



RESEARCH ARTICLE

Relationship Between Patients Dispensed Prescription Opioids, Opioid Treatment Admissions and Overdose Deaths: 2006-2018 and Beyond

Larry Aubry ¹, Richard Lawhern ²

¹ independent researcher with no current professional affiliations.

² Subject matter expert on U.S. regulation of prescription opioid analgesics and clinicians who employ them in pain management. He has authored or co-authored over 250 published papers, articles, and interviews in a mixture of peer-reviewed medical journals and mass media.



OPEN ACCESS

PUBLISHED

31 March 2025

CITATION

Aubry, L., and Lawhern, R., 2025.
Relationship Between Patients Dispensed Prescription Opioids, Opioid Treatment Admissions and Overdose Deaths: 2006-2018 and Beyond. Medical Research Archives, [online] 13(3).
<https://doi.org/10.18103/mra.v13i3.6440>

COPYRIGHT

© 2025 European Society of Medicine. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI

<https://doi.org/10.18103/mra.v13i3.6440>

ISSN

2375-1924

ABSTRACT

Background: In August 2022, a paper was published by Larry Aubry and L. Thomas Carr, assessing relationships between prescription opioid sales, opioid treatment admissions and drug-related accidental deaths. This paper refines and expands the previous work by analyzing the relationship between the patients dispensed an opioid prescription to drug overdose deaths and opioid treatment admissions. It evaluates whether there is a statistically significant relationship between opioid prescribing in the current year and the subsequent year (Year + 1) and the year after that (Year + 2) opioid treatment admissions or drug overdose mortality rates. 2020-2022 data are also examined to refine understanding of the primary driving factors in U.S. accidental drug mortality.

Aims: This paper seeks to more fully answer the question, "Have prevailing public health policies restricting the availability of prescription opioid analgesics been successful in reducing accidental drug overdoses, either from all drugs or specifically from prescription opioids?"

Methods: Linear regression analysis has been applied to data published by the US CDC and the U.S. Food and Drug Administration from 2006 to 2018 – six years before and six years after a peak in U.S. opioid analgesic prescribing. 2020-2022 data from the CDC State Unintentional Drug Overdose Reporting System have been examined for trends and consistency with earlier data. Four measures have been applied:

- statistical significance of the model (overall P-value),
- quality of the data fit (R-squared), and
- the sign of the linear slope coefficient (positive or negative correlation)
- proportion of patients dispensed an opioid prescription to opioid treatment admissions and to deaths attributed to prescription opioid drugs.

Results: No positive correlations were found between the number of patients dispensed an opioid prescription versus present-year, present-plus--year, or present-year-year+2 prescription opioid mortalities, opioid treatment admissions, and any opioid and total overdose deaths. Recent accidental drug-related deaths are dominated by non-prescription opioids, specifically illegal fentanyl and stimulants– not patients dispensed an opioid prescription.

Conclusions: Current public health policy restricting the availability of clinically prescribed opioid analgesics has had no discernable effect on opioid treatment admissions or drug overdose/poisoning mortality.

Keywords: Prescription Opioid, Drug Addiction, Drug Overdose Deaths, Opioid treatment admissions.

Introduction:

For the past 40 years, the U.S. has experienced an exponential rise in the number of drug overdose deaths¹. Since 2021, these deaths exceeded 100,000 annually^{2,3}. Some commentators and policymakers attribute this increase to advertising campaigns such as "Pain as the Fifth Vital Sign"^{4,5} and the diversion of large quantities of pharmaceutical-grade opioids into street markets via "pill mills" during the first decade of the 21st Century⁶. Government officials, including the Director of the United States (US) Centers for Disease Control and Prevention (CDC), have asserted that physicians "over-prescribing" opioid analgesic medications to their patients was a major cause of this debacle⁷⁻¹³.

A Previous Paper: Larry Aubry and L. Thomas Carr published a paper in August 2022 assessing the relationships between opioid prescribing volume, treatment admissions, and drug-related overdose deaths¹⁴. Figure 1 below offers an apt summary of the findings published in that paper.

The left axis of Figure 1 displays the Number of U.S. drug poisoning/overdose deaths by year from 2010 to 2019. The right axis of the figure portrays two categories of data:

- MME/Capita (abbreviated "POS") is the gross volume of opioid analgesics prescribed in the U.S. each year, portrayed as Morphine Milligram Equivalents per adult (green line).
- Opioid Treatment Admissions in thousands (blue line). Three categories of data on drug poisoning/overdose deaths are portrayed:
- Opioid Rx Deaths (POD – lower solid red line)" involving a prescription opioid are relatively constant across the period, at approximately 14,000 to 17,000 per year.
- "Any Opioid Deaths (AOD)" are mortality reports involving legal or illegal opioids, shown on the dashed red line, rising sharply from left to right.
- "Total Overdose Deaths (TOD-upper solid red line)" includes poisoning/overdose deaths attributed to any drug of any kind.

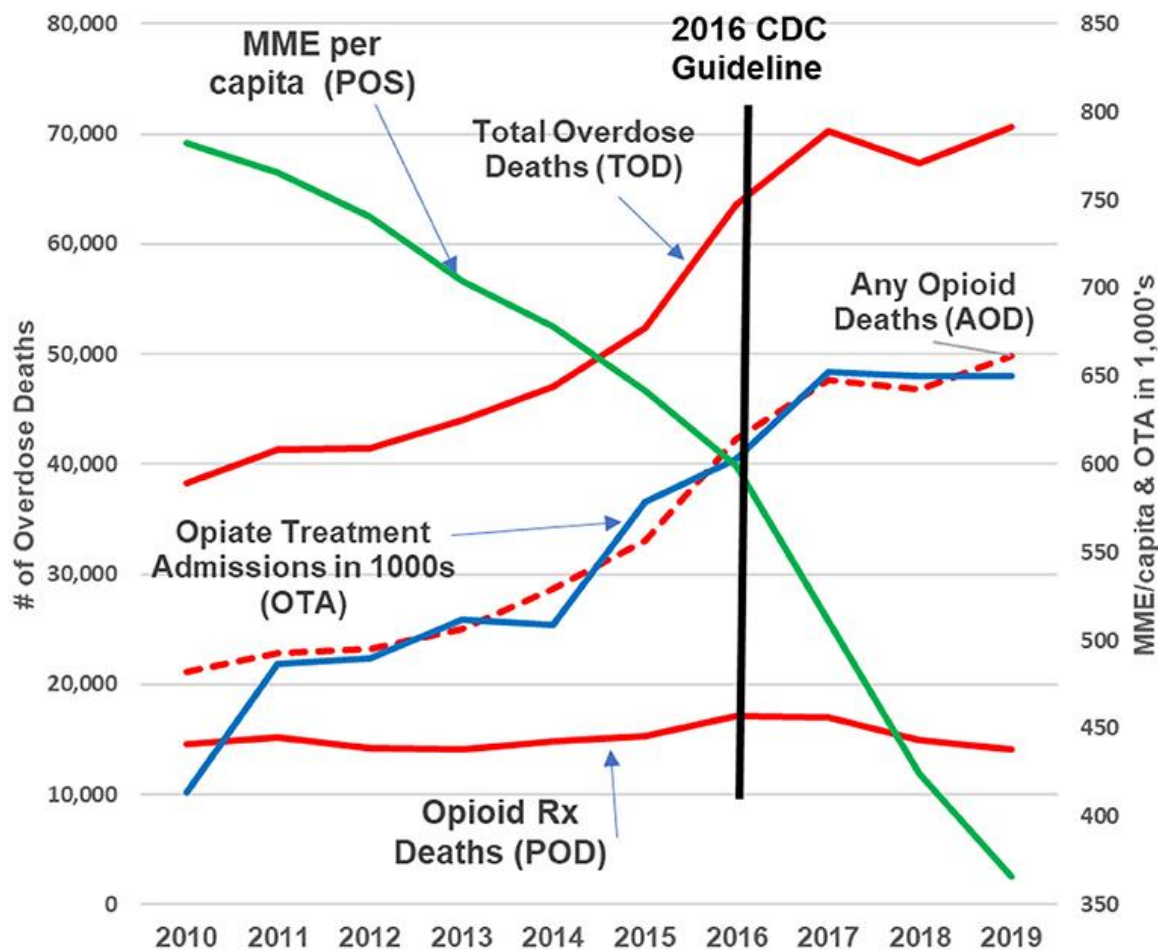


Figure 1: U.S. Drug Overdose Deaths, Opioid Treatment Admissions and MME/capita 2010-2019¹

From 2010 to 2019, the total volume of prescribed opioids dropped by about 55%. Total overdose deaths involving opioids and drugs of all types rose by 70%, even as the component of this rise attributed to prescription opioids each year remained nearly constant. These characteristics track directly to the emergence of illegal fentanyl as a major and deadly contaminant in counterfeit drugs sold on U.S. streets.

Refinements of the Data and Analysis:

Following the previous paper, Larry Aubry submitted a Freedom of Information Act request to the U.S. Food and

Drug Administration (FDA). The FDA provided the "Estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies, 2006-2018" (P#) in response to the FDA Freedom of Information Act (FOIA) File 2021-2978¹⁵.

Methodology:

A graph of the 2006-2018 data was created, and regression analysis was conducted for three time frames to evaluate the potential time delay effects between patients dispensed an opioid prescription and drug overdose mortalities or opioid treatment admissions:

Relationship Between Patients Dispensed Prescription Opioids, Opioid Treatment Admissions and Overdose Deaths

- In the same year, prescriptions were dispensed,
- In the following year, prescriptions were dispensed, and
- In the second year after, prescriptions were dispensed.

The year-by-year number of patients dispensed opioid prescriptions became the independent variable for a regression analysis from 2006 to 2018 for four dependent variables:

- Prescription Opioid Deaths (POD):** Deaths in which any prescription opioid is a contributing factor. ICD-10 codes (T40.2-T40.3)². Many such deaths will generate multiple reports for contributing agents in several ICD-10 codes (T40.0 for opium, T40.1 for Heroin, T40.2-T40.3 for prescription opioids, T40.4 for Synthetic Opioids other than methadone (primarily fentanyl), T40.5 for Cocaine, and T40.6 for "other and unspecified narcotics").
- Any Opioid Deaths (AOD):** Deaths in which any opioid (prescription or non-prescription) is reported as a contributing factor. ICD-10 codes (T40.0-T40.4, T40.6)².
- Total Overdose Deaths (TOD):** Deaths in which any drug of any kind is a contributing factor. "Includes deaths with underlying causes of unintentional drug

poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision"².

- Opiate/Opioid Treatment Admissions (OTA):** Admissions to facilities licensed or certified by the State for opioid (legal or illegal) substance abuse treatment^{16,17}.

Results:

Figure 2 shows the annual number of patients that were dispensed an opioid prescription from an outpatient retail pharmacy, opioid treatment admissions, and drug overdose deaths from 2006-2018. The green solid line represents the "estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies" (P#)¹⁵. The blue line is Opioid Treatment Admissions. The red lines are (from top down) Total Overdose Deaths (red solid), All Opioid Deaths (red dash dot), and Prescription Opioid Deaths (red dash). The black vertical line marks the 2012 historical peak in the number of patients dispensed an opioid prescription.

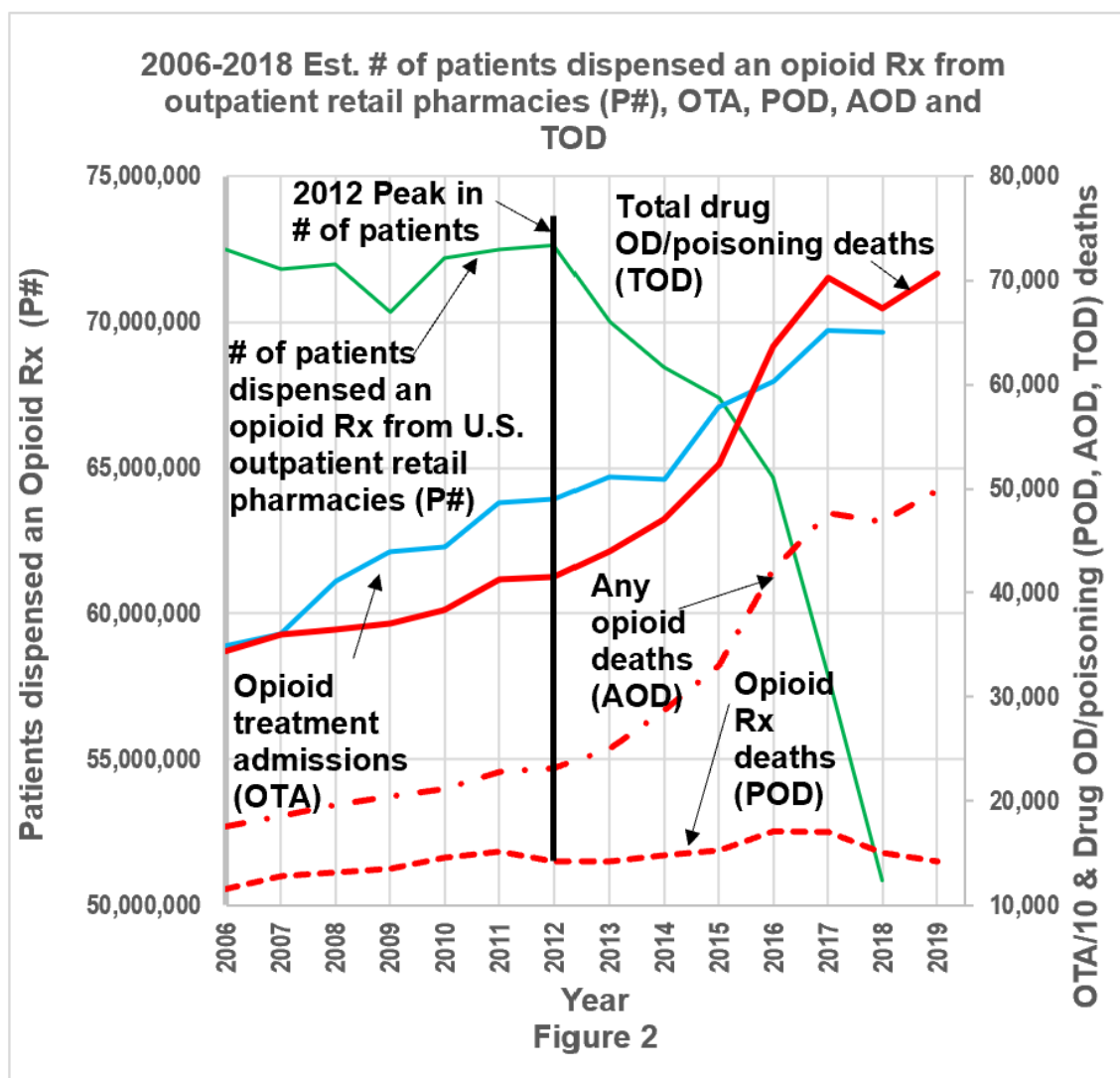


Figure 2: Graph representing 2006-2018 Drug Overdose Deaths, Opioid Treatment Admissions and Number of patients dispensed an opioid prescription.

Figure 3 illustrates the linear regression of opioid treatment admissions, prescription opioid deaths, any opioid deaths and total overdose deaths as a function of the "estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies" (P#)¹⁵ during the same year, from 2006-2018. The red dashed line, TOD, represents total

overdose deaths. The blue dash with a single dot line, OTA, is opioid treatment admissions. The green dash with two dot line, AOD, indicates any opioid deaths. The black dotted line, POD, is prescription opioid deaths. The black solid vertical line marks the year of the 2016 CDC Guideline for Prescribing Opioids for Chronic Pain — United States¹⁸.

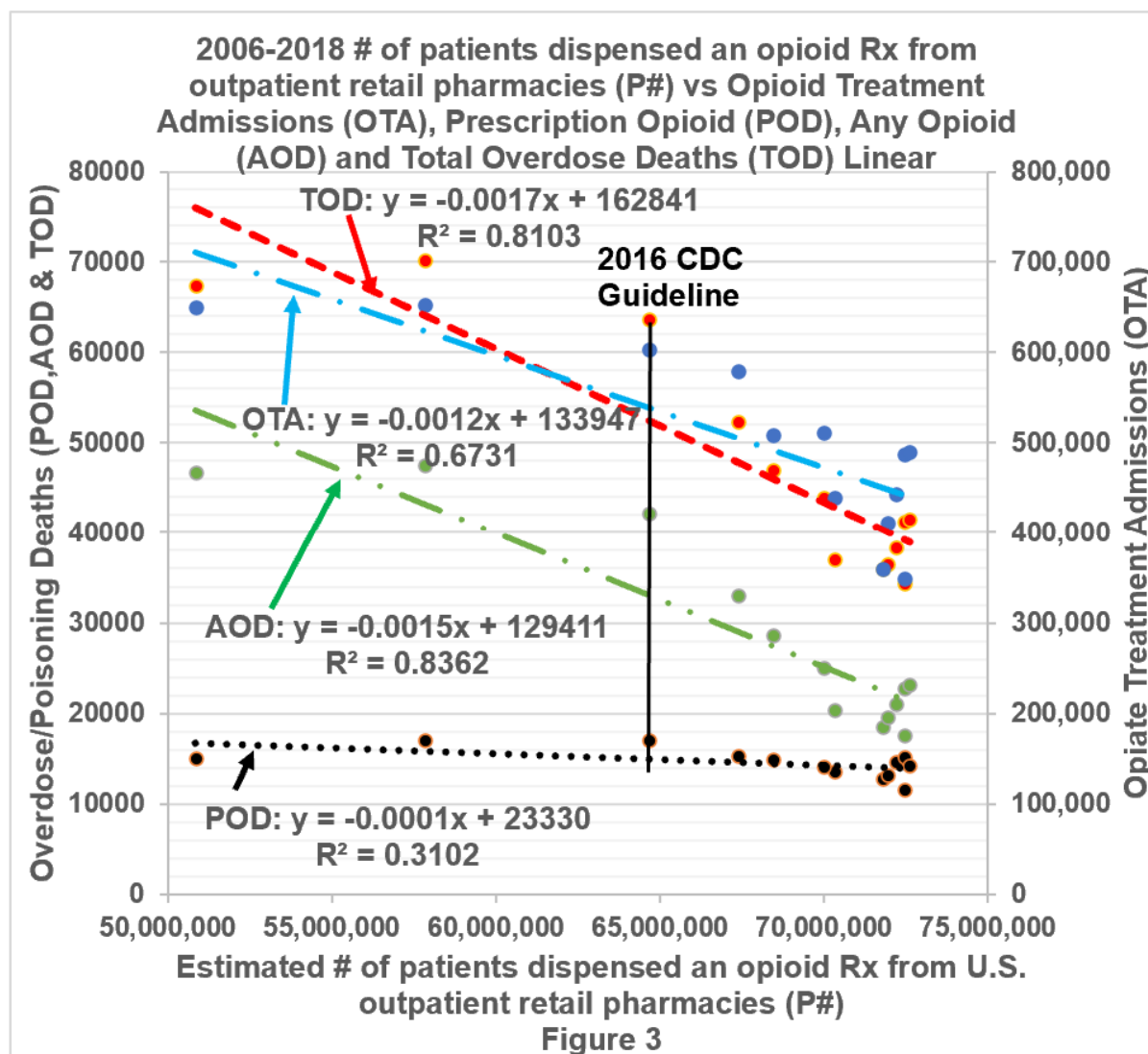


Figure 3: Linear Regression Graph representing 2006-2018 Drug Overdose Deaths, Opioid Treatment Admissions as a function of the Number of patients dispensed an opioid prescription.

Tables 1-3: Summary tables for linear regression analysis results by the same-year, year-plus-one, and year-plus-two analyses (95% confidence level).

Tables 1: Regression Summary Table 2006-2018: P# vs. OTA, POD, AOD & TOD								
Dependent Variable 2006-2018	Independent Variable 2006-2018	n	Linear Regression					Interpretation
			R ²	P-value	Slope	95% LCL	95% UCL	
(OTA) Opiate Treatment Admissions	(P#) # of patients dispensed an opioid Rx	13	0.67	0.001	-0.0124	-0.0181	-0.0067	Negative relationship, significant
(POD) Prescription opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	13	0.31	0.048	-0.0001	-0.0003	0.0000	Negative relationship, significant, weak model, P# not useful in predicting POD
(AOD) Any opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	13	0.84	< 0.001	-0.0015	-0.0019	-0.0011	Negative relationship, significant, strong model
(TOD) Total overdose deaths	(P#) # of patients dispensed an opioid Rx	13	0.81	< 0.001	-0.0017	-0.0023	-0.0012	Negative relationship, significant, strong model

Table 2: One Year Lag Regression Summary Table: 2006-2017 P# vs. 2007-2018 OTA, POD, AOD & TOD								
Dependent Variable 2007-2018	Independent Variable 2006-2017	n	Linear Regression					Interpretation
			R ²	P-value	Slope	95% LCL	95% UCL	
(OTA) Opiate Treatment Admissions	(P#) # of patients dispensed an opioid Rx	12	0.64	0.002	-0.0171	-0.0260	-0.0081	Negative relationship, significant, good fit
(POD) Prescription opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	12	0.28	0.077	-0.0002	-0.0003	< 0.001	Negative relationship, significant, weak model, P# not useful in predicting POD
(AOD) Any opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	12	0.77	< 0.001	-0.0022	-0.0030	-0.0013	Negative relationship, significant, good fit
(TOD) Total overdose deaths	(P#) # of patients dispensed an opioid Rx	12	0.74	< 0.001	-0.0025	-0.0035	-0.0014	Negative relationship, significant, good fit

Table 3: Two Year Lag Regression Summary Table: 2006-2016 P# vs. 2008-2018 OTA, POD, AOD & TOD								
Dependent Variable 2008-2018	Independent Variable 2006-2016	n	Linear Regression					Interpretation
			R ²	P-value	Slope	95% LCL	95% UCL	
(OTA) Opiate Treatment Admissions	(P#) # of patients dispensed an opioid Rx	11	0.7464	0.0006	-0.0281	-0.0404	-0.0157	Negative relationship, significant, good fit
(POD) Prescription opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	11	0.39	0.040	-0.0003	-0.0006	0.000	Negative relationship, significant, weak model, P# not useful in predicting POD
(AOD) Any opioid overdose deaths	(P#) # of patients dispensed an opioid Rx	11	0.7959	0.0002	-0.0037	-0.0051	-0.0023	Negative relationship, significant, good fit
(TOD) Total overdose deaths	(P#) # of patients dispensed an opioid Rx	11	0.78	0.000	-0.0043	-0.0060	-0.0025	Negative relationship, significant, good fit

Figure 4 shows the "estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies" (P#)¹⁵ as a solid green line. The blue solid line documents opioid treatment admissions (OTA), while the red dashed line documents prescription opioid deaths (POD), both as a percentage

of the estimated number of patients who received an opioid analgesic prescription from U.S. outpatient retail pharmacies. The black vertical line indicates the 2012 peak in the number of patients who were dispensed an opioid prescription.

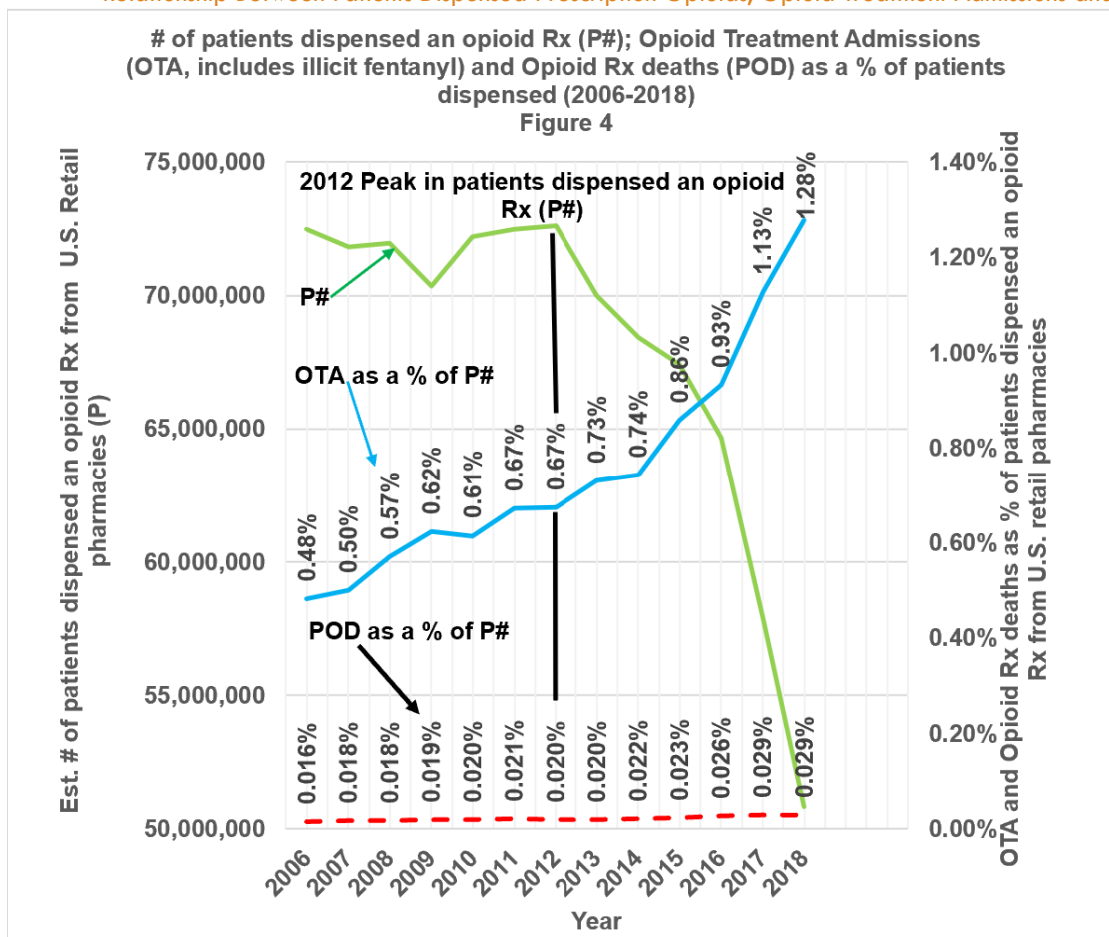


Figure 4: 2006-2018 graphical representation of prescription opioid deaths and opioid treatment admissions as a percentage of the number of patients dispensed an opioid prescription.

Trends in Prescription Opioid Related Deaths, 2020-2022

It has been known for many years that the mortality classification system of the International Classification of Diseases and the training of U.S. County Medical Examiners and Coroners lacks precision in distinguishing between accidental deaths involving legal versus illegal drugs¹⁹. US CDC has mounted a significant effort to refine the reporting and analysis of such data, resulting in the roll-out in 2019 of the State Unintentional Drug Overdose Reporting System (SUDORS)²⁰. Thus far, 36 U.S. reporting

jurisdictions of the 52 carried in the US Vital Statistics System have accepted CDC funding, retrained their reporting staff and instituted revised classification and reporting systems. This represents about 48% of the U.S. population.

Table 4 to Table 6 summarize accidental mortality reports for "all drugs," for "any opioid drugs," and for a refined list of "prescription opioid drugs." These reporting categories are not mutually exclusive; more than one report may be generated for an individual death.

Table 4: SUDORS Accidental Drug Mortality Data, 2020, 34 Jurisdictions

	National Average Rate	Maximum Rate	State	Minimum Rate	State
All Drugs (Note 1)	31.3/100K	79.4/100K	DC	7.8/100K	N. Dakota
Any Opioid Drugs	25.9 (82.8%)	69.1/100K (82.8%)	W VA	4.3/100K (55.6%)	S. Dakota
Prescription Drugs (Note 2)	7.8 (18.6%)	21.5/100K (18.6%)	W VA	~0 (20.6%)	S. Dakota

Note 1: Accidental Rates of Death reports per 100K population, 33 to 36 Jurisdictions.

Note 2: "Drugs coded as "Prescription Opioids" were alfentanil, buprenorphine, butorphanol, codeine, dihydrocodeine, hydrocodone, hydromorphone, levorphanol, loperamide, meperidine, methadone, morphine, nalbuphine, nescapine, oxycodone, oxymorphone, pentazocine, prescription fentanyl, propoxyphene, remifentanyl, sufentanyl, tapentadol, thebaine, and tramadol. Also included as prescription

opioids were brand names and metabolites (e.g., nortramadol) of these drugs and combinations of these drugs and nonopioids (e.g., acetaminophen-oxycodone). Morphine was included as prescription only if scene or witness evidence did not indicate likely heroin use and if 6-acetylmorphine was not also detected. Fentanyl was coded as a prescription opioid based on scene, toxicology, or witness evidence indicating that it was in prescribed form (e.g., a fentanyl patch was found at the scene)"²⁰.

Table 5: SUDORS Accidental Drug Mortality Data, 2021, 33 Jurisdictions

	National Average Rate (1)	Maximum Rate	State	Minimum Rate	State
All Drugs	34.4/100K	87.0/100K	W VA	9.8/100K	N Dakota
Any Opioid Drug	28.2/100K 81.8%	74.9/100K (85.5%)	W VA	4.3/100K (42.7%)	S Dakota
Prescription Drugs (2)	5.4/100K (15.7%)	17.6/100K (20.3%)	W VA	~0* (12.2%)	S Dakota

Table 6: SUDORS Accidental Drug Mortality Data, 2022, 30 Jurisdictions

	Average	Maximum Rate	State	Minimum Rate	State
National Mortality (1)	35.0/100K	94.5/100K	DC	9.4/100K	Nebraska
Any Opioid Drug	2/100K (81.8%)	72.8/100K (81.8%)	DC	6.2/100K (66.9%)	Nebraska
Prescription Drugs (2)	4.3/100K (12.5%)	11.4/100K (22.1%)	Maine	1.1/100K (16.0%)	Iowa

In these data, overall rates of U.S. accidental drug overdose mortality of all types in half of the U.S. population continue to increase at least marginally from 2020 to 2022, from 31.3 reports per 100,000 population to 35.0 reports per 100,000 population. Opioids of all types are detected in about 80% of all overdose-related accidental deaths. Rates of overdose are much higher in DC and West Virginia than in many other reporting jurisdictions across the U.S.

However, the percentage of mortality reports where one or more prescription drugs are detected drops from about 18% to 12% from 2020 to 2022. Thus, we note that overdose-related mortality is not dominated by prescription drugs.

Limitations on Analysis:

"Estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies" data includes patients of all ages and excludes opioid products used for bulk compounding or labeled for cough/cold or opioid use disorder"¹⁵.

Drug overdose/poisoning deaths and opiate/opioid treatment admissions are taken from the same data sources on which the CDC study of pre-2010 data¹² appears to be based. The values employed in the present paper are as reliable and subject to the same limitations as the data used by the CDC in their analyses.

Opiate/Opioid Treatment Admissions (OTA) data includes admissions for all opioids, legal and illegal^{16,17}. "Admissions can report up to three substances of use, so in the total column, an individual admission may be counted up to three times"^{16,17}. "... Admissions do not represent individuals. Thus, for example, an individual admitted to treatment twice within a calendar year would be counted as two admissions"^{16,p5}. "It includes admissions at facilities that are licensed or certified by the State substance abuse agency to provide substance abuse treatment (or are administratively tracked for other reasons)"^{16, p5}. It "...does not include all admissions to substance abuse treatment"^{16, p5}.

Drug overdose/poisoning deaths often involve alcohol and multiple drugs, where the source of drugs (e.g., legally prescribed vs. illicit/illegal) is unknown in

postmortem blood toxicity screens^{21,22}. "...there is no standard for postmortem toxicology testing or drug involvement determination, potentially resulting in failure to detect IMFs or other drugs"^{23, p.1746}. "...a significant underestimation of counterfeit pill involvement because identification of pills as counterfeit on the basis of appearance can be difficult, and testing of drugs found at the scene is rarely done; documenting counterfeit pill evidence is therefore challenging"^{23, p.1743,1745}. A physician's "best medical opinion" is relied upon in the documentation of a primary sequence/cause of the overdose death^{24, p.1}. However, death certificates may contain as many as 20 ICD-10 codes for various contributing factors.

Discussion:

From 2006-2018 (Figure 2), prescription opioid deaths remained relatively flat. However, opioid treatment admissions, any opioid deaths, and total overdose deaths increased significantly. At the same time, the number of patients dispensed an opioid prescription from U.S. outpatient retail pharmacies decreased by 21.8 million (almost 30%) after 2012¹⁵.

No direct correlation exists for the same year (figure 3), as well as for the one- and two-year lag between the "estimated number of patients who were dispensed an opioid analgesic prescription from U.S. outpatient retail pharmacies" and the dependent response variables: opioid treatment admissions (cited in Congressional testimony as representing opioid addiction)²⁵⁻²⁷, prescription opioid deaths, any opioid poisoning/overdose deaths, and total overdose deaths (Tables 1-3). The correlations are negative.

Neither a direct (positive) nor an inverse (negative) correlation alone proves that a cause-and-effect relationship exists²⁸⁻³¹. However, correlation is necessary for establishing a cause-and-effect relationship³¹.

Opioid treatment admissions and drug overdose deaths are not predicted by, dependent on, or determined by the number of patients dispensed an opioid prescription; there is no cause-and-effect relationship. This is not to say that an individual dispensed an opioid prescription could not become addicted or die from an overdose. As the FDA states, "...every drug that FDA approves – carries some risk"³².

From 2006 to 2018 (Figure 4), the mean and median death reports potentially linked to prescription opioids were 0.02% (SD 0.004%) of patients who received an opioid prescription that year. For opioid treatment admissions to which a prescription opioid may have contributed, the mean was 0.76% (SD 0.23%), and the median was 0.68%.

If we assume a one-year lag between the number of patients prescribed opioids (2006-2017) and prescription opioid deaths (2007-2018), the mean and median rates are 0.02% (SD 0.00%). For opioid treatment admissions, the mean rate would be 0.75% (SD 0.18%), with the median at 0.69%.

If we assume a two-year lag between the number of patients prescribed opioids (2006-2016) and prescription opioid deaths (2008-2018), then the mean and median rates are 0.02% (SD 0.00%). For opioid treatment admissions, the mean rate would be 0.75% (SD 0.14%), with the median at 0.70%.

If the number of patients dispensed an opioid Rx included mail-order pharmacy and bulk compounding (not addressed in the FOIA response for 2006-2018), these percentages would decrease. Opioid treatment admissions as a percentage of the number of patients prescribed opioids would be lower if OTA did not include non-Rx admissions (e.g., heroin, illicit fentanyl, etc.).

A review of Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, Treatment Episode Data Set (TEDS): 2000-2010 and 2008-2018^{16,17} reveals that opioid treatment admissions have been dominated by illicit and adulterated drugs, not by prescriptions. 2020 data from the State Unintentional Drug Overdose Reporting System (SUDORS) stated that 6.2% of the drug overdose deaths had "prescription opioids with no other opioids or stimulants," with it dropping to 4.6% in 2021²⁰.

Thus, we would not expect to see a significant direct statistical relationship between opioid prescribing and treatment admissions.

The mean and median number of opioid prescriptions dispensed³³ per patient¹⁵ from 2006-2018 was 3.4 (Standard Deviation 0.15), which demonstrates that a significant majority of all prescribing is for acute rather than chronic pain, with such a low exposure that the number of prescriptions cannot be attributed to clinical prescribing among patients with unremitting and chronic pain.

OTHER PERTINENT CLINICAL LITERATURE

From authoritative published sources, we are informed that: "Unlike tolerance and physical dependence, addiction is not a predictable result of opioid prescribing. Addiction occurs in only a small percentage of persons who are exposed to opioids — even among those with preexisting vulnerabilities"^{34, p.1256}.

"Five-Year Trajectories of Prescription Opioid Use" -- a five-year study of 3.47 million adults, published in JAMA Network Open -- found approximately 3% of a population-based cohort study conducted in New South

Wales, Australia, with sustained or increasing use. Study findings suggest that these adults "had greater clinical complexity and treatment needs"^{35, p.1}.

A landmark study of over 1.1 million Veterans Administration patients by Oliva, Bowe, Tavakoli, et al.,³⁶ has established a strong predictive model for next-year hospital admissions, suicide attempts, successful suicide, or accidental deaths involving prescription opioid medications. The incidence of such events in the clinical population who were prescribed opioids was on the order of 2%. However, for the highest-risk patient cohort (1,000 among 1,135,601 VHA patients), ten out of eleven highest risk factors related to a history of severe mental health issues or past diagnoses of a substance use disorder. Risk ratios were four to 20 times more significant than a history of clinical prescribing. Thus, it can be said with confidence that opioid prescribing in a clinical context is not a dominant risk factor in next-year patient mortality or hospital admissions.

Per the World Health Organization, we also learn, "After longer-term use, people receiving morphine may build tolerance to its pharmacological effects, that is, a decrease in effectiveness with the same dose. When this occurs, people require higher doses to achieve the same level of pain relief, but the higher doses do not significantly increase the risk of developing the serious adverse effects... How frequently tolerance occurs among patients treated with morphine is uncertain. Clinical experience in specific medical contexts, such as palliative care, suggests that occurrence is rare. In fact, patients often require higher doses of morphine or strong opioids for pain relief as their disease worsens"^{37, p.2}.

The CDC, FDA, federal advisory committee meetings, associations, publications, and peer-reviewed articles provide substantial evidence of harm and negative consequences caused by the systemic interventions to reduce prescription opioid analgesics, including lower quality of life, higher healthcare burden, and death³⁸⁻¹⁶⁷. The effects of systemic stigma, access barriers, surveillance, investigations and fear of legal consequences that undermine pain management also impact those with sickle cell, active cancer treatment, palliative care, or end-of-life care¹⁶³⁻¹⁶⁷. The references cited offer historical evidence validating that the harms of systemic interventions are not an aberration.

The saying, "What is measured is what is valued," is particularly relevant when looking at the 2016 CDC Guideline¹⁸ and its 2022 update¹⁶⁸ for prescribing opioids. Importantly, none of the twelve recommendations in these guidelines emphasized the need for ongoing data collection regarding patient quality of life, outcomes, hospitalizations, or deaths resulting from the application of CDC's guidelines. In response to FOIA request #21-01554, which sought "all information on adverse healthcare events and patient harm associated with the 2016 Guideline for Prescribing Opioids for Chronic Pain [01/01/2012 to 01/01/2021]," the CDC stated they did not possess any responsive records¹⁶⁹. In response to #23-00280-FOIA, the CDC stated, "The Opioid Rapid Response Program informs me that they do not have any information on whether continuity of care continues or not after law enforcement action or other

events" ¹⁷⁰. Therefore, the CDC does not have sufficient evidence to show that the benefits of their guidelines and the resultant systemic interventions outweigh the potential harm to individual patients.

Conclusions

The CDC proclaimed in 2016 that "overprescribing opioids— largely for chronic pain — is a key driver of America's drug-overdose epidemic"⁷. However, in fact, stimulants (e.g., cocaine, prescription stimulants) have been the leading cause of drug overdose death since 1999, followed by synthetic opioids (e.g., illicit fentanyl, buprenorphine) and vice versa since 2010 -- not prescription opioids².

Organizations representing more than 560,000 physicians and medical students stated in 2018, "Physicians must be able to practice medicine that is informed by their years of medical education, training, experience, and the available evidence, freely and without threat of criminal punishment"¹⁷¹.

Based on real world data and the relationships that have existed since 2006, it is essential to correct/update guidelines, policies, legislation, settlements, and enforcement actions to acknowledge this material information and to prevent misrepresentation or omission of material facts, which could knowingly and willfully

harm others. Patients, as it is their life, and doctors must be trusted to make decisions based on informed consent, including the associated risks. False relationships must not be the basis for systemic interventions that place a doctor at risk when treating a patient, deny a patient's choice based on false premises, or lack the voluntary consent of the individual.

Author Contributions

The authors contributed equally to this work and share first authorship.

Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author LA is an independent researcher with no current professional affiliations.

Author RL is a subject matter expert on U.S. regulation of prescription opioid analgesics and clinicians who employ them in pain management. He has authored or co-authored over 250 published papers, articles, and interviews in a mixture of peer-reviewed medical journals and mass media.

Funding

No outside funding was involved.

References

1. Jalal H, Buchanich JM, Roberts MS, Balmert LC, Zhang K, Burke DS. Changing dynamics of the drug overdose epidemic in the United States from 1979 through 2016. *Science*. 2018;361(6408):eaau1184. Figure 1b. <http://dx.doi.org/10.1126/science.aau1184>
2. National Drug Overdose (OD) deaths, 1999-2021. Live.com. National Institutes of Health on Drug Abuse. 2023. Accessed January 3, 2025. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fnid.nih.gov%2Fsites%2Fdefault%2Ffiles%2FOverdose_data_1999-2021%25201.19.23.xlsx&wdOrigin=BROWSELINK
3. Centers for Disease Control and Prevention. U.S. overdose deaths decrease in 2023, first time since 2018. www.cdc.gov. May 14, 2024. Accessed January 3, 2025. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2024/20240515.
4. Mandell, BF. "The fifth vital sign: A complex story of politics and patient care." *Cleveland Clinic Journal of Medicine*, June 2016;83(6):400-401. <https://doi.org/10.3949/ccjm.83b.06016>
5. Scher C, Meador L, Van Cleve JH, Reid MC. Moving Beyond Pain as the Fifth Vital Sign and Patient Satisfaction Scores to Improve Pain Care in the 21st Century. *Pain Management Nursing*. 2018;19(2):125-129. <https://doi.org/10.1016/j.pmn.2017.10.010>.
6. Duggan, G. "12 Million OxyContin Pills Shipped to a Town of 500: How Profit Fueled America's Opioid Crisis". CBC News, November 15, 2021. Accessed January 5, 2025. <https://www.cbc.ca/documentaries/the-passionate-eye/12-million-oxycontin-pills-shipped-to-a-town-of-500-how-profit-fuelled-america-s-opioid-crisis-1.6247359>
7. CDC archives. CDC Releases Guideline for Prescribing Opioids for Chronic Pain. Press Release. Para. 3. Accessed January 5, 2025. <https://archive.cdc.gov/#/details?url=https://www.cdc.gov/media/releases/2016/p0315-prescribing-opioids-guidelines.html>
8. Remarks by the President in panel discussion at the National Prescription Drug Abuse and Heroin Summit. National Archives and Records Administration. Whitehouse.gov. March 29, 2016. Paragraph 6. Accessed January 5, 2025. <https://obamawhitehouse.archives.gov/the-press-office/2016/03/29/remarks-president-panel-discussion-national-prescription-drug-abuse-and>
9. Operation Unite. Keynote Address CDC Director Dr. Tom Frieden. Lecture presented at the National Prescription Drug Abuse and Heroin Summit on March 30, 2016. Vimeo. Accessed January 5, 2025. <https://vimeo.com/162843894>.
10. Rudd, RA, Aleshire, N, Zibbell, JE, Gladden, RM. Increases in drug and opioid overdose deaths — United States, 2000–2014. Centers for Disease Control and Prevention. January 1, 2016. Accessed January 5, 2025. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a3.htm>
11. Dowell D, Zhang K, Noonan RK, Hockenberry JM. Mandatory provider review and pain clinic laws reduce the amounts of opioids prescribed and overdose death rates. *Health Affairs*. 2016;35(10):1876–83. p.1879,1882. <http://dx.doi.org/10.1377/hlthaff.2016.0448>
12. Paulozzi, LJ, Jones, CM, Mack, KA, Rudd, RA. CDC. Vital signs: Overdoses of prescription opioid pain relievers --- United States, 1999--2008. *Morbidity and Mortality Weekly Report (MMWR)*. November 4, 2011. Accessed January 5, 2025. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6043a4.htm>
13. ASPE Issue Brief. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Opioid Abuse in the U.S. and HHS Actions to Address Opioid-Drug Related Overdoses and Deaths.2015. P. 1–2, 5. Accessed January 5, 2025. https://aspe.hhs.gov/sites/default/files/migrated_legacy_files/56406/ib_OpioidInitiative.pdf
14. Aubry L, Carr BT. Overdose, opioid treatment admissions and prescription opioid pain reliever relationships: United States, 2010–2019. *Frontiers in Pain Research*. 2022;3. <http://dx.doi.org/10.3389/fpain.2022.884674>
15. Supplementary Table 1 FDA FOIA Response 2021-2978 Estimated # of patients prescribed 2006 to 2018 data and letter.pdf. Google Docs. Accessed January 5, 2025. <https://drive.google.com/file/d/1IrlA-joCihlWrhNzl-NHiqnykyJ9Bkvq/view?usp=sharing>
16. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. Treatment Episode Data Set (TEDS): 2000-2010. National Admissions to Substance Abuse Treatment Services. DASIS Series S-61, HHS Publication No. (SMA) 12-4701. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012. P. 5, 43, Table 1.1A, P. 72 Table 2.15. Accessed January 5, 2025. https://www.samhsa.gov/data/sites/default/files/2010_Treatment_Episode_Data_Set_National/2010_Treatment_Episode_Data_Set_National.pdf
17. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. Treatment Episode Data Set (TEDS): 2008-2018. Admissions to and Discharges From Publicly Funded Substance Use Treatment. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2020. Table 1.1a, Table 2.18. Accessed January 5, 2025. <https://www.samhsa.gov/data/sites/default/files/reports/rpt31097/2018 TEDS/2018 TEDS Tables.html#Tbl1.1a>
18. Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016. *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports*. 2016;65(No. RR-1): P. 2,16. 1–49. Doi: <http://dx.doi.org/10.15585/mmwr.rr6501e1>
19. Lawhern RA, Doctors 'overprescribing' opioids isn't the cause of the overdose epidemic — and it never was, *STAT News*, July 11, 2024. Accessed January 8, 2025. <https://www.statnews.com/2024/07/11/doctors->

- [overprescribing-opioids-didnt-cause-overdose-epidemic/](https://www.scribbr.com/methodology/correlation-vs-causation)
20. Centers for Disease Control and Prevention. State Unintentional Drug Overdose Reporting System (SUDORS). Preliminary and Final Data. Atlanta, GA: U.S. Department of Health and Human Services, CDC; December 12, 2024. Accessed January 9, 2025. <https://www.cdc.gov/overdose-prevention/data-research/facts-stats/sudors-dashboard-fatal-overdose-data.html>
21. Seth P, Rudd RA, Noonan RK, Haegerich TM. Quantifying the Epidemic of Prescription Opioid Overdose Deaths. *American Journal of Public Health*. 2018;108(4):500–502. <http://dx.doi.org/10.2105/aajph.2017.304265>
22. Peppin JF, Coleman JJ. CDC's Efforts to Quantify Prescription Opioid Overdose Deaths Fall Short. *Pain and Therapy*. 2021;10(1):25–38. <http://dx.doi.org/10.1007/s40122-021-00254-z>
23. O'Donnell J, Tanz LJ, Gladden RM, Davis NL, Bitting J. Trends in and Characteristics of Drug Overdose Deaths Involving Illicitly Manufactured Fentanyl — United States, 2019–2020. *Morbidity and Mortality Weekly Report*. December 17, 2021;70:1740–1746. P.1743,1745,1746. Accessed January 8, 2025. <https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7050e3-H.pdf>
24. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. *Instructions for Completing the Cause-of-Death Section of the Death Certificate*. P.1. Accessed January 8, 2025. https://www.cdc.gov/nchs/data/dvs/blue_form.pdf
25. Kolodny A. Statement for the Record. Andrew Kolodny, MD chief ... Before the U.S. Senate Caucus on International Narcotics Control "America's addiction to opioids: Heroin and prescription drug abuse." May 14, 2014. P. 2. Accessed January 9, 2025. <https://www.drugcaucus.senate.gov/wp-content/uploads/2022/11/Kolodny-Testimony.pdf>
26. Kolodny A. Statement by Andrew Kolodny, MD ... on Combatting the Opioid Crisis before Committee on Energy & Commerce, Subcommittee on Health U.S. House of Representatives. February 28, 2018. P. 1, 2 Accessed January 9, 2025. <https://docs.house.gov/meetings/IF/IF14/20180228/106915/HHRG-115-IF14-Wstate-KolodnyA-20180228.pdf>
27. Kolodny A. Statement for the Record. Andrew Kolodny, MD ... Before the U.S. Senate Committee on Homeland Security and Governmental Affairs "Unintended Consequences: Medicaid and the Opioid Epidemic." January 17, 2018. P.1. Accessed January 9, 2025. [Testimony-Kolodny-2018-01-171.pdf](https://www.senate.gov/record/testimony/2018/01/17/171.pdf) (senate.gov)
28. Reason. X.com (formerly Twitter). The war on pain drugs has turned out to be a colossal failure. [pic.twitter.com/7lnhr5tfxb](https://twitter.com/7lnhr5tfxb) [Internet]. Twitter. 2023. Accessed January 9, 2025. <https://twitter.com/i/status/1712183836711256216>
29. Bhandari P. Correlation vs. Causation | Difference, Designs & Examples. Scribbr. June 22, 2023. Accessed February 10, 2025. <https://www.scribbr.com/methodology/correlation-vs-causation>
30. Freakonomics Radio Network. Correlation vs. Causality: The Debunked Link Between Ice Cream and Polio | Freakonomics. YouTube. August 2011. Accessed January 9, 2025. <https://www.youtube.com/watch?v=lbODqslc4Tg>
31. Chambliss DF, Schutt RK. Causation and Experimental Design;106-109. P.108. Sagepub.com. Accessed January 9, 2025. https://www.sagepub.com/sites/default/files/upm-binaries/23639_Chapter_5_Causation_and_Experimental_Design.pdf
32. Clarke P. Office of Communications, CDER. U.S. Food & Drug Administration. Accessed January 10, 2025. <https://www.fda.gov/drugs/special-features/adverse-event-reporting-valued-information>
33. Statista. Number of annual opioid prescriptions in the U.S. 2006-2023. Statista. Accessed January 5, 2025. <https://www.statista.com/statistics/753149/total-number-of-opioid-rx-prescriptions-in-us/>
34. Volkow ND, McLellan AT. Opioid Abuse in Chronic Pain — Misconceptions and Mitigation Strategies. *The New England Journal of Medicine*. 2016;374(13):1253–1263. P. 1256. <http://dx.doi.org/10.1056/nejmra1507771>
35. Gisev N, Buizen L, Hopkins RE, et al. Five-Year Trajectories of Prescription Opioid Use. *JAMA Network Open*. 2023;6(8):e2328159. P.1. [doi:10.1001/jamanetworkopen.2023.28159](https://doi.org/10.1001/jamanetworkopen.2023.28159)
36. Oliva EM, Bowe T, Tavakoli S, et al. Development and applications of the Veterans Health Administration's Stratification Tool for Opioid Risk Mitigation (STORM) to improve opioid safety and prevent overdose and suicide. *Psychological Services*. 2017;14(1):34–49. [doi:10.1037/ser0000099](https://doi.org/10.1037/ser0000099)
37. Left behind in pain: extent and causes of global variations in access to morphine for medical use and actions to improve safe access. Geneva: World Health Organization; 2023. License: CC BY-NC-SA 3.0 IGO. P.2. Accessed January 8, 2025. <https://iris.who.int/bitstream/handle/10665/369294/9789240075269-eng.pdf>
38. Dowell D, Haegerich T, Chou R. No shortcuts to safer opioid prescribing. *The New England Journal of Medicine*. 2019;380(24):2285–7. <http://dx.doi.org/10.1056/nejmp1904190>
39. CDC Newsroom. CDC. CDC advises against misapplication of the guideline for prescribing opioids for chronic pain. 2019. Accessed January 10, 2025. <https://archive.cdc.gov/www.cdc.gov/media/releases/2019/s0424-advises-misapplication-guideline-prescribing-opioids.html>
40. Center for Drug Evaluation and Research (CDER). U.S. Food and Drug Administration (FDA). The Voice of the Patient. Chronic Pain. FDA.gov. 2019. Accessed August 29, 2024. <https://www.fda.gov/media/124390/download>
41. Center for Drug Evaluation and Research. FDA identifies harm reported from sudden discontinuation of opioid pain medicines and requires label changes to guide prescribers on gradual, individualized tapering. U.S. Food and Drug Administration. FDA. 2019. Accessed January 10, 2025.

- <https://www.fda.gov/drugs/drug-safety-and-availability/fda-identifies-harm-reported-sudden-discontinuation-opioid-pain-medicines-and-requires-label-changes>
42. 2023-1490 FDA FOIA 4 19 2019 FDA Drug Safety Communication.pdf. Google Docs. Accessed January 10, 2025. <https://drive.google.com/file/d/1k1koTUzby4teiGCNM08ZmygdUEh4Kv4/view>
43. Report to Congress on Opioid Prescribing Limitations. Department of Health and Human Services. 2020. p.3,4,10,11,13,14,15,19,22,23. Accessed January 10, 2025. <https://www.fda.gov/media/147152/download>
44. Best Practices Pain Management Best Practices Inter-Agency Task Force Report Updates, Gaps, Inconsistencies, and Recommendations Pain Management Draft Final Report.; 2019. <https://www.hhs.gov/sites/default/files/pain-mgmt-best-practices-draft-final-report-05062019.pdf>; 2019. HHS.gov. P.12, 18. Accessed January 11, 2025. <https://www.hhs.gov/sites/default/files/pain-mgmt-best-practices-draft-final-report-05062019.pdf>
45. First Do No Harm: The DEA targets Physicians who treat their patients pain. Petition2Congress. Accessed January 12, 2025. <https://www.petition2congress.com/ctas/first-do-no-harm-dea-targets-physicians-who-treat-their-patients>
46. American Medical Association. Physicians' Progress toward Ending the Nation's Drug Overdose and Death Epidemic OPIOID TASK FORCE 2020 PROGRESS REPORT.; 2020. P.4. <https://www.ama-assn.org/system/files/2020-07/opioid-task-force-progress-report.pdf>
47. National Council on Independent Living. NCIL.org. Accessed January 13, 2025. [6-25-19-Chronic-Pain-Sign-On-Letter.pdf](https://www.ncil.org/6-25-19-Chronic-Pain-Sign-On-Letter.pdf) (ncil.org)
48. Madara JL. MD. AMA-assn.org. Walmart.com. Accessed January 16, 2025. <https://corporate.walmart.com/content/dam/corporate/documents/newsroom/2020/12/22/a-misguided-department-of-justice-lawsuit-forces-pharmacists-between-patients-and-their-doctors/2019-09-24-ama-letter-to-walmart-regarding-opioid-stewardship.pdf>
49. Madara JL. AMA-assn.org. Docket No. CDC-2020-0029. June 16, 2020. Accessed August 30, 2024. <https://searchlf.ama-assn.org/undefined/documentDownload?uri=%2Funsstructured%2Fbinary%2Fletter%2FLETTERS%2F2020-6-16-Letter-to-Dowell-re-Opioid-Rx-Guideline.pdf>
50. American Medical Association. AMA backs update to CDC opioid prescribing guidelines. American Medical Association. Published July 22, 2021. <https://www.ama-assn.org/press-center/press-releases/ama-backs-update-cdc-opioid-prescribing-guidelines>
51. Jesse M. Ehrenfeld, American Medical Association. Overdose Epidemic Physicians' Actions to Help End the Nation's Drug-related Overdose and Death Epidemic—and What Still Needs to Be Done.; 2023. P.14. Accessed January 23, 2025. <https://www.ama-assn.org/system/files/ama-overdose-epidemic-report.pdf>
52. American Board of Pain Medicine. Second Annual Survey of Pain Medicine Specialists Highlights Continued Plight of Patients with Pain, and Barriers to Providing Multidisciplinary, Non-Opioid Care Impact of Prior Authorization for Non-Opioid Therapies on Clinical Outcomes. Accessed January 16, 2025. <https://abpm.org/uploads/files/abpm%20survey%202019-v3.pdf>
53. Health Professionals for Patients in Pain (HP3). Professionals Call on the CDC to Address Misapplication of its Guideline on Opioids for Chronic Pain through Public Clarification and Impact Evaluation. March 6, 2019. Google Docs. Accessed January 22, 2025. https://docs.google.com/document/d/1RzQDSppUKhjiAsEmhW2WbTXIP5V8vJ4M_vBPQLKhK_8/edit?tab=t.0#
54. Darnall BD, Juurlink D, Kerns RD, et al. International Stakeholder Community of Pain Experts and Leaders Call for an Urgent Action on Forced Opioid Tapering, Pain Medicine, Volume 20, Issue 3, March 2019, Pages 429–433, <https://doi.org/10.1093/pm/pny228>.
55. Fenton JJ, Magnan E, Tseregounis IE, Xing G, Agnoli AL, Tancredi DJ. Long-term Risk of Overdose or Mental Health Crisis After Opioid Dose Tapering. JAMA Network Open. 2022;5(6):e2216726. [doi:10.1001/jamanetworkopen.2022.16726](https://doi.org/10.1001/jamanetworkopen.2022.16726)
56. Magnan EM, Tancredi DJ, Xing G, Agnoli A, Jerant A, Fenton JJ. Association Between Opioid Tapering and Subsequent Health Care Use, Medication Adherence, and Chronic Condition Control. JAMA Network Open. 2023;6(2):e2255101. [doi:10.1001/jamanetworkopen.2022.55101](https://doi.org/10.1001/jamanetworkopen.2022.55101).
57. Agnoli A, Xing G, Tancredi DJ, Magnan E, Jerant A, Fenton JJ. Association of dose tapering with overdose or mental health crisis among patients prescribed long-term opioids. JAMA. 2021;326(5):411–9. [doi:10.1001/jama.2021.11013](https://doi.org/10.1001/jama.2021.11013)
58. Rose ME. Are prescription opioids driving the opioid crisis? Assumptions vs facts. Pain Medicine. 2017.;19(4):793–807. [http://dx.doi.org/10.1093/pm/pnx048](https://dx.doi.org/10.1093/pm/pnx048)
59. Mills L. "Not Allowed to Be Compassionate." Human Rights Watch. December 18, 2018. Accessed January 12, 2025. <https://www.hrw.org/report/2018/12/18/not-allowed-be-compassionate/chronic-pain-overdose-crisis-and-unintended-harms-us>
60. Szalavitz M. We're overlooking a major culprit in the opioid crisis. Scientific American. 2021. Accessed January 12, 2025. <https://www.scientificamerican.com/article/were-overlooking-a-major-culprit-in-the-opioid-crisis/>
61. Ari M, Alexander JT, Weyer G. Prescribing Opioids for Pain. JAMA. 2023;329(20):1789–1790. [doi:10.1001/jama.2023.6539](https://doi.org/10.1001/jama.2023.6539)
62. Lawhern RA. Resources for Clinicians in Pain Medicine: Correcting Medical Mythologies on Prescription of Opioid Analgesics. Medical Research Archives, [S.l.], v. 11, n. 12, dec. 2023. ISSN 2375-1924. [doi:https://doi.org/10.18103/mra.v11i12.4860](https://doi.org/10.18103/mra.v11i12.4860).
63. Szalavitz M. Opinion. 'Entire Body Is Shaking': Why Americans With Chronic Pain Are Dying. The New York Times. January 3, 2023. Accessed January 12, 2025. <https://www.nytimes.com/2023/01/03/opinion/chronic-pain-suicides.html>

64. Satel S, Mead LM, Moe TM. The truth about painkillers. National Affairs. Accessed August 29, 2024. <https://www.nationalaffairs.com/publications/detail/the-truth-about-painkillers>
65. Benintendi A, Kosakowski S, Lagisetty P, Larochelle M, Bohnert ASB, Bazzi AR. "I felt like I had a scarlet letter": Recurring experiences of structural stigma surrounding opioid tapers among patients with chronic, non-cancer pain. Drug Alcohol Dependence. 2021;222:108664. doi:10.1016/j.drugalcdep.2021.108664
66. Lagisetty P, Kehne ARH, Thomas J, et al. Improving Access to Care for Patients Taking Opioids for Chronic Pain in Michigan: Findings from an Expert Panel. 2021. Accessed January 13, 2025. P.3-5. <https://dx.doi.org/10.7302/1699>
67. Lagisetty P, Healy N, Garpestad C, Jannausch M, Tipirneni R, Bohnert ASB. Access to primary care clinics for patients with chronic pain receiving opioids. JAMA Network Open. 2019;2(7):e196928. <http://dx.doi.org/10.1001/jamanetworkopen.2019.6928>
68. Singer JA, Sullum JZ, and Schatman MS, "Today's nonmedical opioid users are not yesterday's patients; implications of data indicating stable rates of nonmedical use and pain reliever use disorder" Journal of Pain Research, February 7, 2019, Accessed January 13, 2025. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6369835/>
69. Whitehead S, Miller A. Chronic pain patients struggle to get opioid prescriptions filled, even as CDC eases guidelines. CNN. March 17, 2023. Accessed January 13, 2025. <https://www.cnn.com/2023/03/17/health/opioid-chronic-pain-cdc-guidelines-khn-partner/index.html>
70. Saccò M, Meschi M, Regolisti G, et al. The relationship between blood pressure and pain. Journal of Clinical Hypertension. 2013;15(8):600-605. <http://dx.doi.org/10.1111/jch.12145>
71. Iliades C. MD. Can pain cause high blood pressure? University Health News. 2021. Accessed January 13, 2025. <https://universityhealthnews.com/daily/pain/can-pain-cause-high-blood-pressure/>
72. Harvard Health. Chronic pain linked to higher risk of heart attack and stroke. Accessed January 13, 2025. <https://www.health.harvard.edu/heart-health/chronic-pain-linked-to-higher-risk-of-heart-attack-and-stroke>
73. Rothstein MA, Irzyk J. The opioid crackdown leaves chronic pain patients in limbo. The Hill. November 29, 2021. Accessed January 13, 2025. <https://thehill.com/opinion/healthcare/583332-the-opioid-crackdown-leaves-chronic-pain-patients-in-limbo/>
74. Achenbach J, Bernstein L. Opioid crackdown forces pain patients to taper off drugs they say they need. The Washington Post. September 10, 2019. Accessed January 13, 2025. https://www.washingtonpost.com/health/opioid-crackdown-forces-pain-patients-to-taper-off-drugs-they-say-they-need/2019/09/10/3920f220-c8da-11e9-a4f3-c081a126de70_story.html
75. Cowan B, Tibbitts J. A program tried to cut opioid addiction among veterans. Did it cause suicides? The Washington Post. August 24, 2021. Accessed January 13, 2025. <https://www.washingtonpost.com/outlook/2021/08/24/opioids-veterans-suicides-interventions-safety/>
76. Oliva EM, Bowe T, Manhapra A, et al. Associations between stopping prescriptions for opioids, length of opioid treatment, and overdose or suicide deaths in U.S. veterans: Observational evaluation. The BMJ. (Clinical research ed.). 2020 Mar 4;368:m283. Accessed January 13, 2025. doi:10.1136/bmj.m283.
77. VA study uncovers critical link between pain intensity and suicide attempts - VA News. VA News. October 30, 2019. Accessed January 13, 2025. <https://news.va.gov/67708/va-study-uncovers-link-pain-intensity-suicide-attempts/>
78. Gotbaum R. Pain Patients Say They Can't Get Meds After Illegal Rx Drug Crackdown. MedpageToday. August 6, 2015. Accessed January 20, 2025. <https://www.medpagetoday.com/painmanagement/painmanagement/52960>
79. Ming K. Call Kurtis Investigates: Kaiser cuts pain prescriptions, impacting patients. CBS News.com October 27, 2022. Accessed January 20, 2025. <https://www.cbsnews.com/sacramento/news/call-kurtis-investigates-kaiser-cuts-pain-prescriptions-impacting-patients/>
80. Sullum J. People Rarely Die After Using Opioids Prescribed for Them. Reason .com February 2020. Accessed January 20, 2025. <https://reason.com/2020/01/23/people-rarely-die-after-using-opioids-prescribed-for-them/>
81. Knopf T. Hundreds of N.C. Doctors Say They've Stopped Prescribing Opioids. North Carolina Health News. October 15, 2018. Accessed January 21, 2025. <https://www.northcarolinahealthnews.org/2018/10/15/nc-doctors-stop-prescribe-opioids/>
82. Parker LJ, MD. What the DEA does not understand or does not care about medication cessation decisions. Journal of Medicine. Nursing Journals: American Society of Registered Nurses. NAMD.org. 2024. Accessed January 20, 2025. <https://www.namd.org/journal-of-medicine/3191-what-the-dea-does-not-understand-or-does-not-care-about-medication-cessation-decisions.html>
83. Jewett C, Gabler E. Opioid settlement hinders patients' access to a wide array of drugs. The New York Times. March 13, 2023. Accessed January 20, 2025. <https://www.nytimes.com/2023/03/13/us/drug-limits-adhd-depression.html>
84. Whitehead S, Miller A. Kaiser Health News. CDC's new opioid guidelines are too little, too late for chronic pain patients, experts say. NBC News. March 13, 2023. Accessed January 20, 2025. <https://www.nbcnews.com/health/health-news/cdcs-new-opioid-guidelines-little-late-chronic-pain-patients-rcna74248>
85. Llorente E. As doctors taper or end opioid prescriptions, many patients driven to despair, suicide. Fox News. December 10, 2018. Accessed January 20, 2025. <https://www.foxnews.com/health/as-opioids-become-taboo-doctors-taper-down-or-abandon-pain-patients-driving-many-to-suicide>

86. Miller K. Why people with chronic pain may die earlier. *Men's Health*. June 8, 2017. Accessed January 20, 2025.
<https://www.menshealth.com/health/a19519524/risks-chronic-pain-early-death/>
87. Grand-Gassaway A. They call me a drug seeker. Here's what their opioid policies did to me. *Filter*. March 3, 2023. Accessed January 20, 2025.
<https://filtermag.org/drug-seeker-pain-patients/>
88. The misinformed & misguided prescription abuse prevention act: A response to Delfino. *Yale Law and Policy Review*. Yalelawandpolicy.org. 2020 Accessed January 20, 2025.
https://yalelawandpolicy.org/inter_alia/misinformed-misguided-prescription-abuse-prevention-act-response-delfino
89. Hayward M. Feds to target doctors for overprescribing; Medical Society cries foul. *The New Hampshire Union Leader*. Yahoo News. June 29, 2022. Accessed January 19, 2025.
<https://www.yahoo.com/news/feds-target-doctors-overprescribing-medical-225200574.html>
90. Grant M. Special report: Pharmacies denying legitimate prescriptions. *WESH 2 News*. 2015. Accessed January 19, 2025.
<https://www.wesh.com/article/special-report-pharmacies-denying-legitimate-prescriptions/4439866>
91. Sheets C, Blakinger K. Feds knew for years fentanyl-tainted pills from Mexican pharmacies were killing Americans. *The Los Angeles Times*. March 11, 2023. Accessed January 19, 2025.
<https://www.latimes.com/world-nation/story/2023-03-11/feds-have-known-for-years-fentanyl-tainted-pills-from-mexican-pharmacies-are-killing-americans>
92. Friedman J, Godvin M, Molina C, et al. Fentanyl, heroin, and methamphetamine-based counterfeit pills sold at tourist-oriented pharmacies in Mexico: An ethnographic and drug checking study. *Drug and Alcohol Dependence*. 2023;249:110819.
doi.org/10.1016/j.drugalcdep.2023.110819
93. Pischke P. The CDC has abandoned pain patients. Its new opioid guidelines are all for show. *USA Today*. January 5, 2023. Accessed August 29, 2024.
<https://www.usatoday.com/story/opinion/voices/2023/01/05/cdc-opioid-guidelines-leave-pain-patients-suffering/10962261002/>
94. Anson P. Forced opioid tapering: 'the next great experiment'. *Pain News Network*. May 22, 2019 Accessed August 29, 2024.
<https://www.painnewsnetwork.org/stories/2019/5/22/forced-opioid-tapering-the-next-great-experiment>
95. Zeltner B. The Plain Dealer. Suffering and abandoned: Chronic pain patients cut off in the opioid era. *Cleveland*. April 22, 2018. Accessed August 29, 2024.
<https://www.cleveland.com/healthfit/2018/04/suffering-and-abandoned-chroni.html>
96. Coons C. Tapering may have negative impacts for patients taking opioids long term. *UC Davis Health*. February 14, 2023. Accessed August 29, 2024.
<https://health.ucdavis.edu/news/headlines/tapering-may-have-negative-impacts-for-patients-taking-opioids-long-term/2023/02>
97. Amon JS, Lohman D. Denial of Pain Treatment and the Prohibition of Torture, Cruel, Inhuman or Degrading Treatment or Punishment. *Human Rights Watch* (Hrw.org). Volume 16. Number 4; 2011:172. Accessed January 21, 2025.
https://www.hrw.org/sites/default/files/related_material/2011.12%20InterRights%20Bulletin%20Article_only.pdf
98. Said C. How a crackdown on opioids is leaving patients in agonizing pain. *San Francisco Chronicle*. March 18, 2023. Accessed January 21, 2025.
<https://www.sfchronicle.com/health/article/pain-opioid-prescription-medication-17816793.php>
99. Darbha V, King L, Westbrook A. They live in constant pain, but their doctors won't help them. *The New York Times*. August 17, 2023. Accessed January 21, 2025.
<https://www.nytimes.com/2023/08/17/opinion/opioids-chronic-pain-patients.html>
100. Libby R. Treating Doctors as Drug Dealers the DEA's War on prescription painkillers. 2005. Accessed January 21, 2025.
https://www.academia.edu/77092772/Treating_Doctors_as_Drug_Dealers_The_DEAs_War_on_Prescription_Painkillers?email_work_card=title
101. Schatman ME, Ziegler SJ. Pain management, prescription opioid mortality, and the CDC: is the devil in the data? *Journal of Pain Research*. 2017; 10:2489-2495.
<https://doi.org/10.2147/JPR.S153322>
102. Atkinson TJ, Schatman ME, Fudin J. The damage done by the war on opioids: the pendulum has swung too far. *Journal of Pain Research*. May 2014; 7:265.
<http://dx.doi.org/10.2147/jpr.s65581>
103. Loria K. Has the Pendulum Swung Too Far Against the Use of Opioids? *Managed Healthcare Executive*. 2022;32. Accessed January 22, 2025.
<https://www.managedhealthcareexecutive.com/view/has-the-pendulum-swung-too-far-against-the-use-of-opioids->
104. Brookes L MSc. The pendulum has swung too far. *Treating Pain in Primary Care*. Medscape. February 22, 2019. Accessed January 22, 2025.
<https://www.medscape.com/viewarticle/909303?form=fpf>
105. Stoeltje MF. Has the opioid pendulum swung too far? *San Antonio Express*. November 5, 2018. Accessed January 22, 2025.
<https://www.expressnews.com/news/local/article/Has-the-opioid-pendulum-swung-too-far-13362604.php>
106. Freyer FJ. Doctors are cutting opioids, even if it harms patients. *The Boston Globe*. January 3, 2017. Accessed January 22, 2025.
<https://www.bostonglobe.com/metro/2017/01/02/doctors-curtail-opioids-but-many-see-harm-pain-patients/z4Ci68TePafcD9AcORs04J/story.html>
107. Schrecengost L. The other opioid crisis: A failure of care. *Discourse*. August 15, 2022. Accessed January 22, 2025.
<https://www.discoursemagazine.com/p/the-other-opioid-crisis-the-crisis-in-care>
108. Ghei, N. The other opioid crisis: How false narratives are hurting patients. *Discourse*. Published July 18, 2022. Accessed January 22, 2025.
<https://www.discoursemagazine.com/p/how-false-narratives-about-opioids-are-hurting-patients>

109. Oliva, JD. Dosing Discrimination: Regulating PDMP Risk Scores. January 18, 2021. 110 California Law Review 47 (2022). Accessed January 22, 2025. <http://dx.doi.org/10.2139/ssrn.3768774>
110. Sedney CL, Haggerty T, Dekeseredy P, et al. "The DEA would come in and destroy you": a qualitative study of fear and unintended consequences among opioid prescribers in WV. *Substance Abuse Treatment, Prevention, and Policy*. 17,19 (2022). <http://dx.doi.org/10.1186/s13011-022-00447-5>
111. Rigorous guidelines on opioid prescriptions are being abused by insurers and harming pain patients, hundreds of experts say. KFF Health News. March 7, 2019 Accessed January 22, 2025. <https://kffhealthnews.org/morning-breakout/rigorous-guidelines-on-opioid-prescriptions-are-being-abused-by-insurers-and-harming-pain-patients-hundreds-of-experts-say/>
112. Hicks JP. Doctor sues Michigan-based health system after acquitted of charges he killed terminal patients. MLive. April 14, 2023. Accessed January 23, 2025. <https://www.mlive.com/public-interest/2023/04/doctor-sues-michigan-based-health-system-after-acquitted-of-charges-he-killed-terminal-patients.html>
113. Reynolds CA, Minic Z. Chronic pain-associated cardiovascular disease: The role of sympathetic nerve activity. *International Journal of Molecular Sciences*. 2023;24(6):5378. [doi:10.3390/ijms24065378](https://doi.org/10.3390/ijms24065378)
114. Forgrave R, Star Tribune. Woman's battle vs. chronic pain expands to Minnesota's opioid laws. Star Tribune. February 15, 2020. Accessed January 21, 2025. <https://www.startribune.com/farmington-woman-battles-chronic-pain-and-opioid-laws/567911242/>
115. Anson P. Pain News Network. Pharmacies under 'extreme pressure' to give patient records to law enforcement. Pain News Network. December 12, 2023 Accessed January 23, 2025. <https://www.painnewsnetwork.org/stories/2023/12/12/pharmacies-under-extreme-pressure-to-give-prescription-records-to-law-enforcement>
116. Controversial CDC opioid guidelines – ICA responds. Interstitial Cystitis Association. October 2, 2015. Accessed January 23, 2025. <https://www.ichelp.org/controversial-cdc-opioid-guidelines-ica-responds/>
117. Anson P. Survey: CDC guideline Having 'Horrendous' Impact on pain patients. Pain News Network. March 15, 2019. Accessed January 23, 2025. <https://www.painnewsnetwork.org/stories/2019/3/12/cdc-guideline-horrendous-impact-on-patients>
118. Anson P. 2021 CDC survey — Pain News Network. Pain News Network. Accessed August 30, 2024. <https://www.painnewsnetwork.org/2021-cdc-survey>
119. Kiesel L. Chronic pain: The "invisible" disability. Harvard Health. April 28, 2017. Accessed January 23, 2025. <https://www.health.harvard.edu/blog/chronic-pain-the-invisible-disability-2017042811360>
120. Brennan, F., Lohman, D., Gwyther, L. (2019). Access to Pain Management as a Human Right. December 19, 2018. *American Journal of Public Health*. Para. 8. 2019;109(1):61-65. <https://doi.org/10.2105/AJPH.2018.304743>
121. Brennan F, Carr DB, Cousins M. Pain Management: A Fundamental Human Right. *Anesthesia & Analgesia* 105(1):p 205-221, July 2007. [Doi: 10.1213/01.ane.0000268145.52345.55](https://doi.org/10.1213/01.ane.0000268145.52345.55)
122. Berlatsky N. The Opioid Crisis Is Also a Crisis of Speech. *Pacific Standard*. August 24, 2018. Accessed January 23, 2025. <https://psmag.com/social-justice/the-opioid-crisis-is-also-a-crisis-of-speech>
123. Singer JA. Study: Blame the war on drugs (and not prescriptions) for America's opioid crisis. *The National Interest*. January 5, 2020. Accessed January 25, 2025. <https://nationalinterest.org/blog/buzz/study-blame-war-drugs-and-not-prescriptions-americas-opioid-crisis-110546>
124. Potential complications of untreated chronic pain. Painscale.com. Accessed January 25, 2025. <https://www.painscale.com/article/potential-complications-of-untreated-chronic-pain>
125. Petrosky E, Harpaz R, Fowler KA, et al. Chronic pain among suicide decedents, 2003 to 2014: Findings from the national violent death reporting system. *Annals of Internal Medicine*. 2018;169(7):448-455. [doi:10.7326/m18-0830](https://doi.org/10.7326/m18-0830)
126. Fine PG. Long-Term Consequences of Chronic Pain: Mounting Evidence for Pain as a Neurological Disease and Parallels with Other Chronic Disease States, *Pain Medicine*. 2011;12(7):996–1004. <https://doi.org/10.1111/j.1526-4637.2011.01187.x>
127. Smith D, Wilkie R, Croft P. and McBeth J. (2018), Pain and Mortality in Older Adults: The Influence of Pain Phenotype. *Arthritis Care & Research*, 70: 236-243. <https://doi.org/10.1002/acr.23268>
128. Tandoğan M, Emektar E, Dağar S, et al. The effect of severe pain on transmyocardial repolarization parameters in renal colic patients. *Eurasian Journal of Emergency Medicine*. 2022;21(3):188–92. Accessed January 26, 2025. <https://www.thefreelibrary.com/The+Effect+of+Severe+Pain+on+Transmyocardial+Repolarization...+a0721308957>
129. Foreman J. Chronic pain and the risk of suicide. *Psychology Today*. November 24, 2015. Accessed August 30, 2024. <https://www.psychologytoday.com/us/blog/nation-in-pain/201511/chronic-pain-and-the-risk-suicide>
130. Chriss R. An Epidemic of Undertreated Chronic Pain. Pain News Network. May 20, 2017. Accessed January 26, 2025. <https://www.painnewsnetwork.org/stories/2017/5/20/an-epidemic-of-undertreated-chronic-pain>
131. Whitlock EL, Diaz-Ramirez LG, Glymour MM, Boscardin WJ, Covinsky KE, Smith AK. Association between persistent pain and memory decline and dementia in a longitudinal cohort of elders. *JAMA Internal Medicine*. 2017;177(8):1146-1153. [doi:10.1001/jamainternmed.2017.1622](https://doi.org/10.1001/jamainternmed.2017.1622)
132. Glod SA. The other victims of the opioid epidemic. *New England Journal of Medicine*. 2017;376(22):2101–2102. <http://dx.doi.org/10.1056/nejmp1702188>

133. Cheek L. Charles Szyman, MD acquitted by jury in Wisconsin. Doctors of Courage. Nov. 2017. Accessed January 26, 2025. <https://doctorsofcourage.org/charles-szyman-md/>
134. Hamilton K. The DEA shut down a pain doctor. Now three people are dead. VICE. January 5, 2023. Accessed January 26, 2025. <https://www.vice.com/en/article/dy7qqv/dea-beverly-hills-doctor-shut-down-opioids>
135. Hamilton K. This couple died by suicide after the DEA shut down their pain doctor. VICE. November 30, 2022. Accessed January 26, 2025. <https://www.vice.com/en/article/wxnyb9/dea-fentanyl-doctor-patient-suicide>
136. Parker LJ. The persecution of pain management doctors. National Association of Medical Doctors. Journal of Medicine. August 1, 2023. Accessed January 26, 2025. https://www.namd.org/journal-of-medicine/3104-the-persecution-of-pain-management-doctors.html?fbclid=IwAR2QgCOVF7ggbzomehr0VUbmlF26ORLXKVrb_nvsBp4gFmG_ZhTftibX2vg_aem_AW1QKRPFirWYCPGb6rm3Uvl5j7jKVmz6EPTpYvbxZAlFJqh3lr6U-oNGd6RO4GtKQqk
137. Parker LJ. Doctor charged after treating a DEA agent. KevinMD.com. March 14, 2024. Accessed January 26, 2025. <https://www.kevinmd.com/2024/03/doctor-charged-after-treating-a-dea-agent.html>
138. Parker LJ. AI enforcement in health care: Unpacking the DEA's approach to the opioid epidemic. KevinMD.com. January 2, 2024. Accessed January 26, 2025. <https://www.kevinmd.com/2024/01/ai-enforcement-in-health-care-unpacking-the-deas-approach-to-the-opioid-epidemic.html>
139. Parker LJ. Real pain deserves real treatment. KevinMD.com. March 29, 2024. Accessed January 26, 2025. <https://www.kevinmd.com/2024/03/real-pain-deserves-real-treatment.html>
140. Rubin R. Limits on Opioid Prescribing Leave Patients With Chronic Pain Vulnerable. JAMA Network. 2019;321(21):2059–2062. doi:10.1001/jama.2019.5188
141. Kang HA, Wang B, Barner JC, et al. Opioid Prescribing and Outcomes in Patients With Sickle Cell Disease Post–2016 CDC Guideline. JAMA Internal Medicine. 2024;184(5):510–518. doi:10.1001/jamainternmed.2023.8538
142. Metz VE, Ray GT, Palzes V, et al. Prescription opioid dose reductions and potential adverse events: a multi-site observational cohort study in diverse U.S. health systems. Journal of General Internal Medicine. 2024 May;39(6):1002–1009. doi:10.1007/s11606-023-08459-y.
143. Singer JA. The War on Drugs Is Also a War on Pain Patients. CATO Institute. April 1, 2024. Accessed January 26, 2025. <https://www.cato.org/blog/war-drugs-also-war-pain-patients>
144. Anson P. 90% of pain patients have trouble filling opioid prescriptions. Pain News Network. January 11, 2024. Accessed January 26, 2025. <https://www.painnewsnetwork.org/stories/2024/1/11/nbsp-90-of-us-pain-patients-have-trouble-filling-opioid-prescriptions>
145. Parker L. J. The opioid crisis: profits, lawsuits, and pharmaceutical influence. KevinMD.com. February 29, 2024. Accessed August 30, 2024. <https://www.kevinmd.com/2024/02/the-opioid-crisis-profits-lawsuits-and-pharmaceutical-influence.html>
146. Votta A. How the Opioid Crackdown Is Hurting Chronic Pain Patients. SAPIENS. November 26, 2019. Accessed January 27, 2025. <https://www.sapiens.org/biology/chronic-pain-opioid-crackdown/>
147. Molton IR, Terrill AL. Overview of persistent pain in older adults. American Psychologist. 2014;69(2):197–207. doi:10.1037/a0035794
148. Anson P.' Misplaced and Dangerous' Opioid Study Debunked by Critics. Pain News Network. www.painnewsnetwork.org/stories/2024/6/4/misplaced-and-dangerous-opioid-study-debunked-by-critics. June 4, 2023. Accessed January 31, 2025. <https://www.painnewsnetwork.org/stories/2024/6/4/misplaced-and-dangerous-opioid-study-debunked-by-critics>
149. Anson P. Where Have All the Pain Doctors Gone? Pain News Network. January 24, 2025. Accessed February 1, 2025. <https://www.painnewsnetwork.org/stories/2025/1/24/where-have-all-the-pain-doctors-gone>
150. LeBaron C. Is the Opioid Epidemic Really Ending? Pain News Network. January 29, 2025. Accessed February 1, 2025. https://www.painnewsnetwork.org/stories/2025/1/28/is-the-opioid-epidemic-really-ending#google_vignette
151. Nadeau SE, Wu JK, Lawhern RA. Opioids and chronic pain: An analytic review of the clinical evidence. Frontiers in Pain Research. 2021;2:(721357). <http://dx.doi.org/10.3389/fpain.2021.721357>
152. Dasgupta N, Beletsky L, Ciccarone D. Opioid crisis: No easy fix to its social and economic determinants. American Journal of Public Health. 2018;108(2):182–186. <http://dx.doi.org/10.2105/ajph.2017.304187>
153. Irving P. The national opioid settlement is causing drug shortages —. Pain News Network. September 11, 2023. Accessed January 31, 2025. <https://www.painnewsnetwork.org/stories/2023/9/11/the-national-opioid-settlement-is-causing-drug-shortages>
154. Martinez J. Amid opioid crisis, chronic pain patients are struggling to fill their needed prescriptions. Hawaii News Now. March 14, 2024. Accessed January 31, 2025. <https://www.hawaiinewsnow.com/2024/03/15/a-mid-opioid-crisis-chronic-pain-patients-are-struggling-fill-their-needed-prescriptions/>
155. Shults T. Hundreds of Longview residents are unable to get opioid medication for chronic pain from local pharmacies. KGW. March 5, 2024. Accessed January 31, 2025. <https://www.kgw.com/article/news/local/longview-doctor-patients-prescriptions-filled-opioid-medication/283-68c540c3-ce39-45a7-a452-7e651fd37d18>
156. Swetlitz, I. Bloomberg. Secret limits to stop 'suspicious' Xanax and Adderall orders are forcing some

- legitimate patients to scramble. Fortune. April 3, 2023. Accessed January 31, 2025. <https://fortune.com/2023/04/03/xanax-adderall-rules-patients-opioids-pain-medication/>
157. Bishari N. 'I'm being treated like an addict': A new kind of drug crisis is descending on the Bay Area. San Francisco Chronicle. March 22, 2023. Accessed January 31, 2025. <https://www.sfchronicle.com/opinion/article/bay-area-drug-prescription-painkillers-opioid-17841947.php>
158. Jewett N., Gabler E. Opioid Settlement Hinders Patients' Access to a Wide Array of Drugs. NYTimes.com. March 13, 2023. Accessed January 31, 2025. <https://www.nytimes.com/2023/03/13/us/drug-limits-adhd-depression.html>
159. Aboulenein A. Insight: U.S. opioid crackdown hampers some patients' access to psychiatric drugs. Reuters. December 12, 2022. Accessed January 31, 2025. <https://www.reuters.com/business/healthcare-pharmaceuticals/us-opioid-crackdown-hits-some-patients-access-psychiatric-drugs-2022-12-12/>
160. Battista C. Federal charges against Louisville pain management doctor leaves patients in limbo. WDRB. July 15, 2024. Accessed January 31, 2025. https://www.wdrb.com/news/federal-charges-against-louisville-pain-management-doctor-leaves-patients-in-limbo/article_e044f33a-4085-11ef-bf38-6fe49681e197.html
161. Singer JA. The Chilling Effect: How Fear Drives Doctors Away from Pain Patients. Cato Institute. February 25, 2025. Accessed February 25, 2025. <https://www.cato.org/blog/chilling-effect-how-fear-drives-doctors-away-pain-patients>
162. DePaul's Center for Journalism Integrity and Excellence. Chronic pain patients suffer from opioid epidemic overcorrection. WTTW News. March 12, 2024. Accessed January 31, 2025. <https://news.wttw.com/2024/03/12/chronic-pain-patients-suffer-opioid-epidemic-overcorrection>
163. CBS Mornings. Sickle cell anemia patients react to breakthrough treatment. YouTube. Minutes 2:05-3:02 of 9:27. March 2019. Accessed January 31, 2025. https://www.youtube.com/watch?v=8_gU2qt3Ro0&t=150s
164. Enzinger AC, Ghosh K, Keating NL, et al. Racial and ethnic disparities in opioid access and urine drug screening among older patients with Poor-Prognosis cancer Near the end of life. *Journal of Clinical Oncology*. 2023;41(14):2511-2522. doi:10.1200/jco.22.01413
165. Enzinger AC, Ghosh K, Keating NL, Cutler DM, Landrum MB, Wright AA. U.S. Trends in Opioid Access Among Patients With Poor Prognosis Cancer Near the End-of-Life. *Journal of Clinical Oncology*. 2021;39(26):2948-2958. <https://doi.org/10.1200/jco.21.00476>
166. Azizoddin DR, Knoerl R, Adam R, et al. Cancer pain self-management in the context of a national opioid epidemic: Experiences of patients with advanced cancer using opioids. *Cancer*. 2021 Sep 1;127(17):3239-3245. doi: 10.1002/cncr.33532.
167. Schenker Y, Hamm M, Bulls HW, et al. This Is a Different Patient Population: Opioid Prescribing Challenges for Patients with Cancer-Related Pain. *JCO Oncology Practice*. 2021 Jul;17(7):e1030-e1037. Accessed January 13, 2025. doi: 10.1200/OP.20.01041.
168. Dowell D, Ragan KR, Jones CM, Baldwin GT, Chou R. CDC Clinical Practice Guideline for Prescribing Opioids for Pain — United States, 2022. *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports*. 2022;71(No. RR-3): P. 3, 15-54.1–95. Doi: <http://dx.doi.org/10.15585/mmwr.rr7103a1>
169. 21-01554 CDC FOIA letter and response.pdf. "all information on adverse healthcare events and patient harm associated with the 2016 'CDC Guideline for Prescribing Opioids for Chronic Pain.' [01/01/2012 to 01/01/2021]." Google Docs. Accessed March 1, 2025. https://drive.google.com/file/d/12T3uF1A_fAhvNw_CyX0BFs3mckCym6zA/view
170. 23-00280-FOIA Opioid Rapid Response Final Response.pdf. "all information on adverse healthcare events and patient harm associated with the 2016 'CDC Guideline for Prescribing Opioids for Chronic Pain.' [01/01/2012 to 01/01/2021]." Google Docs. Accessed March 1, 2025. https://drive.google.com/file/d/1tM7cJ9apn0cvEcj5z2klquRLEwssAqQ8/view?usp=drive_link
171. Frontline physicians call on politicians to end political interference in the delivery of evidence-based medicine. American Academy of Family Physicians. May 15, 2019. Accessed January 31, 2025. <https://www.aafp.org/news/media-center/more-statements/physicians-call-on-politicians-to-end-political-interference-in-the-delivery-of-evidence-based-medicine.html>

ⁱ Aubry L, Carr BT. Overdose, opioid treatment admissions and prescription opioid pain reliever relationships: United States, 2010–2019. *Frontiers in Pain Research*. 2022;3. <http://dx.doi.org/10.3389/fpain.2022.884674>