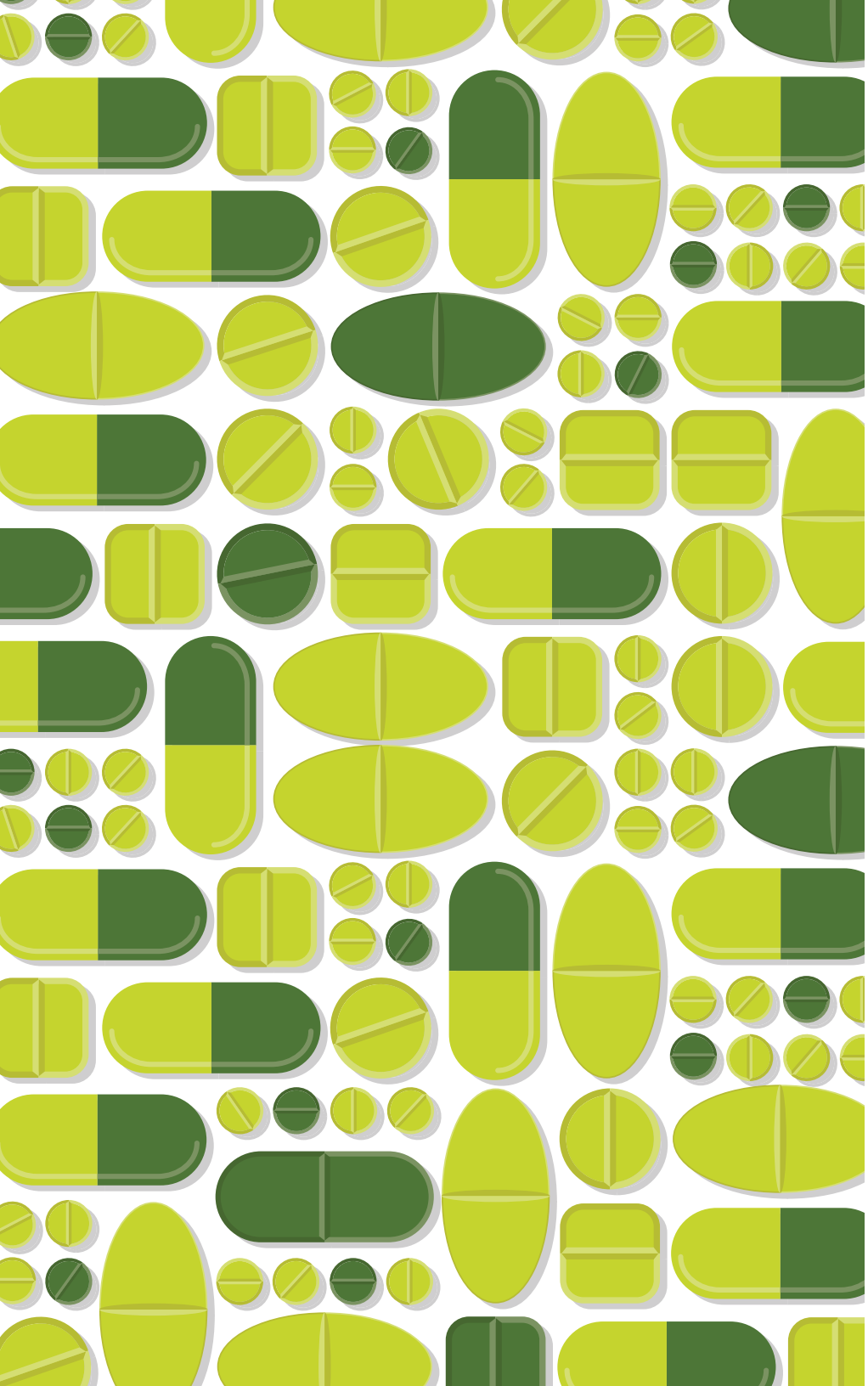


Health Trends™

Drug Misuse in America 2019

Physician Perspectives and Diagnostic Insights
on the Evolving Drug Crisis

Quest Diagnostics™

Summary

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2018 marked the first year in more than a decade that the Centers for Disease Control and Prevention (CDC) reported a decline in the number of drug overdoses, including prescription drug overdoses.[1] This welcome news suggests that the nation's prescription drug epidemic, fueled by the earlier surge in the prescription of opioids, has hit a plateau and may soon be on the wane.

However, at a granular view, continued and emerging trends suggest we have a long way to go. Evidence suggests rates of deaths from synthetic opioids, like fentanyl, now outpace those from prescribed opioids. Drug combining — also known as drug mixing — of opioids, benzodiazepines and alcohol is prevalent. Use of stimulants such as cocaine shows signs of a comeback. And gabapentin, a medication sometimes prescribed for neuropathic pain that can accentuate an opioid's "high," is now one of the most widely prescribed medications — and subject to increasing misuse.

This report aims to determine if the nation's drug epidemic is in decline or evolving into a dangerous new period. We analyzed and juxtaposed findings from two sets of data — a new survey, conducted for Quest Diagnostics and Center on Addiction by The Harris Poll, of 500 primary care physicians, and 4.4 million results of prescription drug monitoring laboratory tests for patients across the United States.

We found that primary care physicians are well-intentioned, but underprepared, and may miss some of the drug misuse risks affecting their patients.

The insights provided on the following pages illuminate some of the key challenges we still face — and potential avenues to surmount them — so that our nation can aspire to a future without the dangers of drug misuse and substance use disorders.

Regards,



Jay G. Wohlgemuth, M.D.
Senior Vice President, R&D and Medical, and Chief Medical Officer
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Drug Misuse in America 2019: Physician Perspectives and Diagnostic Insights on the Evolving Drug Crisis, a Quest Diagnostics Health Trends™ report, presents findings from analysis of more than 4.4 million de-identified aggregated clinical drug monitoring tests performed by Quest Diagnostics for patients from all 50 states and the District of Columbia from 2011 through 2018. The report also incorporates findings from a survey conducted by The Harris Poll, commissioned by Quest Diagnostics and Center on Addiction, of 500 primary care physicians in the United States.

New insights

To our knowledge, this report is the first to juxtapose insights from nationally representative, objective de-identified laboratory data and survey responses from primary care physicians about the use of controlled prescribed medications and illicit drugs in the United States. **The intersection of these two data sets reveals insights into the complexity and tenacity of the drug misuse crisis**.

Many physicians are struggling to treat chronic pain, caught between a justified reluctance to prescribe opioids and a reasonable worry that the opioid epidemic will give way to misuse of other prescription or illicit drugs. However, while they focus on responsible use of traditionally misused medications, misuse of other drugs is on the rise.

In this report, we'll uncover key fears and challenges facing physicians today, including:

62%

of physicians fear we will be trading the opioid crisis for another prescription drug crisis

51%

of patient test results from Quest Diagnostics show signs of misuse*

The Centers for Disease Control and Prevention (CDC) issued guidelines in 2016 that **recommend the use of urine drug testing before starting long-term opioid therapy** and consideration of urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit substances.[2]

* The term patient(s), when associated with the diagnostic data, refers to the subset of people under the care of a physician for the treatment of pain and other conditions, who were tested by prescription drug monitoring

For more information about prescription drug monitoring, please reference **page 11**. Please refer to Methodology on **page 13** for a detailed explanation of the study method, strengths and limitations.

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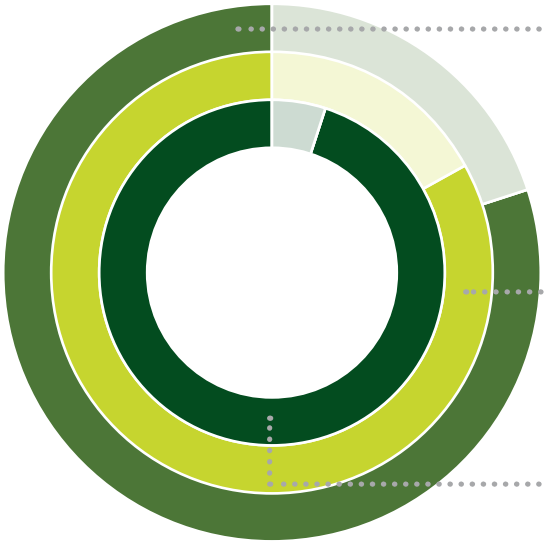
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Finding 1: Physicians may be overconfident in their ability to recognize prescription drug misuse

Even with the decrease in opioid-related deaths, laboratory data show prescription drug misuse continues to be prevalent — **more than half of patient test results from Quest Diagnostics (51%) show signs of misuse. Yet, 72% of physicians trust their patients to take their controlled medications as prescribed.**

The majority of physicians feel confident in their ability to identify and discuss misuse:



80%
are confident in their ability to recognize the signs of prescription drug misuse based on in-office interactions with patients

83%
are confident in their ability to screen for prescription drug misuse

95%
are confident in their ability to discuss the risks of prescription drug misuse with patients

Given the current levels of misuse, more efforts are needed to ensure patients are taking medications as prescribed. While physicians are confident in their ability to discuss the risks of prescription drug misuse with patients, only **55% said they actually discussed potential misuse** with most of their patients who were prescribed controlled substances in the past month. Even more alarming, more than half (56%) believe **there is no way of knowing if patients take their controlled substances as prescribed**.

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Finding 2: Drug mixing, the most prevalent form of drug misuse, is underestimated by physicians

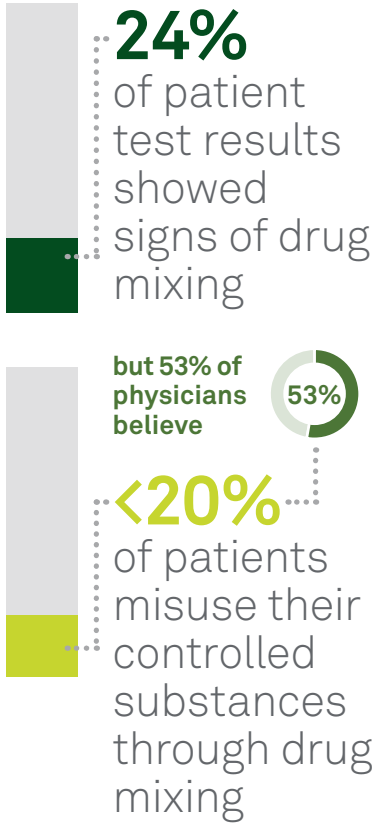
Prescription drug mixing — combining prescription medications with other drugs, including illicit drugs, other prescriptions, or alcohol — is the most prevalent form of drug misuse observed in the laboratory data.

Contrary to the laboratory data, which shows that 24% of patient test results showed misuse of controlled substances by combining prescription medications with other drugs — including illicit drugs, other prescriptions, or alcohol — most physicians (53%) underestimate drug mixing, believing that less than 20% of patient test results showed misuse of substances in this way.

The drug mixing and overdose death connection

Mixing drugs can be a potentially lethal form of misuse. According to a recent CDC review of overdose deaths, benzodiazepines and gabapentin were detected in 51.6% and 21.6% of prescription opioid-only overdose deaths respectively.[3] Quest Diagnostics data shows that 17% of patient test results show potentially dangerous combining of opioids and benzodiazepines.

Drug mixing is not only a concern when prescription opioids are involved. For example, it can be dangerous when a central nervous system depressant such as gabapentin is combined with alcohol. Alcohol was found in 14% of specimens testing positive for non-prescribed gabapentin.



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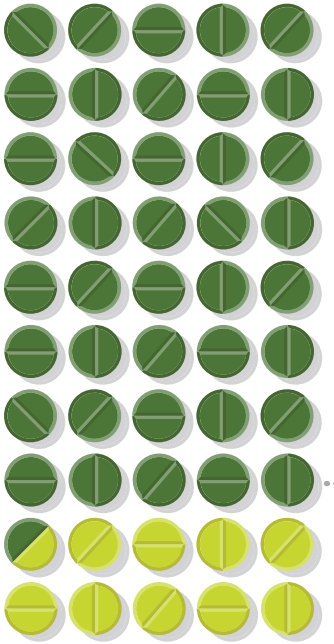
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Finding 3: Physicians are reluctant to take on patients prescribed opioids and challenged by chronic pain

Physicians are on the front line of the opioid epidemic. Although **overall prescriptions of opioids have continued to decline from their peak in 2012**,[4] physicians are confronted with new challenges of responsibly treating chronic pain patients in the wake of the epidemic.



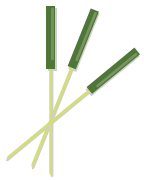
81% are reluctant to take on patients who are currently prescribed opioids

83% agree that because of the opioid crisis, it is considerably harder now to treat patients suffering from chronic pain

72% say though we may see a decrease in opioid-related deaths, the trade-off is a greater number of patients whose pain is not properly managed

62% fear we will be trading the opioid crisis for another prescription drug crisis

Because of the opioid crisis, physicians expect more of their peers will recommend the following to treat patients with chronic pain:



85%
naturopathic therapies

like acupuncture, massage, or physical therapy



58%
marijuana

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Closer Look: Illicit Drug Use

In light of the opioid epidemic, physicians worry that chronic pain patients may turn to illicit drugs. In fact,



72%
worry that chronic pain patients will turn to illicit drugs
if they do not have access to prescription opioids

While opioids and other traditionally misused medications may be top-of-mind, misuse of non-prescribed fentanyl and non-prescribed gabapentin warrant a closer look.

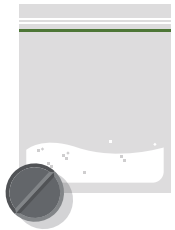
Fentanyl: a risk of illicit drug use

Emerging evidence suggests rates of overdose deaths from synthetic opioids, like fentanyl, now outpace those from prescribed opioids. Overdose deaths involving fentanyl and other synthetic opioids other than methadone increased almost 47% from 2016 to 2017.[5]

Fentanyl is often mixed with other illicit drugs — with or without the user's knowledge. Quest Diagnostics data show high rates of non-prescribed fentanyl found in individuals using cocaine or heroin:



64% of patient test results that were positive for heroin were also positive for non-prescribed fentanyl



24% of patient test results that were positive for cocaine were also positive for non-prescribed fentanyl

Illicit gabapentin on the rise



According to Quest Diagnostics data, gabapentin is now the **most commonly used medication without a prescription**, surpassing opioids and benzodiazepines.

In 2018, 13% of patient test results showed evidence of non-prescribed gabapentin — trailing only marijuana (14%) and alcohol (14%).

Non-prescribed gabapentin is one of only three drug groups for which misuse increased from 2017 to 2018 (along with alcohol and non-prescribed fentanyl).

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Finding 4: Gabapentin is emerging as an alternative pain therapy to opioids — just as misuse and illicit use increase

Gabapentin, an anticonvulsant that can be used to relieve neuropathic pain, is a non-opioid pain treatment that may be prescribed as an alternative to opioids for managing chronic pain. When taken alone and as prescribed, there is little potential for misuse or addiction. However, when a person takes gabapentin with other medications, such as muscle relaxants, opioids, or anxiety medications, it can produce a high.

While physicians may think of gabapentin as a less risky alternative to opioids, rates of misuse are surging. Laboratory data from Quest Diagnostics show that non-prescribed **gabapentin misuse rose 40% in one year** — to 13.4% in 2018 from 9.6% in 2017. This makes gabapentin the most commonly misused prescription drug in 11 states and in the top three drug groups in an additional 10 states.

Despite the increase in misuse rates, physicians are turning to gabapentin and are relatively less concerned about its potential for misuse:



say that in an effort to avoid prescribing opioids, they often prescribe gabapentin to their patients with chronic pain



have prescribed gabapentin in the past six months for chronic pain

vs.

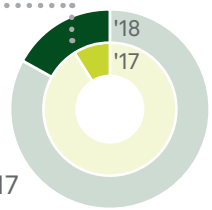


who have prescribed opioids for chronic pain in the same time frame



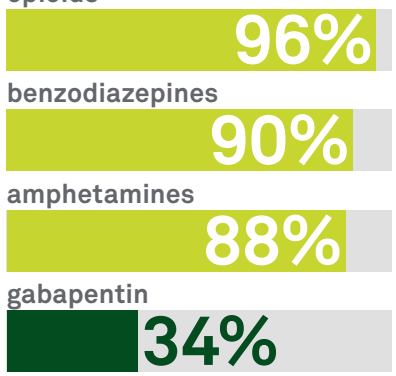
believe less than 10% of patients prescribed gabapentin misuse it

Gabapentin misuse rose **40%** in one year



to 13.4% in 2018 from 9.6% in 2017

Percentage of physicians concerned about the potential misuse of:



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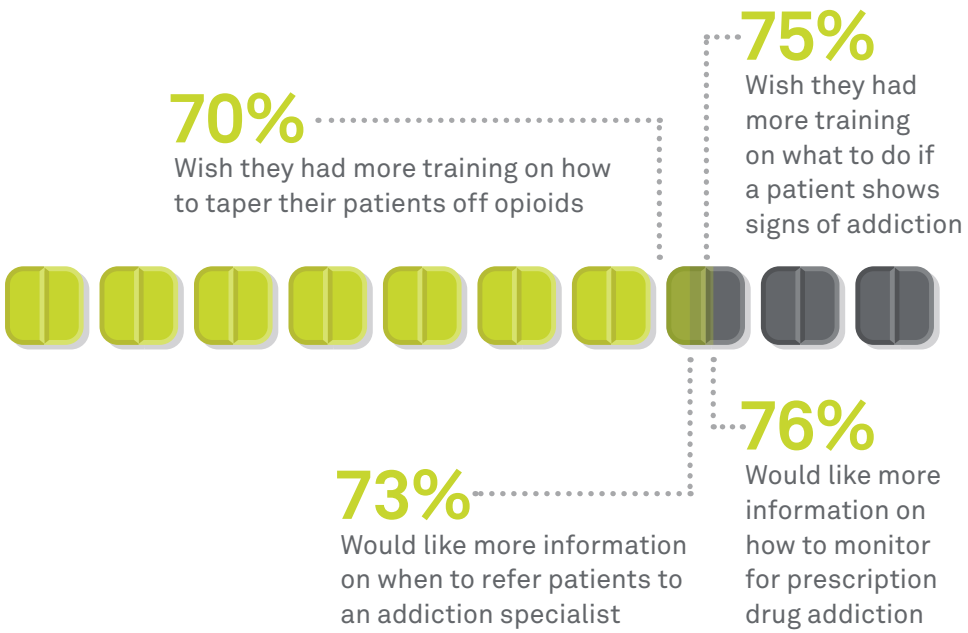
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Finding 5: Physicians seek more education and see prescription drug monitoring as part of the solution

To combat prescription drug misuse, the healthcare community and policy-makers have the opportunity to develop resources and tools to confront prescription drug misuse and protect patients from substance use disorders. A majority of physicians recognize a need for more education about addiction — from what to do if a patient shows signs of a substance use disorder, to how to taper patients off opioids.

At least seven out of ten physicians state they:



The devastating impact of stigma

by Center on Addiction

More education is necessary to help healthcare professionals challenge the stigma and stereotypes long associated with addiction. Stigma can prevent people from seeking treatment and affect a healthcare professional's willingness to assess or treat dependence or substance use disorder.

The survey we fielded with Quest Diagnostics and The Harris Poll found **77% of physicians felt that the stigma surrounding prescription drug addiction impairs patient care**.

The time is now to end the stigma: one in two people know someone affected by the opioid epidemic — and **only about 20% of those with opioid addiction get the treatment they need.**[6]

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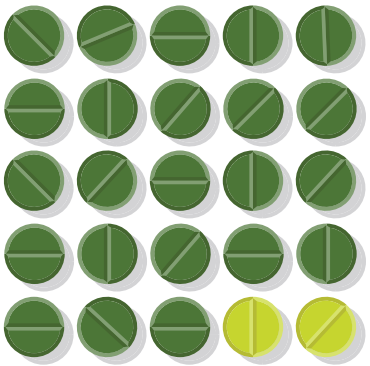
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Closer Look: Prescription Drug Monitoring

One tool physicians believe is useful in preventing and identifying prescription drug misuse is **prescription drug monitoring**; however, they also express challenges in using it in practice. Prescription drug monitoring is clinical testing (commonly via urine testing) to identify the drugs in a patient's system, including controlled prescription medications and illicit drugs.

Physician perceptions regarding prescription drug monitoring:

88% say prescription drug monitoring is critical to help identify patients who may be misusing prescription drugs



92% believe prescription drug monitoring will increasingly become the standard of care when prescribing controlled substances

95% say it is important to use prescription drug monitoring while a patient is prescribed a controlled substance

90% say it is important to use prescription drug monitoring as a baseline prior to prescribing a controlled substance

Despite positive perceptions of prescription drug monitoring, physicians cite concerns:

50% of physicians who do not always use prescription drug monitoring say access and cost issues (i.e., concerns around insurance coverage, feeling it is too expensive, or finding it inconvenient for patients) prevent them from using prescription drug monitoring more often

33% worry they will offend their patients if they recommend prescription drug monitoring

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About Drug Monitoring Tests and Drug Misuse

Laboratory test results provide objective information that can assist healthcare providers to assess patients' use of prescribed medications, other controlled non-prescribed drugs and illicit drugs.

In the case of prescription drug monitoring, a healthcare provider orders drug testing and indicates the drug or drugs prescribed for the patient. Quest Diagnostics categorizes test results as "consistent" or "inconsistent" based on the presence of drugs or drug metabolites identified through laboratory testing and their alignment with the prescription information provided by the healthcare provider.

A consistent result indicates that the prescribed drug or drugs found match those the healthcare provider indicated were prescribed for the patient on the test order.

An inconsistent result — suggesting possible misuse — occurs when:



Additional drugs are found:
all prescribed drugs are detected, but at least one other drug, non-prescribed or illicit, is also detected



Different drugs are found:
at least one prescribed drug is not detected, and at least one other drug, non-prescribed or illicit, is detected



No drugs are found:
at least one prescribed drug was not detected, and non-prescribed or illicit drug(s) were also not detected

Why would a prescribed drug not be found?



Patients may not take their prescribed drugs due to concerns of side effects, because their pain or other symptoms have subsided, or to hoard for future pain relief.



Some patients may not take their prescribed drugs because they cannot afford them.



Some patients sell or give their drugs to others not authorized to use them.



A small number of patients may be rapid metabolizers of the prescribed drug and the drug or metabolite is undetectable at the time of testing.

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Quest Diagnostics Health Trends™ is a series of scientific reports that provide insights into health topics, based on analysis of objective clinical laboratory data, to empower better patient care, population health management and public health policy. The reports are based on the Quest Diagnostics database of 48 billion de-identified laboratory test results, believed to be the largest of its kind in healthcare. Health Trends has yielded novel insights to aid the management of allergies and asthma, drug monitoring, diabetes, Lyme disease, heart disease, influenza and workplace wellness.

Quest Diagnostics also produces the **Drug Testing Index (DTI)™**, a series of reports on national workplace drug positivity trends based on the company's de-identified employer workplace drug testing data.

Quest Diagnostics empowers people to take action to improve health outcomes.

For more information visit
www.QuestDiagnostics.com or
www.QuestDrugMonitoring.com.

About Center on Addiction

Center on Addiction merged with Partnership for Drug-Free Kids in January 2019 and is the nation's leading science-based nonprofit dedicated to transforming how the nation addresses addiction. We empower families to support loved ones, advance effective addiction care and shape public policies that prevent and treat addiction as a public health issue. Center on Addiction is the only national organization committed to supporting the whole family as it addresses every aspect of substance use and addiction, from prevention to recovery.

For more information, visit
www.CenterOnAddiction.org.

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Methodology

The objectives of this study were to assess the scope and demographic drivers of prescription drug misuse in America based on:

- Analysis of clinical drug monitoring ordered by physicians through Quest Diagnostics
- A survey of 500 primary care physicians

The Health Trends™ laboratory analyses drug test result inconsistency rates. All patients were tested using the proprietary Quest Diagnostics prescription drug monitoring service and our medMATCH® reporting methodology for tests of commonly prescribed and misused drugs, including: pain medications, central nervous system medications including amphetamines, as well as certain illicit drugs such as marijuana and cocaine. Our medMATCH reports indicate whether the prescribed drug(s) specified by the ordering provider, or other drugs, are detected in a specimen. Drug testing may include presumptive immunoassay screens as well as definitive mass spectrometry quantitative analyses and confirmations of presumptive positive results.

Our study's strengths include its use of validated testing by mass spectrometry, the most sensitive and specific drug testing method, as well as its size, geographic scope and multiple years of test results. The report presents findings from analysis of more than 4.4 million de-identified aggregated clinical drug monitoring tests performed by Quest Diagnostics for patients in all 50 states and District of Columbia from 2011 through 2018. The study's limitations include geographic disparities and our inability to validate or contextualize test results with medical records. Test results from drug rehabilitation clinics and addiction specialists were excluded from the analysis, given the higher rates of testing and potentially higher rates of inconsistency in populations served in these clinical segments; thus, drug misuse rates are likely even higher than those reported here.

Like any laboratory test, a clinical determination is made by a physician according to several factors. Patient variations, such as hydration state and drug metabolism, and methodology limitations, can contribute to a failure to detect drugs in a small minority of specimens. Laboratory testing does not identify substance use disorders or impairment due to drug use. It is possible that in some cases, patients were referred to testing because their healthcare providers suspected misuse. In addition, some healthcare providers may have neglected to indicate all prescribed drugs a patient was taking when submitting the test request. The population of patients may have shifted over time. The term patient(s), when associated with the diagnostic data, refers to the subset of people under the care of a physician for the treatment of pain and other conditions, who were tested by Quest Diagnostics. Our medMATCH reports compare drugs prescribed (as indicated by the clinician on the test report) to those detected. It is not reflective of the general population.

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Quest Diagnostics Health Trends studies are performed on de-identified aggregated data in compliance with applicable privacy regulations and the company's strict privacy policies, and are deemed exempt by the Western Institutional Review Board.

The survey portion of this report was conducted online by The Harris Poll on behalf of Quest Diagnostics and Center on Addiction between July 31 and August 16, 2019 among 500 physicians who specialize in family practice, general practice, or internal medicine and are licensed in the state where they practice. Results were weighted for years in practice by gender and region to align them with their actual proportions in the population.

While a team of medical, data and communication experts contributed to this report, additional analysis was performed by Harvey W. Kaufman, M.D.; Justin K. Niles, M.A.; Jeffrey Gudin, M.D.; Jack Kain, PharmD, on behalf of Quest Diagnostics. Advisors to the report include Linda Richter, Ph.D., Director of Policy Research and Analysis, and Emily Feinstein, Executive Vice President, from Center on Addiction.

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