The Massachusetts Opioid Epidemic: Prescription Painkillers ‘Gateway Drug’ to Heroin Use

by Sara Suter, MPH Candidate ’16

The National Institute on Drug Abuse (NIDA) claims one in fifteen people who take non-medical prescription pain relievers will try heroin within ten years.1 Non-medical use is defined by the United Nations Office on Drugs and Crime as the taking of prescription drugs, whether obtained by prescription or otherwise, other than in the manner or for the reasons or time period prescribed, or by a person for whom the drug was not prescribed.

Patients sometimes believe that opiate prescriptions are not dangerous because a doctor prescribed them. However, “prescription opioid drug use can lead to dependence and addiction” says Margie Skeer, ScD, MPH, MSW, assistant professor of public health and community medicine. Through her research on substance misuse and addiction, she finds that, “Often users then turn to heroin because it’s the same type of drug, cheaper, and easier to get than regulated medication.”

Historically, heroin users were low-income and inner-city men, but within the last fifty years prescription opiates and heroin have become the drugs of choice among affluent, suburban, white populations, equally distributed among men and women, with an average age of 23.2

Governor of Massachusetts Charlie Baker describes the negative momentum of the opioid epidemic, “With every passing month the stories and the data and the trends just get worse.”3 The Boston Globe reported that last year in Massachusetts more than 1,000 people died from overdoses of heroin and other opioids, the highest mortality rate recorded in the state. The Centers for Disease Control and Prevention (CDC) estimates that each day forty-six people die from an overdose of prescription painkillers in the United States.4

Alyssa Wurcel, MD, MS, assistant professor of public health and community medicine, and an infectious disease (ID) physician at Tufts Medical Center, speaks to the issue from a first-hand clinical standpoint, “We have an ID ward service that has anywhere from ten to twenty patients at a time. I would guess that 25% of the patients are under 35 and have an infectious complication of injection drug use.”

The CDC estimates health care providers wrote an astonishing 259 million prescriptions for painkillers in 2012, enough for every American adult to have a bottle of pills.5 The CDC Morbidity and Mortality Weekly Report (MMWR) reported that the top 10% of prescribers provide 50% or more of opioid prescriptions, indicating the need for improved prescriber practices.

Director of the Public Health Program Anthony Schlaff, MD, MPH, practices addiction medicine on a part-time basis at Tanagram Health in Brighton. He explains, “We are in the midst of an epidemic of opiate use and overdose deaths that has many causes, including over-prescribing by doctors, cheap and easy to obtain heroin, the lacing of heroin with fentanyl, and inadequate treatment facilities and options.” Furthering the problem, “People with addiction are sent out from the hospital without a plan in place for opioid replacement treatment,” says Dr. Wurcel. “They often

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A new academic year has commenced, and with it come faculty comments about how different graduate students are today and how technology exerts such a strong influence on every aspect of their lives.

Over the last few weeks, I’ve read two pieces both authored by Sherry Turkle, one in the New York Times and one in the Chronicle of Higher Education. MIT Professor Turkle offers a number of important insights into the impact of personal technology on conversation, in-person verbal communication. To my mind, these monumental changes in how we communicate have implications for public health—both in how we “teach” it (or anything else, for that matter) and public health itself — our collective action to improve the health of human populations.

In her essays, Turkle cites some rather compelling research to suggest that people, particularly young people, increasingly are not engaging in real conversation or reflection— and that they actively avoid it. Her analysis is that social media and pervasive communication by “text” are largely responsible. I highly recommend you read (“read deeply” as Tufts Professor Maryann Wolfe would say) both pieces. In them, Turkle cites research which demonstrates that the mere presence of a cell phone (even if face down) has a dampening effect on the depth of conversation. Presumably, the presence of cell phone says to the conversant, “What we’re doing here is interruptible by something that’s more important than our conversation”. While some professors welcome students to use their laptops during class to take notes or to supplement the classroom discussion in real time with additions gleaned from the web, others observe a degradation of the classroom environment with respect to eye contact, active listening, give-and-take between students, not to mention the intrusions of classmates’ non-classroom grazing to answer email, buy shoes, or plan a vacation.

A 2010 meta-analysis of 72 individual studies conducted by Sara Konrath, PhD, a psychologist who tracks empathy in college students, finds a 40% decline in empathy over the last 30 years, with the steepest decline since 2000, roughly concurrent with the rise in cell phones use in young adults. While ecologic fallacy is always a possibility when attempting to ascribe causation to coincident trends, the association is supported by some research. What should we make of a study by Timothy Wilson, a psychologist interested in solitude and reflection? In a series of studies, college-aged research participants who were directed to sit alone and think, in a laboratory setting or at home, had great difficulty doing so. Study participants reported low enjoyment of the task and some even opted for mild self-induced electric shocks as an alternative to sitting alone and being with their thoughts, disconnected from devices.

In what ways are our new modes of communication a threat to public health? At the core of our efforts “to educate our students to advance societal and environmental conditions that allow all members of society to enjoy the highest attainable standard of health” is social justice – a notion that recognizes the inequitable distribution of resources and opportunities across population subgroups. These inequalities make us uncomfortable because they are unfair, and we empathize with those who suffer the attendant consequences, whether poor birth outcomes, lack of access to clean water or healthy food, preventable disease, neighborhood violence … choose your favorite example. Self-reflection, compassion, and give-and-take conversation with those who think differently are essential.

In short, collective action to improve public health requires that we really talk and that we really care.

As always, good wishes and good health!

Aviva Must, PhD
Dean, Public Health and Professional Degree Programs
I can still vividly remember every step along the way of my own path. I was that kid who was always checking out the animal books from the library, begging my parents to let me have every imaginable exotic pet, and even starting my own backyard egg business during middle school. We are often asked what we want to be when we grow up. Young Elliott Garber pursued his childhood dream and has transformed it into a career as an uncommon veterinarian.

In 2009, Dr. Garber received his MPH degree from the School of Medicine, as well as DVM and MS in Comparative Biomedical Sciences degrees from the Cummings School of Veterinary Medicine. He wears many hats- as a veterinarian, public health practitioner, Army officer, author, husband, and father to his two young children. Currently, he is on active duty as a veterinarian and supports the Naval Special Warfare Command (SEALs) in southern California.

Dr. Garber was initially attracted to Tufts’ International Veterinary Program as a way to pursue his passion for animal health overseas. He also hoped to help find solutions to our crisis in four key areas: prevention, intervention, treatment, and recovery support. The MDPH’s Prescription Monitoring Programs (PMP) helps prescribers evaluate a patient’s prescription history prior to issuing a first-time prescription for opioids, identifying patients who are at risk for developing substance use disorders. The MDPH also mandates that all first responders in Massachusetts must carry and administer Naloxone (Narcan), an effective opioid overdose reversal tool. In addition, Naloxone rescue kits are available to the public in select pharmacies without a prescription from a doctor.

The Massachusetts Medical Society (MMS) alongside Governor Baker and representatives from the state’s four medical schools (UMass, BU, Harvard, and Tufts) agreed to incorporate prevention and treatment of prescription drug misuse into their curriculum. In this collaborative effort, along with the Commissioner of Public Health Monica Bharel, MD, they developed a comprehensive list of ten “core competencies,” including evaluating risk of addiction before prescribing painkillers, how to treat patients who are at risk for substance use disorders before addiction occurs, and how to understand and manage substance use as a chronic illness. According to Governor Baker, “These educational standards represent an innovative and forward-thinking contribution to the state's multifaceted strategy to curb the opioid epidemic.”

TUSM already requires a course in addiction medicine, but will now add information on treating pain and recognizing addiction to course materials for the next academic year.

As Governor Baker says, “The solution is not one-size-fits-all.” In order to mitigate opioid addiction and lower rates of overdoses in Massachusetts, we must be comprehensive in our approach to the problem. Raising public awareness and educating key players, including policy makers, patients, prescribers, and providers, will help to combat this public health crisis.
Raw dairy milk consumption is increasing in popularity in the United States due to the perception that pasteurization destroys the nutritional health benefits of milk. According to the Centers for Disease Control and Prevention (CDC), nearly 9 million people in the US consume raw milk regularly. However, federal agencies have routinely used research to demonstrate the presence of numerous organisms in raw milk that pose health risks to consumers. One of the most pathogenic organisms found in raw milk is Coxiella burnetii, a bacteria that causes Q Fever.

Coxiella burnetii is typically found in cattle, sheep, and goats. Most infected animals are asymptomatic, but infections can lead to miscarriages and reproductive disorders. Human infections are also often asymptomatic, but manifestations include fever and other flu-like symptoms that can progress to meningoencephalitis. While C. burnetii is typically transmitted to people through inhalation, infection can also be caused by ingesting raw dairy milk from infected animals. A recent study by Cornell demonstrated that C. burnetii is endemic to the US, but its presence is under-assessed in dairy operations. With this in mind, I designed a study with the help of Tufts Ambulatory Service veterinarian Dr. Kevin Lindell to assess C. burnetii in 78 southern New England dairy operations (MA, CT, and RI) using bulk tank milk sampling and polymerase chain reaction (PCR) DNA analysis.

We investigated the herd-level prevalence of C. burnetii in dairies legally authorized to sell raw milk (‘raw dairies’) and dairies only authorized to sell milk intended for pasteurization (‘commercial dairies’). We discovered an overall C. burnetii prevalence of 40% in southern New England, with 21% of raw dairy farms and 53% of commercial dairy farms testing positive. While commercial dairies were more likely to test positive than raw dairies, the former tend to be larger and more prevalent in New England. When herd size was taken into consideration, we found that small raw and commercial dairies were equally likely to test positive.

Looking at associations between various management practices and the odds of testing positive for C. burnetii, we found that the use of cooling fans significantly increased the odds of testing positive. This finding is important for assessing potential routes of exposure, since C. burnetii is an airborne pathogen. In contrast, we found that the use of fore-stripping, a process by which the first three to five streams of milk are expressed from each teat prior to milking, significantly decreased the odds of testing positive.

Milk consumption habits among dairy producers were also evaluated. While state legislation dictates the sale of raw milk to the public, all producers are legally permitted to consume raw milk from their own property. All raw milk dairy farmers said they consumed raw milk while only 64% of commercial dairy farmers said they did. By state, 75% of Connecticut farmers, 85% of Massachusetts farmers, and 56% of Rhode Island farmers (a state that does not permit the sale of raw milk) said they consumed raw milk. The most commonly cited reasons for raw milk consumption were taste and convenience.

Upon analysis, our study demonstrated that Coxiella burnetii is prevalent in bulk tank milk from both raw and commercial dairy farms in southern New England. Since C. burnetii is endemic in animals in the US, poses a significant human health risk, and is not regularly assessed in dairy herd populations, we want to highlight the importance of re-evaluating public health concerns surrounding raw milk consumption. Our goal is to improve awareness about C. burnetii among farmers, doctors, and public health professionals to better improve dairy management practices for both cow and human health.

This project was conducted through Tufts Cummings School of Veterinary Medicine and Tufts School of Medicine with the help of numerous individuals and agencies in southern New England. This study was partially funded by the Morton A. Madoff Public Health Fellowship and NIH Summer Training Grant (OD 010963) 2014.

current global health problems. The combined DVM/MPH degree program was the perfect way to mesh these two goals.

Tufts’ program offered him the flexibility to take a year off from his studies in order to complete a thesis research project in India. His advice to current students is to take advantage of the unique opportunities that are offered at Tufts and to not be afraid to create something that is not already established. He is glad for the academic culture at Tufts that enabled him to think outside the box and to pursue a customized education.

In his non-traditional veterinary career, Dr. Garber enjoys that “every day can be different, and this has been appealing from the beginning.” He explains that although he will always love cats and dogs, he wanted to pursue other possibilities within the diverse field of veterinary medicine. Dr. Garber works in many facets of the field, including animal health, infectious disease, public health, conservation, global health, and zoonotics. The knowledge obtained through his public health degree shaped his approach in understanding animals that need help, in addition to the people and the ecosystem that depend on them.

In addition to his career, he finds time to actively maintain a blog and podcast called The Uncommon Veterinarian. His blog recounts his expeditions and shares veterinary-related current events and interviews, along with inspiration and opportunities to future veterinarians and public health professionals. Dr. Garber is also a first time author.

He recently published a fiction thriller novel, The Chimera Sequence, which emulates the style of Michael Crichton. He describes it as a book that he would love to read, a science-based thriller documenting an uncommon veterinarian and his quest to solve an infectious disease outbreak connected to a larger global threat. He jokingly admits that Cole McBride, the main character, is his alter ego and is the person he would imagine himself to be… as if his life weren’t already extraordinary!

Dr. Garber is a humble and approachable individual with a passion for veterinary medicine and public health. If you would like to learn more about what he is up to, or live vicariously though his many adventures, you can follow his blog at: http://www.elliottgarber.com/blog/.

Alumni Profile: A Glance at the Life of an Uncommon Veterinarian

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Alumni Notes

**MPH:**

Lindsay Geisen, MPH’15, started as a Research Public Health Analyst at RTI International in Waltham, MA.

Congratulations to David Leader, MPH’13, who became Director of the DMD/MPH track in TUSM’s Public Health and Professional Degree Programs in September 2015.

Congratulations to Allie (Lipps) Siegel, MPH’11, on the birth of her first baby, Max Elliott Siegel, who was born on May 29, 2015 in their new home in Seattle! Allie continues to work at Slalom Consulting.

Cindy Martin, MPH’07, relocated from Philadelphia to Cape Cod this summer and looks forward to having her second child in December. She is involved with substance abuse prevention efforts on the Cape as both a concerned parent and a public health professional.

Julia McDonald, MS/MPH’07, recently transferred to a new team within the Kaiser Permanente Division of Research. She is now a Project Manager on a randomized trial assessing two workplace diabetes prevention programs delivered to employees of the City and County of San Francisco.

Rachel Olsen, MPH’12, after 3 years in a great position with Massachusetts General Hospital, will be migrating back to International Development. If you know of anyone who’s looking for a program manager or global health-er, please have them look her up!

Katherine Panarella, MS/MPH’15, joined the Youth, Families and Communities Statewide Program for the University of California Division of Agriculture and Natural Resources as Associate Director of the Nutrition and Family and Consumer Sciences Program and Policy in July. She, her husband and 16-month-old son love living in Davis, CA!

Congratulations to Michelle “Shelley” Rollet, MS/MPH’13, and her husband, Daniel, who welcomed a baby girl, Eden Mae, on June 20, 2015.

Congratulations to Denesia (Parris) Rogers, MPH’14, who currently works for the Lewin Group in Falls Church, VA as a Research Consultant. She married in August of 2015 and gave birth to a baby girl on September 2, 2015.

Alison Roditi, MPH’02, is now the Senior Director for the Sports Medicine Service Line at the Hospital for Special Surgery (HSS) in New York City.

Aliza Wasserman, MS/MPH’09, relocated to Washington, DC earlier this year and works as a Policy Associate at Wholesome Wave, supporting policies that improve access to healthy, affordable, and local food for low-income Americans.

Lauren Wilner, MPH’15, started as a ASPPH/CDC Allan Rosenfield Global Health Fellow at the Center for Global Health at the CDC.

**MS -Health Communication:**

Congratulations to Heather Angstrom, MS-HCOM’10, who gave birth to her first child, a son named Calum Angstrom MacLellan, on March 3, 2015.

Alia Bucciarelli, MS-HCOM’05, is a freelance medical writer and adjunct assistant professor at TUSM. She recently published the book Alzheimer’s Disease, which is one in a series of books on health called My Modern Health FAQs.

Brianne Lieberman, MS-HCOM’13, recently relocated to Nashville, TN, for her new position as Regional Marketing Director for AmSurg.

Alma Marr, MS-HCOM’04, joined LeadingAge in February as their Vice President of Communications. She is enjoying her new role and learning much about aging services in this country. When she’s not working, she enjoys time with her spunky 9-year old daughter, training for marathons (albeit slowly), and exploring Washington, DC.

Emily Oppenheimer, MS-HCOM’13, began a new position this year as the Bronx Borough Lead at Bronx Health REACH/Institute for Family Health. One recent highlight was the installation of new water fountains at a Bronx High School.

Sara Rattigan’s, MS-HCOM’09, position as an independent Health Communications and Outreach Specialist contractor with the Occupational Health Surveillance Program at the Massachusetts Department of Public Health was posted as a state position after 6 years, and she was hired as a public servant to the Commonwealth.

**MD/MPH:**

Congratulations to Jessie Glasser, MD/MPH’05, on the birth of her second child, Hannah Rose, on July 7, 2015. Benjamin, now 3 years old, loves being a big brother. Jessie is currently working as Infectious Disease faculty and Medical Director for Infection Control at the San Antonio Military Medical Center.

Eugene Schiff, MD/MPH’12, is now a graduate of Montefiore Medical Center Residency in Family and Social Medicine, Bronx, NY and is currently an attending physician at Stevenson Family Health Center, Bronx, NY.

**MD/MBA:**

Matthew Weissman, MD/MBA’01, was recently named a fellow of the New York Academy of Medicine. In addition to his role as Chief Medical Officer at Community Healthcare Network, Matthew served as the interim CEO from April 2014 until January 2015.

**PREP:**

Cherie Paquette, MS-PREP’05, recently moved back to the New England area and is currently working as a pathologist at the Women and Infants Hospital in Providence, RI.
Faculty Notes

Alia Buccarelli, MS, Adjunct Assistant Professor, Public Health & Community Medicine, recently published the book, Alzheimer’s Disease, which is available in print and as an e-book on Amazon.com. Using a question–answer format, the book is designed to give caregivers, family members and friends of people with Alzheimer’s disease easy access to the practical information they need.

Beth Buyea, MHS, PA-C, Assistant Professor, Public Health & Community Medicine, presented two posters at the 2015 Physician Assistant Education Association Conference entitled “Inter-professional Rounds for Clinical Pharmacy,” and “Physician Assistant Students and Preparedness for PA School: Student Self-Assessment.”

Naomi Cohen Sacks, PhD, Adjunct Instructor, Public Health & Community Medicine, has the following new publications: “Trends in Acute Myocardial Infarction Hospitalizations: Are We Seeing the Whole Picture?” (American Heart Journal) and “The Effects of Cost Sharing on Adherence to Medications Prescribed for Concurrent Use: Do Definitions Matter?” (J Manag Care Spec Pharm)

Susan Gallagher, MPH, Assistant Professor, Public Health & Community Medicine, has been appointed to the expert panel of Together for Safer Roads (TSR), an innovative coalition that brings together global private-sector companies to focus on improving road safety and reducing deaths and injuries from road traffic collisions. Her role will be to advise TSR on program direction, data, technology and networks to promote safer roads, vehicles and systems.

Lisa Gualtieri PhD, ScM, Assistant Professor, Public Health & Community Medicine, presented in a session about Patient Narratives at the MedX Conference at Stanford School of Medicine.

Amy M. Lischko, MSPH, DSc, Associate Professor, Public Health & Community Medicine, and Susan Koch-Weser, ScD, Assistant Professor, Public Health & Community Medicine, are working with the Massachusetts Health Policy Commission (HPC) to better understand consumer choices in health care. The Robert Wood Johnson Foundation funded the HPC to continue this work under a grant entitled; “Studying Consumers’ Perceptions of Health Care Value in Different Care Settings.” David Auerbach from the HPC and Dr. Lischko serve as co-project directors.

Aviva Must, PhD Professor & Chair, Public Health & Community Medicine, presented and moderated a poster session at the American Public Health Association Conference entitled “Emerging Issues in Disability and Public Health.”

Pamela Ressler, MS, RN, Adjunct Lecturer, Public Health & Community Medicine, was one of thirty thought-leaders from the US and UK invited by The Robert Wood Johnson Foundation and the Business Innovation Factory to participate in the development of “The Narrative Playbook: The Strategic Use of Story to Improve Care, Healing and Health.”


David J. Tybor, MS, MPH, Assistant Professor, Public Health & Community Medicine, was named the Assistant Head Coach for the Wang YMCA Teen Powerlifting Team.

Beth Buyea Joins Physician Assistant Program Faculty

Beth Buyea, MHS, PA-C, is the director of Didactic Education and an assistant professor of public health and community medicine. She received her Masters of Health Science and Physician Assistant education from Quinnipiac University and a Bachelor of Science from Syracuse University. Her clinical focus has been in family practice, most recently focusing on adolescent care. Before joining Tufts, she worked as an assistant professor at MCPHS University (formerly the Massachusetts College of Pharmacy and Health Sciences). She continues to work as a physician assistant at Phillips Academy in Andover, MA.
Dr. Jeffrey Griffiths’ Career Comes Full Circle at Tufts University

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Dr. Griffiths’ work stresses the importance of a multi-faceted approach to research and academics. Describing why Tufts University has retained him as a faculty member he says, “I’ve stayed here in large part because of the ease of people talking across certain disciplinary boundaries and the collegiality of the institution.” He has been able to combine his passions into an interdisciplinary approach to Crypto that involves waterborne diseases, infectious disease, epidemiology, biology, public health, nutrition, and global health.

Dr. Griffiths describes the 15 years he spent as an advisor to the Environmental Protection Agency (EPA) and his time as the Chair of the Drinking Water Committee for the EPA’s Science Advisory Board as helping him to focus his research and intellect on the big picture, including policy implication and practical application. He states that the faculty at Tufts not only conduct research, but also have an appreciation of where their work fits into the world.

He offers advice to students that he once gave to himself, “You need to have two things going (which may not be the advice that most people give) in case funding dries up for one or something exciting happens in the other, or things ebb and flow in your life.”