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Le PAVOT à Opium (Somnifère)





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THE TYPES OF OPIOIDS



1

NATURAL OPIOIDS

Derived from opium poppy plants, examples include morphine and codeine

2

SEMI-SYNTHETIC OPIOIDS

Partially synthetic opioids synthesized from natural opioids, examples include oxycodone and hydrocodone

3

SYNTHETIC OPIOIDS

Completely synthetic opioids produced in laboratories, examples include fentanyl and tramadol

Opioids are a class of drugs that act on the opioid receptors in the brain and body to produce analgesic (pain-relieving), sedative, and euphoric effects.

 **Better Life**
RECOVERY & WELLNESS

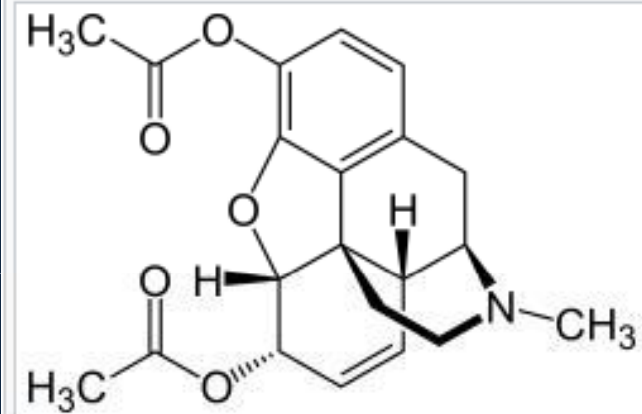
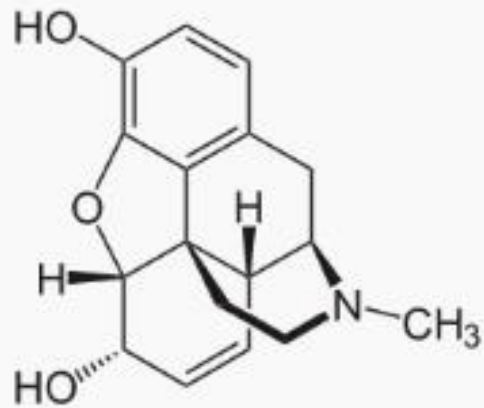


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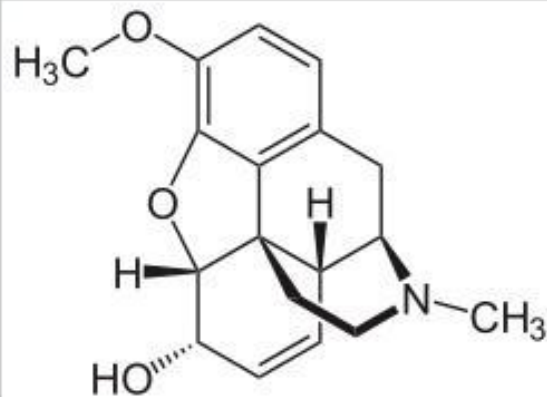
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MORPHINE et Dérivés

Morphine



La 3,6-diacétyl-morphine, l'héroïne.



La codéine, ou 3-méthyl-morphine.



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L'Arbre à COCA





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Pilots! Too Many Missions?

Can't stay Awake in the Air?



Take Amphetamines!

Watch Out Canadians!

Here comes the USAF!





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Purdue Pharma – famille Sackler





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OPIOIDS IN AMERICA

In 2015,

over **300 million** prescriptions were written for opioids, which is more than enough to give every American adult their own bottle of pills.¹



Opioids have claimed

175,000
lives from
1999-2013.



In 2013,
opioid overdoses
caused **16,235**
deaths, alone.



Opioid Costs

In the United States, prescription opioid abuse costs are about **\$56 billion** annually³

Of this amount:

46% is attributable to workplace costs (e.g., lost productivity):
\$26 Billion



45% to healthcare costs
(e.g., abuse treatment): **\$25 Billion**



9% to criminal justice costs: **\$5 Billion**



Payoffs

1 in 12 Doctors were Paid by Pharmaceuticals
Companies Marketing Opioids:



From 2013 to 2015

More than **375,000** non-research opioid-related
payments were made to more than **68,000**
physicians, totaling more than **\$46 million**



The Top **1%** of Physicians
Received **83%** of the Payment

Family and General Practice Physicians received the most
payments (almost 1 in 5)



¹ (1, 5, 6) Arneet Sarpatwari, Michael S. Sirsha, Aaron S. Kesselheim, "The Opioid Epidemic: Fixing a Broken Pharmaceutical Market", Harvard Law & Policy Review, Volume 11, Number 2 (Summer, 2017): pp. 463-484.

² (1, 5, 6) Centers for Disease Control and Prevention, National Center for Health Statistics, Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016. Data are from the Multiple Cause of Death Files, 1999-2015, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at <http://wonder.cdc.gov/ucd-icd10.html> on Jul 26, 2017. ICD-10 Codes: X40-X44, X60-X64, X85, and Y10-Y14

³ (1) Data Source: CDC, Prescription Drug Overdose data.

⁴ (1) Scott E. Hadland, Maxwell S. Krieger, Brandon D. L. Marshall, "Industry Payments to Physicians for Opioid Products, 2013-2015", American Journal of Public Health 107, no. 9 (September 1, 2017): pp. 1493-1495. DOI: 10.2105/AJPH.2017.303982 PMID: 28787210

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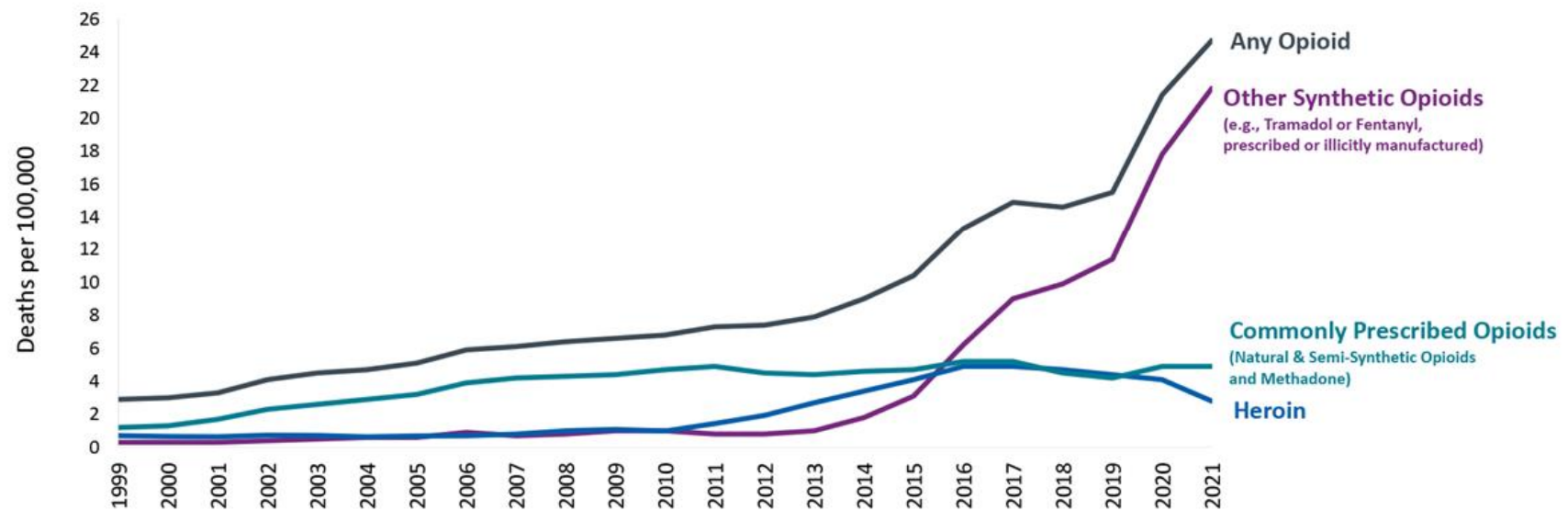
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Three Waves of Opioid Overdose Deaths



Wave 1: Rise in
Prescription Opioid
Overdose Deaths
Started in the 1990s

Wave 2: Rise in Heroin
Overdose Deaths
Started in 2010

Wave 3: Rise in Synthetic
Opioid Overdose Deaths
Started in 2013

SOURCE: National Vital Statistics System Mortality File.



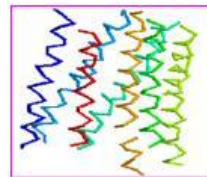
Les récepteurs opioïdes

- ◆ Trois types de récepteurs opioïdes: μ , δ , κ .

largement distribués dans:

- SNC: CPM, centres bulbaires, thalamus, cortex
- En périphérie: SNP, fibres musculaires lisses, œil, bronches, tube digestif, tractus urinaire...

μ , δ , κ .





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Fonctions des Récepteurs Opiïdes

Fonction delta (δ)	Fonction kappa (κ)	Fonction mu (μ)	Fonction ORL-1 Récepteur nociceptif
Analgésie spinale physiologique Effets antidépresseurs Dépendance physique Rôle pro-nociceptif spinal postulé lors d'hyperalgésie aux opioïdes?	Sédation Myosis Inhibition de la libération de l'hormone ADH Analgésie Dysphorie par diminution de dopamine Dépression respiratoire Analgésie	μ_1 : Analgésie suprspinale Dépendance physique μ_2 : Dépression respiratoire Myosis Euphorie par augmentation de dopamine Réduction de la motilité du tractus gastro-intestinal Dépendance physique μ_3 : ?	Anxiété Dépression Perte d'appétit Développement d'une tolérance aux agonistes des récepteurs mu (μ)

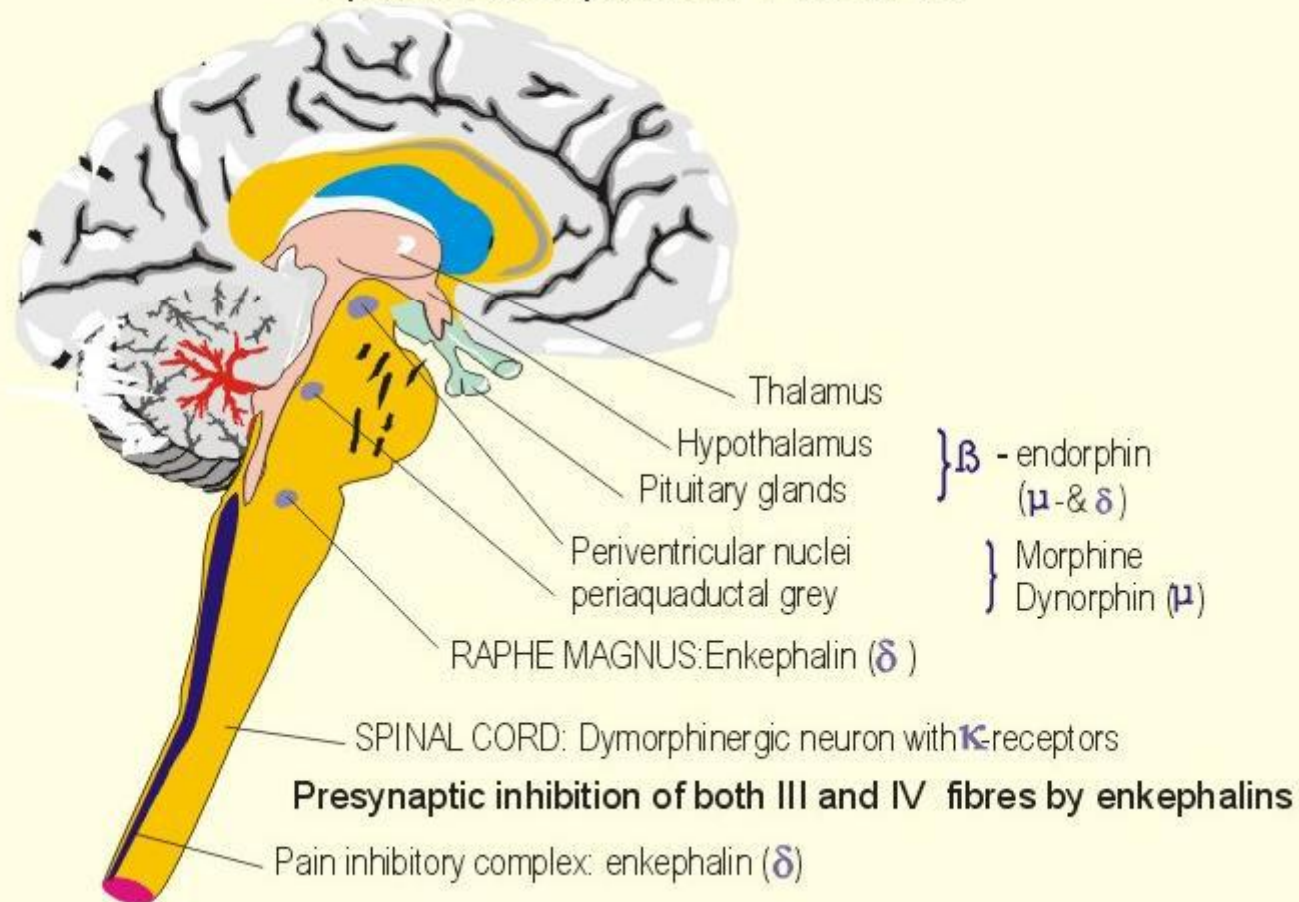


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Distribution Cérébrale des Récepteurs Opioides

Opiate Receptors In The CNS





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1978 LASKER AWARDS:

1978 Albert Lasker Basic Medical Research Award

Opiate receptors and enkephalins



Hans W. Kosterlitz

University of Aberdeen



John Hughes

Imperial College of Science
and Technology



Solomon H. Snyder

Johns Hopkins University
School of Medicine



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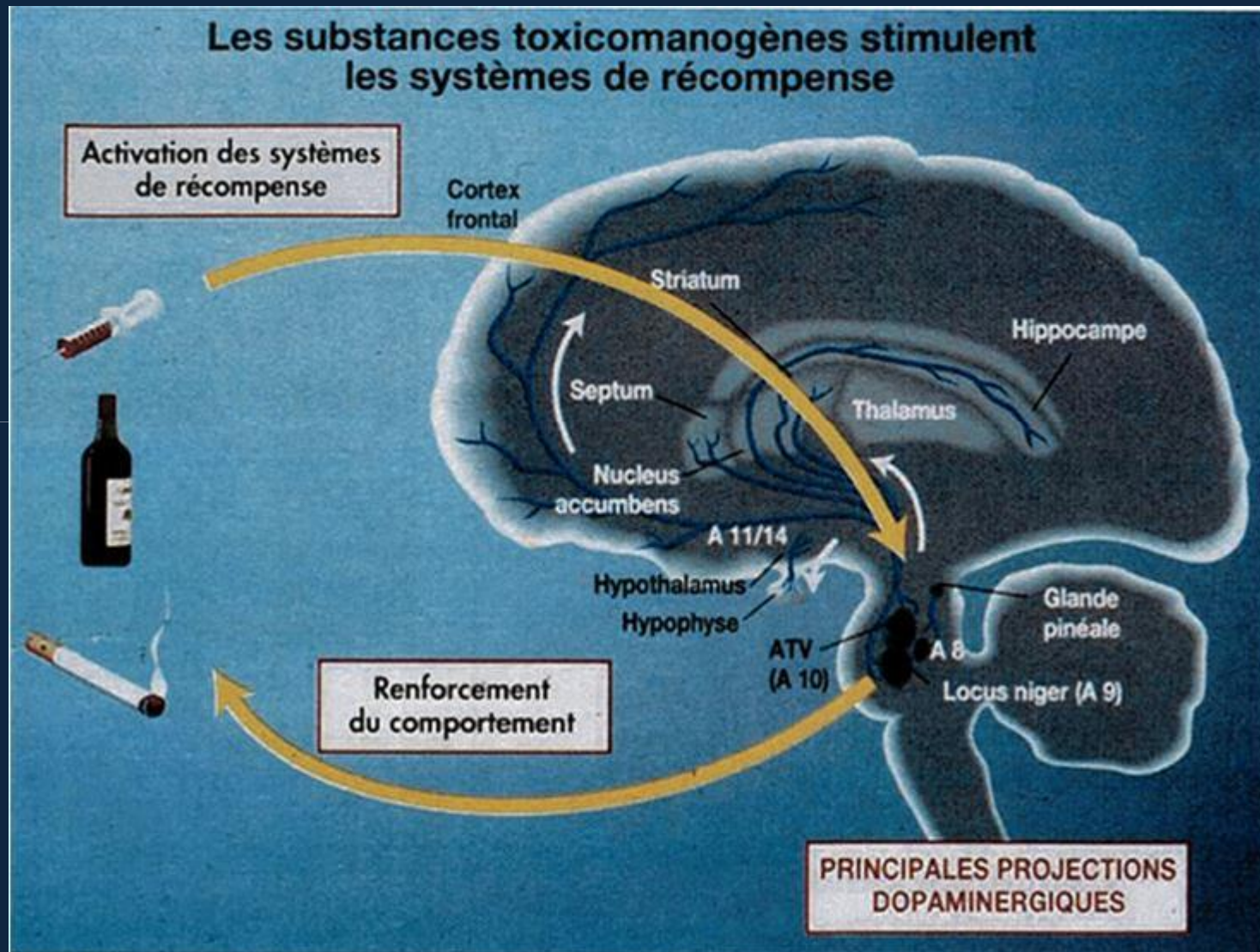
Pr Roger GUILLEMIN





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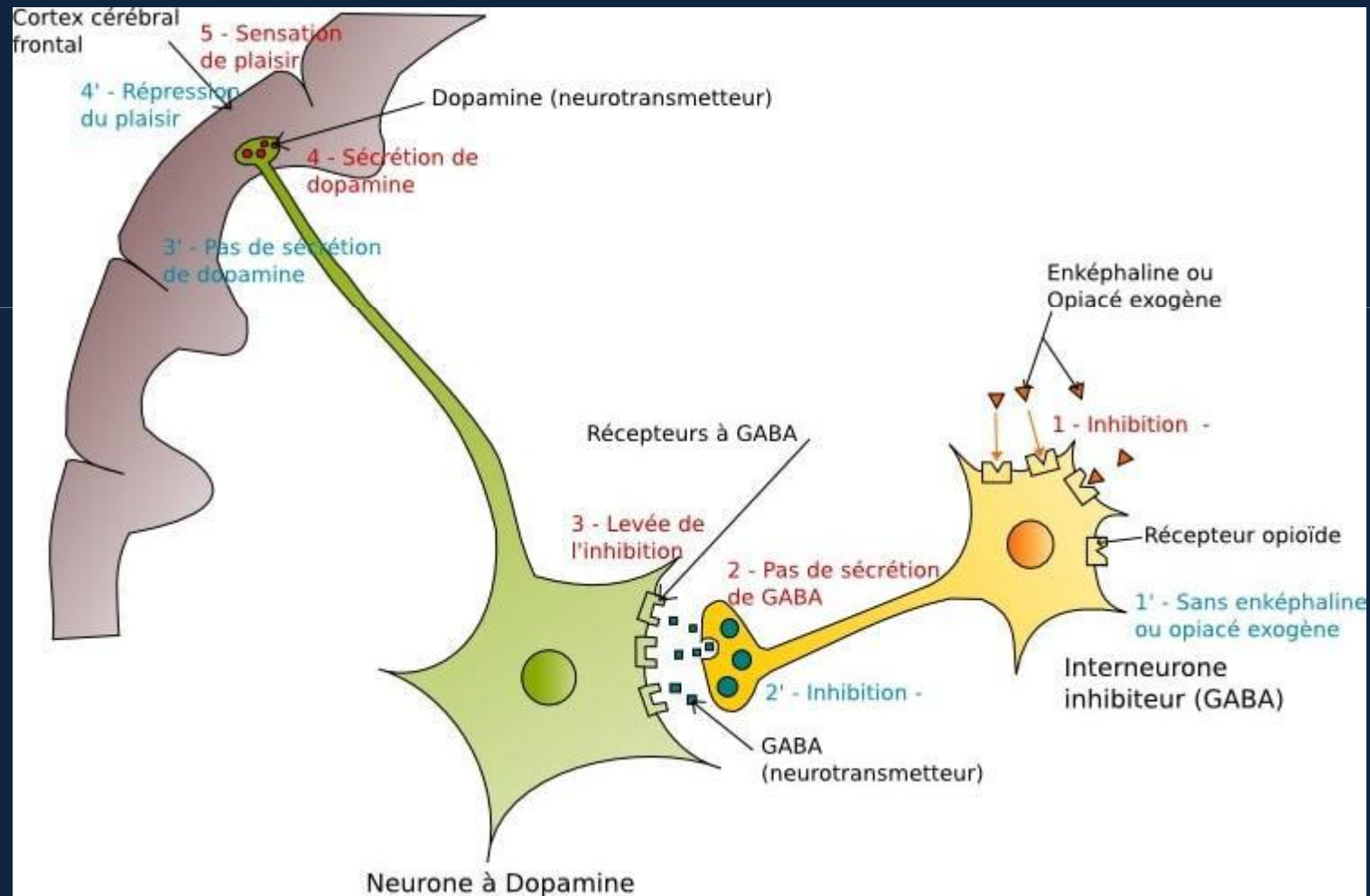




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Action des Opiacés sur le circuit de récompense à Dopamine

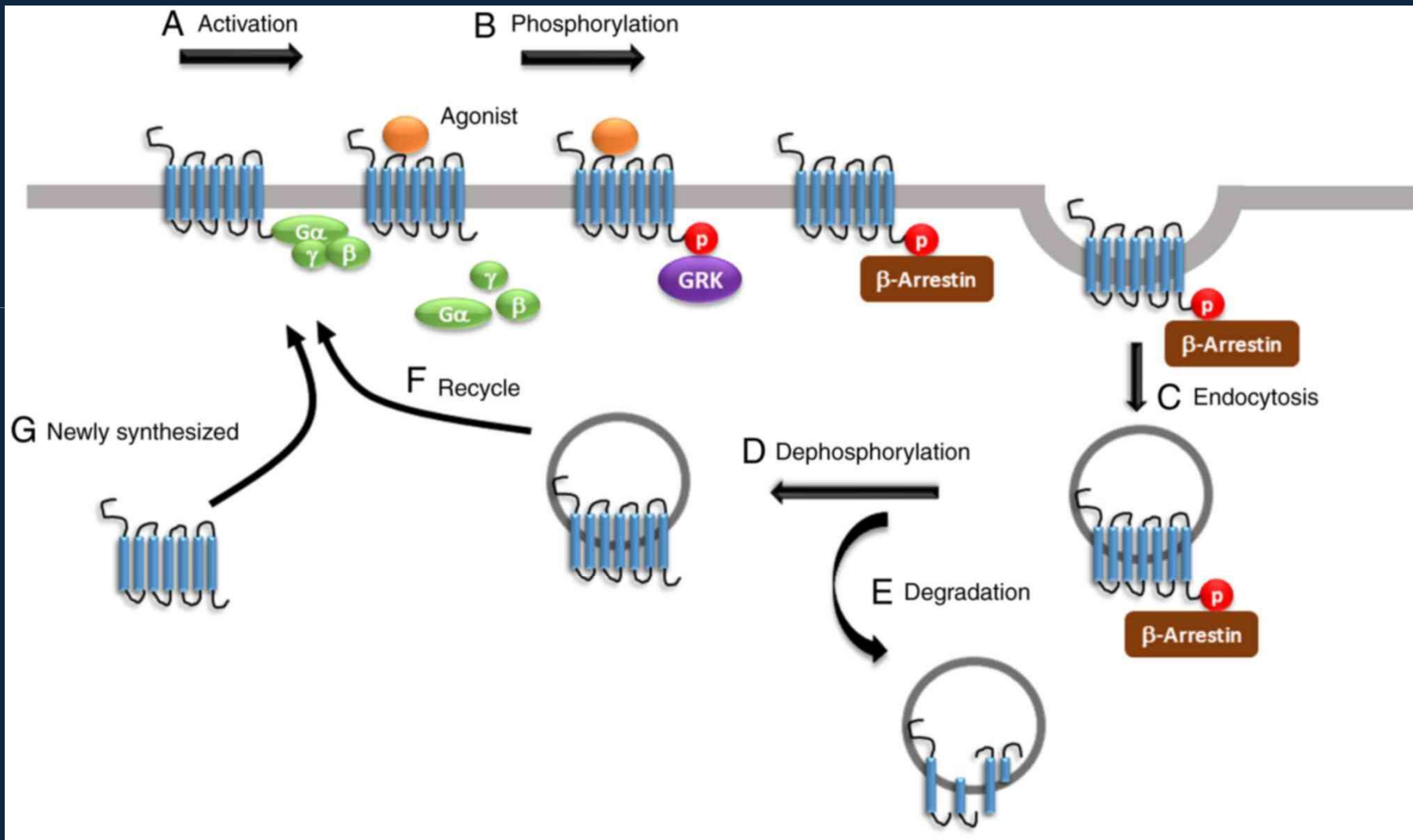




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Mécanisme de l'Internalisation des Récepteurs





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Morphine Side Effects



Drowsiness



Constipation



Nausea



Itching



Difficulty In Urinating



Muscle Aches



Insomnia



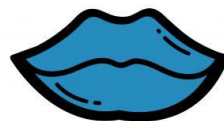
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Recognizing an Opioid Overdose

A person experiencing an opioid overdose may exhibit the following signs or symptoms:



Clammy, Pale Skin



Blue Lips or Skin



Pinpoint Pupils



Slow Heart Beat



Slow, Irregular or
Stopped Breathing



Unresponsive to
Voice or Touch



Call 9-1-1 immediately.



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La "reine de la kétamine" Jasveen Sangha (à droite), accusée d'avoir vendu une dose mortelle à Matthew Perry, accepte de plaider coupable.
© AP Photo - X

Jasveen Sangha, plus connue sous le nom de la "reine de la kétamine" a finalement accepté de plaider coupable, ce lundi 18 août, dans l'enquête sur la mort de Matthew Perry. Elle est accusée d'avoir vendu la drogue qui a tué la **star de la sitcom "Friends"**.

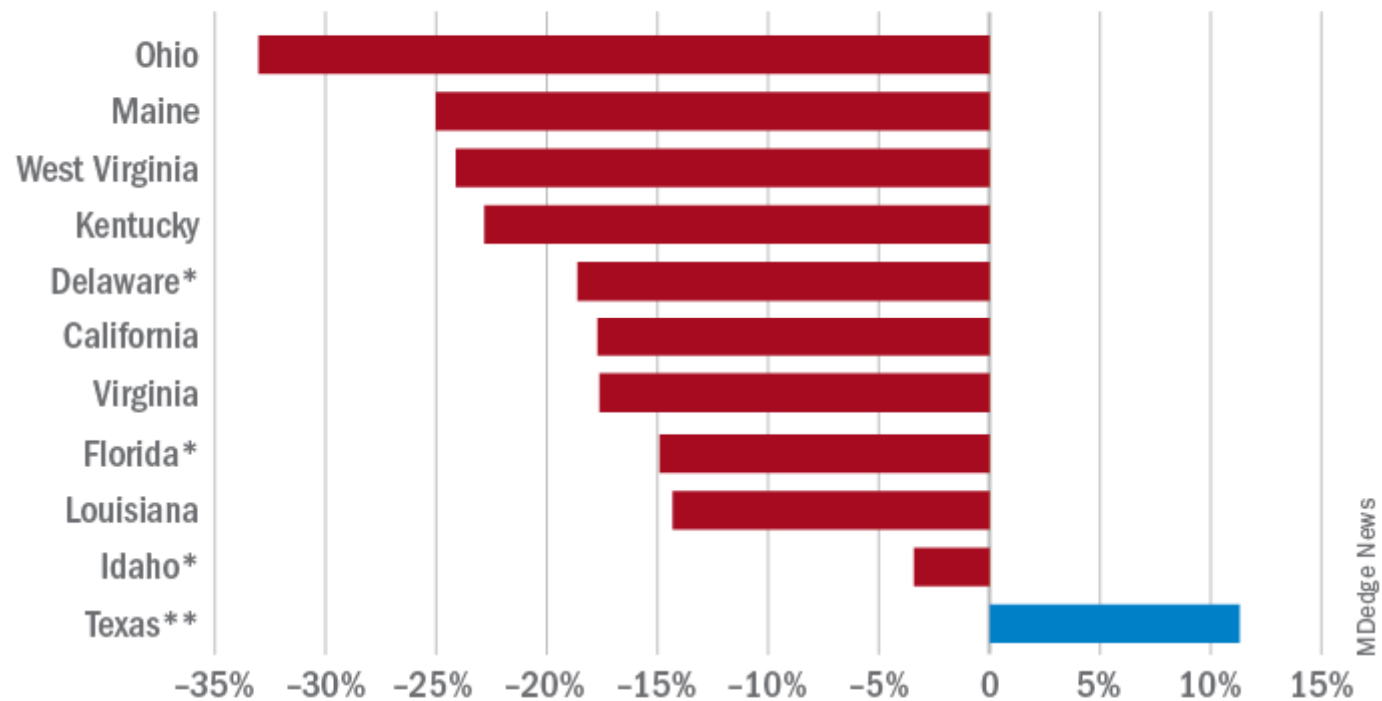
Elle devient ainsi la **cinquième et dernière accusée** (article en anglais) dans la mort par overdose de Matthew Perry à conclure un accord avec les procureurs fédéraux, évitant ainsi un procès qui était prévu en septembre. *"Elle assume la responsabilité de ses actes"*, a déclaré son avocat, Mark Geragos.



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Change in opioid prescribing rate from 2010 to 2016



*Data available for 2012-2016

**Data available for 2015-2016

Note: Data for Washington, the 12th state in the CDC's Prescription Behavior Surveillance System, were not available at the time of the analysis.

Source: MMWR Surveill Summ. 2020 Jan 31;69(1):1-14

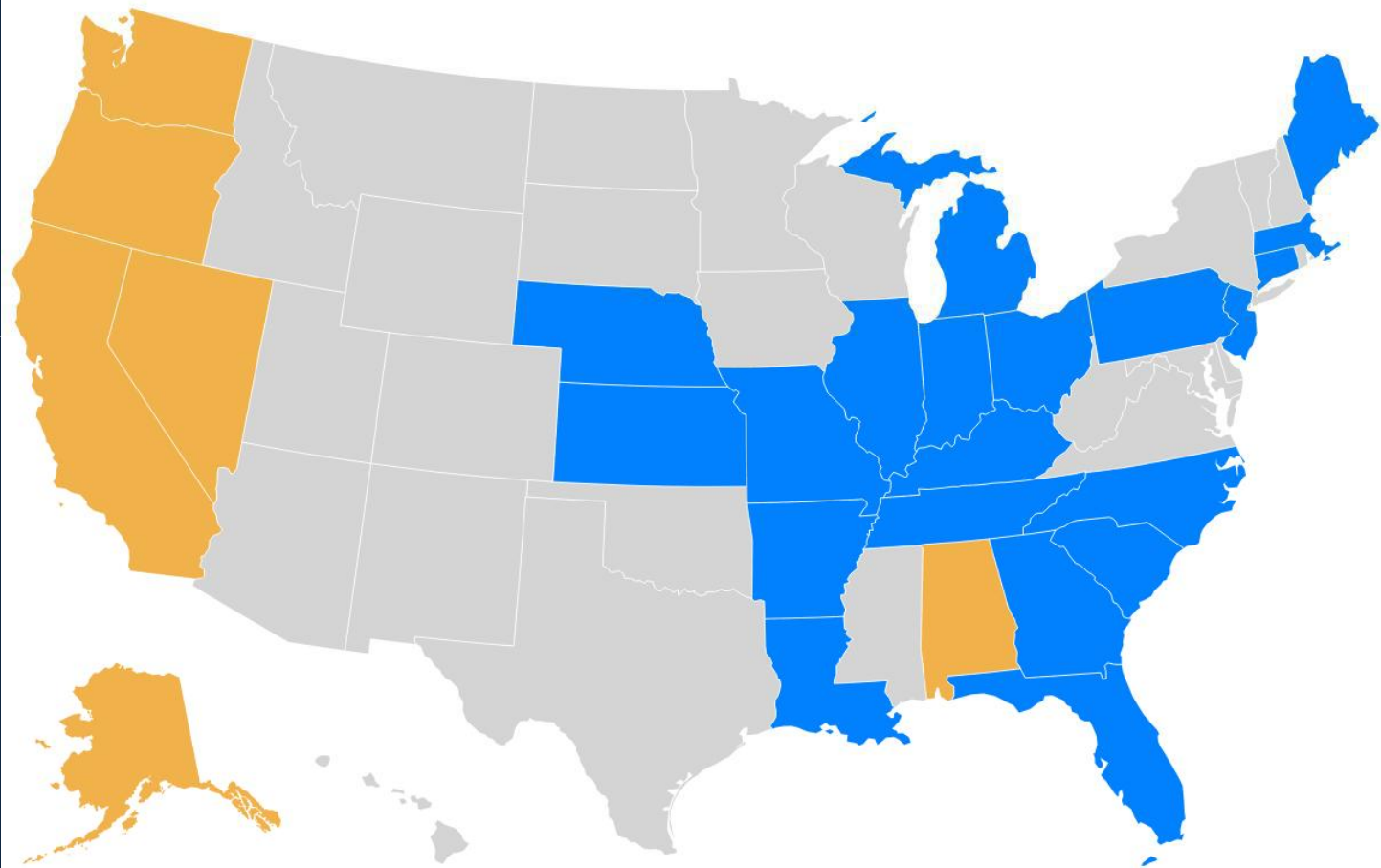


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Changes in overdose deaths, 2022 to 2023

Drug overdose death rates **decreased** in 20 states, and **increased** in six states between 2022 and 2023. Rates did **not change significantly** in 25 states. Nationwide, drug overdose death rates dropped 4%.



Represents age-adjusted rate per 100,000 people.

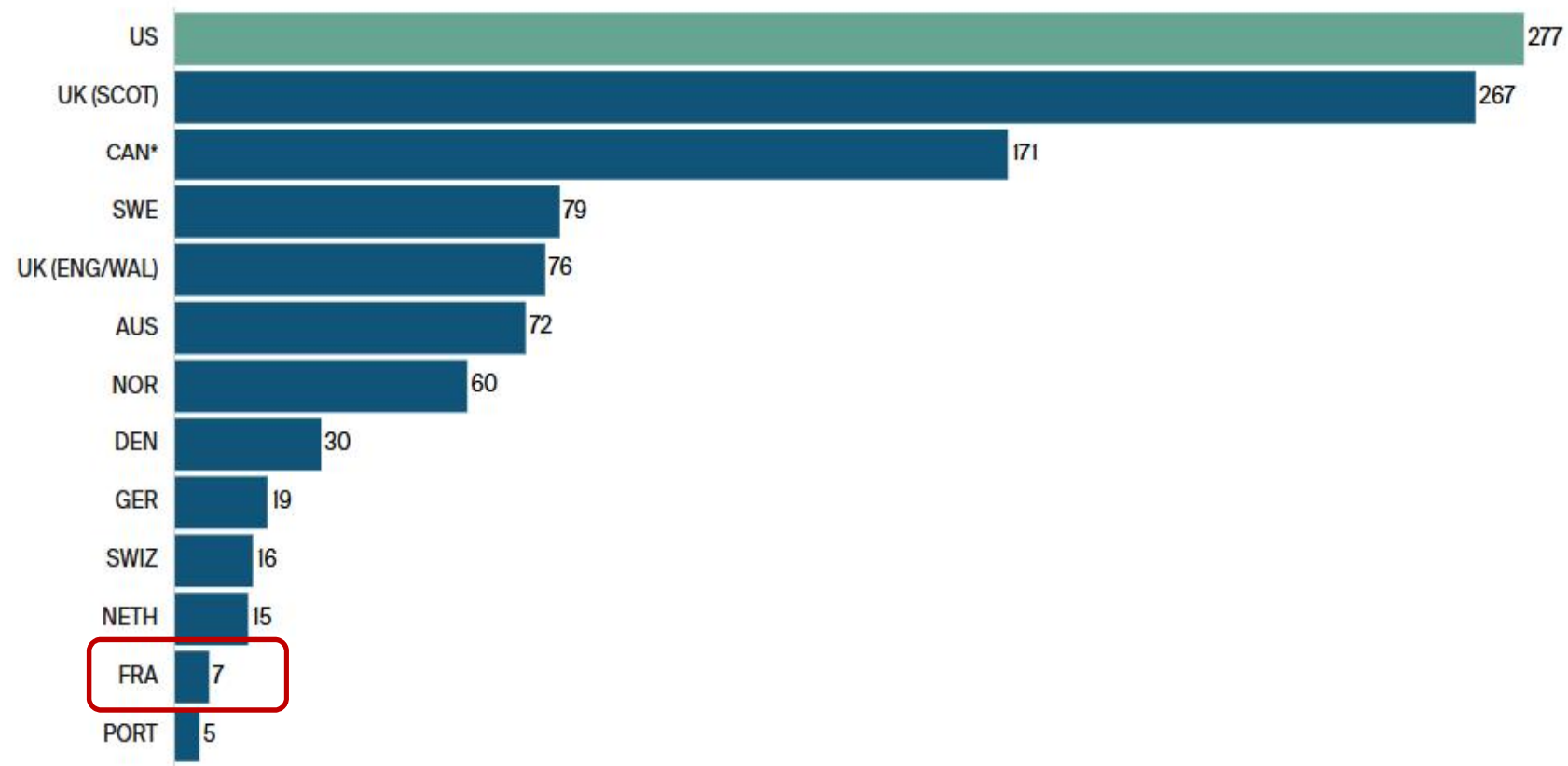


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Overdose/drug-related deaths are highest in the United States, followed closely by Scotland.

Overdose or drug-related death rate per 1 million population (unadjusted), 2020 or latest year available



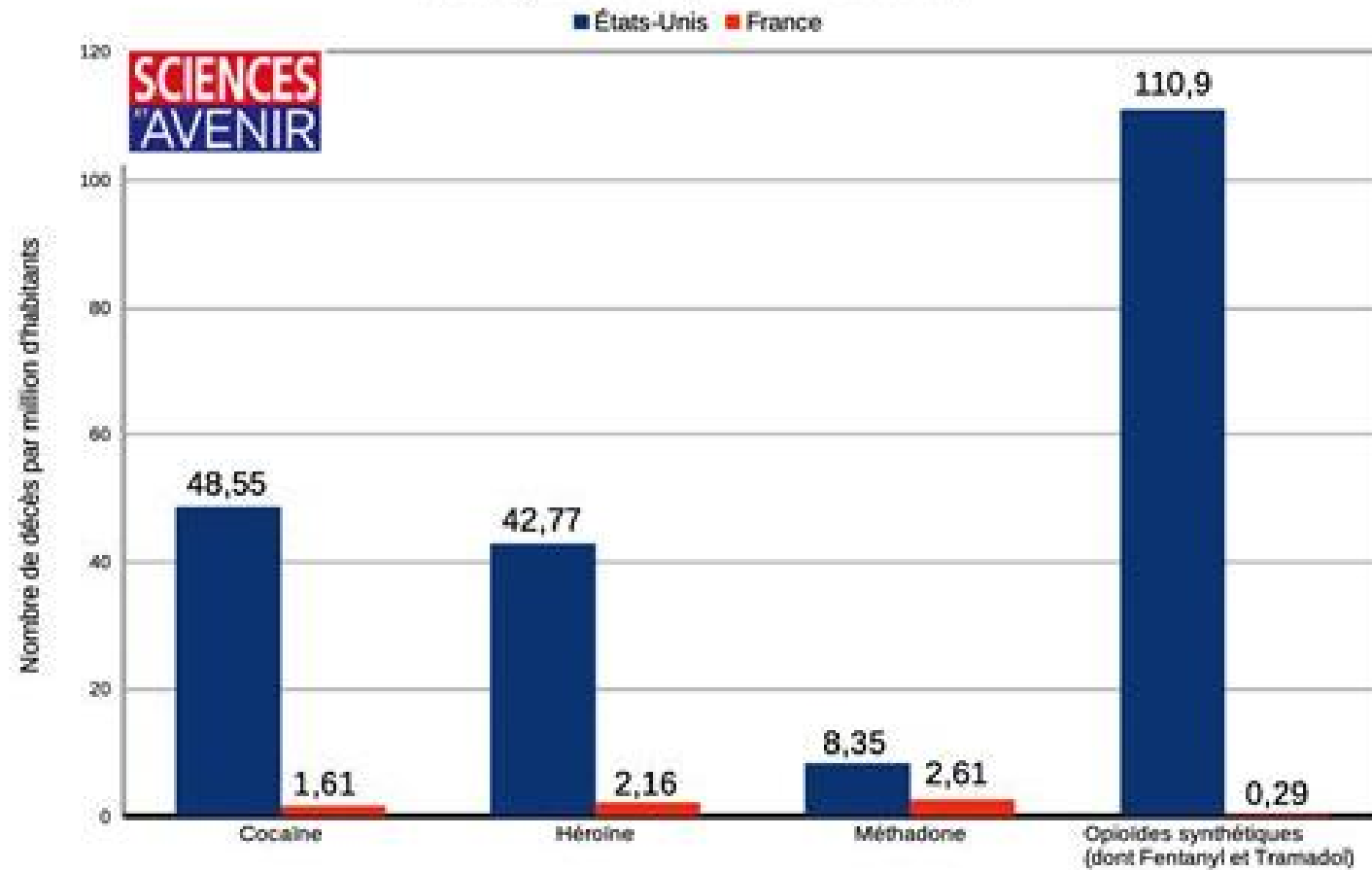


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Bilan de 2019 aux États-Unis et en France

Décès par overdose par million d'habitants



Sources : CDC (États-Unis) et enquête DRAMES (France)