



DEALING with the DEVIL

PART 1 OF A 2-PART SERIES

The human side of the heroin epidemic

By Claudia S. Copeland, PhD

A person wearing a dark hoodie is shown from the chest up, with their hands clasped in front of them. They are wearing a dark-colored watch on their left wrist. The background is dark and out of focus.

On May 20th of this year, the Louisiana Legislature decided to get tough on heroin. Legislation sponsored by Sen. Dan Claitor, R-Baton Rouge, authorizes sentences of 99 years for a second heroin dealing offense (50 years for a first offense). Protests about the costs of this practice— the prisons are full; would murderers and rapists be released to make room for 90-year-olds who sold heroin decades earlier?—have been drowned out by a sense of panic at the scope of the heroin problem. →

The drug has spread through the population, and overdoses have soared in recent years. With a number of serious associated health risks and alarming proliferation of users, heroin has become a major public health concern. At the same time, funding for behavioral health and substance abuse treatment has been cut amid budget concerns. Prisons are much more expensive than drug treatment centers, but the idea is that dealers will hear about the new legislation and this will stop them from selling the drug. In other words, the goal is deterrence to squelch the supply of the drug. To get an idea about whether this approach is likely to be effective, it is instructive to take a look at the history of heroin.



IT WAS ALSO MARKETED FOR A NUMBER OF HOME HEALTH NEEDS, INCLUDING COLD AND COUGH TREATMENT FOR CHILDREN

Heroin (the brand name for diacetylmorphine) is a synthetic drug that was created by Bayer in the late 1800s by adding acetyl groups to morphine. (Morphine, like codeine, is a natural component of opium.) Marketed alongside Bayer's other big commercial product, aspirin, it was largely touted as a replacement for morphine in treating serious respiratory illnesses. It was also marketed for a number of home health needs, including cold and cough treatment for children and a sleep aid. (One particularly disturbing 19th Century Spanish ad shows a child reaching for the heroin bottle as his mother holds it back—"No, no! Just one spoonful!" she seems to be saying.) While it was well-known that morphine was addictive, heroin was thought to be a non-addictive alternative, and was even touted as a treatment for morphine addiction. Unlike aspirin, though, which was synthesized a year after heroin from white willow bark using a similar acetylation process, the "heroic" morphine derivative—so effective for pain treatment, sleep induction, and treating respiratory disease—had a very dark side.

While the majority of heroin users did not become addicted, by the early 1900s, reports were being published that heroin was at least as dangerous as morphine, and it was banned from home use and eventually, in the U.S., from physician-supervised use as well. By the 1920s, doctors were no longer allowed to prescribe heroin. Unfortunately, though, this did not have the intended effect of stopping its distribution. Dealers were happy to step in and fill the void, and organized crime found in heroin an ideal money-making commodity. By the mid-1920s, heroin was more plentiful than ever, and the illicit heroin trade continues to thrive to this day.

While diacetylmorphine is currently banned from all medical use in the United States, in the U.K. and other countries it is widely used in hospitals and palliative care settings. As with morphine, codeine, and other synthetic opiates, it is not the case that everyone who gets a dose of heroin becomes addicted to it. It is indisputable that opiates are highly addictive, but plenty of people use them without ever becoming addicted. So, why do some people become addicted while

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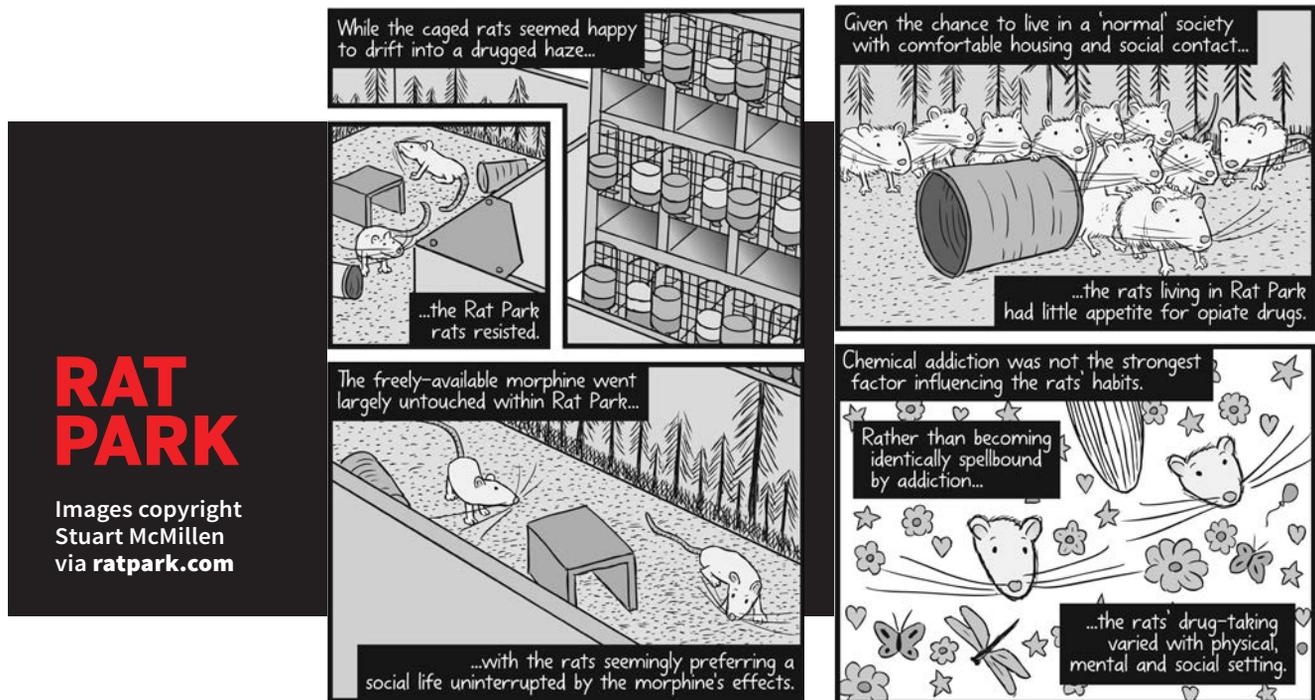
Dr. Elizabeth McDonald, a gastroenterologist with more than 20 years of experience in her field, is recognized both for her clinical expertise and her patient friendly manner. When it comes to providing the highest levels of patient care, Dr. McDonald reflects the very essence of what it means to be "Making it Great Every Day."



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others may enjoy the experience but have no trouble walking away once the bottle's empty?

Research points to two factors that distinguish people who become addicted from people who don't: genetics and the general state of stress, quality of life, and mental health of the person. According to National Institute on Drug Abuse researchers Chandler, Fletcher, and Volkow, genetic factors are thought to contribute 40-60% of the vulnerability to addiction. Extracellular signal-regulated kinase (ERK), involved in neuroplasticity and learning as well as stress and reward circuitry, is one pathway that has been implicated, with numerous studies

associating altered ERK signaling with opiate dependence. In addition, in April of this year, a team of American, Israeli, and Chinese researchers, Levan et al., reported a significant association between two polymorphisms of the FKBP5 gene and heroin addiction. FKBP5 has been shown in animal and fMRI studies to mediate stress-related responses and affective disorders. While these researchers were careful to acknowledge that "drug addictions are caused by genetic, environmental, and drug-induced factors," their results point to a clear and specific genetic component—that certain people are born predisposed to becoming addicted

to heroin, and that this predisposition is rooted in the genetics of the stress response.

If about half of addiction vulnerability is due to genetic factors, then that leaves the remaining half due to non-genetic factors. Chief among these is stress. While stress-related genes may be a genetic component of opiate addiction, a stressful or depressing environment appears to play a fundamental role in the non-genetic side of addiction. In the late 1970s, Vancouver biologist Dr. Bruce Alexander set up an experiment to test the idea that the environment or state of mind of the addict formed a more important component of addiction than the drug itself. Traditional animal addiction experiments had looked at isolated rats in small cages with essentially nothing to do but press levers to eat, drink, or receive a drug—these animals readily became addicted.

Dr. Alexander, reasoning that this is not a model of a "normal" animal, designed an experiment to test addiction under more realistic circumstances. He set up a "Rat Park", an enriched environment with 200 times the floor area of a standard laboratory cage and an abundance of food, toys, and wheels for exercise. There were 16-20

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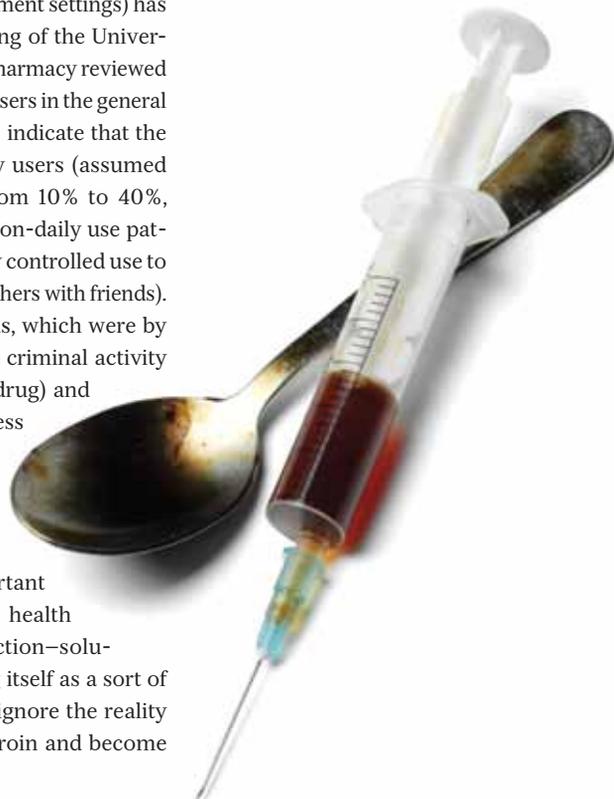
rats of both sexes in residence, and enough space for mating and raising litters. Comparing the rats in Rat Park with the rats in standard cages, he found that the rats in standard cages readily became addicted to morphine while the rats in Rat Park did not; they used morphine occasionally, but were significantly less likely to become addicted than rats in the standard cages. Moreover, rats that were forced to become addicted in standard cages stopped using morphine in an addictive way when they were moved to Rat Park, in spite of withdrawal symptoms. (Control rats kept in cages continued to use morphine compulsively.) Research in other species, such as the 2007 results of Chinese researchers Xu et al. in mice, have supported the Rat Park results. (Interestingly, some studies that created an enriched environment, but did not include running wheels, were not able to replicate the Rat Park results, implying that exercise may be an important component in resistance to addiction.)

While research on human heroin users (outside of addiction treatment settings) has been sparse, Dr. G. Harding of the University of London School of Pharmacy reviewed several studies on heroin users in the general population. These studies indicate that the percentage who are daily users (assumed to be addicts) ranges from 10% to 40%, with a wide variation in non-daily use patterns (from weekend-only controlled use to occasional use in get-togethers with friends). Even in these populations, which were by definition in contact with criminal activity (the only way to get the drug) and therefore expected to be less “stable” than the population at large, the majority of users were non-addicted users.

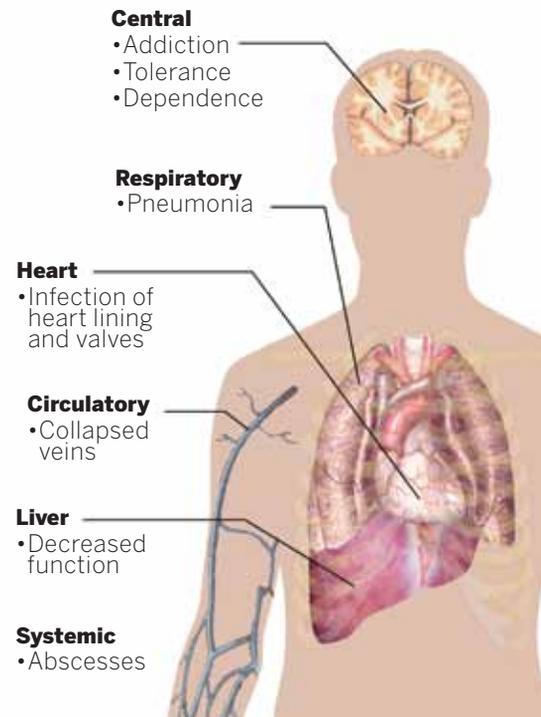
This is crucially important to addressing the public health problem of heroin addiction—solutions focused on the drug itself as a sort of infectious disease agent ignore the reality that some people use heroin and become

addicted to it, while other people use it and do not become addicted. New Orleans psychiatrist “Dr. J” (who works with patients in severe crisis, and who spoke with me on condition of anonymity) has found that most heroin addicts did not, in fact, start with heroin, and often the opiate that started the addiction was prescribed: “People are often prescribed pain meds (opiate) for routine dental work, for orthopedic issues, back injury, and then stay on for ever. Tolerance develops, the habit increases, and they graduate to heroin; its often cheaper. One woman told me her primary care doc prescribed Vicodin for menstrual cramps when she was 15 and that started her. One [employed, but secretly a regular user] man told me that as a teen his parents were always fighting. His father gave him an OxyContin once for some injury and it made him feel so good, all worries about his family and stress at home didn’t matter so much.”

Successful treatment of the heroin epidemic must include a focus on the people who become addicted. Who are they and



LONG-TERM effects of Heroin

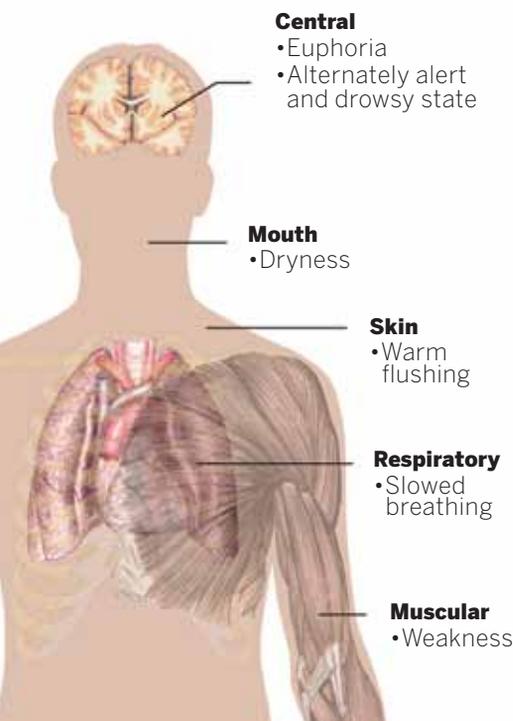


why do they become addicted? Are they suffering from mental health issues that can be treated? Stressful life circumstances that can be alleviated? Above all, what can be done to help these people?

Decades after his initial research, in a statement to the Canadian senate, Dr. Alexander generalized his results to humans, asserting that, “severely distressed animals, like severely distressed people, will relieve their distress pharmacologically if they can,” and argued that drug policy should focus on the conditions that cause stress and suffering. It could be argued that parts of New Orleans and Baton Rouge have exceptionally large numbers of “severely distressed people.” While not locked in solitary confinement in a small cage, circumstances such as poverty, lack of education, poor health, and lack of access to support might feel to humans like a cage feels to rats. New Orleans has an especially large population of people living in such stressful conditions.

Moreover, Dr. J pointed out that, as we grow older, we all must learn to deal with pain. In the process, we develop coping mechanisms, become stronger, and “grow up” to be wiser and more capable of dealing

SHORT-TERM effects of Heroin



with pain the next time it hits. If, on the other hand, a person finds out that they can take a drug that makes the pain go away, they do not go through this learning process. “I don’t know the scientific basis for this,” she relates, “but heroin addicts seem a gentler lot, who have a hard time getting into sobriety. I would guess it is because the heroin is such an amazing pain (psychic pain) reliever that it is hard to go back to dealing with the world in the raw. You have to learn about managing anxiety, frustration, loneliness, without chemical relief. If you started using in your late teens/twenties your emotional development is arrested at that point and now when you give up the opiate you have to learn how to handle all these emotions, have to grow.”

This is an important consideration when thinking about drug treatment; to sustain recovery, former addicts must not only overcome the physical withdrawal from the drug, but must also develop alternative coping mechanisms so they do not turn to the drug the next time they find themselves in a crisis. This is an especially difficult problem, because whatever coping techniques are taught, they will probably be less effective than heroin, at least in the short term.

If an especially stressful event takes place—not unlikely considering the circumstances of recovering addicts—there is a tremendous pull for former addicts to cope with the stress by using heroin.

Clearly, heroin addiction is a complex problem that goes far beyond the physical state of addiction. But, what if there is a simple solution to the problem—rather than trying to understand addicts and figure out how to help them, why not just get all the heroin off the streets? If there’s no heroin, there can be no addicts. Setting aside the difficulty of actually accomplishing this, what would happen if the entire heroin supply was eliminated from the city? The research of Dr. Eloise Dunlap and colleagues from the non-profit think tank NDRI, Tulane University, and the University of Houston sheds light on this approach.

Katrina was a very unique event in that it did something that no law enforcement agency has ever accomplished: it completely wiped out a thriving drug market. Almost overnight, the supply side of the New Orleans drug market was completely destroyed. However, demand for the drugs remained. In response, suppliers from Houston stepped in to serve exiled New Orleans users. New Orleanian suppliers, in turn, regrouped and established new networks to address the demand as well, and the drug market quickly re-established itself, albeit amid increased violence as the tumultuous new “freelance” market was much more

chaotic than the established, more self-regulated “corporate” market that existed before Katrina. Several studies of New Orleans and Houston drug markets, spanning the years after Katrina, found that as long as pressure was exerted in the form of demand for drugs, suppliers stepped in to fill that demand. This has sobering implications for supply side drug solutions: the evidence indicates that no matter what is done to smash the supply side of a drug market, if demand is there, new drug markets will emerge to address that demand.

Demand, then, must be the focus of a successful public health program addressing the heroin epidemic. This is easier said than done, even with drug users who have been caught by law enforcement. Mandating substance abuse treatment for drug offenders has been notoriously unsuccessful, with less than a quarter of drug offenders completing mandated drug treatment programs. (As explained by Dr. J, coping with life’s difficulties is hard, especially if your life is in ruins because of drug abuse; many convicted drug offenders prefer to keep taking heroin instead.)

There is, however, another justice-based solution that addresses demand: “drug courts.” Rather than sending users to prison, they are put on probation, with regular drug testing. The programs generally include drug treatment, and some incorporate rewards for successfully attaining treatment milestones as well, but at the heart of the system is the

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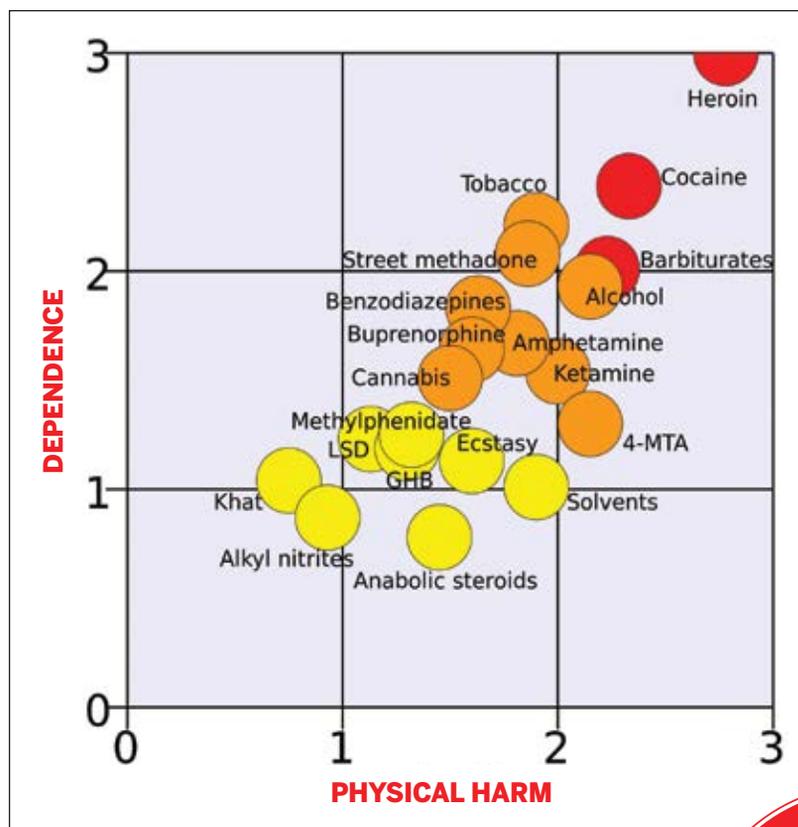
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regular drug testing and checking in with the courts. Fundamentally, this sets up a “negative reinforcement” rather than a “punishment” scenario—the users know that they will be tested, and they know that they will go to jail if they fail the drug test. Unlike punishment after the fact, this is “before the fact” action, and from all indications, it seems to work very well. Multiple studies of drug courts have found that they significantly reduce recidivism, and have the side benefit of saving taxpayers over \$2.00 for every \$1.00 invested, compared with incarceration. (This does not take into account the fact that, whereas released prisoners face steep barriers to re-entry into law-abiding society, drug offenders who go through drug court can get their records expunged, and also exit the program with coping mechanisms learned as part of the substance abuse treatment component. Arguably, this would make drug offenders who went through drug court instead of prison more likely

to stay off heroin and become productive taxpayers themselves after release from the program.)

Drug courts are a bona fide way to get drug offenders off drugs. Ideally, though, a more comprehensive solution to the heroin addiction epidemic would address the underlying “disease” leading to heroin abuse, not just the symptoms; addicts would be treated before being arrested and facing incarceration or drug court. First and foremost, this includes mental health care. According to Dr. J, psychiatric care services are available, free of charge: Metropolitan Human Services, <http://www.mhsdla.org/>, offers mental health and addiction treatment services to residents of Orleans, Plaquemines, and St Bernard parishes, Jefferson Parish Human Services Authority (about to be Jeff Care) provides similar services to

residents in Jefferson Parish, and in Baton Rouge, mental health services are provided by Capital Area Human Services District. “Louisiana has provided free psychotropic medication to those who have no health insurance, and some of these services are now becoming more sliding scale based on income,” says Dr. J. Do people in crisis realize this, though? And what if the nature of their crisis is just a pervasive sense of stress, isolation, and hopelessness? These people are probably more likely to attribute these feelings to the bleak nature of life rather than to a mental health condition that can be treated, and it may not occur to them that there is help out there for them.

Finally, while evidence points away from the belief that addiction is solely due to the inanimate drug, rather than the human addict, Dr. Alexander cautions that it may be beneficial for an addict to continue believing this misinformation, at least in the beginning of their treatment: “If they accept this belief, they can escape an enormous burden of guilt for their catastrophic lives, because the active agent is not themselves, but the drug. They made only one mistake and forgot to ‘just say no’: The rest was out of their control. Often such rationalisation provides a merciful relief for a suffering addict, at least for a time. Sometimes it is useful for drug abuse counselors to accept this belief during therapy.”

Eventually, though, addicts need to come to terms with the difficult task of learning non-drug based ways of coping with pain, including the pain of realizing how utterly their addiction has damaged their lives and the lives of those around them. The wider community must also realize that if we want to prevent or stop a heroin epidemic, we need to care for the health of our most vulnerable members, as difficult as facing that responsibility may be. ■

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