**FENTANYL-LACED HEROIN OVERDOSES RISE IN CALIFORNIA SIGNALING HIGHER NEED FOR CLINICAL CAUTION**

**The CDC reports that opioids of all types have killed more than 33,000 people in 2015 alone, and the number is rising. A newer threat of mixed opioids plagues Ventura County in California and could signal a need for more caution across the country.**

Ventura County has reported a rise in fatal opioid overdoses that could be attributed to the spread of heroin laced with fentanyl. “People are using these drugs expecting one result and getting a much more potent result, a result that can end up with death,” says Dr. Robert Levin, a physician and public health officer in the county. The public health officials of the county note that opiates can be accessed very easily, sometimes by mail order, and that there is very little oversight in the mixes of opioids that people are purchasing illegally.

Some forms of synthetic opioids are significantly easier to produce and sell illegally than are others. Carfentanyl and fentanyl are both extremely potent in small quantities and present an extreme health risk as a result. Synthetic opioids as a whole have caused 72.2% more deaths from 2014 to 2015, according to the CDC. The CDC also reports that the rates at which confiscated drugs testing positive for fentanyl are growing faster than prescription rates. This indicates that synthetic opioids like fentanyl are further infiltrating the street and illicit drug use scene.

It is the mixing of synthetic opioids with heroin that is most troubling, especially for Ventura County. Fentanyl is a synthetic opioid that is 50 to 100 times more potent than morphine. Heroin, in comparison, is two to four times as potent as morphine, according to a research article in the Journal of Pharmacology and Experimental Therapeutics. Mixing fentanyl and heroin can easily produce an opioid dose that exceeds the potency of safely prescribed amounts of opioids by several orders of magnitude.  
  
**What can be done about this problem?**

Ultimately, opioid dependence and addiction must be resolved under supervision of a qualified health provider. A core component of any addiction or dependence treatment program is toxicology-based monitoring for compliance and for metrics. Acutis Diagnostics is a New York toxicology lab that works closely with the medical and patient community to ensure safe, healthy, and timely treatment of all disorders, including opioid dependence and addiction. Please contact Acutis Diagnostics to learn how the services offered here can help provide a path to treatment for all patients.

For more information about the recent events in Ventura County, please look at [this article by the Ventura County Star](http://www.vcstar.com/story/news/local/2017/07/25/local-health-officials-sound-alarm-fentanyl/504661001/).

For more information about fentanyl and to see a wealth of information about the opioid crisis, visit the CDC’s page about fentanyl [here](https://www.cdc.gov/drugoverdose/opioids/fentanyl.html).

To read the Journal of Pharmacology and Experimental Therapeutics’ article about equivalent doses of heroin and morphine, please [click here](http://jpet.aspetjournals.org/content/136/1/43).

*This article is written by Yusuf Sheth. Yusuf is a Masters of Public Health Candidate at Downstate Medical Center.*

# GABAPENTIN PRESCRIPTIONS RISE ALONGSIDE ABUSE, PROMPTING QUESTIONS ABOUT RECLASSIFICATION

**As the nation battles an opioid epidemic, clinicians across the country are forced to reconsider the abuse potential of a nerve pain medication - gabapentin.**

Gabapentin, also prescribed as Neurontin, is a nerve pain medication used to treat a variety of conditions. Most notably, it is prescribed to treat seizures and neuropathic pain. It is so commonly used in the treatment of neuropathy that it has surpassed oxycodone in volume of doses prescribed. It’s prescribed for a broad swathe of off-label uses including treatment of anxiety, insomnia, bipolar disorder, restless leg syndrome, alcoholism, migraine, hot flashes, fibromyalgia, and many other conditions.

But its frequent usage is not without its downsides. Gabapentin abuse does not get the attention it deserves from the healthcare industry. Even when prescribed and taken as directed by the company, it is possible that patients may experience ataxia, peripheral edema (swelling), drowsiness, and renal toxicity. However, patients who abuse the medication. When combined with opioids, gabapentin can provide a euphoric effect and mitigate opioid withdrawal symptoms. It can even provide a ‘boost of energy,’ as some patients and recreational users describe, or a ‘marijuana-like high’ as described by others.

Gabapentin prescriptions are not slowing down! An IMS Health study noted that prescriptions for gabapentin have increased 47% in frequency from 2011 to 2015. In 2015, the same study notes, 57 million prescriptions for gabapentin were written nationwide.

The way it’s used has been changing which may be driving the increasing volume of prescriptions. Gabapentin is not a controlled medication. The way this regulation was decided was based on the fact that it used to be use as a monotherapy, but it now is used alongside several other medications (most notably opioids!). Due to its radical shift regarding in the past decade  how it’s used, it’s prompting questions about how to classify the medication.

At Acutis Diagnostics, we aim to enrich the patient-provider experience by providing tools to build open, honest communication. Our toxicology and testing services are crucial to building transparency on the road to better health. We know that treatment is always high-priority so we provide a suite of timely services that you can learn more about at <http://www.acutisdiagnostics.com/testing>.

For more information about the IMS Health study regarding volume of gabapentin prescriptions written, [please visit this link.](http://www.imshealth.com/files/web/IMSH%20Institute/Reports/Medicines_Use_and_Spending_Shifts/Medicine-Spending-and-Growth_1995-2014.pdf)

This article was adapted from information presented in a USA Today article regarding gabapentin abuse and a Pharmacy Times article about the classification of gabapentin. Please visit the links below to access these articles.  
  
<https://amp-usatoday-com.cdn.ampproject.org/c/amp.usatoday.com/story/103293378/>

<http://www.pharmacytimes.com/contributor/shelby-leheny-pharmd-candidate-2017/2017/01/should-the-schedule-change-on-gabapentin>

# WHERE A PATIENT LIVES MIGHT BE INFLUENCING CLINICIAN’S OPIOID-PRESCRIBING DECISION-MAKING

A large-scale analytical study published by nonprofit FAIR Health earlier this month discovered correlations between the location of residence of patients, nationally and locally, and the rates at which they filed healthcare claims for opioids.

Most importantly, this study highlights that the nature of the opioid crisis is demographically quite different from state to state. The study looked at the five most-populous cities in the country: Chicago, Houston, Los Angeles, New York, and Philadelphia. It discovered the following trends about each city:

* Out of these cities, Philadelphia has the highest proportion of claims with opioid-related diagnoses in comparison to total claims across the state.
* Claims with opioid-related diagnoses in Los Angeles increased 31,897% from 2007 to 2016.
* San Antonio, Texas holds only 5% of Texas’ population but is responsible for 66% of claims with opioid-related diagnoses.
* In Illinois and Pennsylvania, males are more likely to file for claims with opioid-related diagnoses, although the gap narrows above age 50.
* In Acutis Diagnostics’ home state of New York, the researchers found that New York City constituted 43% of the population but only 13% of the claims with opioid-related diagnoses in the state.

The researchers also found an age-related trend across the country. In suburban and rural settings, claims with opioid-related diagnoses were more concentrated among middle-aged people, whereas in cities, they were more broadly spread across all age-groups.

The study did not claim to understand why these trends have manifested, but the authors offer the following advice. All stakeholders in healthcare including patients, providers, and the government should keep a keen eye on wide trends such as these to better understand the health crisis of this era.

Here at Acutis Diagnostics, we are committed to staying at the forefront of healthcare knowledge to ensure that we can best serve the healthcare community.

Visit our Articles section to see more content we’ve published: <http://www.acutisdiagnostics.com/articles>

 To view FAIR Health’s website, please follow this link. Information from this article was drawn from the study titled “Peeling Back the Curtain on Regional Variation in the Opioid Crisis: Spotlight on Five Key Urban Centers and Their Respective States.”

<http://www.fairhealth.org/>

You can download the study by clicking the link to the study below.

**DOWNLOAD FILE:**

http://www.acutisdiagnostics.com/modules/file/icons/application-pdf.png [PEELING\_BACK\_THE\_CURTAIN\_ON\_REGIONAL\_VARIATION\_IN\_THE\_OPIOID\_CRISIS\_FINAL\_JUNE\_2017 (1).PDF](http://www.acutisdiagnostics.com/sites/default/files/Peeling_Back_the_Curtain_on_Regional_Variation_in_the_Opioid_Crisis_FINAL_June_2017%20%281%29.pdf)

# US NATIONAL TOXICOLOGY PROGRAM POISED TO ADD IVIVE PREDICTIVE SOFTWARE TO ITS RETINUE

The US National Toxicology Program (NTP) has recently developed a crucial tool for clinicians and toxicologists alike called Integrated Chemical Environment (ICE). ICE is a central access point for toxicology references and for model predictions to a given substance or hazard. This tool allows robust scientific exploration of the interactions of various substances and can be used for exploratory purposes as well as predictive or confirming needs.

Notably, ICE looks to implement a clinical tool called IVIVE. In-vivo-to-in-vitro extrapolation (IVIVE) is a predictive computational tool that enables analyses of substances and interactions from the womb to after birth. This tool can be used for a variety of critical functions past the obvious ones for neonatologists and obstetricians. Linking in vitro activity to in vivo exposures and outcomes can help toxicologists and physicians understand the pathways that drugs take and improve patient outcomes for those of all ages.

The US NTP hopes to include tutorials and tools to enable people of all skill levels and backgrounds to use ICE. The tutorials should include simple answers to frequently-asked questions, guides on how to use various models, and other easily-digestible learning tools. These resources are currently under development. The US NTP predicts a 2018 launch date.

At Acutis Diagnostics, we make it a point to stay abreast of toxicology and clinical news so we can assist our patients and providers in the best ways possible. For more information about how we can help, please visit our testing services page or contact us for more information. <http://www.acutisdiagnostics.com/testing>

# FIGHTING THE OPIOID EPIDEMIC FROM THE GROUND UP: TEACHING RISING MEDICAL PROFESSIONALS HOW TO USE NALOXONE

In April of this year, Wright State University, Ohio was the staging ground for equipping healthcare students to better handle the opioid crisis. A coalition of various local activism and healthcare improvement groups assembled an event to train more than 40 aspiring professionals about how to use naloxone. The group included medical students, healthcare-related undergraduate students, pharmaceutical students, and physician assistant students.

Naloxone, the opioid antagonist used to block the effects of opioids notably in formulations such as Suboxone, has become ubiquitous in the fight against opioid overdose. Law enforcement and other emergency response forces have even begun to train to use it. Naloxone is a critical part of the opioid-dependence treatment. When bundled with buprenorphine in Suboxone, it acts to deter abuse of the opioid while ensuring that the patient does not undergo withdrawal.

The opioid crisis is critically important to healthcare providers today. The CDC reports that 91 Americans die every single day from opioid overdose, including from prescription drugs. Training health practitioners to be able to respond to this is crucial in preventing unnecessary death and getting the proper treatment to these patients.

At Acutis Diagnostics, our goal is to be a clinical tool that ensures the best possible care for the patient. Please visit our testing services page to see how our laboratory can benefit you and your patients: <http://www.acutisdiagnostics.com/testing>

To read more about the naloxone instruction at Wright University, please see the full article at the Sidney Daily News by following the link below.  
<https://goo.gl/2FQnQ8>

# MARIJUANA WINS BIG ON ELECTION NIGHT

Voters in [California,](https://www.google.com/search?sourceid=chrome-psyapi2&ion=1&espv=2&ie=UTF-8&q=california%20election%20results&oq=california%20election%20results&aqs=chrome.0.0l6.4199j0j4#eob=enn/r/////0//////ca///) [Massachusetts](https://www.google.com/search?q=massachusetts+election+results&oq=massachusetts+election+results&aqs=chrome.0.69i59j69i57j69i60j69i59j69i60j69i61.8743j0j4&sourceid=chrome&ie=UTF-8#eob=enn/r/////0//////ma//bmc43690/) and [Nevada](https://twitter.com/ABC/status/796225353664647168) approved recreational marijuana initiatives Tuesday night, and several other states passed medical marijuana provisions, in what is turning out to be the biggest electoral victory for marijuana reform since 2012, when Colorado and Washington first approved the drug's recreational use.

In addition to the states above, [local](http://www.sunjournal.com/news/maine/2016/11/08/question-1-too-close-call-going-wednesday/2026358) [outlets](http://www.seacoastonline.com/news/20161109/maine-joins-massachusetts-voting-to-legalize-marijuana) in Maine are declaring victory for that state's legalization measure, but with 91 percent of precincts reporting [just a few thousand votes](https://www.google.com/search?sourceid=chrome-psyapi2&ion=1&espv=2&ie=UTF-8&q=maine%20election%20results&oq=maine%20&aqs=chrome.0.69i59j0l2j69i60l3.1030j0j9#eob=enn/r/////0//////me//bmc43700/) separate the "Yes" and "No" columns.

A [similar legalization measure in Arizona](https://www.google.com/search?num=100&espv=2&q=arizona+election+results&oq=arizona+election+results&gs_l=serp.3..0i131k1j0i7i30k1j0i67k1j0i7i30k1l7.1835634.1836424.0.1838889.7.7.0.0.0.0.151.554.0j4.4.0....0...1c.1.64.serp..3.4.553...0i13k1.EO7NIEP9rUc#eob=enn/r/////0//////az///) did not gain sufficient support to pass, with [52 percent of voters rejecting it](https://www.google.com/search?num=100&espv=2&q=arizona+election+results&oq=arizona+election+results&gs_l=serp.3..35i39k1j0i3k1j0i131k1j0i67k1j0i7i30k1l4j0i131k1j0i20k1.459390.461394.0.461660.9.8.1.0.0.0.121.673.5j2.7.0....0...1c.1.64.serp..1.8.673...0i13k1.QosVCy-zCzs#eob=enn/r/////0//////az///).

On the medical side, voters in Florida, North Dakota and Arkansas have approved medical marijuana initiatives. [Voters in in Montana](https://www.google.com/search?num=100&espv=2&q=montana+election+results&oq=montana+election+results&gs_l=serp.3..35i39k1j0i3k1j0i7i30k1l8.23377.24113.0.24352.7.7.0.0.0.0.124.679.4j3.7.0....0...1c.1.64.serp..2.5.501...0i131k1.XvROpxflOJs#eob=enn/r/////0//////mt///) also [rolled back restrictions](http://helenair.com/news/local/montana-passes-measure-to-expand-medical-marijuana/article_8dadf5fa-9c91-5be7-8095-98a011aa35e2.html) on an existing medical pot law.

Reformers were jubilant. “This represents a monumental victory for the marijuana reform movement,” said Ethan Nadelmann, executive director of the Drug Policy Alliance, in a statement. “With California’s leadership now, the end of marijuana prohibition nationally, and even internationally, is fast approaching.”

California has long been seen as a bellwether by both supporters and opponents of marijuana reform. The state is home to about 12 percent of the U.S. population. Given the size of the state's economy and the economic impact of the marijuana industry there, California's adoption of legal marijuana could prompt federal authorities to rethink their decades-long prohibition on the use of marijuana.

In [a recent interview with Bill Maher](https://www.youtube.com/watch?v=xXH5agV7skw), President Obama said that passage of the legalization measures on Tuesday could make the current federal approach to the drug “untenable.”

Still, the likelihood of a Trump White House leaves a lot of uncertainty about the fate of marijuana measures in the next four years. Under Obama, federal authorities largely took a hands-off approach to state-level legalization efforts. But an incoming administration more skeptical of drug reform could easily reverse that approach.

“The prospect of Rudy Giuliani or Chris Christie as attorney general does not bode well,” the Drug Policy Alliance's Nadelmann said in an interview. “There are various ways in which a hostile White House could trip things up.”

Nadelmann pointed to the success of marijuana measures in the midst of an evident Republican wave as a sign that support for legalization now cuts deeply across party lines. And citing Trump's often contradictory statements on marijuana and drug use in the past, Nadelmann added that “Donald Trump personally could probably go any which way on this.”

With today's votes, legal marijuana is also making significant inroads in the Northeast. “Marijuana legalization has arrived on the East Coast,” said Tom Angell of the marijuana reform group Marijuana Majority in an email. “What Colorado and other states have already done is generating revenue, creating jobs and reducing crime, so it’s not surprising that voters in more places are eager to end prohibition.”

Opponents of legalization said they were disappointed by the outcomes. “We were outspent greatly in both California and Massachusetts, so this loss is disappointing, but not wholly unexpected,” said Kevin Sabet of the anti-legalization group Smart Approaches to Marijuana in a statement. “Despite having gained considerable ground in the last few weeks, the out-of-state interests determined to make money off of legalization put in too much money to overcome.”

Votes on medical marijuana in Florida and North Dakota were decisive. Florida's Amendment 2 passed with 71 percent support, according to the [Associated Press](https://www.google.com/search?sourceid=chrome-psyapi2&ion=1&espv=2&ie=UTF-8&q=florida%20election%20results&oq=florida%20election%20results&aqs=chrome..69i57j0l5.4774j0j4#eob=enn/r/////0//////fl//bmc43673/). In North Dakota, [the AP reports](https://www.google.com/search?sourceid=chrome-psyapi2&ion=1&espv=2&ie=UTF-8&q=north%20dakota%20election%20results&oq=north%20dakota%20election%20results&aqs=chrome.0.0l6.4967j0j1#eob=enn/r/////0//////nd//bmc43713/)that 64 percent of voters approving of the medical marijuana measure.

Two years ago, a medical marijuana measure in Florida earned [58 percent](https://ballotpedia.org/Florida_Right_to_Medical_Marijuana_Initiative,_Amendment_2_%282014%29) of the vote, [just shy of the 60 percent threshold](http://www.huffingtonpost.com/2014/11/04/florida-amendment-2-fails_n_6032422.html) needed for passage. Then, as now, opposition to the measure was fueled by multimillion-dollar donations from Sheldon Adelson, the Las Vegas casino magnate and GOP donor. In 2014 [Adelson spent $5.5 million](https://www.washingtonpost.com/blogs/govbeat/wp/2014/10/28/casino-billionaire-sheldon-adelson-is-behind-85-percent-of-floridas-anti-pot-campaign/) to defeat the measure. This year [he's spent $1.5 million in Florida](https://theintercept.com/2016/11/02/sheldon-adelson-fights-marijuana-legalization-while-funding-pro-marijuana-research/), and [several million more to defeat recreational marijuana measures](https://www.washingtonpost.com/news/wonk/wp/2016/10/26/a-casino-magnate-is-spending-millions-to-fight-legal-marijuana-in-three-states/) in other states.

“This is a major tipping point,” said Tom Angell of Florida's vote. “With Florida's decision, a majority of states in the U.S. now have laws allowing patients to find relief with medical marijuana, and these protections and programs are no longer concentrated in certain regions of the country like the West and Northeast.”

The victory in North Dakota is something of a surprise as no polling was done on the measure.

The Florida amendment has the potential to be one of the more permissive medical marijuana regimes in the nation. In addition to diseases like HIV, cancer and PTSD, the measure [also allows doctors to recommend medical pot](http://dos.elections.myflorida.com/initiatives/fulltext/pdf/50438-3.pdf) for “other debilitating medical conditions of the same kind or class as or comparable to those enumerated, and for which a physician believes that the medical use of marijuana would likely outweigh the potential health risks for a patient.” While the 2014 measure allowed doctors to prescribe marijuana for any illness they believed it would be useful for, the new measure requires they show the illness is severe — though thewording gives physicians considerable leeway in determining which conditions would meet those criteria.

The medical pot measure in North Dakota allows doctors to recommend the drug for [a number of severe medical conditions](https://ballotpedia.org/North_Dakota_Medical_Marijuana_Legalization,_Initiated_Statutory_Measure_5_%282016%29).

With the passage of Amendment 2, Florida will become the first Southern state to enact a robust medical marijuana regime. Medical marijuana is [already legal in 25 other states and the District](http://medicalmarijuana.procon.org/view.resource.php?resourceID=000881).

“Better late than never,” said Ethan Nadelmann, executive director of the drug reform group Drug Policy Alliance, in a statement. “Most states outside the South already have legal medical marijuana, but the overwhelming victory today in Florida is likely to accelerate the momentum for reform throughout the region.”

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