The Opioid Epidemic

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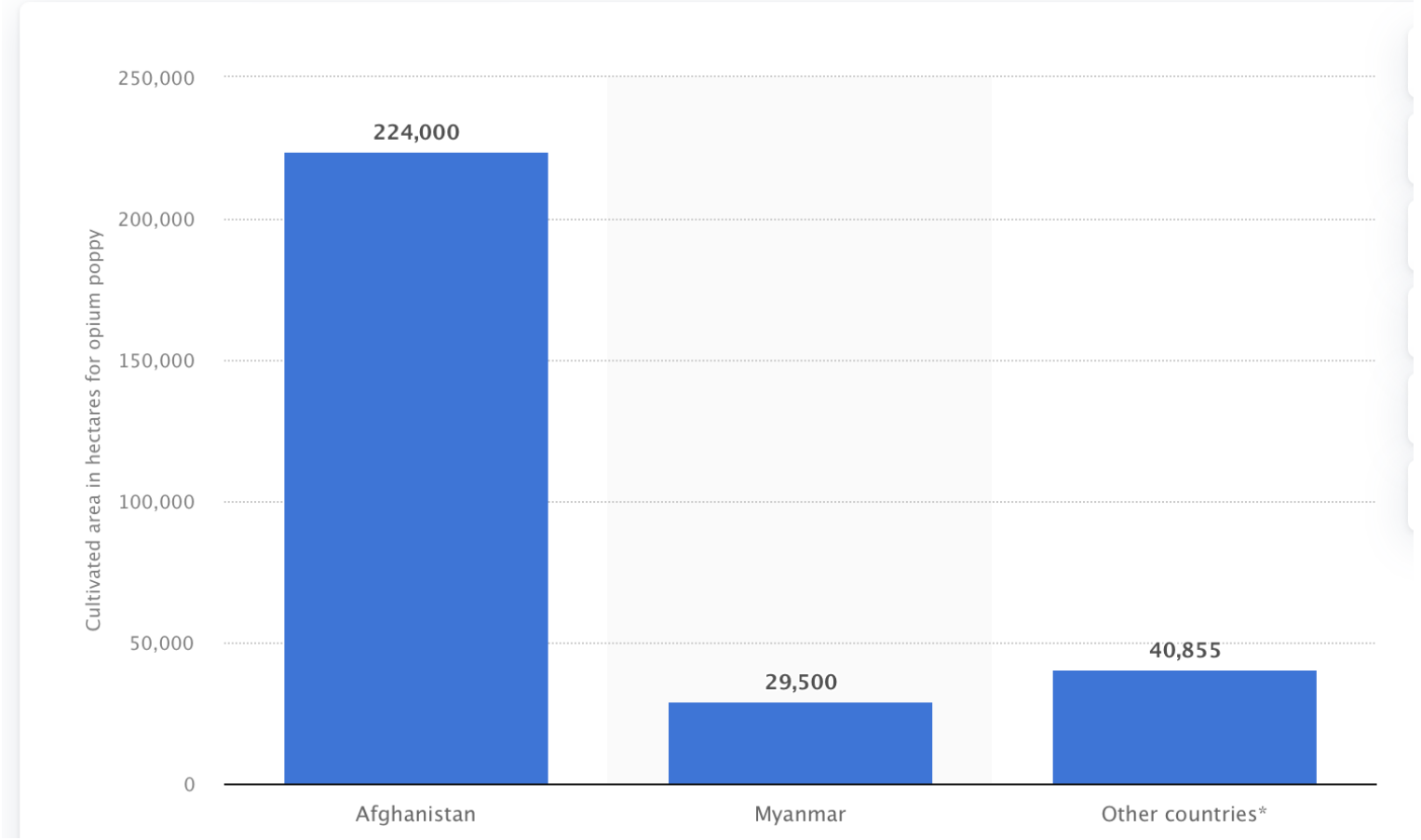
Objectives

1. Understand the history of opioid epidemics in the US
2. Understand the severity of the current opioid epidemic
3. Understand facts/statistics surrounding the opioid epidemic
4. Understand treatment efforts to combat the opioid epidemic

Opioids

- Opium Poppy Flower
  - Codeine
  - Morphine
  - Thebaine
  - Others

Opium Cultivation by Country 2020



Medical Opioid Production

Opium Uses

Recreational

Medicinal

"Cure sometimes, treat often, comfort always."

- Hippocrates

Opioid Epidemics in the U.S.

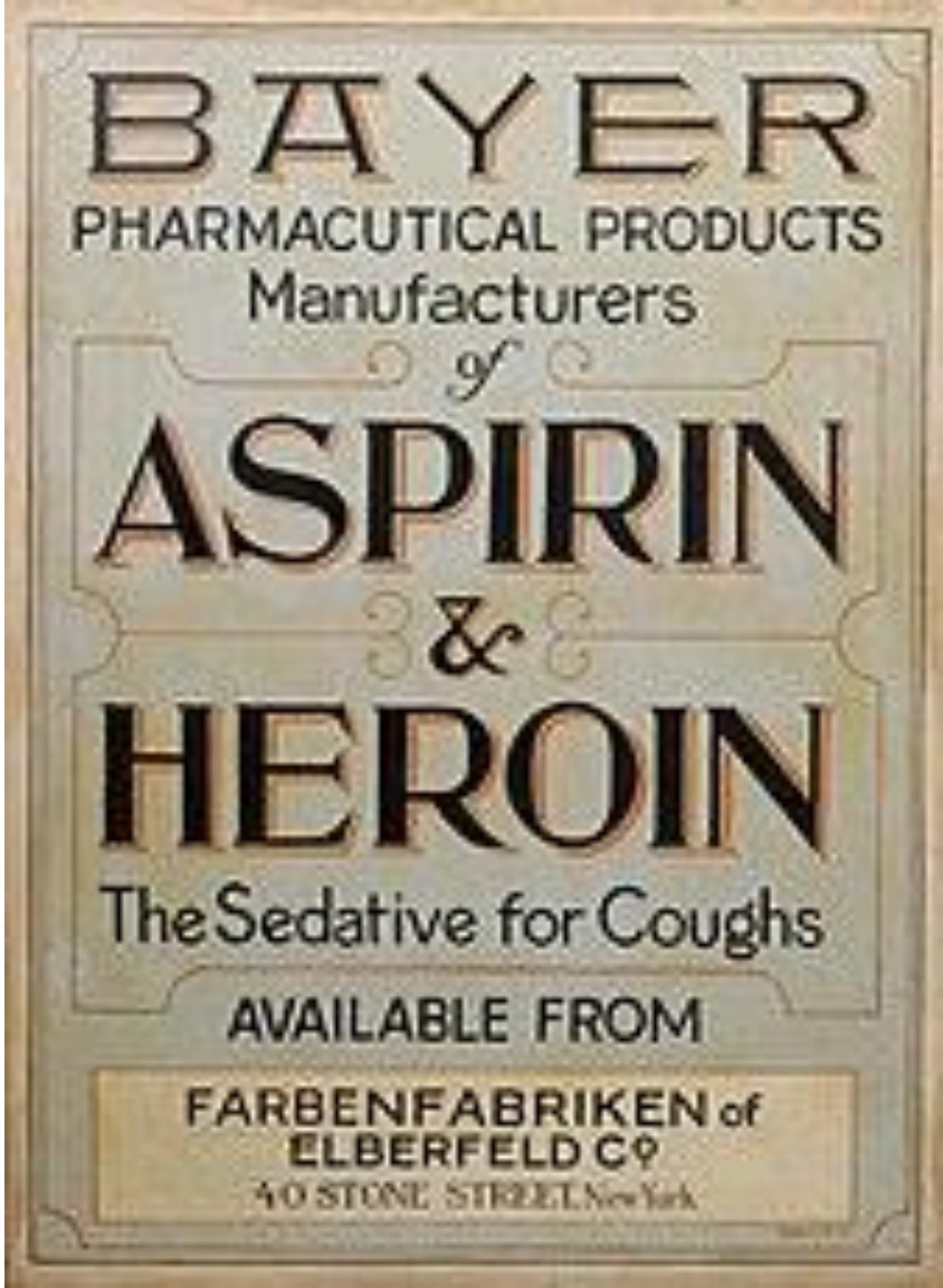
1st: 1890's

2nd: 1970's

3rd: Current

First Opioid Epidemic

- Morphine discovered in 1804
- Hypodermic needle invented around 1865
- Heroin discovered in 1874



First Opioid Epidemic

- By 1900 there were an estimated 250,000 opioid addicted individuals in the U.S.
- Morphine maintenance clinics were established in 44 cities across the United States
- Importation of smoking opium prohibited in 1909
- Harrison Narcotics Tax Act of 1914 made it illegal to prescribe opioids for maintenance of addiction

Second Opioid Epidemic

- Returning soldiers from Vietnam
- Largely heroin
- Dr. Vincent Dole published a paper on the efficacy of methadone maintenance in 1965, which lead to the legalization of methadone maintenance treatment by the FDA in 1972

The Current Epidemic

1980s

- Two simultaneous events occurred at the same time:

    1. Development of novel narcotic analgesics by drug manufacturers

    2. The legitimate and necessary development of hospice and palliative care and pain management specialties driven by the medical community

- Pharmaceutical companies took advantage of the physician movement and hijacked it for their own profits

The Beginning

ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients[1] who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,[2] Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

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1. Jick H, Miettinen OS, Shapiro S, Lewis GP, Siskind Y, Slone D. Comprehensive drug surveillance. JAMA. 1970; 213:1455-60.
2. Miller RR, Jick H. Clinical effects of meperidine in hospitalized medical patients. J Clin Pharmacol. 1978; 18:180-8.

PROGNOSTIC VALUE OF IMMUNOLOGIC MARKERS IN ADULTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA

To the Editor: The letter from Dr. Bitran[1] has raised an important but as yet unsettled question about prognostic factors in acute lymphoblastic leukemia in adults. On the basis of experience with 13 patients, Dr. Bitran suggested that adults with T-cell disease could have a limited survival and a lower rate of remission than those with B-cell disease. From January, 1974, to June, 1979, we studied 42 consecutive adults (more than 12 years old) with acute lymphoblastic leukemia for sheep-erythrocyte rosette formation and surface immunoglobulins. Patients were classified as having T-cell disease if they had more than 40 per cent of marrow blast cells forming E-rosettes, or B-cell disease if they were positive for surface immunoglobulins. Details on the techniques have been reported elsewhere.[2] There were 31 patients with null-cell leukemia, eight with T-cell leukemia, and four with B-cell leukemia. All patients were 17,000 U per square meter daily). Patients who had complete remissions (except for three over 60 years of age) received central-nervous-system therapy (2400 rads to the skull, with five intrathecal injections of methotrexate or arabinosyl cytosine, or both). During complete remission, they were given 6-mercaptopurine (70 mg per square meter daily), methotrexate (25 mg per square meter each week), and courses of vincristine and prednisone every three to four months.

Results are shown in Table 1. They do not support the suggestion by Dr. Bitran that in adults with acute lymphoblastic anemia, T-cell leukemia has a poorer prognosis than B-cell disease. However, because of the limited number of cases and the short follow-up, the present data are far from definitive. More information on this point is needed. The identification of prognostic factors in acute lymphoblastic anemia in adults is critical, not only for the choice of induction therapy but also because young adults with an established poor prognosis could profit from allogeneic-marrow transplantation during the first remission. Therefore, we suggest that for the time being it may be wiser to base prognosis on more established criteria, such as age and blast-cell count in the blood.[2]

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1. Bitran JD. Prognostic value of immunologic markers in adults with acute lymphoblastic leukemia. N Engl J Med. 1978; 299:1317.
2. Ruggero D, Baccarani M, Gobbi M, Tura S. Adult acute lymphoblastic leukaemia: study of 32 patients and analysis of prognostic factors. Scand J Haematol. 1979; 22:154.

DECREASED KETOGENESIS DUE TO DEFICIENCY OF HEPATIC CARNITINE ACYL TRANSFERASE

To the Editor: In 1970 Engel reported in the *Journal* a disorder of the skeletal muscle without fasting hyperketonemia and with a normal increase in ketone bodies after oral medium-chain triglycerides.[1] He suggested a possible defect in the use of long-chain fatty acids. Usually, fasting is associated with hyperketonemia except in hyperinsulinemic states. Hyperketonemia results from the release of long-chain fatty acids from adipose tissue and their intrahepatic channeling toward mitochondrial oxidation and ketogenesis. The

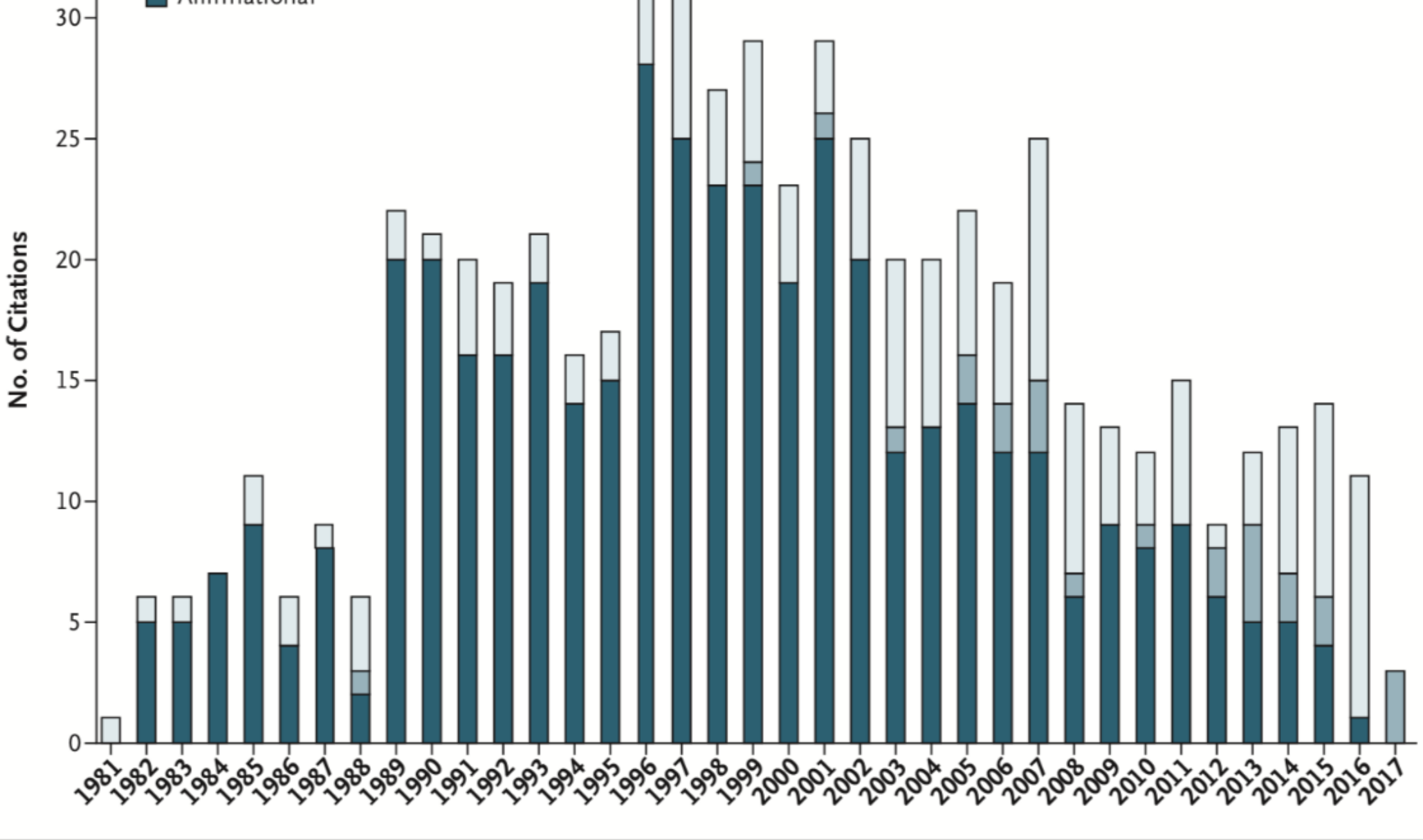


Figure 1. Number and Type of Citations of the 1980 Letter, According to Year.

Shown are number of citations of a 1980 letter to the *Journal* in which the correspondents claimed that opioid therapy

1990s

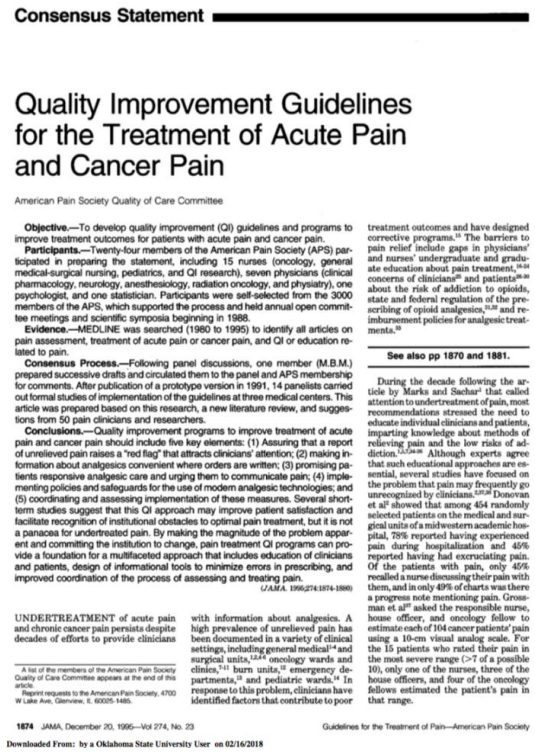
- Aggressive Industry Marketing of Opioid Products in the late 1990s/early 2000s

  - Opioid phobia and the needless suffering of patients

  - Opioid addiction is rare if pain is managed appropriately

  - Opioids can be easily discontinued

5th Vital Sign



Consensus Statement

Quality Improvement Guidelines for the Treatment of Acute Pain and Cancer Pain

American Pain Society Quality of Care Committee

Objective.—To develop quality improvement (QI) guidelines and programs to improve treatment outcomes for patients with acute pain and cancer pain.

Participants.—Twenty-four members of the American Pain Society (APS) participated in preparing the statement, including 15 nurses (oncology, general medical-surgical nursing, pediatrics, and QI research), seven physicians (clinical pharmacology, neurology, anesthesiology, radiation oncology, and physiatry), one psychologist, and one statistician. Participants were self-selected from the 3000 members of the APS, which supported the process and held annual open committee meetings and scientific symposia beginning in 1988.

Evidence.—MEDLINE was searched (1980 to 1995) to identify all articles on pain assessment, treatment of acute pain or cancer pain, and QI or education related to pain.

Consensus Process.—Following panel discussions, one member (M.B.M.) prepared successive drafts and circulated them to the panel and APS membership for comments. After publication of a prototype version in 1991, 14 panelists carried out formal studies of implementation of the guidelines at three medical centers. This article was prepared based on this research, a new literature review, and suggestions from 50 pain clinicians and researchers.

Conclusions.—Quality improvement programs to improve treatment of acute pain and cancer pain should include five key elements: (1) Assuring that a report of unrelieved pain raises a "red flag" that attracts clinicians' attention; (2) making information about analgesics convenient where orders are written; (3) promising patients responsive analgesic care and urging them to communicate pain; (4) implementing policies and safeguards for the use of modern analgesic technologies; and (5) coordinating and assessing implementation of these measures. Several short-term studies suggest that this QI approach may improve patient satisfaction and facilitate recognition of institutional obstacles to optimal pain treatment, but it is not a panacea for undertreated pain. By making the magnitude of the problem apparent and committing the institution to change, pain treatment QI programs can provide a foundation for a multifaceted approach that includes education of clinicians and patients, design of informational tools to minimize errors in prescribing, and improved coordination of the process of assessing and treating pain.

(*JAMA.* 1995;274:1874-1880)

UNDERTREATMENT of acute pain and chronic cancer pain persists despite decades of efforts to provide clinicians with information about analgesics. A high prevalence of unrelieved pain has been documented in a variety of clinical settings, including general medical[1-4] and surgical units,[1,2,4,5] oncology wards and clinics,[3,6] burn units,[7] emergency departments,[8] and pediatric wards.[9] In response to this problem, clinicians have identified factors that contribute to poor treatment outcomes and have designed corrective programs.[10] The barriers to pain relief include gaps in physicians' and nurses' undergraduate and graduate education about pain treatment,[10-14] concerns of clinicians[15] and patients[16-18] about the risk of addiction to opioids, state and federal regulation of the prescribing of opioid analgesics,[11,19] and reimbursement policies for analgesic treatments.[20]

See also pp 1870 and 1881.

During the decade following the article by Marks and Sachar[21] that called attention to undertreatment of pain, most recommendations stressed the need to educate individual clinicians and patients, imparting knowledge about methods of relieving pain and the low risks of addiction.[1,2,5,6,10] Although experts agree that such educational approaches are essential, several studies have focused on the problem that pain may frequently go unrecognized by clinicians.[3,9,22] Donovan et al[3] showed that among 454 randomly selected patients on the medical and surgical units of a midwestern academic hospital, 78% reported having experienced pain during hospitalization and 45% reported having had excruciating pain. Of the patients with pain, only 45% recalled a nurse discussing their pain with them, and in only 49% of charts was there a progress note mentioning pain. Grossman et al[22] asked the responsible nurse, house officer, and oncology fellow to estimate each of 104 cancer patients' pain using a 10-cm visual analog scale. For the 15 patients who rated their pain in the most severe range (>7 of a possible 10), only one of the nurses, three of the house officers, and four of the oncology fellows estimated the patient's pain in that range.

A list of the members of the American Pain Society Quality of Care Committee appears at the end of this article.

Reprint requests to the American Pain Society, 4700 W Lake Ave, Glenview, IL 60025-1485.

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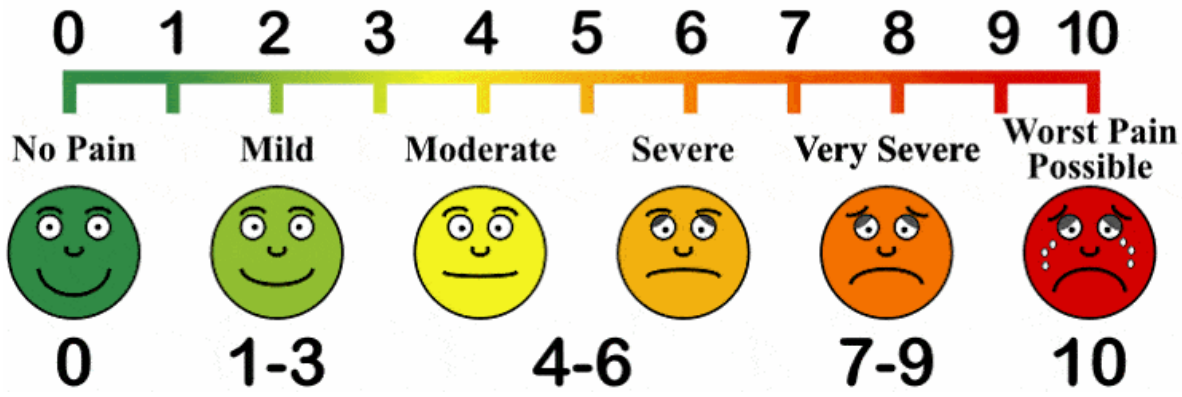
5th Vital Sign

I. Recognize and Treat Pain Promptly

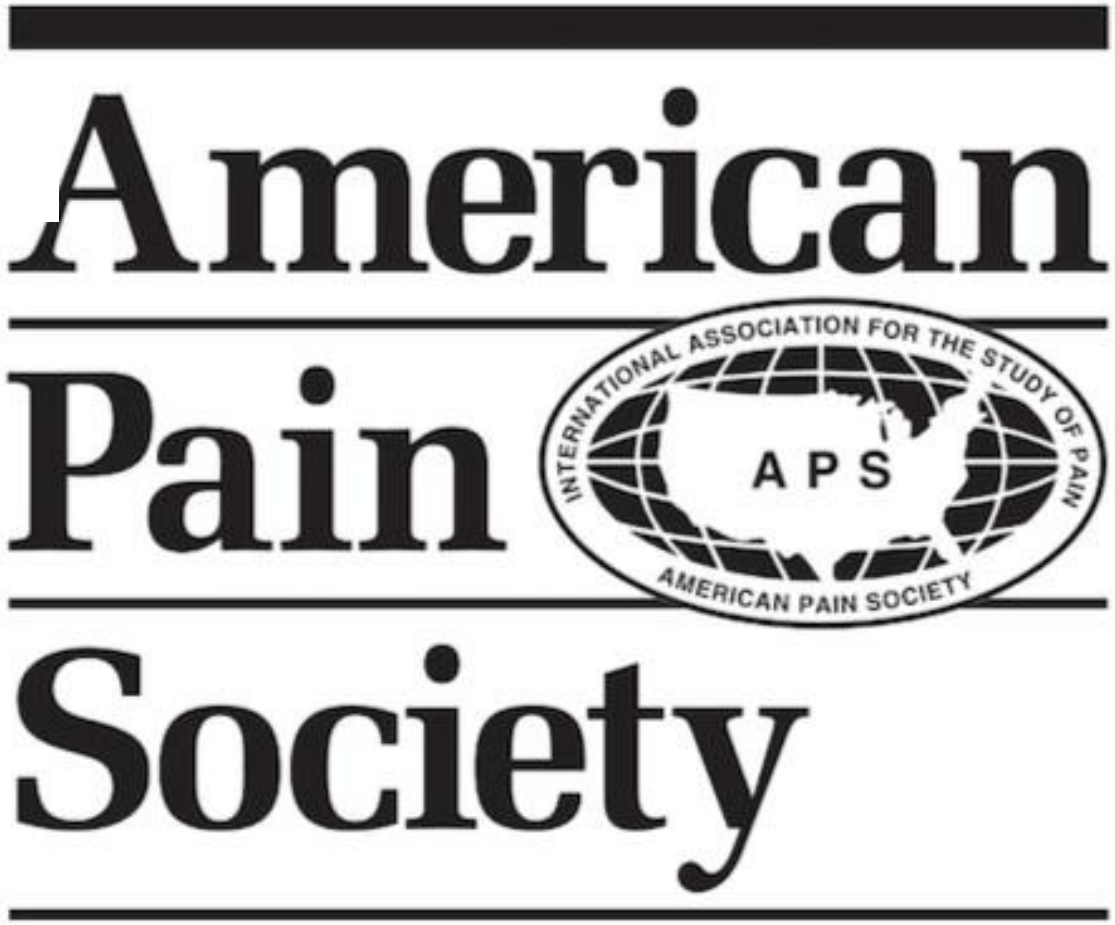
IA. Chart and Display Patients' Self-report of Pain.—A measure of pain intensity should be recorded in a way that makes it highly visible and facilitates regular review by members of the health care team. This information should be incorporated in the patient's permanent record. The data can be recorded on a vital sign sheet at the patient's bedside (Figure), a page at the front of the patient's record, or a chart in the nursing station or outpatient clinic, depending on the routine work flow of the health care team. Unrelieved pain should be a "red flag" that promptly turns attention to this problem.



The Clinical Journal of Pain. 13(1):6-8, MAR 1997
PMID: 9084947
MEDLINE Status: MEDLINE
Issn Print: 0749-8047

Share Print

The use of opioids for the treatment of chronic pain. A consensus statement from the American Academy of Pain Medicine and the American Pain Society.



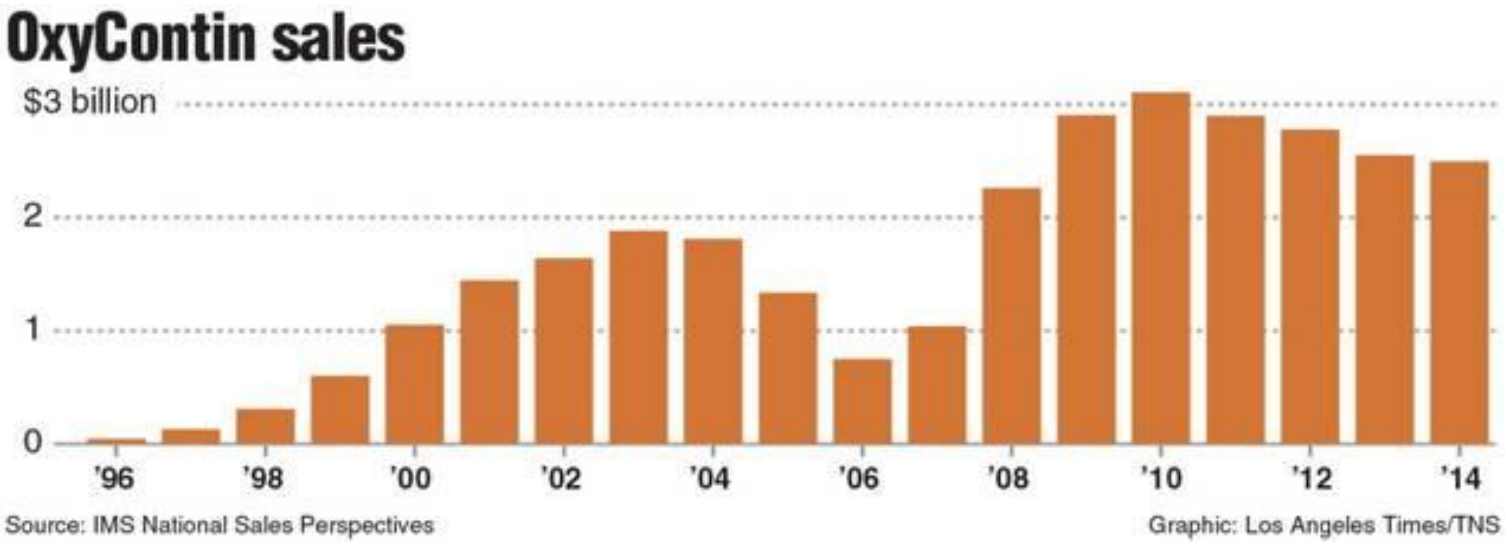
IV. Current information and experience suggest that many commonly held assumptions need modification

Addiction

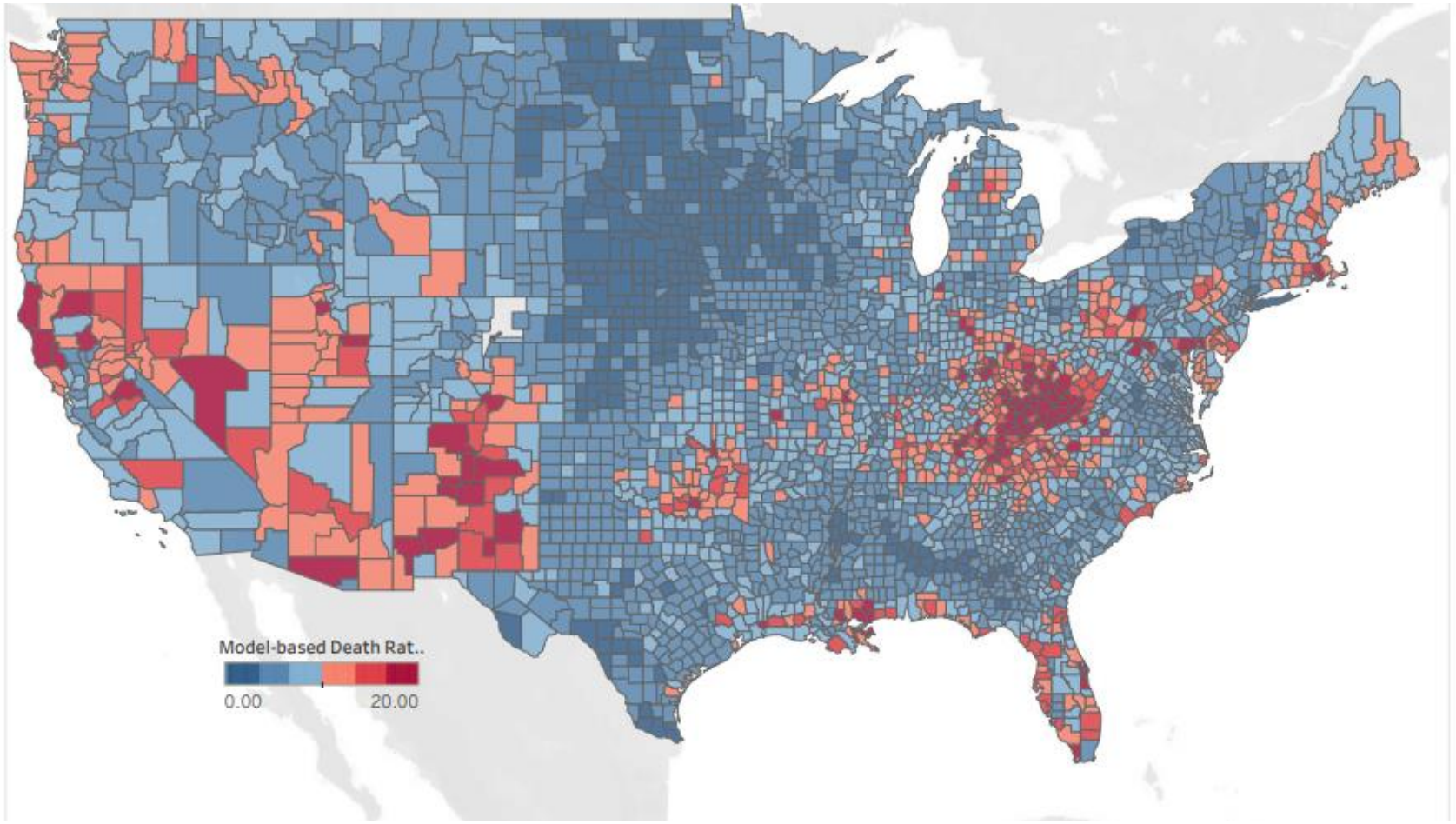
Misunderstanding of addiction and mislabeling of patients as addicts result in unnecessary withholding of opioid medications. Addiction is a compulsive disorder in which an individual becomes preoccupied with obtaining and using a substance, the continued use of which results in a decreased quality of life. Studies indicate that the de novo development of addiction when opioids are used for the relief of pain is low. Furthermore, experience has shown that known addicts can benefit from the carefully supervised, judicious use of opioids for the treatment of pain due to cancer, surgery, or recurrent painful illnesses such as sickle cell disease.

	Purdue[22]	Janssen[23]	Depomed	Insys	Mylan	Total
Academy of Integrative Pain Management	$1,091,024.86	$128,000.00	$43,491.95	$3,050.00[24]	$0.00	**$1,265,566.81**
American Academy of Pain Medicine	$725,584.95	$83,975.00	$332,100.00	$57,750.00	$0.00	**$1,199,409.95**
AAPM Foundation	$0.00	$0.00	$304,605.00	$0.00	$0.00	**$304,605.00**
ACS Cancer Action Network	$168,500.00[25]	$0.00	$0.00	$0.00	$0.00	**$168,500.00**
American Chronic Pain Association	$312,470.00	$50,000.00	$54,670.00	$0.00	$0.00	**$417,140.00**
American Geriatrics Society	$11,785.00[26]	$0.00	$0.00	$0.00	$0.00	**$11,785.00**
American Pain Foundation	$25,000.00	$0.00	$0.00	$0.00	$0.00	**$25,000.00**
American Pain Society	$542,259.52	$88,500.00	$288,750.00	$22,965.00	$20,250.00	**$962,724.52**
American Society of Pain Educators	$30,000.00	$0.00	$0.00	$0.00	$0.00	**$30,000.00**
American Society of Pain Management Nursing	$242,535.00	$55,177.85[27]	$25,500.00[28]	$0.00	$0.00	**$323,212.85**
The Center for Practical Bioethics	$145,095.00	$18,000.00	$0.00	$0.00	$0.00	**$163,095.00**
The National Pain Foundation[29]	$0.00	$0.00	$0.00	$562,500.00	$0.00	**$562,500.00**
U.S. Pain Foundation	$359,300.00	$41,500.00	$22,000.00	$2,500,000.00[30]	$0.00	**$2,922,800.00**
Washington Legal Foundation	$500,000.00	$0.00	$0.00	$0.00	$0.00	**$500,000.00**
	$4,153,554.33	**$465,152.85**	**$1,071,116.95**	**$3,146,265.00**	**$20,250.00**	**$8,856,339.13**

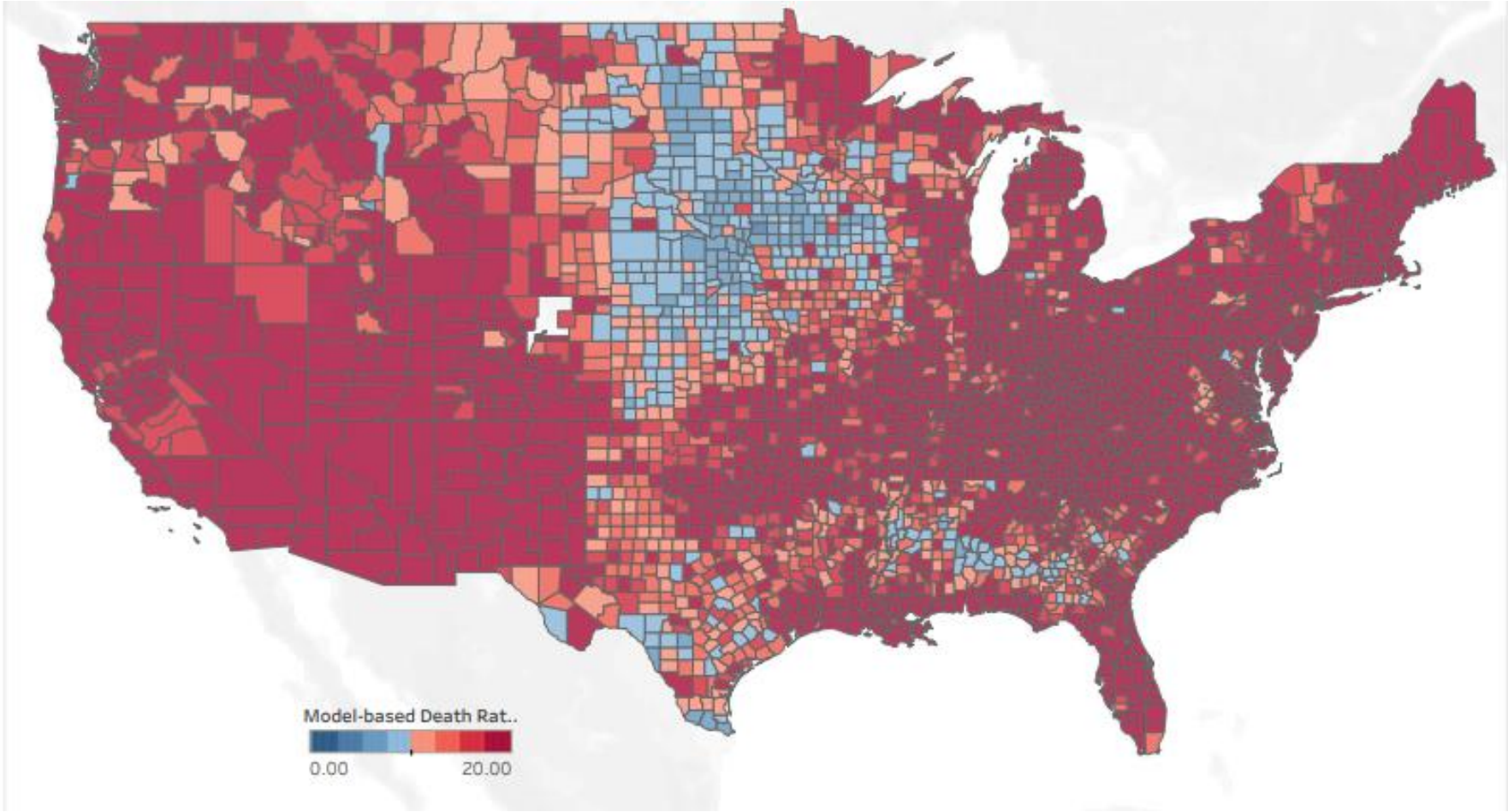
Oxycontin Sales



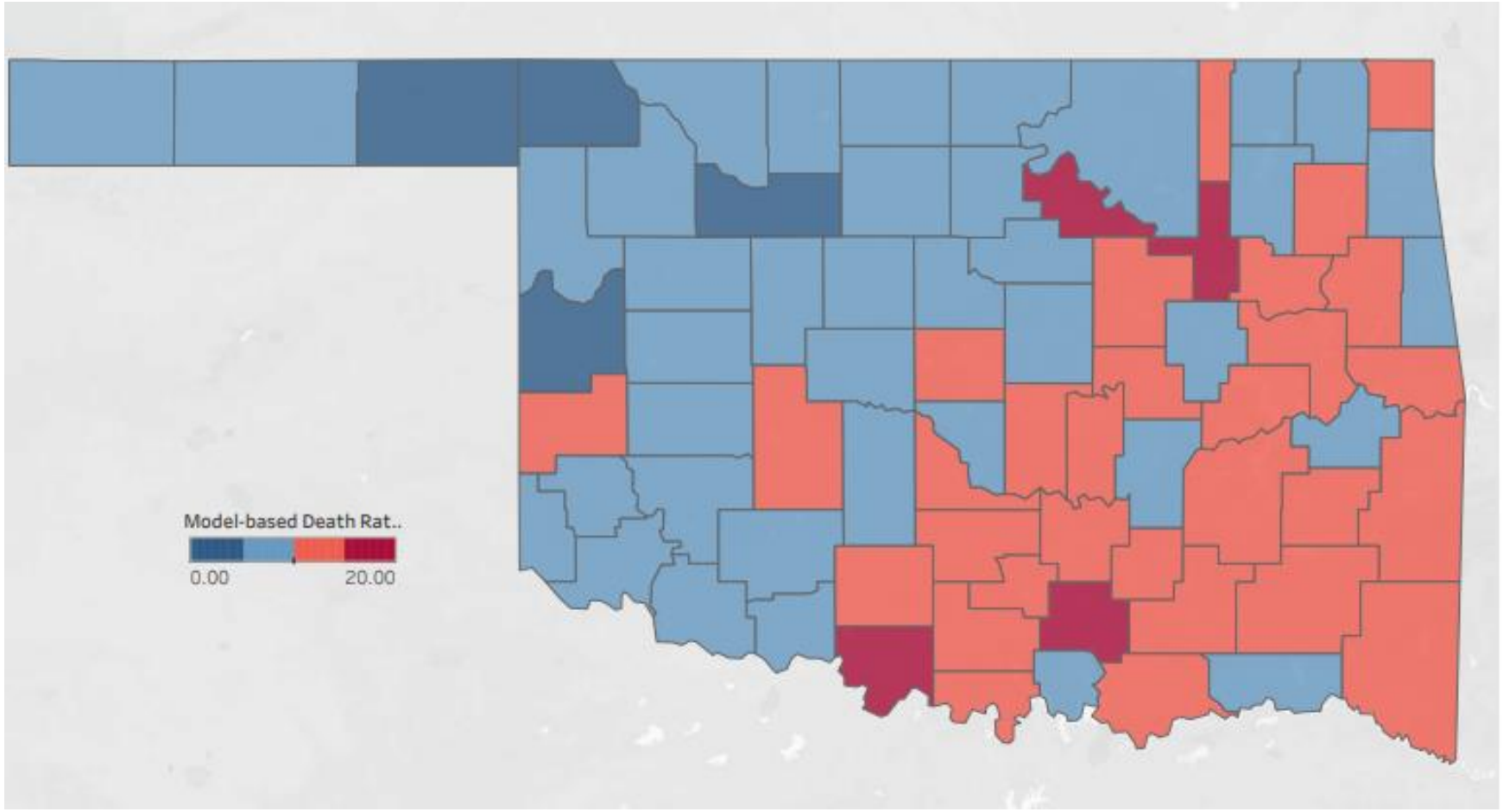
Overdoses in the United States (2003)



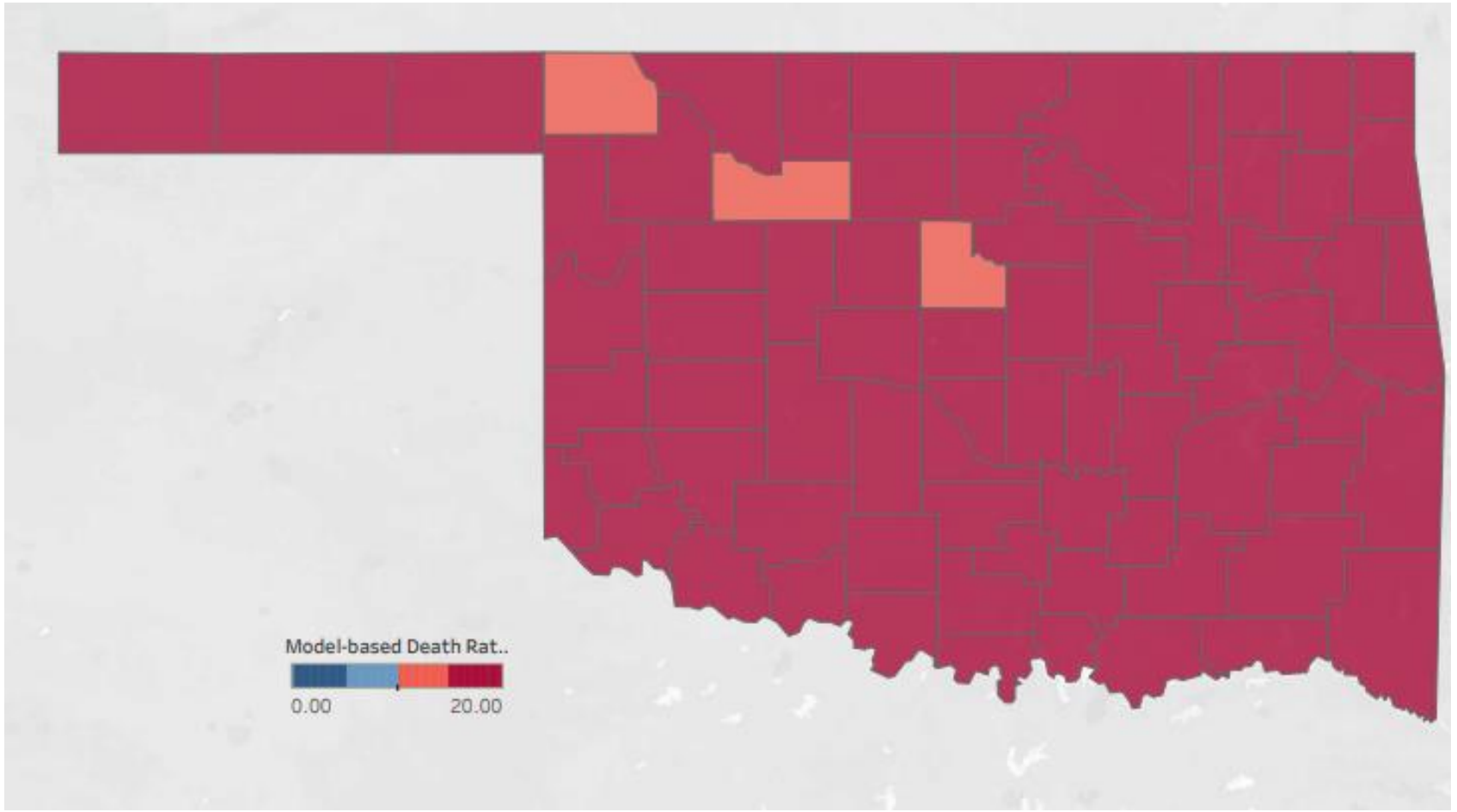
Overdoses in the United States (2020)



Overdoses in Oklahoma (2003)

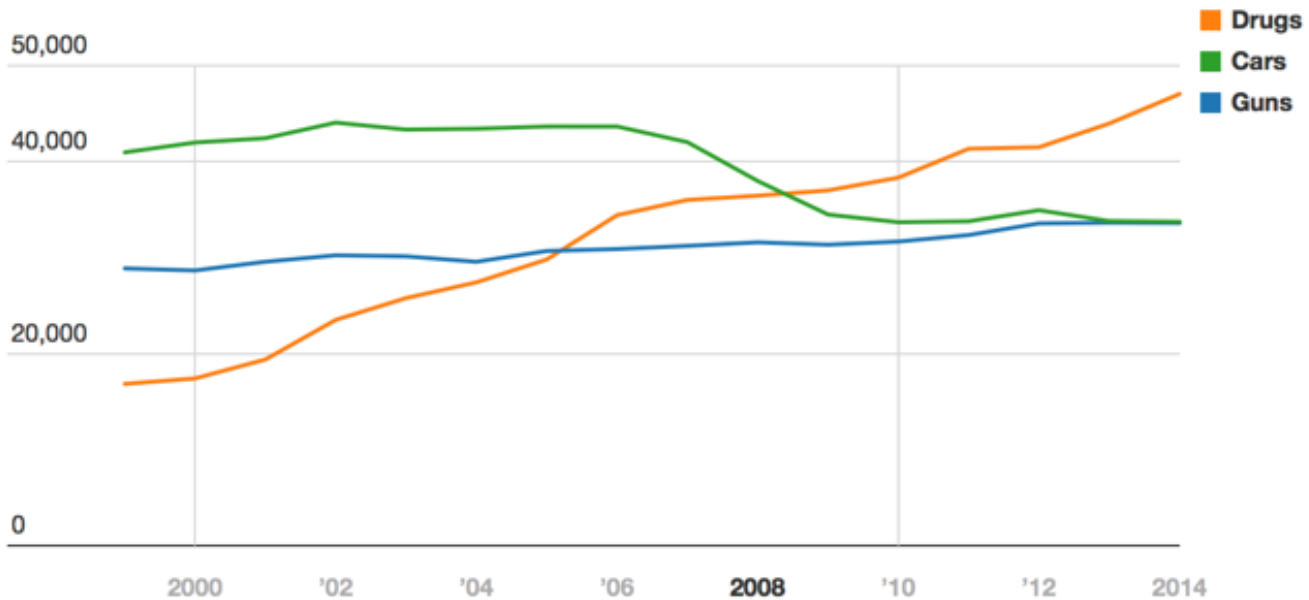


Overdoses in Oklahoma (2020)



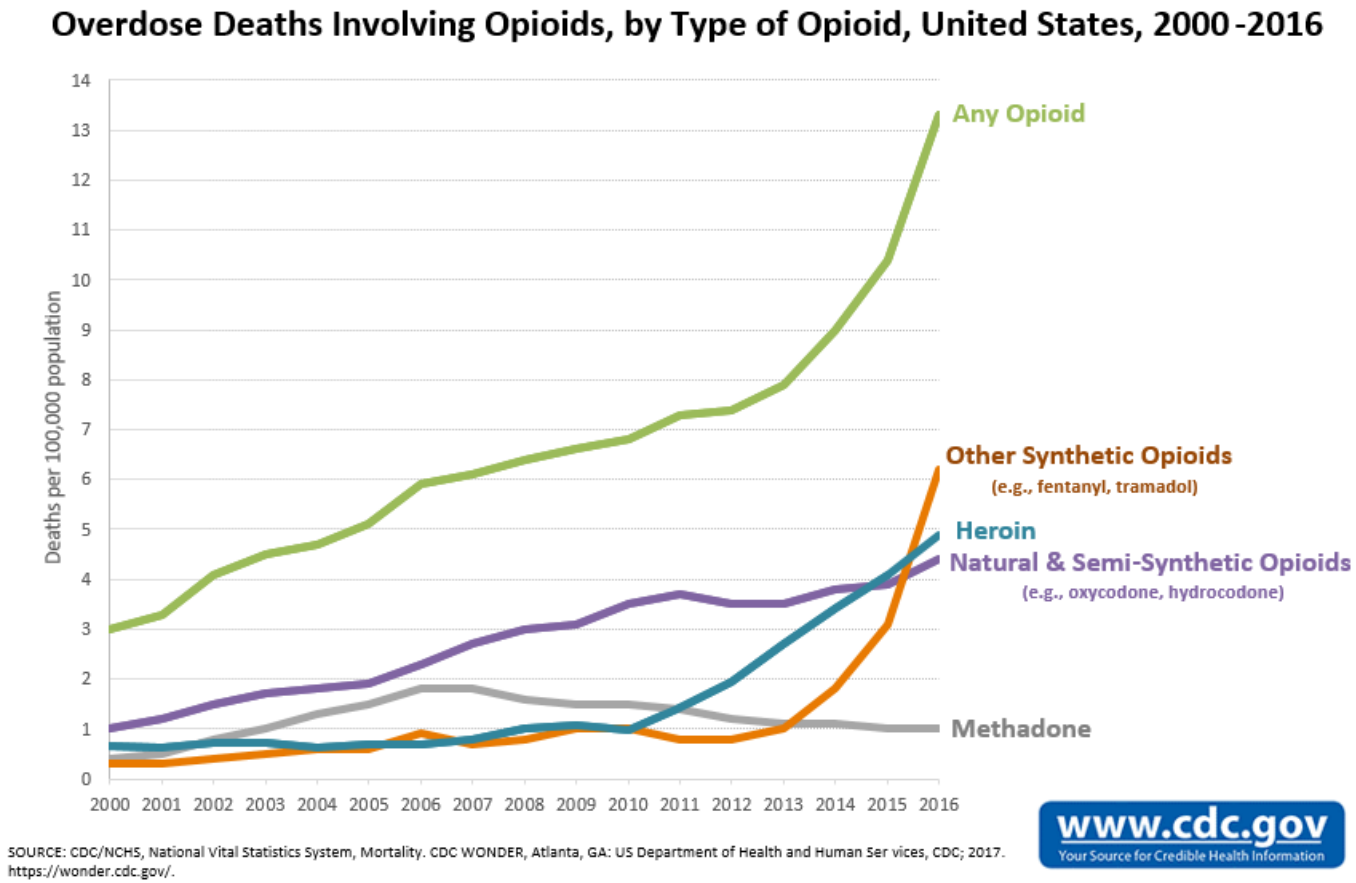
Deaths From Drug Overdoses, Car Accidents, and Gun Violence

From 1999 to 2014



Source: Centers for Disease Control and Prevention Get the data

Waves of the Current Epidemic



Wave 1

Prescription Opioids

OK County Prescribing Rates per 100

County	2011
Harmon	241.7
Pittsburg	227.8
Murray	207.5
Mcclain	204.1
Carter	201.8
Pottawatomie	190.6
Jackson	180.4
Stephens	168.1
Bryan	162.8
Beckham	162

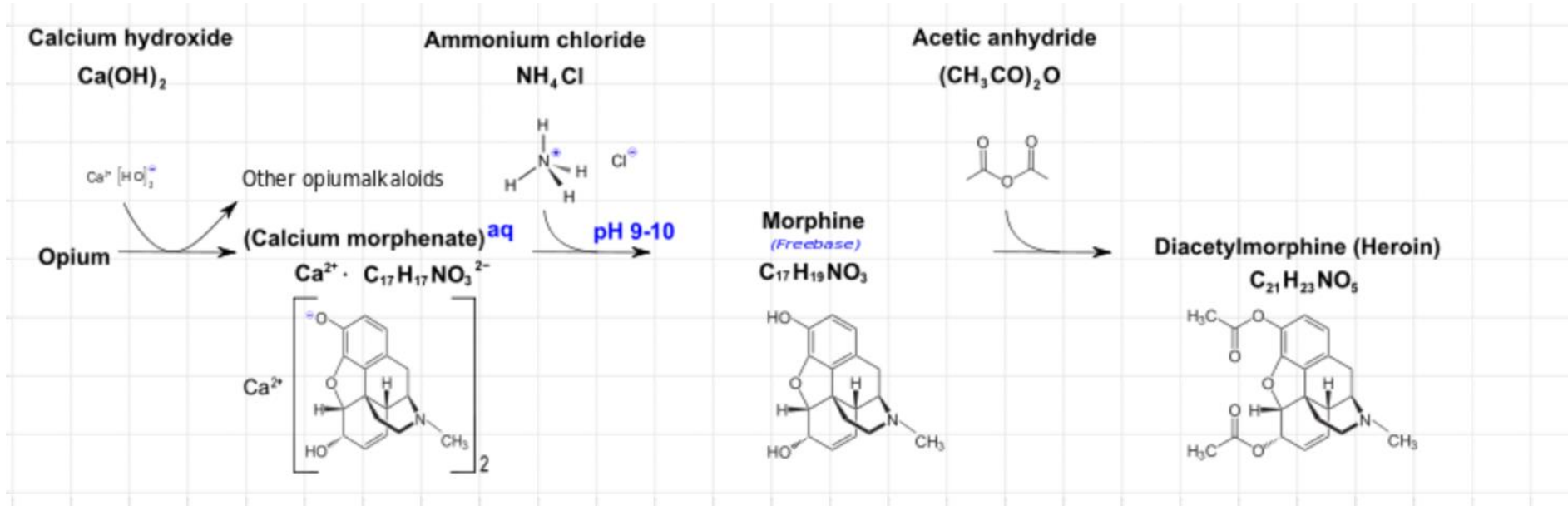
County	2020
Harper	205.1
Harmon	171.3
Love	126.2
Kingfisher	110.9
Tulsa	103.1
Oklahoma	97.3
Carter	84.3
Muskogee	71.4
Tillman	65
Adair	62.2

Most Common Substances by Year of Death, Unintentional Poisoning, Oklahoma, 2008-2020

Drug	Number of deaths															
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
All UP	579	602	659	661	655	717	757	732	692	759	743	664	614	774	980	10588
Drug overdose	537	557	622	611	608	675	700	665	646	707	679	610	570	733	958	9878
Prescription	474	507	541	510	501	536	535	505	415	424	339	248	198			5733
Prescription opioids	445	455	484	451	422	473	471	432	355	344	266	185	156			4939
Anti-anxiety	152	153	176	177	180	169	139	154	121	100	95	46	44	51	70	1827
Alcohol	77	98	104	110	115	90	121	126	91	101	119	84	59	69	95	1459
Methamphetamines	39	37	68	96	101	123	178	159	227	278	307	339	341	471	619	3383
Cocaine	67	46	39	45	48	44	30	21	40	32	47	42	43	65	72	681
Illicit opioids	<5	11	18	6	16	29	28	25	35	57	68	84	68			445
Any opioid	448	466	498	458	444	502	501	463	390	396	340	259	215	266	410	6056

Wave 2

Heroin


Calcium hydroxide
Ca(OH)2
Ammonium chloride
NH4Cl
Acetic anhydride
(CH3CO)2O
Other opiumalkaloids
Opium
(Calcium morphenate)
aq
pH 9-10
Ca2+ · C17H17NO3 2−
Morphine
(Freebase)
C17H19NO3
Diacetylmorphine (Heroin)
C21H23NO5

Most Common Substances by Year of Death, Unintentional Poisoning, Oklahoma, 2008-2020

	Number of deaths														
Drug	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	**2021**
Heroin	<5	11	18	6	16	29	28	25	33	52	55	80	67	78	47

Wave 3

Fentanyl

Waves of Fentanyl Use

1. Pressed Pills
2. Added to Heroin
3. Sought after on its own

Most Common Substances by Year of Death, Unintentional Poisoning, Oklahoma, 2008-2020

	Number of deaths														
Drug	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	**2021**
Fentanyl	44	56	77	51	48	57	62	39	53	68	54	50	47	127	297

OK Senate Bill 1446

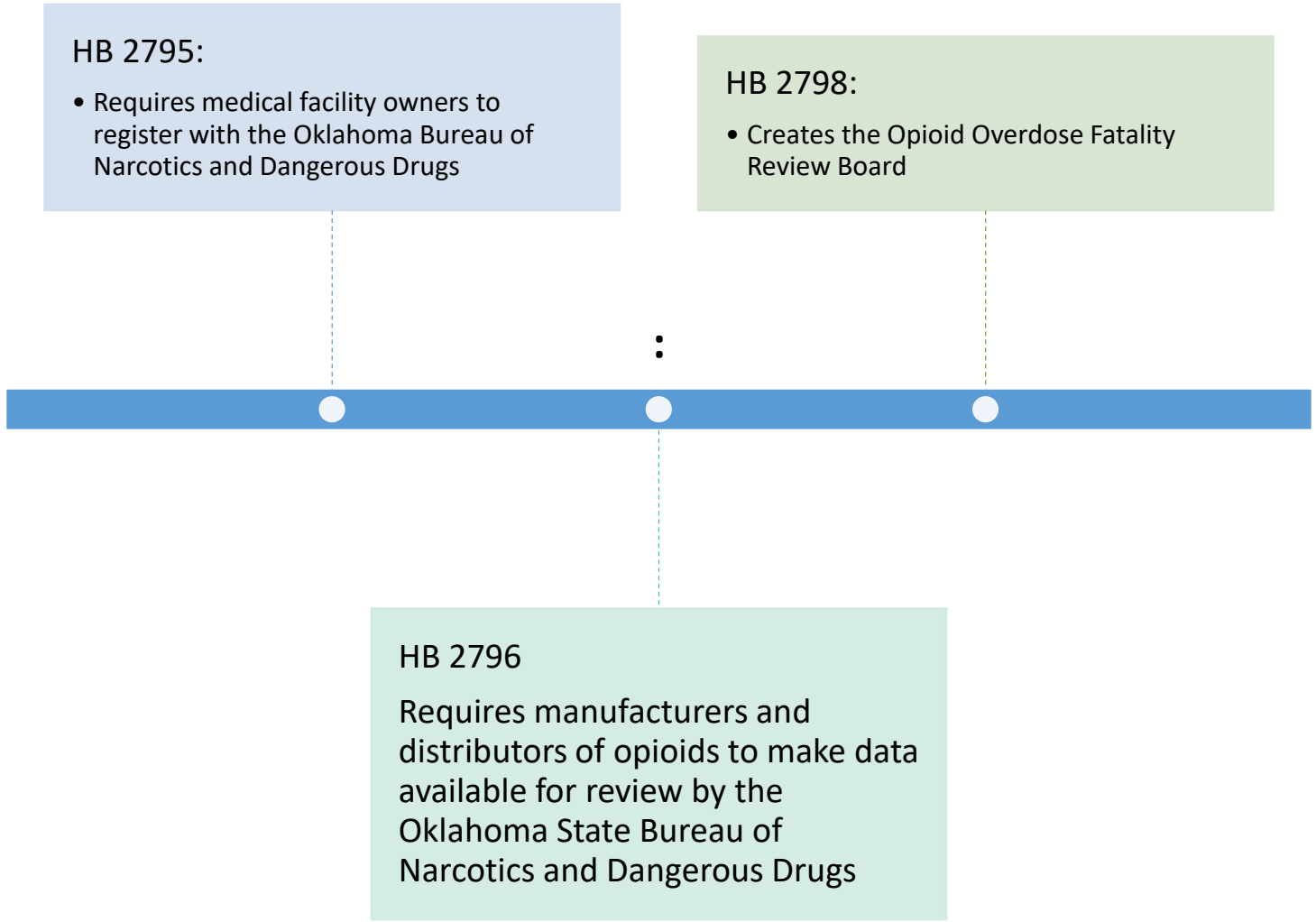
Require continuing medical education (CME) for prescribers on opioid abuse and misuse each year

Restricts initial prescriptions for opioids to a seven-day supply

Failure to check PMP is grounds for disciplinary action by licensing board

Review chronic pain prescriptions every 3 months and make efforts to decrease or try other treatment

OK House Bills 2018



Questions?

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