includes the only research done with pregnant women and these products (e.g., Heil et al., 2020) will have significant impact on tobacco regulatory science given that FDA has the authority to regulate the nicotine content of cigarettes (i.e., Family Smoking Prevention and Tobacco Control Act of 2009).

Finally, I also serve as Associate Director of a large, multi-state Health Resources and Services Administration Regional Center of Excellence that disseminates evidence-based services and resources in rural northern New England.

INVITED PRESENTATIONS

Regional

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| 1997 | Reproductive Endocrinology Group, Department of Obstetrics and Gynecology, Wayne State University
<u>Sexually dimorphic effects of prolactin on food intake by rats</u> | Detroit, MI |
| 1998 | Developmental Psychobiology Group, Department of Psychology, Wayne State University
<u>Interactions between mating systems and parent/offspring relationships in East African mammals</u> | Detroit, MI |

2010	General Clinical Research Center, Fletcher Allen Health Care <u>Opioid addiction and pregnancy: The MOTHER Study</u>	Burlington, VT
2012	Vermont Improving Care for Opioid-exposed Neonates (ICON) project statewide meeting <u>Treating pregnant opioid-dependent women and their infants: The latest research.</u>	Northfield, VT
2013	Vermont Center on Behavior and Health Lecture Series <u>Buprenorphine for treating opioid-dependent pregnant women: Behavioral pharmacology in action</u>	Burlington, VT
2013	University of Vermont Department of Obstetrics, Gynecology, and Reproductive Sciences Annual Research Retreat <u>Improving effective contraceptive use among opioid-maintained women</u>	Burlington, VT
2015	University of Vermont Department of Obstetrics, Gynecology, and Reproductive Sciences Research Seminar <u>Improving effective contraceptive use among opioid-maintained women: Stages I & II</u>	Burlington, VT
2017	New Hampshire Charitable Foundation <u>Behavioral economic approaches to increasing contraceptive use among opioid-maintained women</u>	Hanover, NH
2018	University of Vermont Department of Obstetrics, Gynecology, and Reproductive Sciences Annual Research Retreat <u>Family planning among women with opioid use disorder</u>	Burlington, VT
2020	Vermont Center on Behavior and Health Lecture Series <u>Reducing unintended pregnant among women receiving medication for opioid use disorder</u>	Burlington, VT
National		
2004	Future Directions in Contingency Management Research, meeting sponsored by the National Institute on Drug Abuse at University of Vermont <u>Voucher-based treatment of cigarette smoking in pregnant and recently postpartum women</u> with S.T. Higgins	Burlington, VT
2008	College on Problems of Drug Dependence Mini-Conference entitled "Women and Smoking: Understanding Socioeconomic Influences" <u>An overview of effective substance abuse treatment practices for other substance use disorders among disadvantaged women</u>	Annapolis, MD
2011	U.S. Navy Conference entitled "Incentives and Health" <u>Incentives to promote family planning</u>	College Park, MD
2012	Ohio Valley Node of the National Institute on Drug Abuse's Clinical Trials Network <u>Opioid dependence during pregnancy: Improving neonatal and maternal outcomes</u>	Teleconference

2012	Participant in scientific forum, "Toxicology in pregnancy" (J. Tolosa, chair) held at the 32nd Annual Meeting of the Society for Maternal-Fetal Medicine <u>Voucher-based contingency management for smoking cessation during pregnancy</u>	Dallas, TX
2012	Johns Hopkins University's Behavioral Pharmacology Research Seminar Series <u>Improving outcomes among opioid-exposed neonates</u>	Baltimore, MD
2012	Merrill Palmer Skillman Institute for Child and Family Development, Wayne State University <u>Promoting smoking cessation during pregnancy</u>	Detroit, MI
2012	Division of Reproductive Health Seminar, Centers for Disease Control and Prevention <u>Financial incentives for increasing smoking cessation and improving other aspects of reproductive health among disadvantaged women.</u>	Atlanta, GA
2012	New Fellows Symposium at the 120 th annual meeting of the American Psychological Association <u>Opioid dependence during pregnancy: Improving neonatal and maternal outcomes</u>	Orlando, FL
2012	Expert Meeting on Perinatal Illicit Drug Use, Centers for Disease Control and Prevention <u>Evidence-based psychosocial treatments for illicit drug use during pregnancy</u>	Atlanta, GA
2013	Participant in conference, "Behavior Change, Health, and Health Disparities," sponsored by the Vermont Center on Behavior and Health, University of Vermont <u>Financial incentives to promote more effective contraceptive use among opioid-maintained women</u> with Hand, D.J., Sigmon, S.C., Meyer, M.C., & Higgins, S.T.	Burlington, VT
2014	Participant in 2 nd annual Behavior Change, Health, and Health Disparities conference sponsored by the Vermont Center on Behavior and Health, University of Vermont <u>Improving prescription contraceptive use among opioid-maintained women</u> with Hand, D.J., Sigmon, S.C., Meyer, M.C., & Higgins, S.T.	Burlington, VT
2015	Participated in 3 rd annual Behavior Change, Health, and Health Disparities conference sponsored by the Vermont Center on Behavior and Health, University of Vermont <u>Improving effective contraceptive use among opioid-maintained women: Stages I & II</u>	Burlington, VT
2015	Participated in panel session on "Reproductive Health Throughout the Lifespan" as part of the 8 th annual International Women's and Children's Health and Gender Group conference	Phoenix, AZ

Improving effective contraceptive use among opioid-maintained women: Stages I & II

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| 2017 | Participated in 5 th annual Behavior Change, Health, and Health Disparities conference sponsored by the Vermont Center on Behavior and Health, University of Vermont
<u>Smoking among women of reproductive age</u> | Burlington, VT |
| 2018 | Expert Meeting on Integration of Substance Use Disorders and Family Planning, Office of Population Affairs
<u>Integrating family planning into substance use disorder treatment settings</u> | Washington, DC |
| 2018 | Georgia Family Planning System Annual Meeting
<u>Family planning and opioids</u> | Jekyll Island, GA |
| 2018 | Columbia University Medical Center Division on Substance Use Disorders Seminar Series
<u>Decreasing unintended pregnancy among opioid-maintained women</u> | New York, NY |

International

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| 2015 | Norwegian Centre for Addiction Research, University of Oslo
<u>The MOTHER study and beyond</u> | Oslo, Norway |
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