

OPIOIDS IN AMERICA

A complex crisis. A comprehensive response.



***There's only one way to successfully handle a situation this complex:
with a coordinated response from every angle.***

Prescription opioids play a critical role in helping millions of people effectively manage chronic pain. But for some, opioids have become a complex, tangled web of misuse that has led to a devastating human cost and takes a major economic toll on our country. Addressing prescription opioid misuse is a tremendous challenge. It's one that must be faced on multiple fronts: Treatment. Prevention. Pain management. Public health communication and education. And more.

RTI International is uniquely equipped to support every one of these efforts—because for decades we've been putting the power of science and experience up against our country's most serious behavioral health problems. Today, we're gathering the key data, conducting the essential research, and helping policy makers implement informed decisions—based on sound science—for the public good.

FOUNDATIONAL RESEARCH

11.5 MILLION

Number of Americans, aged 12 and older, who take pain relievers for nonmedical uses.

Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health* (HHS Publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>

948,000

Number of Americans, aged 12 and older, who use heroin.

Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health* (HHS Publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>

356,843

Number of Americans in opioid treatment programs (OTPs) receiving methadone—a 16% increase from 2011.

Substance Abuse and Mental Health Services Administration. (2017). *Behavioral Health Barometer: United States, Volume 4: Indicators as measured through the 2015 National Survey on Drug Use and Health and National Survey of Substance Abuse Treatment Services* (HHS Publication No. SMA-17-BaroUS-16). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration.

How do we know so much about opioids and substance use? Because we've been collecting data on it for almost 30 years.

RTI has collaborated with the Substance Abuse and Mental Health Services Administration (SAMHSA) on the National Survey on Drug Use and Health (NSDUH) since 1988, collecting data on a diverse range of populations, including patients prescribed opioids; prescribers (physicians, nurses, dentists); and people engaging in nonmedical use of prescription drugs. NSDUH is the primary source of statistical information on the use of illegal drugs, including heroin, and the misuse of prescription opioid pain relievers. RTI has recently worked with SAMHSA to update and improve the prescription drug questions (including questions about opioid pain relievers) on NSDUH and is currently collaborating with SAMHSA on a report that will highlight the data from these improved questions. RTI is also working on another study using NSDUH data that investigates the impact of state prescription drug monitoring programs on the use of heroin and misuse of prescription pain relievers.

OVERDOSES

Exploring ways to save lives.

The United States is experiencing an opioid overdose epidemic. Six-hundred thousand Americans have died from overdoses since 2000. RTI has been conducting research related to opioid overdoses for nearly 2 decades. This research has included observational studies assessing the scope of the opioid overdose problem, intervention development, and implementation science approaches. RTI has been instrumental in proving the feasibility and efficacy of peer-driven naloxone interventions through acceptability studies among people who inject drugs, pilot studies, and evaluation of programs and laws. Currently, RTI is using an implementation science approach to assess how to best implement naloxone interventions for those at highest risk; we are also developing tools to help emergency responders better understand when and where they are seeing greater numbers of overdoses and deaths to better prepare for future emergencies.



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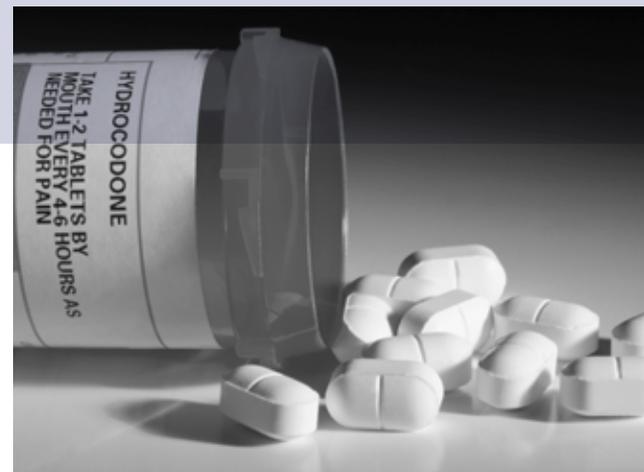
KEY OPIOID RESEARCH ACTIVITIES

- Determine the geographic and demographic scope of the opioid overdose problem
- Develop and evaluate prevention programs, including the geographic scope of naloxone programs and interventions
- Conduct implementation science studies to understand how to implement prevention programs for those at highest need, including people exiting incarceration
- Determine whether overdose-related laws and regulations are associated with reductions in overdose deaths
- Analyze emergency response calls for overdoses and deaths
- Understand the administration of life-saving emergency treatments—such as naloxone

42,000

Number of Americans who died of opioids, including prescription opiate pain relievers and heroin, in 2016. On average, that's about 115 opioid-related deaths per day.

Centers for Disease Control and Prevention. (2017, October 23). *Opioid overdose*. Retrieved March 16, 2018, from <https://www.cdc.gov/drugoverdose/index.html>



ECONOMIC IMPACT AND BEHAVIORAL HEALTH SYSTEMS

Maximizing our limited resources.

Facing the increasing need for opioid addiction treatment with limited resources puts policy makers, insurers, and providers in the difficult position of having to choose among alternative treatment and behavioral health financing options. Economic analyses, including cost, cost-effectiveness, and cost-benefit studies, provide critical information on the value of alternatives. RTI has an extensive history of performing economic evaluations of substance use treatment. RTI's economists have also led several studies to identify the resources needed to provide opioid treatment and to estimate the value these treatment programs and interventions provide to society. Current research studies include examining the cost and cost-effectiveness of a patient-centered methadone maintenance treatment program, the cost-effectiveness and cost-benefit of methadone maintenance for jail inmates with opioid addiction who are reentering the community, and extended release naltrexone for adolescents and young adults with opioid addiction.



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KEY OPIOID RESEARCH ACTIVITIES

- Carry out economic evaluations of methadone and other medication-assisted treatments
- Evaluate costs and cost-effectiveness of alternative interventions
- Conduct cost-benefit analysis when outcomes are monetized
- Explore the impact of opioid treatment on economic and health outcomes
- Determine cost and benefits of supervised injection facilities in the United States
- Use telehealth to support, provide, and promote substance use treatment from a distance

38:1

Benefit-to-cost ratio of methadone treatment, factored over a lifetime and considering the multiplicative effect of improvements in employment, and reductions in crime associated with reductions in heroin use following successful treatment. (Excluding these lifetime effects, the benefit-to-cost ratio of a single treatment episode was 5:1.)

Zarkin, G. A., Dunlap, L. J., Hicks, K. A., & Mamo, D. (2005). Benefits and costs of methadone treatment: Results from a lifetime simulation model. *Health Economics*, 14(11), 1133–1150.

\$504 BILLION

The estimated total economic cost of the opioid crisis in 2015, accounting for 2.8% of gross domestic product.

Council of Economic Advisers, Executive Office of the President. (2017, November 20). *Council of Economic Advisers report: The underestimated cost of the opioid crisis*. Retrieved March 8, 2018, from <https://www.whitehouse.gov/sites/whitehouse.gov/files/images/The%20Underestimated%20Cost%20of%20the%20Opioid%20Crisis.pdf>

EMERGING INTERVENTIONS & TRENDS

Investigating the cutting edge of care.

RTI is studying methods of limiting disease transmission in high-risk populations (in particular, people who inject drugs) through research into the use of “dead-space” syringes and the availability of supervised injection facilities for habitual users. RTI is also working to uncover innovative solutions to managing chronic pain. To that end, researchers have recently explored the possibility that managing pain through cannabis use may be possible for some populations and types of pain. Additionally, RTI conducts research to identify which opioid dependence treatments work for which patients because existing treatments do not work for everyone. Researchers also use mathematical modeling to evaluate the effects of policy changes on lives of people in treatment. The RTI team uses many different methodologies to collect data, such as web-based surveys to collect population-based information, as well as face-to-face interviews among prescribers to understand the factors that contribute to patient communication and medication compliance. We also have used street-based intercept studies to locate and recruit participants.



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KEY OPIOID RESEARCH ACTIVITIES

- Study people who inject drugs, as well as prevention and intervention programs and treatment readiness
- Understand how laws and regulations are associated with reducing overdose deaths
- Investigate HIV/hepatitis C virus epidemiology and prevention and associations with drug use
- Conduct personalized treatment analysis
- Develop simulation modeling of policy impact
- Build integrated models of care, including primary care within opioid treatment programs

1,000x

The amount of blood left in a high dead-space syringe is 1,000 times greater than in low dead-space syringes—so the use of the latter drastically reduces the likelihood of transmitting HIV and hepatitis among people who inject drugs.

Zule, W. A., Cross, H. E., Stover, J., & Pretorius, C. (2013). Low dead space syringes: Authors' response. *International Journal of Drug Policy*, 24(1), 21–22.

18

On average, among people who inject opioids, those who also use marijuana inject drugs 18 fewer times a month than those who do not use marijuana.

Kral, A. H., Wenger, L., Novak, S. P., Chu, D., Corsi, K. F., Coffa, D., Shapiro, B., & Bluthenthal, R. N. (2015). Is cannabis use associated with less opioid use among people who inject drugs? *Drug and Alcohol Dependence*, 153, 236–241.

PREVENTION

Stopping it before it starts.

One of the most important responses to the current crisis is to limit future deaths by keeping people—particularly adolescents and young adults—from misusing opioids in the first place. RTI has expertise in conducting comprehensive evaluations of these efforts at the local, state, and national levels to reduce and prevent the consequences of substance use disorders. Current studies include evaluating community-level efforts to prevent prescription drug misuse among people ages 12–25, evaluating efforts to raise awareness about the dangers of sharing medications and work with pharmaceutical and medical communities on the risks of overprescribing to young adults, and assessing grantees' efforts to incorporate prescription drug monitoring program data into needs assessments and strategic plans as indicators of program success. Findings from our evaluation work inform future efforts to develop and implement comprehensive strategies that prevent the negative consequences associated with prescription opioid misuse.



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KEY OPIOID RESEARCH ACTIVITIES

- Determine effective combinations of preventive interventions for prescription opioid misuse
- Analyze the National Poison Data System calls to assess the impact of prevention strategies
- Evaluate the impact of first responders to reduce opioid deaths

23.2%



Percent of young adults (ages 18–25) who were current users of illicit drugs in 2016 (compared to 7.9% of adolescents 12–17 and 8.9% of adults 26 and older).

Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health* (HHS Publication No. SMA 17-5044, NSDUH Series H-52). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>

AT-RISK POPULATIONS

Reaching out to the most vulnerable.

While opioid use is widespread, specific population groups face a particularly high risk. RTI is currently conducting research involving several of these groups—including patients with chronic pain, people who inject drugs, patients living in rural areas, patients with psychiatric disorders, users of other illicit drugs, and Operation Enduring Freedom/Operation Iraqi Freedom veterans. Studies funded by the National Institutes of Health, the Department of Veterans Affairs, Centers for Disease Control and Prevention, SAMHSA, and the Robert Wood Johnson Foundation, among others, have explored the clinical epidemiology of co-occurring mental health and substance use disorders, with a particular focus on pain and opioid use, the characterization of epidemiological trends and identification of at-risk populations for prescription drug use and co-occurring illicit drug use, and co-occurrence of opioid use and infectious diseases.



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KEY OPIOID RESEARCH ACTIVITIES

- Investigate clinical epidemiology of opioid prescribing
- Analyze risk factors for opioid use
- Study prevention of opioid use disorders
- Explore physicians' decision making regarding opioids for chronic pain
- Examine the increased availability and use of illicitly made fentanyl and implications for overdose prevention
- Identify and develop effective interventions for vulnerable communities at increased risk for injection-related HIV outbreaks
- Develop early warning surveillance systems that can capture drug-related health risks in near real time and alert community stakeholders for targeted and timely interventions

19x

Individuals who had previously reported misuse of prescription pain relievers were 19 times more likely to have initiated heroin in the past year than those who had not previously reported misuse of prescription pain relievers.

Muhuri, P. K., Gfroerer, J. C., & Davies, M. C. (2013). *CBHSQ Data Review. Associations of nonmedical pain reliever use and initiation of heroin use in the United States*. Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from <http://media.samhsa.gov/data/>

www.rti.org/opioids

2x

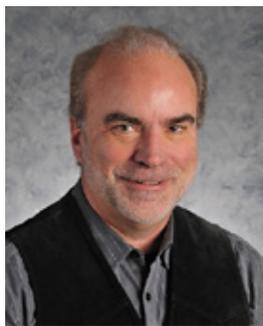
The annual rate of acute hepatitis C infection more than doubled from 2004 to 2014, correlating with a four-fold increase in prescription opioid analgesic injection.

Zibbell, J. E., Asher, A., Patel, R. C., Kupronis, B., Iqbal, K., Ward, J. W., & Holtzman, D. (2017). Increases in acute hepatitis C virus infection related to a growing opioid epidemic and associated injection drug use, United States, 2004 to 2014. *American Journal of Public Health*, e1–e7. DOI: 10.2105/AJPH.2017.304132

HEALTH & MEDICATION COMMUNICATION

Learning how to spread the word.

One of the keys to prevention is effective communication—developing messages that help at-risk populations make better decisions about the risks, benefits, and uncertainties of using opioids. This requires a deep understanding of the intended audience members, and the types of messages to which they respond, to promote informed decision making. RTI researchers have been directly involved in the development and evaluation of social marketing and communications programs over the past 2 decades. Through our Center for Communication Science, RTI examines how patients and health care providers make decisions about taking and prescribing prescription medications. Our messages, interventions, and campaigns are theoretically grounded and disseminated using a variety of innovative digital and social media, as well as traditional channels. Our work, including conducting comprehensive evaluations to determine the efficacy and effectiveness of educational interventions and campaigns, adds to the communication science evidence base.



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KEY OPIOID RESEARCH ACTIVITIES

- Conduct qualitative and survey research with consumers, patients, and health care providers
- Design and implement patient interventions
- Evaluate programs
- Create communication outreach programs to better inform patients, providers, and care takers

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