

University of California, San Francisco
CURRICULUM VITAE

Name: Karen Hope Seal, MD, MPH

Position: Professor In Residence, Step 1
Medicine
School of Medicine

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EDUCATION

| | | | |
|-------------|---|----------|------------------------------------|
| 1981 - 1985 | Brown University | B.S. | Sigma Xi, Neuroscience |
| 1989 - 1994 | Stanford University School of Medicine | M.D | Medicine |
| 1994 - 1995 | University of California, San Francisco | Intern | Medicine |
| 1995 - 1997 | University of California, San Francisco | Resident | Medicine |
| 1997 - 2000 | University of California, San Francisco | Fellow | Center for AIDS Prevention Studies |
| 1998 - 1998 | University of California, Berkeley | MPH | Epidemiology |

LICENSES, CERTIFICATION

| | |
|------|---|
| 1996 | Medical licensure, California (A60389) |
| 1997 | Board Certification, Internal Medicine (180510) |
| 2007 | Board Re-Certification, Internal Medicine (180510) |
| 2008 | Drug Enforcement Agency Registration (BS4946236) |
| 2014 | Medical licensure, California (A60389) |
| 2014 | Drug Enforcement Agency Registration (BS4946236 and XS4946236-Suboxone) |

PRINCIPAL POSITIONS HELD

| | | | |
|----------------|--|----------------------|--|
| 2000 - 2003 | University of California, San Francisco | Asst. Adj. Professor | Family Community Medicine |
| 2003 - 2009 | University of California, San Francisco | Asst. Adj. Professor | Medicine |
| 2003 - present | San Francisco VA Medical Center | Staff Physician | General Internal Medicine |
| 2007 - present | Integrated Care Clinic for Iraq and Afghanistan Veterans | Director | SFVAMC |
| 2009 - present | University of California, San Francisco | Associate Professor | Medicine & Psychiatry |
| 2011 - 2013 | San Francisco VA Medical Center | Assoc. Director | HSR&D Research Enhancement Award Program |
| 2013 - present | Pain Clinic, Medical Practice Clinic | Medical Director | SFVAMC |

OTHER POSITIONS HELD CONCURRENTLY

| | | |
|-------------|------------------------------|--|
| 1985 - 1989 | United States Peace Corps | High School Teacher, Samoa |
| 1989 - 1989 | Save the Children | HIV Educator, Thailand |
| 1991 - 1992 | Stanford University | Graduate Teaching Assistant, Health Policy |
| 1996 - 2003 | Tom Waddell Homeless Clinic | Staff Physician |
| 2000 - 2003 | SFGH Family Practice Service | Staff Physician |

HONORS AND AWARDS

| | |
|------|--|
| 1985 | Sigma Xi Scientific Honor Society |
| 1991 | Peninsula Community Scholar's Award for Community Service |
| 2003 | UCSF Faculty Career Development Award |
| 2003 | Hellman Award for Junior Faculty |
| 2003 | VA HSR&D Career Development Award |
| 2006 | Plenary Address, Society for General Internal Medicine National Meeting |
| 2007 | VA HSR&D Career Development Transition Award |
| 2010 | UCSF Excellence in Teaching Award in Medical Education |
| 2010 | Excellence in Teaching Award in Medical Education, UCSF |
| 2011 | Invited testimony to the House of Representatives Committee on Veterans Affairs: "Mental Health: Bridging the Gap between Care and Compensation for Veterans", Washington, DC, June 14, 2011 |

- 2011 Invited testimony to the Government Accountability Office (GAO) on barriers to mental health treatment in Iraq and Afghanistan Veterans
- 2012 Election to the VA Pain Health Executive Committee Workgroup
- 2014 Election to Co-Chair of the Primary Care Special Interest Group, International Society for Traumatic Stress Studies
- 2014 Selected to attend the AAMC Mid-Career Women Faculty Professional Development Seminar, Austin, Texas

KEYWORDS/AREAS OF INTEREST

Mental health, substance use disorders, posttraumatic stress disorder, war-related injury, traumatic brain injury, behavioral interventions, high-risk behaviors, vulnerable populations chronic pain; opioid use disorder

CLINICAL ACTIVITIES SUMMARY

I was originally trained in Internal Medicine, yet even beginning in Residency, I started working with individuals with substance use disorders when I did my first “research project” at a downtown San Francisco needle exchange site. I was investigating barriers among young injection drug users to receiving the hepatitis B vaccine series, findings which I later published (Seal, 2000). During fellowship at the Center for Aids Prevention Studies, I worked in the Emergency Department at San Francisco General Hospital, Tom Waddell Homeless Clinic, and served as the Medical Director of Fourth Avenue Detox Center. My role in these clinical settings was to provide care for vulnerable populations, heroin injectors and those wishing or mandated to detox, and patients who were infected with hepatitis C virus (HCV). In 2003, having worked with Dr. Teresa Wright in a research capacity, she recruited me to work at the San Francisco VA Medical Center (SFVAMC) liver clinic to treat HCV-infected methadone patients with interferon-based regimens (Seal et al., 2007).

In 2003 US troops invaded Iraq and we started to see a younger wave of veteran patients at the SFVAMC, many of whom were suffering from symptoms of posttraumatic stress disorder (PTSD) and were actively using drugs and alcohol to self-medicate. I realized that as an internist, I had not been trained to assess for or manage symptoms of PTSD. Under the mentorship of Dr. Charlie Marmar, an internationally-known PTSD researcher and former chief of the SFVAMC Mental Health Service, I learned about PTSD and related comorbid conditions in Iraq and Afghanistan veterans.

In 2007, together with Dr. Rina Shah, I established and have since directed the Integrated Care (IC) Clinic for Iraq and Afghanistan veterans seeking care at the SFVAMC. The clinic serves as a national model of integrated care, providing a one-stop, 3-part integrated, co-located mental health, primary care and social services visit for returning Iraq and Afghanistan men and women veterans. This younger generation of veterans experiences multiple barriers to accessing mental health care, especially stigma. The IC Clinic has been shown to significantly enhance access to mental health care compared to Usual Care for this population. (Seal et al., 2011) Between each part of the multi-part visit, providers conduct a “warm hand-off” to the next provider to enhance continuity of care, which we published and which now serves as a national model of care in post-deployment clinics (Koenig et al., 2012)

The IC clinic consists of a team of multidisciplinary providers in internal medicine, nursing, mental health and social work. As Director, I coordinate interdisciplinary providers and

organize monthly case conferences. In addition to providing one-on-one care for returning combat veterans, the clinic also offers several weekly group visits for veterans on a variety of topics including readjustment stress, managing chronic pain, insomnia and recreation therapy. In 2012-2013 we expanded to incorporate and supervise nurse practitioner students and fellows from the joint UCSF-VA EdPACT training program.

In 2013, the SFVAMC was struggling to get a handle on the growing prescription opioid epidemic, particularly among our chronic pain patients. At this time, I was asked to become the Medical Director of our Pain Clinic in Medical Practice (MP) Clinic. This was largely based on my experience running multi-disciplinary clinics and because of my prior experience in working with patients with opioid use disorders. In this role I supervise a pain psychologist, a nurse practitioner, and a pain pharmacist. Together as a team we are referred and manage some of the most challenging chronic pain/opioid-dependent patients in primary care at the SFVAMC. Because I am the only provider in our medical practice clinic who is licensed to prescribe buprenorphine for veterans with refractory chronic pain or opioid use disorders, many of these patients are also referred to me.

Finally, in addition to my work in ambulatory multidisciplinary clinics, I have served as an attending staff physician at the SFVAMC. In this capacity, I care for a large panel of veterans from all eras in the General Medicine Clinic. In addition, during my weekly clinic session, for the past several years I have precepted a UCSF VALOR medical student. Finally, since 2003 through 2013, I served as an attending on our SFVAMC inpatient service. This year, I stepped back from ward attending to direct the MP Pain clinic, and to continue to direct the Integrated Care Clinic.

MEMBERSHIPS

2010 - present Academy of Medical Educators, UCSF
2005 - present Society for General Internal Medicine
2007 - 2007 American College of Physicians
2008 - present International Society for Traumatic Stress Studies

SERVICE TO PROFESSIONAL ORGANIZATIONS

2013 - present International Society for the Study of Traumatic Stress Co-Chair of the Primary Care Special Interest Group

SERVICE TO PROFESSIONAL PUBLICATIONS

2000 - present Ad hoc referee for JAMA, Addiction, Hepatology, American Journal of Public Health, Journal of Urban Health, Drug and Alcohol Dependence, Journal of Traumatic Stress, Journal of General Internal Medicine, Psychiatric Services, American Journal of Psychiatry, JAMA Psychiatry, Journal of Rehabilitation Research and Development

INVITED PRESENTATIONS - INTERNATIONAL

2009 Two invited talks at an international PTSD conference, 10/18-10/23, 2009, Haifa University (Jerusalem, Israel).

- 2010 Invited presentation on Motivational Interviewing for treatment engagement of combat veterans with PTSD. International Society for Trauma Stress Studies, 26th Annual Meeting, November 5, 2010. (Montreal, Canada)
- 2010 Discussant for symposium on PTSD and women's health. International Society for Trauma Stress Studies, 26th Annual Meeting. November 4, 2010. (Montreal, Canada)

INVITED PRESENTATIONS - NATIONAL

- 2003 Grand Rounds, "Beyond HIV—Hepatitis and Heroin Overdose among Street-Recruited Injection Drug Users," Yale School of Public Health and Epidemiology, April 22, 2003.
- 2005 VA Hepatitis C Resource Center Symposium on HIV-HCV Co-Infection in Drug Users, Chicago, IL. July, 19, 2005 (panel).
- 2008 VA National Conference Call. April, 10, 2008 (panel).
- 2008 VA Integrated Care Conference, Seattle WA, August 8-11, 2008 (two invited talks).
- 2009 mTBI and Pain Consensus Conference. Washington, D.C., June 1-2, 2009 (invited talk).
- 2010 Grand Rounds, New York University School of Medicine, June 3, 2010 (invited talk).
- 2010 Academy Health Annual Research Meeting. Boston, MA, June 27-29, 2010 (invited talk).
- 2010 The Third Annual Trauma Spectrum Conference for the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). Bethesda, MD, December 7-8, 2010.
- 2012 PTSD Mentoring Program Cyberseminar, "PTSD and Chronic Pain-Treatment Considerations," Nov 12, 2012
- 2012 National Center for PTSD, Boston VA, "PTSD and Chronic Pain-Underlying Etiologies and Management Considerations," Boston, MA, Dec 4, 2012
- 2013 Aspen Institute, Veteran's Initiative Summit, "Aggression and Impulsivity in Iraq and Afghanistan Veterans: Association with PTSD and Strategies for Treatment," Aspen, CO, June 20, 2013.
- 2013 West Haven VA- Pain Center of Excellence. PTSD in Combat Veterans: Exploring the Association with Chronic Pain and Prescription Opioid Use. Sept. 9, 2013
- 2013 Brown University Center for Alcohol and Addiction Studies. "Opioids in Pain and PTSD: Liability or Panacea?" Sept. 11, 2013.
- 2013 VA Community of Practice National Cyberseminar, "The Triple Threat: PTSD, Pain and High-Risk Opioid Use- What's a VA Clinician/Team to Do?" Dec 13, 2013
- 2014 VA HSR&D National Cyberseminar. "Opioids in Chronic Pain and PTSD: Liability, Potential Therapy or Both?" Jan 7, 2014.
- 2014 VA PACT Pain Initiative Community of Providers National Cyberseminar, "PACT, Pain, Opioids and Addiction." Jan 24, 2014.

- 2014 "Improving Opioid Safety in Veterans Using Collaborative Care and Decision Support." Presentation to the NIH/NCCAM National Advisory Council Working Group on "Strengthening Collaborations with the DoD and VA: Effectiveness Research on Mind and Body Interventions." July 31, 2014. Bethesda, MD
- 2014 "Improving Opioid Safety in Veterans Using Collaborative Care and Decision Support: The OPTI Study." Substance Use: From Research to Recovery- In Progress Review. Frederick, MD. Sept 22-24, 2014.
- 2015 "Improving Opioid Safety Using Collaborative Care and Decision Support". Invited symposium presentation for American Pain Society Annual Scientific Meeting, Palm Springs, CA, May 13-16, 2015.
- 2016 California Society of Addiction Medicine's Essentials of Addiction Medicine Conference, "Multi-Modal Approach to Pain Management in Primary Care: Role for Buprenorphine" Anaheim, CA, Aug 23-25, 2016.
- 2016 " Improving Opioid Safety in Veterans Using Collaborative Care and decision Support," Joint Substance Abuse Interim Progress Review, Frederick Maryland, September 20, 2016

INVITED PRESENTATIONS - REGIONAL AND OTHER INVITED PRESENTATIONS

- 2005 Featured presentation, Palo Alto VA Center for Health Care Evaluation
- 2005 Grand Rounds, San Francisco VA Medical Center
- 2005 Grand Rounds, San Francisco General Hospital
- 2006 Research Week presentation, San Francisco VA Medical Center
- 2007 Iraq War Teach-In presentation, University of California, San Francisco
- 2007 National Suicide Prevention Day presentation, San Francisco VA Medical Center
- 2007 UCSF Department of Psychiatry CME lecture.
- 2008 Regional Conference on the Care of Combat Veterans, sponsored by the San Francisco Department of Public Health
- 2008 Brain at War Conference- San Francisco VA Medical Center
- 2008 Fromm Institute, University of San Francisco, October 29, 2008.
- 2009 Two separate talks. Palo Alto, VA. Jan 5, 2009.
- 2009 Research Grand Rounds, SFVAMC, Jan 26, 2009.
- 2009 Stanford University Human Biology Program lecture series, March 5, 2009.
- 2009 Brain at War Conference- San Francisco VA Medical Center, May 26, 2009.
- 2009 Presentation to the Honorable Eric Shinseki, Secretary of the VA, San Francisco VA Medical Center, June 23, 2009.
- 2010 Research Grand Rounds, SFVAMC, Feb 2, 2010.

- 2012 Featured talk, Cognitive Impairment, Aggression, and Impulsivity in Iraq and Afghanistan Veterans: Association with TBI, PTSD, or Both? Palo Alto VA Center for Health Care Evaluation, March 6, 2012
- 2013 Research Grand Rounds, SFVAMC, Oct 21, 2013 Opioids in Pain and PTSD: Liability or Panacea?
- 2013 Pain and Opioid Bootcamp Trainings- 4 sessions conducted between Dec 2013 to 2014. Nearly 200 VA opioid prescribers trained. DVD produced and available through VA Sharepoint
- 2013 PTSD Assessment and Management for Primary Care Providers- Two separate CME talks for Regional Medical Centers-Fresno and San Jose

CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2003 Annual National VA HSR&D meeting
- 2003 Weekly Grand Rounds, San Francisco VA Medical Center
- 2005 Annual Society for General Internal Medicine Meeting
- 2005 Pain Course, University of California, San Francisco
- 2005 Annual Society for General Internal Medicine Meeting
- 2006 Society for General Internal Medicine
- 2007 University of California, San Francisco Board Review Course
- 2007 Mental Health Disorders and Traumatic Brain Injury in OEF/OIF veterans
- 2007 University of California, San Francisco PTSD Course
- 2007 Annual International Society for Traumatic Stress Studies
- 2013 Center for Mind Body Medicine- Preliminary Training
- 2014 Center for Mind Body Medicine- Advanced Training
- 2014 The AAMC Mid-Career Women Faculty Professional Development Seminar
- 2016 Whole Health Workshop- Training in Implementing a Whole Health Program, Greater LA VAMC
- 2016 Innovation Specialist Training Washington, DC , 4.5.16-4.7.16
- 2016 Network of Innovation Demo Day, Hosted by the VA Center for Innovation. Washington, DC. August 14-16, 2016

GOVERNMENT AND OTHER PROFESSIONAL SERVICE

- 2005 - present VA HSR&D Center for Health Care Evaluation
- 2007 - present VA National Substance Use Disorders- PTSD Task Force member

- 2008 - National OEF/OIF Community of Practice Task Force
- 2008 - Invited member of the Consensus Conference: Practice Recommendations for Treatment of Veterans with Comorbid TBI, Pain, and PTSD, Washington D.C.
- 2009 - 2010 Department of Veterans Affairs, CSR&D Grant Review Study Section Member
- 2011 - Invited member, VA/DoD PTSD Toolkit Development Workgroup, Washington, D.C.
- 2011 - Testimony to the United States Government Accountability Office (GAO) on barriers to mental health treatment in Iraq and Afghanistan Veterans
- 2011 - Testimony to United States Congress House of Representatives Committee on Veterans Affairs: "Mental Health: Bridging the Gap between Care and Compensation for Veterans", Washington, DC, Jun 14, 2011
- 2012 - VA/DoD Health Executive Council Subgroup Member: Pain Management in Returning Combat Veterans
- 2013 - Department of Veterans Affairs, HSR&D Grant Review Panel
- 2013 - present Project VALOR Advisory Board
- 2014 - National Institutes for Complimentary and Alternative Medicine (NCCAM) Grant Review Panel
- 2015 - Expert consultation to the counsel for the Senate Committee on Homeland Security and Governmental Affairs regarding excessive opioid prescription in VA
- 2016 - HSR&D Randomized Program Evaluations
- 2016 - Participant in the State of the Art Conference on Nonpharmacological Management of Chronic Pain; Alexandria, VA, November 3-4, 2016

SERVICE ACTIVITIES SUMMARY

Fundamentally I am engaged in research because I believe that it is the most expedient way to bring about change in the delivery of health care. Service has allowed me to translate research findings into action and to become involved in the "change" process. Government and public service has been one of the most invigorating aspects of my work. I have participated in physician organizations working for single payer health care solutions for several years. In addition, I have been involved on a local and national level to advance sensible primary care-mental health treatment strategies for the nearly 2 million returning combat veterans, about half of whom have been diagnosed with one or more mental health problems. In 2011, I was asked to testify before the US Congress House of Representatives Committee on Veterans Affairs on my research pertaining to the lack of engagement in mental health services among Iraq and Afghanistan veterans and about strategies to improve engagement. In the same year, I was also interviewed by the General Accountability Office with regard to barriers to care for returning veterans.

On a local level, I have served on the SFVAMC Steering Committee for Iraq and Afghanistan veterans and have given talks for the UCSF Iraq Action Group. As a member of the SFVAMC Neuroscience Center of Excellence, I have given numerous talks and have been called upon to

brief Congressional Aids to Congresswoman Nancy Pelosi and Senators Boxer and Feinstein about the mental health concerns of Iraq and Afghan veterans. In addition, I was asked to contribute to Barack Obama's position statement on the mental health care needs of our returning veterans when he was first running for office in 2008. Finally, I have accepted select media opportunities to disseminate our research findings locally and nationally and to raise awareness about the existence of clinical programs at the SFVAMC for returning combat veterans, which now includes programs to support non-opioid alternatives for chronic pain management.

Also, at the SFVAMC, I have served on the SFVAMC R & D Committee since 2011 and previously I served on our VA IRB committee. I recently volunteered to serve on a new Research Council for the Department of Medicine to support ongoing research activities of more junior SFVAMC investigators. With the advent of the opioid epidemic, I served on a national committee, the VA/DoD Health Executive Council Subgroup, in which we drafted an executive report to assist in the safe transition of military service personnel with chronic pain conditions into VA care. I was also invited to serve on two VA Integrated Service Network (VISN) committees- the VISN 21 Pain Committee to make decisions about VA pain and opioid policy and the "Difficult Conversations Committee" to establish a curriculum to teach VA providers about how to have successful conversations with chronic pain patients about high-risk opioid use.

UCSF CAMPUSWIDE

- 2003 - present VA HSR&D Research Enhancement Award Program
- 2005 - present VA Neuroscience Center for Excellence, SFVAMC
- 2005 - 2006 SFVAMC Research and Development IRB Sub-Committee
- 2007 - present UCSF Iraq Action Group
- 2007 - 2008 SFVAMC Operations Enduring Freedom/Operations Iraqi Freedom Veterans Steering Committee
- 2007 - present SFVAMC and VA Martinez Posttraumatic Stress Disorder/Traumatic Brain Injury Working Group
- 2011 - present Voting Member, VA Research and Development Committee
- 2011 - present Associate Director, HSR&D Research Enhancement Award Program, SFVAMC
- 2013 - present VA Integrated Service Network (VISN) 21 Pain Committee
- 2013 - present VISN Work Group-Difficult Conversations around Opioid Use
- 2014 - Search committee member for the Chair of the Department of Environmental Medicine, SFVAMC
- 2014 - present SFVAMC Medical Center Pain Committee
- 2014 - present SFVAMC Department of Medicine, Research Council
- 2015 - present Search Committee member for In-Residence Psychologist, Department of Psychiatry, SFVAMC/UCSF

COMMUNITY AND PUBLIC SERVICE

- 2000 - 2000 Hepatitis C Consortium Task Force, San Francisco Department of Public Health
- 2001 - 2001 Task Force on Office-Based Options for Addiction Therapy [OBOAT], San Francisco Department of Public Health
- 2002 - present Physicians for a National Health Program
- 2002 - 2003 National Harm Reduction Coalition
- 2003 - present California Physicians Alliance
- 2005 - present Disaster Medical Volunteer Program, Department of Public Health, Marin County.
- 2007 - 2007 Contributed to President Barack Obama's position statement on veterans' mental health
- 2010 - 2010 Member of a Campaign for Measure A to end over-crowding in public schools [Ross Valley School District]
- 2010 - present Volunteer parent instructor, Wade Thomas School, San Anselmo, CA
- 2011 - 2012 Health Coordinator, Wade Thomas School, San Anselmo, CA
- 2012 - present "Team doctor" Ross Valley Breakers Soccer team
- 2014 - present Member, Mental Health Task Force, Congregation Rodef Shalom

TEACHING SUMMARY

I have devoted substantial time to teaching because I think it is important and very enjoyable. Over the past several years, I have given multiple formal and informal educational talks to university and VA colleagues, medical residents and students at conferences and grand rounds in the areas PTSD and co-morbid mental health problems as well as novel and evidence-based treatments and interventions to address these problems. In 2010, I received a UCSF excellence in teaching award.

I have also received several grants over the past several years to develop and implement patient and provider training programs. First, I received funding from the Department of Defense to produce a multi-media on-line training program for primary care providers (PCPs) (**Online PTSD Diagnosis and Treatment Training for Primary Care Physicians**, W81XWH-09-1-0170). For this project, I worked with a PTSD psychologist and an Iraq veteran film-maker to produce a 70-minute web-based training program in PTSD assessment and initial management using engaging videotaped clinic vignettes to emphasize training points. This program became an accredited online UCSF CME course. An evaluation of the training demonstrated efficacy in terms of self-reported gains in PTSD-related knowledge and clinical skills (Samuelson et al., 2013). Very recently, I submitted a larger DoD grant to build on this original PTSD training project by proposing to use Virtual World technology to create a highly immersive and more interactive provider training program, including instruction in Motivational Interviewing with providers and standardized patients participating in the training as avatars. We propose to evaluate this new training using a randomized controlled trial design and more robust provider and patient outcome measures.

My second educational grant was funded by VA HSR&D and was entitled, **“TBI Educational Videos to Improve VA TBI Screening.”** For this implementation-focused project, we solicited VA national and local stakeholder input in developing two separate scripts and scenarios to explain the meaning of a positive or negative traumatic brain injury (TBI) screen result after TBI screening in VA primary care. Our goal was to activate Iraq and Afghanistan veterans to engage in health-promoting behaviors and services and to ask questions of their providers following TBI screening. Using stakeholder input, including veteran input, we created 2 separate 4-minute videos, one for veterans who had screened positive for TBI and one for veterans who had screened negative. These educational videos are being piloted in VA primary care during TBI screening and are being incorporated in a VA mobile app called, “Concussion Coach” for broader dissemination.

My third education grant was a smaller UCSF REAC grant for mid-career faculty (**Implementing and Evaluating a Training for Providers to Improve Safety in Opioid Prescribing for Chronic Pain Patients in Primary Care**). This grant filled an educational gap between two of my other projects, a VA Quality Improvement project (**“Promoting Patient Safety through Improved Tools for Opioid Prescribing,” Seal, site PI**) and an NIH-funded opioid risk reduction study we were submitting at the time (which was subsequently funded). It was also timely because it filled a need among SFVAMC leadership to educate VA clinicians at the SFVAMC and our 7 affiliated VA community-based outpatient clinics throughout Northern California about safe opioid prescribing and non-opioid alternatives to pain management. Through this REAC funding we created a 2-hour interactive provider training that we subsequently evaluated among nearly 200 VA providers. We produced an abstract that was accepted at the 2014 Society for General Internal Medicine Annual Meeting. In addition, I worked with colleagues at Boston University School of Medicine to adapt this VA provider training for a BU-accredited CME course called **Scope of Pain** <http://www.opioidprescribing.com/overviewfor> providers working with veterans and military service personnel in how to safely and competently initiate, modify, continue or discontinue opioids when managing patients with severe chronic pain.

FORMAL TEACHING

| Not UCSF | Academic Yr | Course No. & Title | Teaching Contribution | School | Class Size |
|----------|-------------|---|-----------------------|--------|------------|
| | 2005 - | Advances in Internal Medicine, University of California San Francisco | Lecturer | | |
| | 2007 - | PTSD Continuing Medical Education, Department of Psychiatry, UCSF | Lecturer | | |

INFORMAL TEACHING

2003 - present SFVAMC Medical Service attending; 2-4 weeks each academic year; conduct informal teaching rounds daily and work one-on-one with UCSF medical students on clinical examination and H and P skills.

- 2007 - present SFVAMC Integrated Care Clinic bi-monthly seminars; provide education on topics pertaining to post-deployment health such as PTSD, traumatic brain injury, substance abuse/dependence and brief interventions such as motivational interviewing.
- 2007 - present SFVAMC Medical Practice preceptor; precept UCSF medical residents, students and nurse practitioners about once monthly on average.
- 2009 - present UCSF VALOR Mentoring Program; precept one UCSF medical student in Medical Practice continuity clinic each week for one academic year.
- 2012 - present "Patient-Oriented Research Talks (PORTS)"; as Associate Director of the HSR&D Research Enhancement Award Program at the SFVAMC, I run PORTS twice monthly, in which I facilitate sessions on health services research and implementation science. PORTS is attended by UCSF and VA post-doctoral fellows as well as junior, mid-level and senior faculty members.
- 2013 - present Medical resident education- PTSD for Primary Care Providers-2 sessions each month
- 2013 - present Care of Iraq and Afghanistan Veterans in the Post-Deployment Period
- 2014 - present Optimizing Chronic Pain Management

MENTORING SUMMARY

I have devoted an increasing amount of time to mentoring over the past several years commensurate with the stage of my career and natural expansion of my research program. I have mentored pre-doctoral students, post-doctoral fellows and junior faculty primarily in the Departments of Medicine and Psychiatry at UCSF (see table), but more recently I have broadened my mentoring to include a junior faculty member in the Department of Urology at UCSF (Dr. Ben Breyer) and a post-doctoral psychologist at the University of Washington (Dr. Joel Grossbard). I have also very much enjoyed the UCSF VALOR mentoring program in that it allows me to combine weekly clinical teaching and career mentoring of medical students over a one-year period. I have mentored a total of 5 UCSF medical students through this program, all whom matched at their first choice residency program.

Most of my mentoring of post-doctoral fellows and junior faculty initially focused on shared scientific interests and studies with the goal of producing manuscripts. I take my role as senior author very seriously and devote long hours to assisting junior faculty and fellows produce manuscripts from start to finish that they can be proud of. Specifically, I provide assistance and guidance in the development of their analytic plans, and help them oversee statisticians whom I make available. I critically review results from the analyses and help them best present data in coherent tables and figures. I assist them in drafting the manuscript and make detailed edits usually over the course of several revisions. I assist them with appropriate selection of journals and work closely with them in the submission and revision process. This has been a highly synergistic process in that mentoring has increased my productivity, while allowing more junior investigators the opportunity to access our data and statistical resources. I also find that in the course of working closely with junior investigators on papers, issues of career and future funding (grants) come up and this naturally leads into career mentoring. Dr. Ben Breyer is a perfect example of this. I started by mentoring him in the development of two manuscript ideas and he recently asked me to be one of his K-award mentors, which I have agreed to do. In this capacity I have been mentoring him about a career in health services

research. Recently, Dr. Breyer was awarded the prestigious Hellman Award for junior faculty, which is a mentored award that will allow me to continue to assist him.

Similarly, I have mentored two junior faculty at UCSF, Dr. Beth Cohen, Assistant Professor in the Department of Medicine and Dr. Shira Maguen, Assoc. Professor in the Department of Psychiatry. We all share a strong interest in primary care mental health integration and physical and mental health consequences of PTSD. I have mentored them by contributing to several grant applications and to papers (as senior author) over the past several years and, as such, we have been able to greatly increase each other's research productivity. I have also been able to provide career mentoring for both Drs. Cohen and Maguen, and often our mentoring sessions occur as a small group, which is mutually supportive for all (including me). We have invited others into this mentoring group, including Drs. Shannon McCaslin and Sabra Inslicht, both in Psychiatry, which has further enriched our breadth and productivity.

One of my most significant mentoring relationships has been with Dr. Christopher Koenig who is a research sociologist. I originally hired Dr. Koenig out of his UCSF general internal medicine fellowship program to serve as a qualitative researcher on one of my projects. Since, he has been continuously employed with me for the past 4 years on several different grants, contributing qualitative methods expertise. We have published 3 papers together, on two of which I served as senior author. I have also helped him with career development at UCSF as I sponsored him to gain PI status at the SFVAMC and subsequently helped him transition to an Assistant Professor of Medicine based at the SFVAMC. He is now applying for an HSR&D VA Career Development Award and I am serving as his primary mentor, which means that I will continue to provide him with resources—space, and administrative and data analytic support for his developing research program.

PREDOCTORAL STUDENTS SUPERVISED OR MENTORED

| Dates | Name | Program or School | Mentor Type | Role | Current Position |
|----------------|----------------|-------------------------------|-------------|---|---|
| 1997 - 1999 | Kristen Ochoa | UCSF Project Director | | Supervisor and mentor | Psychiatry resident, UCLA Harbor Medical Center |
| 2006 - present | Kristian Gima | Statistician, SFVAMC | | Supervisor and mentor | Medical School |
| 2007 - present | Teresa Ko | UCSF-Valor Mentoring Program | | Supervised clinical experience and structured mentoring | Medical Student IV |
| 2008 - 2009 | Ariel Seurossi | UCSF | | Mentored research summer fellowship | Medical Student II |
| 2008 - 2009 | Katelyn Gamson | UCSF- Valor Mentoring Program | | Supervised clinical experience and structured mentoring | Medical Student III |

| Dates | Name | Program or School | Mentor Type | Role | Current Position |
|----------------|-----------------|-------------------------------|-------------|---|------------------------------|
| 2009 - 2010 | Olivia Arreola | UCSF- Valor Mentoring Program | | Supervised clinical experience and structured mentoring | Medical Student III |
| 2009 - 2011 | Greg Cohen | Columbia University | | Supervised data collection and manuscript preparation | Graduate Student |
| 2009 - 2011 | Emily Medina | Georgetown University | | Supervisor and mentor | Graduate Student |
| 2011 - 2012 | Kelli Copeland | UCSF- Valor mentoring Program | | Supervised clinical experience and structured mentoring | Medical Student |
| 2012 - 2013 | Katherine Hicks | UCSF-Valor mentoring Program | | Supervised clinical experience | Medical Student |
| 2011 - 2013 | Lindsay Mayott | Columbia University | | Supervisor and mentor | Graduate Student, Psychology |
| 2012 - present | Jose Monroy | Ohio State University | | Supervisor and mentor | Graduate Student, Psychology |

POSTDOCTORAL FELLOWS AND RESIDENTS MENTORED

| Dates | Name | Fellow | Mentor Role | Faculty Role | Current Position |
|----------------|--------------------|---------------------------|-------------|----------------------|--|
| 2005 - 2007 | Judith Tsui, MD | General Internal Medicine | | Research Supervision | Asst. Prof, Medicine, Boston University |
| 2007 - 2008 | Beth Cohen, MD | General Internal Medicine | | Research Supervision | Asst. Prof. of Medicine, UCSF/ SFVAMC |
| 2011 - present | Joel Grossbard | Post-Doctoral Fellow | | Research Supervision | Post-Doctoral Fellow, University of Washington |
| 2012 - present | Bibhav Acharya, MD | Resident, Psychiatry | | Research Supervision | Resident, Psychiatry |

| Dates | Name | Fellow | Mentor Role | Faculty Role | Current Position |
|----------------|-------------------------|--------------------------|-------------|----------------------------|--|
| 2010 - present | Christopher Koenig, PhD | Research Med Sociologist | | Career and Research Mentor | Assistant Research Med. Sociologist |
| 2012 - present | Adreienne Heinz, PhD | Post-Doctoral Fellow | | Research Mentor | VA Palo Alto and Stanford School of Medicine |
| 2014 - present | Kendall Browne, PhD | Post-Doctoral Fellow | | Research Mentor | VA Puget Sound |
| 2014 - present | Joseph Grasso, PhD | Post-Doctoral Fellow | | Research Mentor | SFVAMC |

FACULTY MENTORING

| Dates | Name | Position while Mentored | Mentor Type | Mentoring Role | Current Position |
|----------------|-------------------------|-------------------------------|-------------|--|---|
| 2005 - 2007 | Rena Fox, MD | Asst. Prof. | | Research Advisor | Associate Clinical Professor of Medicine |
| 2006 - present | Shira Maguen PhD | Asst. Clinical Prof. | | Academic and Research Collaborator/Advisor | Asst. Clinical Prof., Psychiatry, UCSF |
| 2007 - present | Shannon McCaslin, PhD | Program, SFVAMC | | Research Supervision/Collaborator | Asst. Adjunct Prof., Psychiatry, UCSF |
| 2008 - present | Beth Cohen, MD | Assistant Prof of Medicine | | Academic and Research Collaborator/Advisor | Asst. Professor of Medicine, In Residence, UCSF |
| 2010 - present | Christopher Koenig, PhD | Asst Research Med Sociologist | | Career and Research Mentor | Assistant Research Med. Sociologist |

| Dates | Name | Position while Mentored | Mentor Type | Mentoring Role | Current Position |
|----------------|---------------------|-------------------------|-------------|-----------------|----------------------------------|
| 2011 - present | Benjamin Breyer, MD | K-23 awardee | | Research Mentor | Assistant Prof. of Urology, UCSF |

RESEARCH AND CREATIVE ACTIVITIES SUMMARY

I received post-doctoral training at the UCSF Center for AIDS Prevention Studies where I focused my research interests on street-based injection drug users and had several first author publications in the areas of adherence to hepatitis B vaccination, overcoming barriers to hepatitis C treatment, and heroin overdose prevention. Through a two-year HSR&D VA Career Development Transition Award (2007-2009), I was able to transition my interest in substance use disorders and vulnerable populations to an investigation of the prevalence and predictors of mental health disorders in veterans returning from the wars in Iraq and Afghanistan. I published some of the very first papers describing the growing national epidemic of mental health and substance use disorders and lack of adequate mental healthcare utilization in Iraq and Afghanistan veterans enrolled in VA healthcare nationwide.

My current research program is organized into 4 main types of research study designs: large-scale secondary data analyses capitalizing on vast VA national data repositories, local-level cross-sectional and prospective observational studies, single-arm and double blind randomized controlled trials, and more recently implementation studies. We use both qualitative and quantitative methods, often as mixed methods within the same study. This diversity in study design and methodology allows us to answer a variety of compelling questions about this new generation of Iraq and Afghanistan veterans. Our secondary data analyses have addressed topics ranging from mental health disorder prevalence, comorbidity and mental health treatment utilization, drug and alcohol use disorder prevalence, cardiovascular disease risk factor prevalence, medical services utilization, and women's health issues, including reproductive health concerns, military sexual trauma and eating disorders. More recently, we learned to access and use VA pharmacy data and have examined the prevalence and adverse outcomes resulting from opioid prescriptions in veterans with pain and PTSD and have investigated the use of atypical anti-psychotic medications in these veterans with PTSD as well as subsequent metabolic consequences. Most recently, we are leveraging VA data to examine the potential of buprenorphine, used in the treatment of opioid use disorder, to decrease symptoms of PTSD (and pain) in veterans. Our plan is to use these secondary data to support a future NIH R21 submission to conduct the first pilot trial of buprenorphine to reduce PTSD symptoms in patients with comorbid PTSD, chronic pain and opioid use disorder.

Our mixed methods quantitative and qualitative observational studies have capitalized on the existence of the Integrated Care Clinic for Iraq and Afghanistan veterans at the SFVAMC that has essentially provided a "living laboratory" for several of our studies. Specifically, we have been able to compare the effectiveness integrated, co-located primary care-mental health versus usual primary care in terms of overcoming barriers to subsequent mental health service utilization among the returning veterans. In addition, we have assessed a new warm-hand-off technique that naturally emerged among the inter-disciplinary providers working in the one-stop integrated care clinic. Publication of these data positioned us as a national model of integrated care.

We and others have observed that one of the biggest problems for veterans attempting to reintegrate in the post-deployment period is mild cognitive dysfunction which is hypothesized to stem from mental health problems, either PTSD and/or depression, traumatic brain injury, or simply from deployment alone. In a large VA-funded study (IIR), we are evaluating self-reported cognitive dysfunction and objective cognitive impairment in veterans with and without traumatic brain injury and with and without PTSD (+/- other mental health comorbidities). In this study, we are also observing the relative outcomes and feasibility of using formal neuropsychological testing versus a brief computer-based neuropsychological testing program to rapidly triage these veterans presenting to primary care. In addition, we are completing a DOD-funded pilot trial of computer-based cognitive remediation games for veterans with PTSD and self-reported cognitive dysfunction to determine if we can achieve improvement in cognitive function and secondarily, PTSD-related symptoms. The results of this pilot study have been promising and recently Dr. Adrienne Heinz successfully used these pilot data in securing a new VA Career Development Award to apply the cognitive remediation games to a different population of veterans with PTSD and comorbid alcohol use disorders.

Finally, we completed a pilot randomized controlled trial of telephone-administered motivational interviewing to increase mental health treatment engagement in Iraq and Afghanistan veterans and achieved a strong effect. These data have been published (Seal et al., 2012) and have been leveraged to secure HSR&D VA funding (IIR) for a larger multi-site implementation/pragmatic effectiveness trial of telephone motivational interviewing to enhance both mental health treatment initiation and retention among all-era veterans living in rural communities using VA community clinics. Our original motivational interviewing data also provided preliminary data for our newly funded NIH R34 study to test the efficacy of telephone motivational coaching to decrease high-risk opioid use in veterans with chronic pain in VA primary care clinics. If successful, our plan is to use these data from the R34 study to support a future RO1-level multi-site trial.

Thus, my research portfolio is admittedly diverse, yet each of these projects has, in some way, informed one or more of the others. They also reflect my own inter-disciplinary affiliation both with Internal Medicine and Psychiatry, which I am not only bringing together in my own career, but also attempting to integrate as a health services strategy for this new and growing generation of veterans with complex and comorbid physical and mental health problems.

RESEARCH AWARDS - CURRENT

| | | |
|--|---------------------------|--------------------|
| 1. JW140067/ W81XWH-15-C-0088 PI | 10 % effort | Seal (PI) |
| Department of Defense | 9/2015 | 9/2019 |
| Improving Access to Care for Warfighters: Virtual Worlds Technology to Enhance Primary Care Training in Posttraumatic Stress and Motivational Interviewing | \$ 495,224 direct/yr 1 | \$ 1,258,553 total |
| 2. OPD-1511-33052 | Co-Principal Investigator | 35 % effort |
| Patient Centered Outcomes Research Institution | 11/2016 | Seal/Krebs (PI) |
| Comparative Effectiveness of Patient-Centered Strategies to Improve Pain Management and Opioid Safety for Veterans | \$ 1,899,628 direct/yr 1 | 11/2022 |
| | | \$ 9,942,340 total |

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|----|---|-----------------|------------------------|--------------------|
| 3. | 2015C2-150-31834 | Co-Investigator | 10 % effort | Cohen (PI) |
| | Patient Centered Outcomes Research Institute | | 8/2016 | 08/2019 |
| | Comparative Effectiveness of Patient-Centered Strategies to Improve Pain Management and Opioid Safety for Veterans | | \$ 315,351 direct/yr 1 | \$ 988,560 total |
| 4. | QUE 15-283 | PI | 5 % effort | Seal (PI) |
| | VA QUERI | | 10/2015 | 9/2017 |
| | Evaluating the Implementation of the Integrated Pain Team: A Quality Improvement Project to Inform Scale-Up and Dissemination to Rural CBOCs in VISN 21 | | \$ 263,404 direct/yr 1 | \$ 413,404 total |
| 5. | CRE 12-083 | PI | 5 % effort | Seal (PI) |
| | VA Health Services Research and Development | | 01/01/2014 | 12/31/2018 |
| | Motivational Coaching to Enhance Mental Health Engagement in Rural Veterans | | \$ 44,035 direct/yr 1 | \$ 1,099,855 total |
| 6. | 1R34AT00831901 | PI | 5 % effort | Seal (PI) |
| | NIH/NCCAM | | 12/01/2013 | 06/2017 |
| | Improving Opioid Safety in Veterans Using Collaborative Care and Decision Support | | | \$ 449,876 total |
| 7. | CRE-12-300 | Site PI | 5 % effort | Pyne (PI) |
| | Veterans Health Services Research and Development | | 01/01/14 | 12/31/2018 |
| | Development and Validation of a Perceived Access Measure | | \$ 44,035 direct/yr 1 | \$ 916,224 total |
| 8. | JW140056 | Co-Investigator | 5 % effort | Maguen (PI) |
| | Department of Defense | | 5/2015 | 4/2018 |
| | Does Evidence-Based PTS Treatment Reduce PTS Symptoms and Suicide in Iraq and Afghanistan Veterans Seeking VA Care? | | \$ 260,163 direct/yr 1 | \$ 780,490 total |
| 9. | W81XWH-12-PHTBI-CENC | Co-Investigator | 17 % effort | Yaffe (PI) |

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|---|------------------------|--------------------|
| Department of Defense Department of Veterans Affairs | 1/2015 | 12/2018 |
| Chronic Effects of Neurotrauma Consortium: Epidemiology Project | \$ 337,933 direct/yr 1 | \$ 1,351,734 total |

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10. Consultant
National Institutes of Drug Abuse R01
RO1-National Institutes of Drug Abuse (Consultant) Marijuana Use, Problems, and Cannabis Use Disorders in OIF/OEF/OND Veterans

RESEARCH AWARDS - PAST

1. Lindesmith Foundation 05/01/1995 04/01/2000
Heroin Overdose Prevention: Exploring the Feasibility of Take-Home Naloxone \$ 35,000 direct/yr 1
-
2. R01DA013245 Co-I
National Institutes of Drug Abuse 09/01/1999 08/01/2002
Access to Hepatitis C Treatment: Clinical and Histological Spectrum of HCV Liver Disease in Injection Drug Users \$ 750,000 total
-
3. RO1-DA011860 Co-I, yrs 1-2 and PI yrs 3-4
09/01/1999 08/01/2002
Hepatitis B Vaccine Adherence in Injection Drug Users: \$ 900,000
Hepatitis B Vaccine Adherence among Injection Drug Users: A total
Model for HIV Vaccine Delivery
-
4. San Francisco Department of Public Health 06/01/2001 05/01/2002
Pilot Overdose Management Program for Injection Drug Users and their Partners \$ 25,000 total
-
- 5.

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|--|--|---------------------------|---------------------|
| TIDES Foundation | | 05/01/2002 | 06/01/2003 |
| Evaluation of a Pilot Overdose Management Program for Injection Heroin Users | | \$ 48,1000 direct/yr 1 | |
| <hr/> | | | |
| 6. | VA Career Development Award PI | | |
| | Department of Veterans Affairs | 03/01/2004 | 03/01/2007 |
| | Overcoming Barriers to Hepatitis C Treatment among High-Risk Veterans | \$ 94,649 direct/yr 1 | \$ 516,400 total |
| <hr/> | | | |
| 7. | Individual Investigator Research PI Award | | |
| | Academic Senate | 12/01/2004 | 12/01/2005 |
| | University of California, San Francisco Barriers to Eligibility and Acceptance of Treatment for Hepatitis C | | \$ 35,000 total |
| <hr/> | | | |
| 8. | PI | | |
| | Hellman Family Foundation Award | 12/01/2004 | 12/01/2005 |
| | Investigating Barriers to Hepatitis C Treatment among Substance Users | | \$ 50,000 total |
| <hr/> | | | |
| 9. | Epidemiology Research and PI Information Center | | |
| | Department of Veterans Affairs | 03/01/2006 | 10/01/2007 |
| | PTSD, Depression and Substance Use Disorders among over 150,000 Veterans of Operation Enduring Freedom and Operation Iraqi Freedom | \$ 25,000 direct/yr 1 | |
| <hr/> | | | |
| 10. | W81XWH-05-2-0094 PI | | |
| | Department of Defense | 09/01/2006 | 08/01/2008 |
| | The Neuropsychiatric Consequences of War among Veterans Returning from Combat in Iraq and Afghanistan | \$ 143,000 direct/yr 1 | \$ 286,000 total |
| <hr/> | | | |
| 11. | VA Career Development PI Transition Award | | |

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|---|-----------------|------------------------|------------------|
| Department of Veterans Affairs | | 02/01/2007 | 02/28/2009 |
| Posttraumatic Stress Disorder: Facilitating Mental Health Treatment for OEF/OIF Veterans | | \$ 195,200 direct/yr 1 | \$ 390,400 total |
| <hr/> | | | |
| 12. MN078889-01 | PI | | |
| VA CSR&D MERIT | | 07/01/2007 | 10/01/2010 |
| Motivational Interviewing to Engage OEF/OIF Veterans in Mental Health Treatment | | \$ 150,000 direct/yr 1 | \$ 450,000 total |
| <hr/> | | | |
| 13. PT-073238 | PI | | |
| Congressionally Directed Medical Research Program (CDMRP) | | 09/01/2008 | 12/01/2010 |
| Integrating Mental Health and Primary Care Services for OEF/OIF Combat Veterans with PTSD and Co-Morbid Disorders: Assessing the Evidence | | \$ 100,000 direct/yr 1 | \$ 150,000 total |
| <hr/> | | | |
| 14. PT-075369 | PI | | |
| Congressionally Directed Medical Research Program (CDMRP) | | 09/01/2008 | 08/01/2011 |
| Does Integrating Primary Care and Mental Health Services Improve Mental Health Services Utilization, Symptoms and Functioning among OEF/OIF Veterans? | | \$ 100,000 direct/yr 1 | \$ 300,000 total |
| <hr/> | | | |
| 15. PT-O73505 | Co-Investigator | | |
| Congressionally Directed Medical Research Program (CDMRP) | | 09/01/2008 | 12/01/2010 |
| The Prevalence and Incidence of PTSD in OEF/OIF Women Combat Veterans | | \$ 100,000 direct/yr 1 | \$ 150,000 total |
| <hr/> | | | |
| 16. Project Number 1432 | PI | | |
| Blue Shield of California Foundation | | 09/01/2009 | 08/01/2011 |
| Intimate Partner Violence in Iraq and Afghanistan Veterans: Assessing Prevalence and Interventions for Early Identification and Enhancement of Treatment Engagement | | \$ 67,500 direct/yr 1 | \$ 225,000 total |

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|---|-----------------|--------------------------|------------------|
| 17. W81XWH-05-2-0094 | Co-Investigator | | |
| NCIRE/DoD Neuroscience Center of Excellence | | 09/01/2008 | 07/01/2012 |
| Disentangling the Relationship between Traumatic Brain Injury, PTSD, and Other Mental Health Disorders. | | \$ 150,000 direct/yr 1 | \$ 300,000 total |
| 18. DPA 525018, Fund 38198 | PI | | |
| REAC Award | | 01/01/2013 | 12/01/2013 |
| Implementing and Evaluating a Training for Providers to Improve Safety in Opioid Prescribing for Chronic Pain Patients in Primary Care | | | \$ 30,000 total |
| 19. RRP-11-434 | PI | | |
| Department of Veterans Affairs/HSR&D QUERI | | 10/1/2012 | 9/1/2013 |
| A video educational intervention to improve outcomes of VA TBI screening | | \$ 100,000 direct/yr 1 | \$ 100,000 total |
| 20. W81XWH-09-1-0170 | PI | | |
| Department of Defense | | 02/01/2009 | 03/01/2013 |
| Online PTSD Diagnosis and Treatment Training for Primary Care Physicians | | \$ 100,000 direct/yr 1 | \$ 200,000 total |
| 21. W81XWH-10-2-0078 | PI | | |
| Department of Defense/ NCIRE | | 11/01/2011 | 09/01/2014 |
| Enhancing Cognitive Function and Reintegration in Iraq and Afghanistan Veterans with PTSD: Investigating the Efficacy of Neuroplasticity-Based Cognitive Training | | \$ 125,000 direct/yr 1 | \$ 250,000 total |
| 22. | Site PI | | |
| VA Center of Excellence | | 10/01/2012 | 09/01/2014 |
| Promoting Patient Safety through Improved Tools for Opioid Prescribing | | \$ 271,169.5 direct/yr 1 | \$ 542,339 total |
| 23. W81XWH-11-2-0145 | Co-Investigator | | |
| DoD/Gallo Clinic & Research Center at UCSF | | 7/1/2012 | 6/30/2014 |

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|---|---------------------------|---------------------|
| Topiramate Treatment of Hazardous and Harmful Alcohol Use in Veterans with TBI | \$ 201,929 direct/yr 1 | \$ 403,859 total |
|---|---------------------------|---------------------|

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|--|----|---------------------------|---------------------|
| 24. SDR-08-408 | PI | | |
| VA Health Services Research and Development Merit Award | | 10/01/2010 | 03/01/2015 |
| Neuropsychological Screening of OEF/OIF Veterans in VA Primary Care | | \$ 231,000 direct/yr 1 | \$ 925,000 total |

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|---|-----------------|---------------------------|---------------------|
| 25. 1R34DK102152-01 | Co-Investigator | 10 % effort | Peralta (PI) |
| NIH / NIDDK | | 8/1/2014 | 7/31/2016 |
| Lowering Blood Pressure Among Hypertensives with Screen- Detected Kidney Disease | | \$ 225,000 direct/yr 1 | \$ 675,000 total |

PEER REVIEWED PUBLICATIONS

1. Seal KH and Mutha S. Enhancing faculty mentoring of medical students. Teaching and Learning in Medicine. 8(3):174-178, 1996.
2. Seal KH, Kral AH, Gee L, Moore LD, Bluthenthal RN, Lorvick J, Edlin BR. Predictors and prevention of non-fatal overdose among street-recruited injection heroin users in the San Francisco Bay Area, 1998-1999. American Journal of Public Health. 91(11):1842-1846,2001. PMID: 11684613.
3. Seal KH, Ochoa KC, Hahn JA, Tulskey JP, Edlin BR, Moss AR. Risk of hepatitis B infection among young injection drug users in San Francisco: opportunities for intervention. West J Med. 2000 Jan; 172(1):16-20. PMID: 10695436.
4. Lorvick J, Kral AH, Seal K, Gee L, Edlin BR. Prevalence and duration of hepatitis C among injection drug users in San Francisco, Calif. Am J Public Health. 2001 Jan; 91(1):46-7. PMID: 11189823.
5. Ochoa KC, Hahn JA, Seal KH, Moss AR. Overdosing among young injection drug users in San Francisco. Addict Behav. 2001 May-Jun; 26(3):453-60. PMID: 11436937
6. Edlin BR, Seal KH, Lorvick J, Kral AH, Ciccarone DH, Moore LD, Lo B. Is it justifiable to withhold treatment for hepatitis C from illicit-drug users? N Engl J Med. 2001 Jul 19; 345(3):211-5. PMID: 11463019.
7. Seal KH, Kral AH, Gee L, Moore LD, Bluthenthal RN, Lorvick J, Edlin BR. Predictors and prevention of nonfatal overdose among street-recruited injection heroin users in the San Francisco Bay Area, 1998-1999. Am J Public Health. 2001 Nov; 91(11):1842-6. PMID: 11684613.
8. Bluthenthal RN, Kral AH, Gee L, Lorvick J, Moore L, Seal K, Edlin BR. Trends in HIV seroprevalence and risk among gay and bisexual men who inject drugs in San Francisco, 1988 to 2000. J Acquir Immune Defic Syndr. 2001 Nov 1; 28(3):264-9. PMID: 11694834

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11. Pfeiffer RM, Tanaka Y, Yeo AE, Umemura T, Seal KH, Shih JW, Alter HJ, Edlin BR, O'Brien TR. Prevalence of SEN viruses among injection drug users in the San Francisco Bay area. *J Infect Dis*. 2003 Jul 1; 188(1):13-8. PMID: 12825166
12. Seal KH, Kral AH, Lorvick J, McNees A, Gee L, Edlin BR. A randomized controlled trial of monetary incentives vs. outreach to enhance adherence to the hepatitis B vaccine series among injection drug users. *Drug Alcohol Depend*. 2003 Aug 20; 71(2):127-31. PMID: 12927650
13. Seal KH, Thawley R, Gee L, Bamberger J, Kral AH, Ciccarone D, Downing M, Edlin BR. Naloxone distribution and cardiopulmonary resuscitation training for injection drug users to prevent heroin overdose death: a pilot intervention study. *J Urban Health*. 2005 Jun; 82(2):303-11. PMID: 15872192.
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15. Seal KH, Currie SL, Shen H, Anand BS, Bini EJ, Brau N, Jeffers L, Wright TL. Hepatitis C treatment candidacy and outcomes among 4318 US veterans with chronic hepatitis C virus infection: does a history of injection drug use matter? *J Clin Gastroenterol*. 2007 Feb; 41(2):199-205. PMID: 17245220
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17. Seal KH, Monto A, Dove L, Shen H, Vittinghoff E, Tracy D, Miller E, Lau E, Wright TL. The association of human immunodeficiency virus infection with spontaneously resolved hepatitis C virus infection and level of viremia among injection drug users. *Dig Dis Sci*. 2007 Dec; 52(12):3423-30. PMID: 17443407
18. Seal KH, Bertenthal D, Maguen S, Gima K, Chu A, Marmar CR. Getting beyond "Don't ask; don't tell": an evaluation of US Veterans Administration postdeployment mental health screening of veterans returning from Iraq and Afghanistan *Am J Public Health*. 2008 Apr;98(4):714-20. PMID: 18309130.
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69. Seal KH, Maguen S, Bertenthal D, Batki SL, Striebel J, Stein MB, Madden E, Neylan TC; Observational Evidence for Buprenorphine's Impact on Posttraumatic Stress Symptoms in Veterans With Chronic Pain and Opioid Use Disorder. *J Clin Psychiatry*. 2016 Sep;77(9):1182-1188. PMID: 27035058
70. Metrik, J, Jackson, K, Bassett, SS, Zvolensky, MJ, Seal, KH, Borsari, B. The Mediating Roles of Coping, Sleep, and Anxiety Motives in Cannabis Use and Problems Among Returning Veterans With PTSD and MDD. *Psychology of Addictive Behaviors*, Oct 27 , 2016

NON-PEER REVIEWED PUBLICATIONS

1. **Seal KH**, McCaslin SE, Marmar CR. "Depression in Veterans Returning from Iraq and Afghanistan," HSR&D Forum, VA Health Services Research & Development Service, p.5, May, 2007.

BOOKS AND CHAPTERS

1. **Seal KH**, Maguen S, Cohen B. Book Chapter: "Mental Health Problems and Treatment Utilization of Iraq and Afghanistan Veterans Enrolled in Department of Veterans Affairs Healthcare" in Future Directions in Post-Traumatic Stress Disorder: Prevention, Diagnosis and Treatment, editors Helene Wallach, PhD and Albert Rizzo, PhD; Springer Science + Business Media, New York, New York, 2015./>

SIGNIFICANT PUBLICATIONS

1. **Seal, KH**, Bertenthal D, Miner CR, Sen S, Marmar C. Bringing the War Back Home: Mental Health Disorders among 103,788 US Veterans Returning from Iraq and Afghanistan Seen at VA Facilities, Arch Intern Med.167 (5):476-82, 2007.

This was the first paper to investigate mental health disorder prevalence among returning Iraq and Afghanistan combat veterans using VA healthcare nationwide. Under my direction, VA programmers abstracted and linked VA national datasets to obtain diagnostic and health services data on over 100,000 OEF/OIF veterans who had used VA healthcare. We found that nearly one-quarter had received mental health diagnoses and that nearly one-third had mental health diagnoses, psychosocial behavioral concerns, or both. The majority of mental health problems were comorbid and the youngest veterans, ages 17-24 years, were at highest risk for posttraumatic stress disorder (PTSD).

2. **Seal KH**, Metzler TJ, Gima K, Bertenthal D, Maguen S, Marmar CR. Growing burden of mental disorders among Iraq and Afghanistan veterans: Trends and risk factors for mental health diagnoses in new users of VA healthcare, 2002-2008. Am J Public Health. 2009 Sep; 99(9):1651-8.

This paper was significant in that it presented a comprehensive description of temporal trends in new mental diagnoses among over 200,000 Iraq and Afghanistan veterans using VA healthcare from 4/1/2002 through March 31, 2008. We documented an increasing period prevalence of all mental health disorders, in particular, a sharp acceleration in PTSD rates. The adjusted 2-year prevalence rates of PTSD increased 4 to 7 times after the invasion of Iraq. We also found that female veterans were at higher risk for depression than men, whereas men were over twice the risk for drug use disorders. In sum, mental health diagnoses increased substantially after the start of the Iraq War in specific subgroups of returned veterans entering VA healthcare. These data coupled with data from the manuscript by Cohen et. al. and findings from a subsequent manuscript (Seal et al.) show that among Iraq and Afghanistan veterans: (1) mental health problems are increasing, (2) VA medical services utilization among veterans with mental health disorders, particularly PTSD, are increasing, and (3) VA mental health treatment engagement among the majority of veterans with PTSD is inadequate. These data support our efforts locally at the SFVAMC and at VA nation-wide to integrate primary care with mental health services since primary care represents a low-threshold entry point for mental health treatment among returning combat veterans.

3. **Seal KH**, Maguen S, Cohen B, Gima K, Metzler TJ, Ren L, Bertenthal D, Marmar CR. VA mental health services utilization in Iraq and Afghanistan veterans in the first year of receiving new mental health diagnoses. *J Trauma Stress*. 2010 Feb; 23(1): 5-16.

This paper represented the first study to investigate mental health services utilization in Iraq and Afghanistan veteran in VA healthcare. Whereas over 20 percent of returning combat veterans received a new PTSD diagnosis, less than 10 percent of those with new PTSD diagnoses had nine or more mental health treatment sessions within 15 weeks in the first year of diagnosis. Those are the recommended guidelines for evidence-based PTSD counseling treatments. Certain subgroups of Iraq and Afghanistan veterans who received new PTSD diagnoses were at significantly higher risk of failing to get adequate PTSD treatment. These were male veterans, both men and women veterans less than 25 years, and rural veterans. In summary, while VA is doing an exemplary job of rolling out evidence-based PTSD treatments nationwide, one problem that this research highlights is that only a minority of veterans is actually receiving state-of-the-art PTSD treatment through VA. While the study is limited in that it is not able to capture PTSD treatment that veterans may be receiving outside VA, the findings point to the need for VA and other healthcare systems to develop new and innovative ways to better deliver these effective mental health treatments.

4. **Seal KH**, Shi, Y, Cohen G, Cohen, BE, Maguen S, Krebs, EE, Neylan, TC. Association of mental health disorders with prescription opioids and high-risk opioid use in veterans of Iraq and Afghanistan, 2012 *JAMA*, Mar 7;307(9):940-7.

This study was the first to investigate the impact of mental health disorders, particularly PTSD, on risks and adverse clinical outcomes associated with prescription opioid use for pain conditions in Iraq and Afghanistan veterans using VA healthcare. Overall, of the 141,029 veterans with pain diagnoses, 15,676 (11%) received prescription opioids; 77% of which were prescribed by primary care providers. Veterans with PTSD and mental health diagnoses other than PTSD were significantly more likely to receive opioids for pain compared to veterans without mental health diagnoses (18% and 12%, respectively vs. 7%). Iraq and Afghanistan veterans with PTSD compared to those without mental health disorders prescribed opioids were significantly more likely to receive higher-dose opioids, receive two or more opioids concurrently, receive sedative hypnotics (typically benzodiazepines) concurrently, and obtain early opioid refills. Receiving prescription opioids (versus not) more than doubled the risk for serious adverse clinical outcomes (e.g., opioid-related accidents and overdose, suicide attempts, and violent injuries) for all veterans (9.5% versus 4.1%), which was most pronounced in veterans with PTSD. We concluded that extra care should be taken when prescribing opioids to Iraq and Afghanistan veterans for pain and that they may benefit from biopsychosocial models of pain care, including evidence-based non-pharmacologic therapies and non-opioid analgesics.

5. **Seal KH**, Abadjian L, McCamish N, Shi Y, Tarasovsky T, Weingardt K (**In Press**). A randomized controlled trial of telephone motivational interviewing to enhance mental health treatment engagement in Iraq and Afghanistan veterans. General Hospital Psychiatry.

This paper describes the results of our randomized controlled trial of telephone motivational interviewing (MI). This paper is important because to our knowledge it is the first to demonstrate an efficacious mental health treatment engagement intervention in Iraq and Afghanistan veterans, a population with well-described barriers to accessing mental health care. In this study, 73 Iraq and Afghanistan veterans who screened positive for ≥ 1 mental health problem(s), but were not engaged in treatment, were randomized to mental health referral and either 4 sessions of telephone MI or 4 neutral attention-control telephone sessions at baseline, 2, 4, and 8 weeks. Blinded assessment occurred at 8 and 16 weeks. In intent-to-treat analyses, 62% assigned to telephone MI initiated mental health treatment compared to 26% of Controls [Relative Risk (RR) =2.41, 95% Confidence Interval (CI) =1.33- 4.37, $p= 0.004$], which represented a large effect size (Cohen's $h=0.74$). We also observed significant reductions in stigma about MH treatment and in marijuana use at 8 weeks (both p -values<0.05). Of note, While this MI trial was not focused on mental health treatment retention, the MI group also demonstrated significantly greater retention in mental health treatment than Controls (Incidence Rate Ratio (IRR) =4.36, 95% CI=1.96-9.68), signaling that telephone MI can be used to enhance mental health treatment retention in Iraq and Afghanistan veterans.

CONFERENCE ABSTRACTS

1. Zamora, K., Koenig, C. Abraham, T., Hill, C., Pyne, J. **Seal, KH**. "The Diversity of Veteran Engagement in Mental Health Care." Presentation for Annual Society for Applied Anthropology Meeting. Vancouver, B.C. Canada.
2. Zamora, K., Koenig, C., Abraham, T., Hill, C., Pyne, J., & **Seal, KH**. (2016, September). A Qualitative Study of the Diversity of Veteran Engagement in Mental Health Care. State of The Art VA Rural Health Summit. Washington, D.C.
3. Zamora, K., Koenig, C., Cheney, A., Miller, C., Wright, P., Stanley, R., **Seal, KH**, Pyne, J. (2016, November). The Impact of Stigma on Accessing VA Mental Health Services. American Anthropological Association annual meeting. Minneapolis, MN.
4. Koenig C, Maguen S, Monroy J, Mayott L, **Seal, KH**. "Facilitating Culture-Centered Communication between and Health Care Providers and Veterans Transitioning from Military Deployment to Civilian Life" Society for the Study of Social Problems, Annual Meeting, San Francisco, CA, August 15-17, 2014.
5. **Seal KH**, Samuelson K, Abadjian L, Tarasovsky G, Bertenthal, D, Vasterling, J. "Perceived Cognitive Deficits in Iraq and Afghanistan Veterans: Lack of Correlation with Objective Neurocognitive Performance, but Strong Association with PTSD, and Poor Work and School Functioning" Symposium for International Society for Trauma Stress Studies, 30th Annual Meeting, Miami, FL, November 6-8, 2014.
6. **Seal KH**, Maguen, S, Bertenthal, B, Neylan, TC. "Posttraumatic Stress Disorder, Chronic Pain and Opioid Use Disorder- Can Buprenorphine Be Used to Treat All Three?" International Society for Trauma Stress Studies, 30th Annual Meeting, Miami, FL, November 6-8, 2014.

7. Breyer B, Cohen B, Maguen S, Neylan TC, Rosen R, Bertenthal D, **Seal KH**. "Posttraumatic stress disorder and sexual dysfunction in male Iraq and Afghanistan veterans." Symposium for the International Society for Trauma Stress Studies, 30th Annual Meeting, Miami, FL, November 6-8, 2014.
8. Koenig C, Maguen S, Monroy J, **Seal KH**. "Compassion fatigue, professional burnout and self-care among multidisciplinary providers working in outpatient primary care settings" Society of General Internal Medicine, 36th Annual Meeting, April 24-27, 2013
9. **Seal KH**; Samuelson K; McCamish N; Koenig CR; Bertenthal D. "Web-Based PTSD Training for Primary Care Providers- Outcomes and Lessons learned" Symposium for International Society for Trauma Stress Studies, 29th Annual Meeting, Philadelphia, PA, November 7-9, 2013.
10. **Seal KH**. "PTSD in Combat Veterans: Exploring the Association with Chronic Pain and Prescription Opioid Use" American Psychological Association, Annual Meeting, Honolulu, HI, July 31- Aug 4, 2013.
11. **Seal KH**; Samuelson K; McCamish N; Koenig CR; Bertenthal D; Tarasovsky G; Choucroun G. "Outcomes of a New Web-Based PTSD Training for Primary Care Providers" Society of General Internal Medicine 36th Annual Meeting, Denver, CO, April 24-27, 2013.
12. **Seal KH**, Bertenthal D, Maguen S, Samuelson K, Filanosky C, Vasterling J. "Are Memory Problems" Endorsed on the VA TBI Screen More Strongly Associated with TBI or Mental Health Problems in OEF/OIF/OND Veterans?" Abstract accepted to VA Health Services Research and Development Service (HSR&D) and Quality Enhancement Research Initiative National Conference, July 16-19, 2012, National Harbor, MD.
13. **Seal KH**, Bertenthal D, Maguen S, Samuelson K, Filanosky C, Vasterling J. "Cognitive Impairment in Iraq and Afghanistan Veterans- More Strongly Associated with TBI or Mental Health Problems?" Symposium for International Society for Trauma Stress Studies, 28th Annual Meeting, Los Angeles, CA, November 3-5, 2012.
14. **Seal KH**. "Strategies to Improve the Assessment and Management of Trauma, PTSD and Comorbid Conditions in Primary Care" Symposium for International Society for Trauma Stress Studies, 27th Annual Meeting, Baltimore, MD, November 3-5, 2011.
15. **Seal, KH**, Cohen G, Cohen, BE, Maguen, S, Bertenthal, B. "Increasing Access to Mental Health Care for Iraq and Afghanistan Veterans: Outcomes of Embedding PTSD Psychologists in Primary Care" International Society for Trauma Stress
16. Koenig CJ, Cohen G, Daley A, Maguen S, **Seal KH**. "Clinicians' perspectives on integrating mental health within primary care: A qualitative study. International Society for Trauma Stress Studies, 27th Annual Meeting, Baltimore, MD, November 3-5, 2011.
17. Samuelson K; Choucroun G; Medina E, **Seal, KH**. "Online PTSD Training for Primary Care Providers (PCPs): Can PCPs Learn to Improve Detection, Management and Referral for PTSD?" International Society for Trauma Stress Studies, 27th Annual Meeting, Baltimore, MD, November 3-5, 2011.

18. **Seal, KH**, Shi, Y, Cohen, G, Cohen, BE, Maguen, S, Krebs, E, Neylan, T. "Association of Mental Health Disorders with Prescription Opioids and High-Risk Opioid Use in Veterans of Iraq and Afghanistan" International Society for Trauma Stress Studies, 27th Annual Meeting, Baltimore, MD, November 3-5, 2011.
19. **Seal KH**, Cohen G, Bertenthal D, Cohen B, Maguen SDaley A. "Integrating Primary Care and Mental Health for OEF/OIF/OND Veterans: Outcomes and Future Directions" Oral presentation at the Society of General Internal Medicine 34th Annual Meeting, Phoenix, AZ, May 4-7, 2011.
20. **Seal KH**, Cohen G, Bertenthal D, Cohen B, Maguen S. "Does Integrating Mental Health Services in VA Primary Care Reduce Barriers to Mental Health Care for OEF/OIF Veterans?" Oral presentation at Teaming Up for High Value Care, VA HSR&D 28th National Meeting, National Harbor, MD, February 16-18, 2011.
21. **Seal KH**, McCamish N, Abadjian L, Tarasovsky G, Daley A, Ren L. "A Randomized Controlled Trial of Motivational Interviewing to Improve Mental Health Treatment Engagement and Outcomes in OEF/OIF Veterans." Poster presentation at Teaming Up for High Value Care, VA HSR&D 28th National Meeting, National Harbor, MD, February 16-18, 2011.
22. Seal KH. "Detecting and Managing Posttraumatic Stress Disorder (PTSD) Symptoms in Primary Care" and "Integrated Primary Care: Models of Mental Health Treatment of Returning Combat Veterans in Primary Care" Part of workshop at the Society of General Internal Medicine 33rd Annual Meeting, Minneapolis, MN, April 28- May 1, 2010.
23. Seal KH, McCaslin SE, McCamish N, Ren L, Abadjian L, Daley AT. Can Motivational Interviewing Engage Mental health Treatment Engagement in Iraq and Afghanistan Veterans?" Oral presentation at the Society of General Internal Medicine 33rd Annual Meeting, Minneapolis, MN, April 28- May 1, 2010.
24. Seal, KH; Cohen, G; Shah, R; Maguen, S; Lawhon, D. "Integrated Co-Located Primary Care and Mental Health Services for Iraq and Afghanistan Veterans" Part of a symposium at International Society for Trauma Stress Studies, 25th Annual Meeting, Atlanta, GA, November 5-7, 2009.
25. McCaslin SE, Maguen S, Cohen B, Metzler T, Seal KH. "Impact of Treatment Engagement on PTSD Symptoms and Functional Impairment" Part of symposium at International Society for Trauma Stress Studies, 25th Annual Meeting, Atlanta, GA, November 5-7, 2009.
26. Seal KH, Cohen BE, Ren L, Tarasovsky G, Burt M, Abadjian L, Redden N. "High-Risk Alcohol Use and Substance Misuse Among Iraq and Afghanistan Veterans: High Prevalence and Associated Mental Disorders." Poster presentation at Society for General Internal Medicine 31th Annual Meeting, Miami, Florida, May 13-16, 2009.
27. Seal KH, Maguen S, Cohen BE, Gima K, Metzler TJ, Ren L, Marmar CR. "VA Mental Health Services Utilization in Iraq and Afghanistan Veterans in the First Year of Receiving New Mental Health Diagnoses." Poster presentation at the VA HSR&D National Conference, February 12-13, 2009, Baltimore, MD.

28. Seal KH, Metzler TJ, Gima K, Bertenthal D, Maguen S, Marmar CR. The Prevalence and Incidence of Mental Health Disorders Following the US Invasion of Afghanistan and Iraq in over 200,000 New Veterans Utilizing VA Healthcare, 2002-2007. Oral presentation at the VA HSR&D National Conference, February 15, 2008, Baltimore, MD.
29. Seal KH, Bertenthal D, Chu A, Gima K, Marmar, C. VA Post-Deployment Screening for Mental Health Disorders among Veterans Returning from Iraq and Afghanistan- Are We Doing a Good Job? Oral presentation at Society for General Internal Medicine 30th Annual Meeting, Toronto, Canada, April 25-28, 2007.
30. Seal KH, Bertenthal D, Chu A, Gima K, Marmar, C. OEF/OIF Veterans with PTSD are High Utilizers of Non-Mental Health VA Services. Poster presentation at VA HSR&D National Conference, February 23, 2007, Arlington, VA.
31. Seal KH, Bertenthal D, Miner CR, Sen S, Marmar C. Mental Health Disorders among 133,984 Veterans of Operations Iraqi Freedom and Enduring Freedom. Plenary Talk at the Society for General Internal Medicine Conference, April, 2006, Los Angeles, California.
32. Seal KH, Miner CR, Chu A, Bertenthal D. VA Post-Deployment Screening and Treatment Referral of OEF/OIF Veterans: How Well Are We Doing? Oral presentation at VA HSR&D National Conference, 2006, Arlington, VA.
33. Seal KH, Kral AH, Lorvick J, Gee L, Tsui JI, Edlin BR. Among IDUs, interest is high, but access low to HCV anti-viral therapy. Poster presented at 28th Annual Meeting, Society for General Internal Medicine, May 2005, New Orleans, LA.
34. Seal KH, Currie SL, Shen Hui, Anand B, Jeffers L, Wright TL. Impact of injection drug use on hepatitis C treatment candidacy and outcomes among U.S. veterans. Oral presentation for the National VA HSR&D Annual Conference, February 2005, Baltimore, MD
35. Seal KH, Monto A, Dove L, Vittinghoff E, Shen H, Tracy D, Miller E, Wright TL. Determinants of hepatitis C viral RNA levels among a cohort of injection drug users with and without human immunodeficiency virus coinfection. Poster presented at the American Association for the Study of Liver Diseases Annual Meeting. October 2004, Boston. Hepatology, Vol.40 (4), Suppl. 1, 2004.
36. Seal KH, Monto A, Dove L, Vittinghoff E, Shen H, Tracy D, Miller E, Wright TL. Factors associated with spontaneous resolution of hepatitis C viremia among injection drug users with and without human immunodeficiency virus coinfection. Poster presented at the American Association for the Study of Liver Diseases Annual Meeting, October 2004, Boston. Hepatology, Vol.40(4), Suppl. 1, 2004.

OTHER CREATIVE ACTIVITIES

1. 2000 Developed pre- and post-test counseling guideline for hepatitis C testing. Guidelines were adapted by the San Francisco Department of Public Health and the city of Richmond.
2. 2007 Developed pre-test counseling for the VA Traumatic Brain Injury Screen which has been used in screening over 1,000 veterans of Iraq and Afghanistan to date at the SFVAMC and affiliated community-based clinics.
3. 2008 Developed a clinical template for the initial post-deployment evaluation of veterans of Iraq and Afghanistan which is used at the SFVAMC and has been disseminated VA facilities nationwide.

4. 2008 Developed suicide prevention protocol for Northern California veterans in collaboration with others
5. 2010 Developed Motivational Interviewing manual for mental health treatment engagement.
6. 2013 Contributed to the development of a Boston University-accredited CME course called **Scope of Pain** <http://www.opioidprescribing.com/overview> for providers working with veterans and military service personnel in how to safely and competently initiate, modify, continue or discontinue opioids when managing patients with severe chronic pain.

ADDITIONAL RELEVANT INFORMATION

MAJOR MEDIA COVERAGE

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|------------------|---|
| 3/12/07 | CNN-televised "Thousands of Veterans Return with Mental Illness" |
| 3/12/07 | Time Magazine (on-line), "Casualty of War: Mental Health" |
| 3/13/07 | NBC Nightly News, "Tracking Posttraumatic Stress in Veterans Difficult" |
| 9/21/07 | Press Democrat, "Veterans Affairs Clinic Looking for Troubled Soldiers" |
| 1/2/08 | National Public Radio, "Overdose Rescue Kits Save Lives" |
| 3/3/08 | National Public Radio, "The California Report" "Veterans Mental Health" |
| 3/16/08 | San Francisco Chronicle, Sunday Edition. "Impact of the Iraq War" |
| 7/16/09 | New York Times, "Vets mental health Diagnoses Rising" http://www.nytimes.com/2009/07/17/health/views/17vets.html?_r=1 |
| 7/16/09 Jumps | Los Angeles Times, "Percentage of Veterans with Mental health Diagnoses Dramatically" http://latimesblogs.latimes.com/booster_shots/2009/07/veterans-mental-health-veterans-affairs-study-.html |
| 7/17/09 | Bloomberg News: http://www.bloomberg.com/apps/news?pid=20601103&sid=apW.hI0hK3Kk Forbes: http://www.forbes.com/feeds/hscout/2009/07/16/hscout629099.html Kaiser Health News: http://www.kaiserhealthnews.org/Daily-Reports/2009/July/17/Veterans.aspx Yahoo! News: http://news.yahoo.com/s/hsn/20090717/hl_hsn/manyveteransneedmentalhealthcare Salon/AP: http://www.salon.com/wires/ap/2009/07/16/D99FPBA00_us_army_suicide/ |

The Oregonian:

http://www.oregonlive.com/news/index.ssf/2009/07/striking_jump_in_mental_illnes.html

New Jersey Star-Ledger:

http://www.nj.com/news/index.ssf/2009/07/study_says_13_of_iraq_afghanis.html

- 11/6/09 New York Times, "Stress Beyond Belief"
http://www.nytimes.com/2009/11/07/opinion/07herbert.html?_r=1&scp=1&sq=karen%20seal&st=cse
- 02/16/10 BusinessWeek, "PTSD Treatment Still Lacking for Veterans"
<http://www.businessweek.com/lifestyle/content/healthday/635984.html>
- 02/17/10 Veterans Today, "Top 10 Veterans News from Around the Country"
<http://www.veteranstoday.com/2010/02/17/top-10-veterans-news-from-around-the-country-8/>
- 02/22/10 AOL News, "Army Faces Surge of Soldiers Hitting the Bottle"
<http://www.aolnews.com/nation/article/army-faces-surge-of-soldiers-hitting-the-bottle/19367836>
- 03/19/10 Medscape Medical News, "Vast Majority of Veterans with PTSD Do Not
Receive
Sufficient Treatment" <http://www.medscape.com>
- 05/31/10 San Francisco Chronicle, "S.F. Clinic Treats War Stress in New Way"
http://articles.sfgate.com/2010-05-31/entertainment/21651532_1_ptsd-dr-karen-seal-primary-care
- 02/21/11 Psychiatric News, "VA's Integrated-Care Model Puts MH Screening in Primary
Care"
<http://pn.psychiatryonline.org/content/46/2/6.2.full>
- 3/6/2012 Time Magazine (online), "The Conundrum of Risky Painkillers for Veterans with
PTSD"
<http://healthland.time.com/2012/03/08/the-conundrum-of-risky-painkillers-for-veterans-with-ptsd/>
- New York Times, "For Veterans with Post-Traumatic Stress, Pain Killers Carry Risks"
<http://atwar.blogs.nytimes.com/2012/03/07/for-veterans-with-post-traumatic-stress-pain-killers-carry-risks/?ref=jamesdao>
- CBS News, "Veterans with PTSD Are More Likely to Get Addictive Pain Med Prescriptions"
http://www.cbsnews.com/8301-504763_162-57391894-10391704/study-veterans-with-ptsd-are-more-likely-to-get-addictive-pain-med-prescriptions/

Fox News, <http://www.foxnews.com/health/2012/03/07/vets-prone-to-drug-addiction-get-risky-painkillers/?test=painmgt>

San Francisco Chronicle, <http://www.sfgate.com/cgi-bin/article.cgi?f=/n/a/2012/03/06/national/a130127S12.DTL&type=printable>

Marin Independent Journal, http://www.marinij.com/tablehome/ci_20113796/vets-prone-drug-addiction-get-risky-painkillers

Army Times, <http://www.armytimes.com/news/2012/03/ap-vets-prone-to-addiction-get-risky-painkillers-030612/>

Huffington Post, http://www.huffingtonpost.com/2012/03/06/painkillers-vets-ptsd-risky-addiction-physical-pain_n_1325044.html?view=print&comm_ref=false

USA Today, <http://yourlife.usatoday.com/health/story/2012-03-06/PTSD-veterans-prone-to-drug-addiction-get-risky-painkillers/53388510/1?csp=34news>

National Public Radio: "Vets Prone To Drug Addiction Get Risky Painkillers"
Medscape: "Veterans with Mental Illness More Likely to Receive Opioids"

3/7/2012 Associated Press (AP), "Veterans with PTSD more likely to get addictive
painkillers despite the risks, VA study shows"

http://www.philly.com/philly/health/20120306_ap_vetspronetodrugaddictiongetrisky_painkillers.htm

4/11/2014 New York Times, Sunday Edition. "A Soldier's War on Pain"
<http://www.nytimes.com/2014/05/11/business/a-soldiers-war-on-pain.html>
"