How chemists are responding to the opioid epidemic

Tamper-resistant pills, rapid analysis of street drugs, and novel nonopioid analgesics are just some ways the community is fighting the crisis

By Bethany Halford, Emma Hiolski, and Tien M. Nguyen

Scroll through your news feed on any given day, and you're bound to come across the latest tragic story emerging from the opioid epidemic. Opioids—including illegal compounds like heroin, synthetic street drugs like fentanyl, and abused prescription painkillers like oxycodone—were responsible for more than half of the roughly 64,000 overdose deaths in the U.S. last year, according to the Centers for Disease Control & Prevention. Overdose deaths from opioids have nearly tripled in the past 15 years.
Addiction has ravaged entire towns [https://www.reuters.com/article/us-usa-opioids-budgets/unbudgeted-how-the-opioid-crisis-is-blowing-a-hole-in-small-town-americas-finances-idUSKCN1BU2LP] , orphaned [http://www.motherjones.com/politics/2017/07/children-ohio-opioid-epidemic/] a generation of kids, and put at the front lines an increasing assortment of stakeholders—police, lawmakers, health officials, and even librarians [https://americanlibrariesmagazine.org/2017/06/21/saving-lives-in-the-stacks/] , who have learned to administer the opioid antidote naloxone to patrons who have overdosed at their facilities. The U.S. government is scrambling to come up with a cohesive, sensible plan for addressing the epidemic. As U.S. Food & Drug Administration Commissioner Scott Gottlieb told Congress last month, “We find ourselves at a tragic crossroad.”

In the three stories of this package, C&EN explores how the chemistry community is helping tackle the crisis. Efforts include devising tamper-resistant formulations [https://cen.acs.org/articles/95/i45/Abuse-deterrent-opioids-Worth-effort.html] for painkillers and developing instrumentation that can quickly identify
dangerous synthetics on the street. Chemists are also working on novel pain medications that could more safely and effectively provide relief to the millions of people suffering from chronic pain.

More on this story

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• Looking beyond opioids for safer pain relief

Comments

lana (November 13, 2017 11:50 AM)
Thank you for at least mentioning part of pharma's role in creating the opioid addictions.
This Opiod epidemic is not an act of god or human weakness. We didn't get hit by an addiction hurricane or blizzard. Millions of people didn't spontaneously decide to become addicts.
The opioid epidemic (addictions followed by deaths) began with the dramatic marketing and pharmaceutical push for non-generic opioids in the late 90's. The epidemiological evidence points clearly to ~1997 for a significant change in addiction and prescribed drug overdose.
We should not be naive about our professions role in this crisis.

Readers should be aware that Purdue and others played a much more significant role in creating addictions than indicated in this article: including multiple illegal schemes to 1) hide their opioids ability to cause addiction, 2) manufacture and advertise 'conditions' and off-label uses to sell more opioids, 3) manufacture 'pain management satisfaction' as a standard of medical care upon which physicians and hospitals were judged and reimbursed, 4) pay former officials to illegally lobby/warn their colleagues to not go after distributing to pill mills, and 5) generally doing nothing to alert authorities or stop enormous shipments of their opioids that were obviously being diverted and abused.

In total chemists need to understand that this epidemic was 'made' by illegal and unethical marketing, but 'enabled' by more powerful opioids that we created either oblivious to, or naive about their ability to elicit addiction. We should be more aware about what is the extent of the bad things that can be
done with the chemistries we are involved. We should not assume others will necessarily properly manage their risks.

If a neuro-pharma-chemist offered oxycontin to their company as the answer to chronic pain in 1996, they should be sued for malpractice. Even at that time the literature was clear that a generic mu-opiod agonist would form the basis for strong addiction.

http://www.latimes.com/projects/la-me-oxycontin-part2/
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2622774/

Kees de Vos (November 15, 2017 4:08 PM)
Charles J. Sykes wrote an important book that should be integrated into education as early as possible. A nation of victims with the subtitle: the decay of the American character. Written in 1992 it still is and so more will be a lesson for the future.

Oliver J. Toigo (November 16, 2017 11:27 AM)
The article states that the Quincy Police have distributed PPE to officers in the field including hand sanitizer. When a person's skin are exposed to fentanyl powder or its other potent analogs, the alcohols present in most hand sanitizers will permit some degree of transdermal action and pose a significant health risk. NIOSH has recently recommended not using hand sanitizers if skin contamination has occurred. Soap and water are suggested.

Oliver J. Toigo, CHMM, M.P.H., Northern Virginia

vic (November 16, 2017 3:41 PM)
There is research on the effects and rehabilitation for those already addicted. Although more in the realm of the medical and psychology fields, it would be useful and encouraging to hear about that too. The statistics for rehab are dismal even though a lot of money and effort have gone into the programs.

Every new prescription should be required to have a written list of precautions.
that are verbally discussed with the doctor, in other words not one of those legalese docs too long too read. Every doctor should be required to say "this is addictive." A lot of addictions occur either in the teenage years when judgment is poor, or by patients who trusted their doctors. As a chemist, I know how to look up anything the doctor prescribes but not everyone thinks the way a chemist does.

There is currently a public myth growing that marijuana is a safer substitute for alcohol or opioids. Instead addicts are becoming addicted to multiple substances. Any research in pain management or any drug should not ignore brain damage. The brain damage of marijuana should not be ignored.

Matthew (November 16, 2017 8:18 PM)
Thats great that attention is being brought to this ongoing issue. However, creating tamper-resistant medications will create the need for addicts to pursue street opiates (i.e. heroin) or other drugs.

Bill (November 19, 2017 12:12 AM)
I don't get it. Isn't addiction the goal of most prescription drugs? To be fair, opioids do seem to cause a higher than usual death rate and public health crisis. But that's a small price to pay for a steady revenue stream. And, after all, as opposed to illicit drugs, the tax has been paid.