

Opioid and overdose epidemic update

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Conflict of Interest

No conflict of interest with subjects, medication, or devices discussed for this presentation.



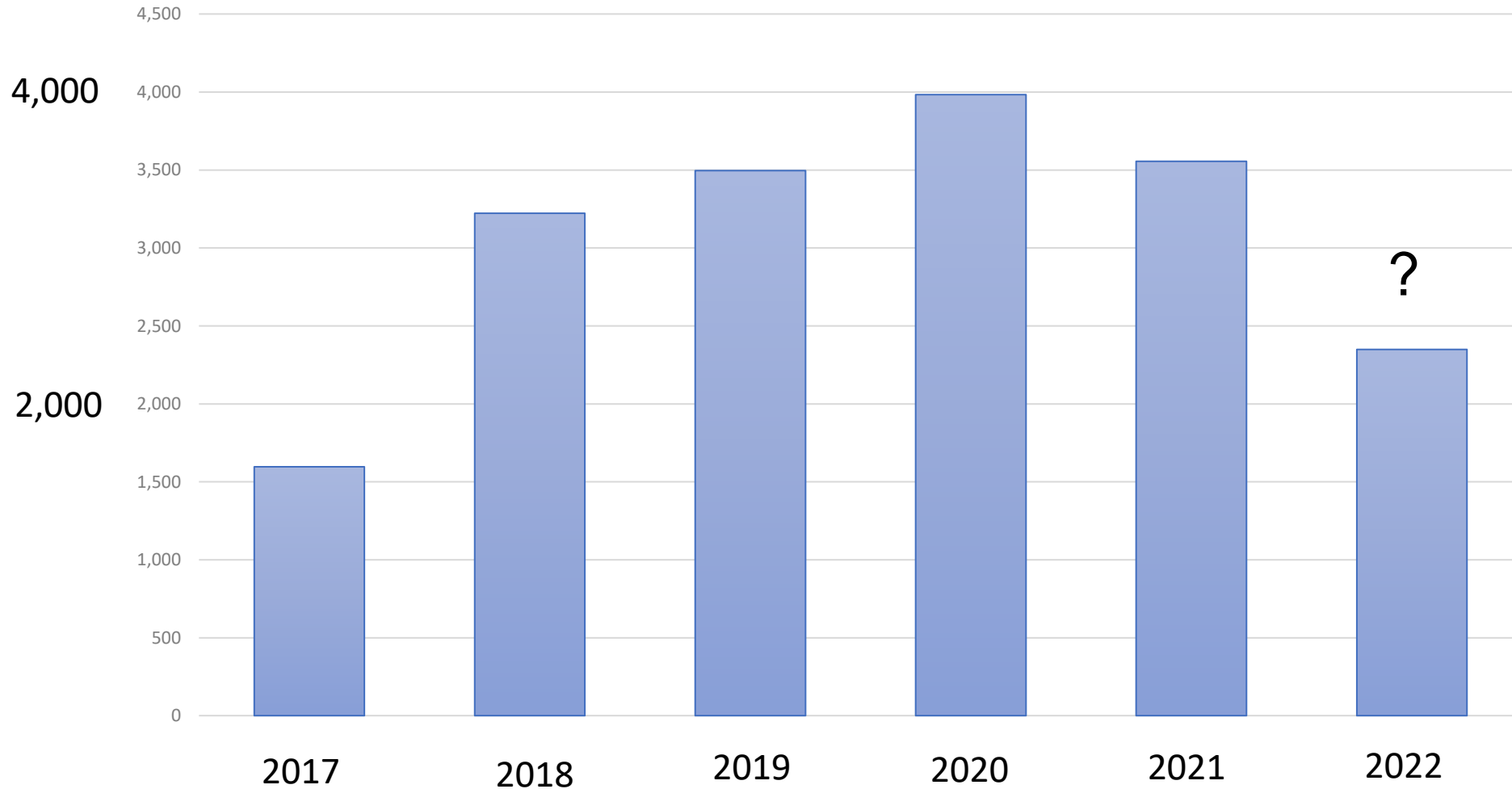
Average number of ODs presented to
health care facilities per 100,000:

813.5

Average number of emergency visits
related to ODs that presented to
health care facilities per 100,000
population

650

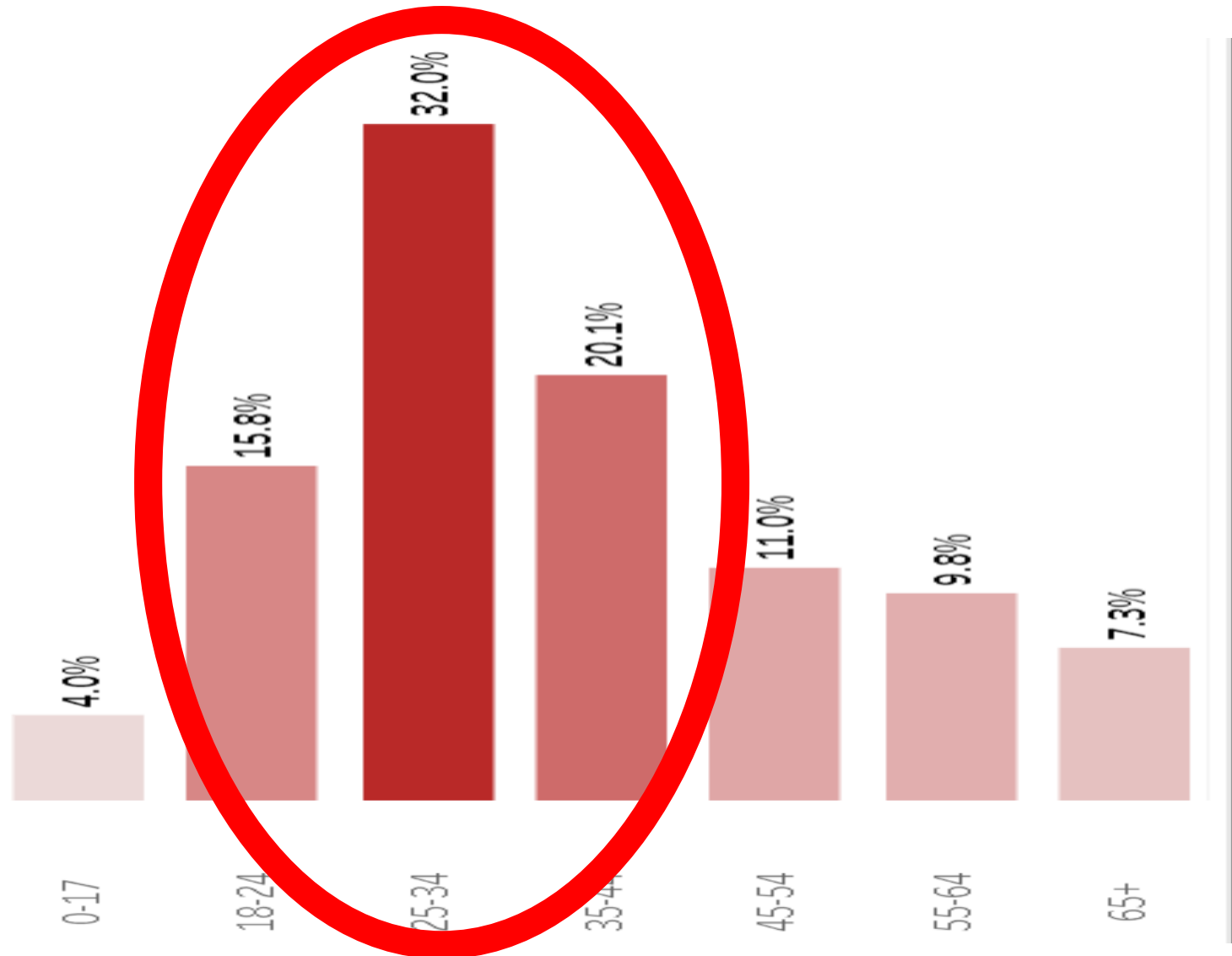
Non-fatal ODs per year



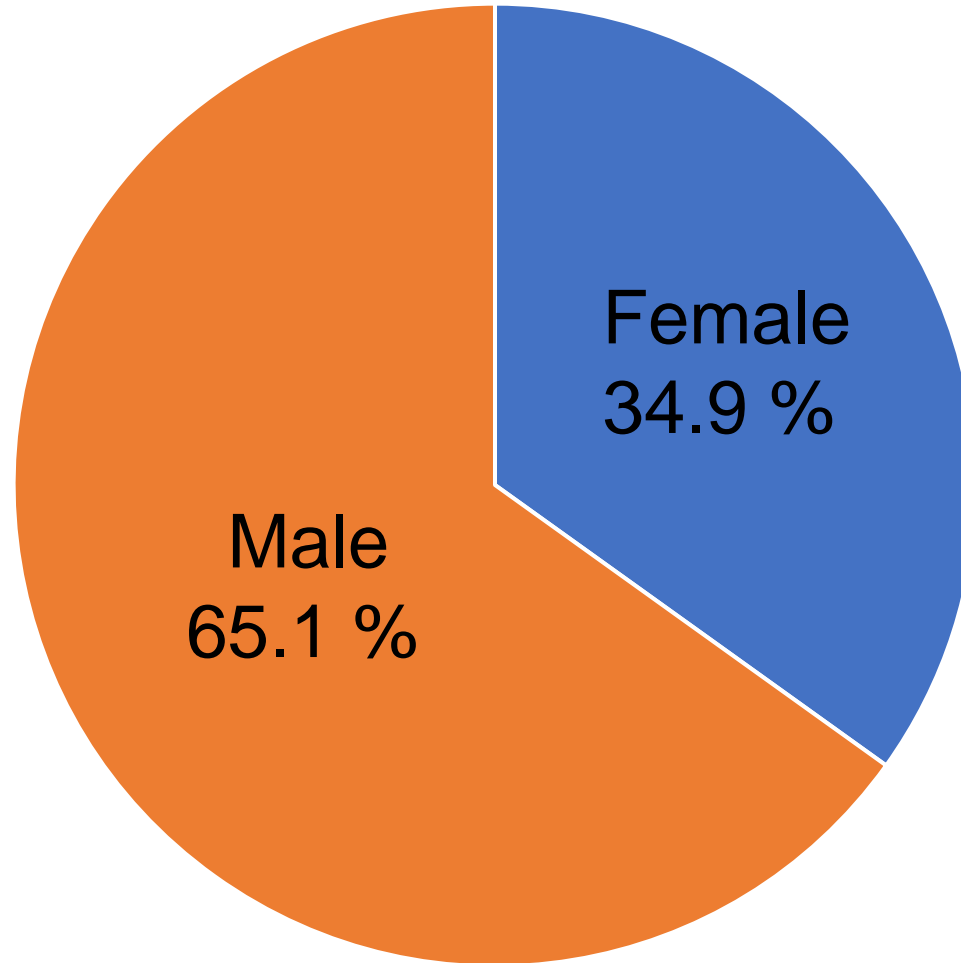
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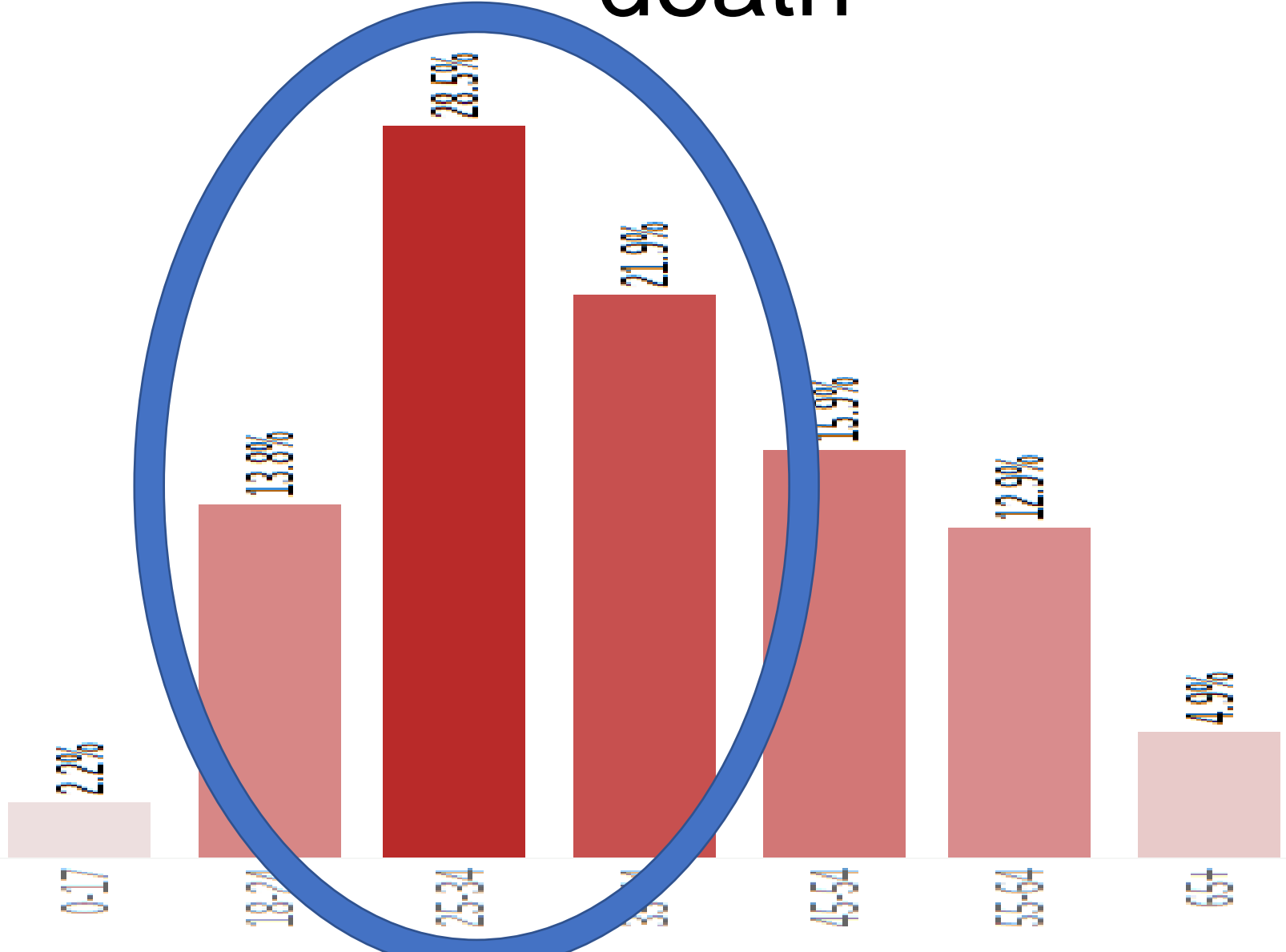
Age distribution of non-fatal ODs



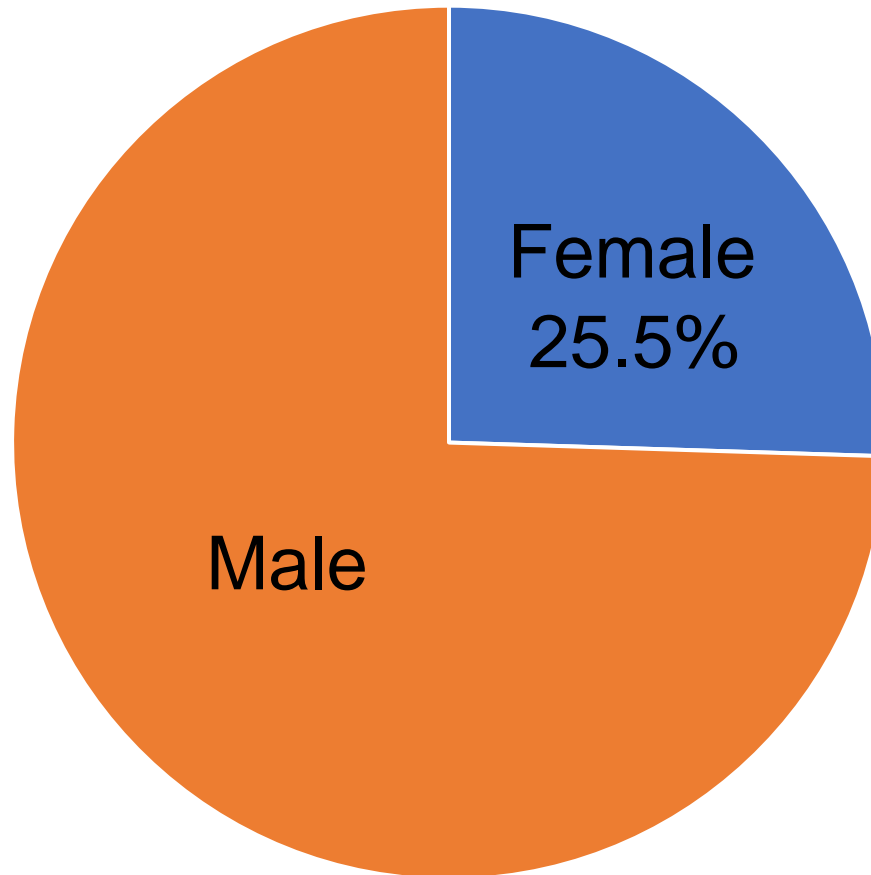
Distribution in Non-fatal OD:



Age distribution of opiate death

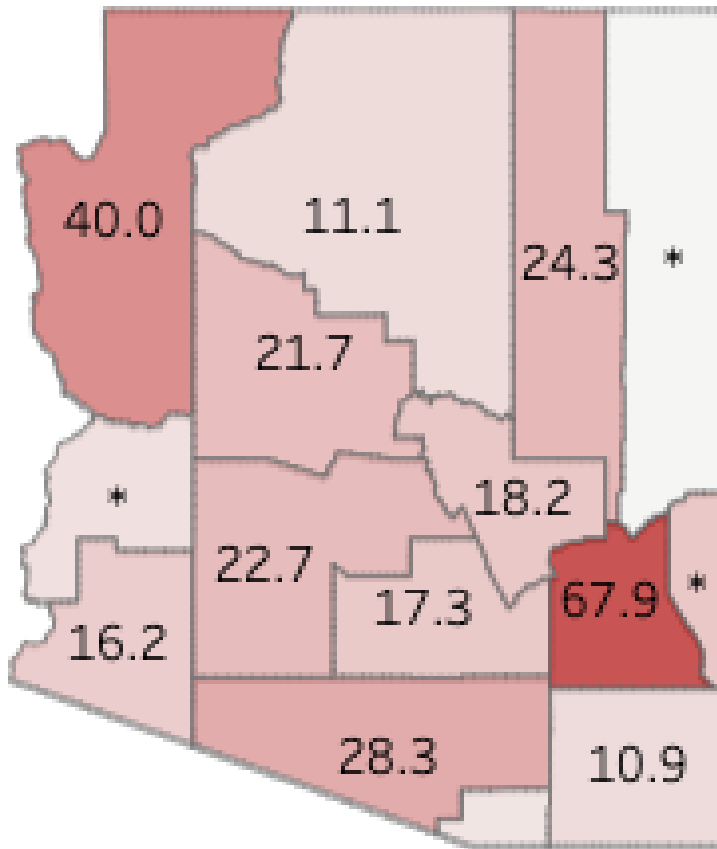


Sex distribution of death:

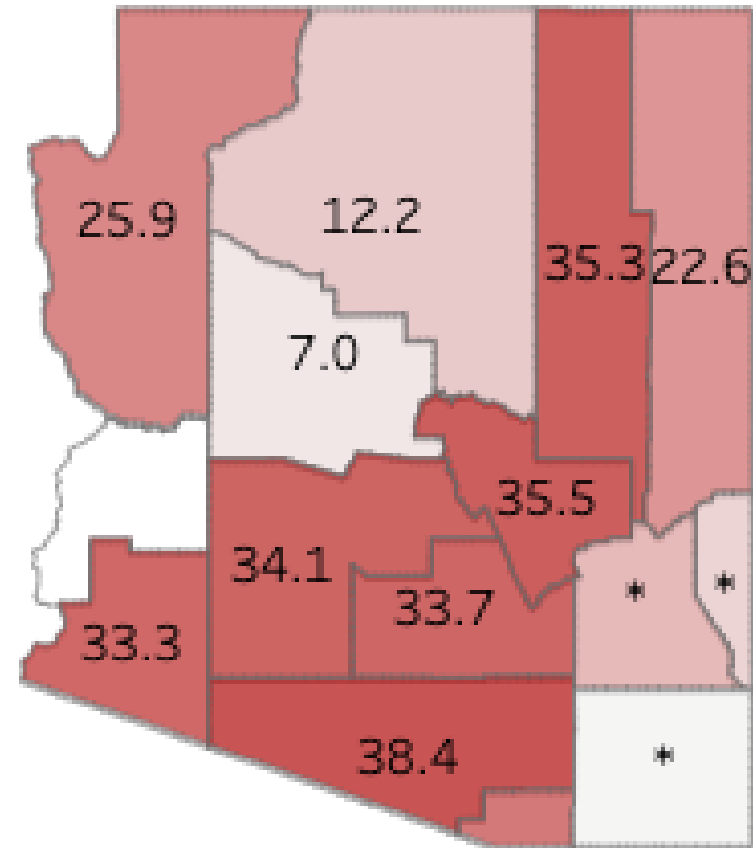


Rate of ODs per county per 100,000

2017

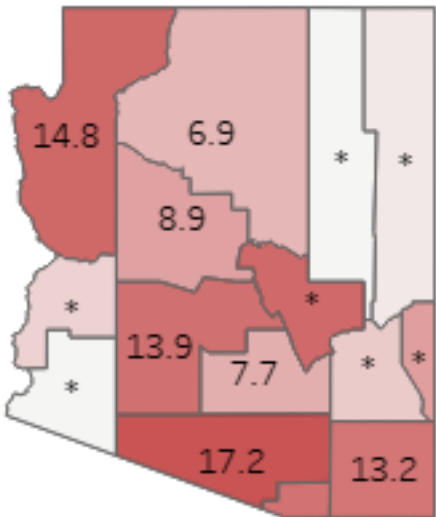


2022

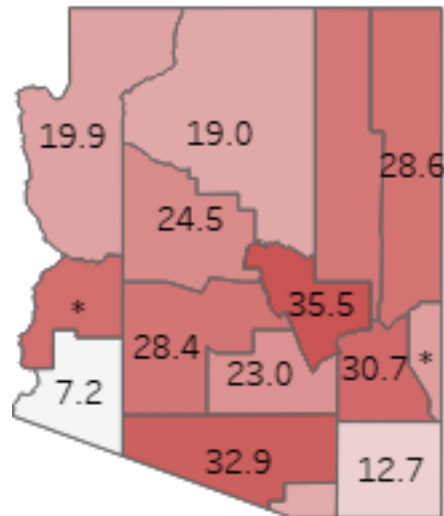


Rate of opiate death per county per 100,000

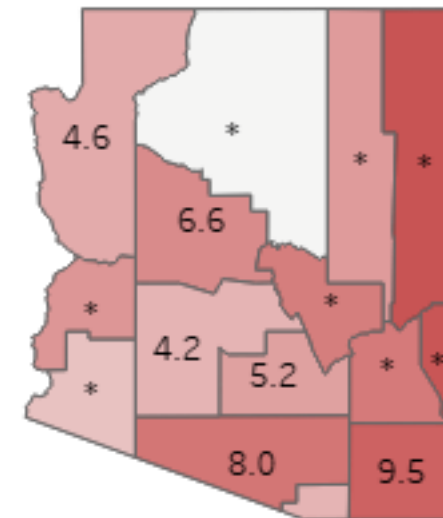
2017



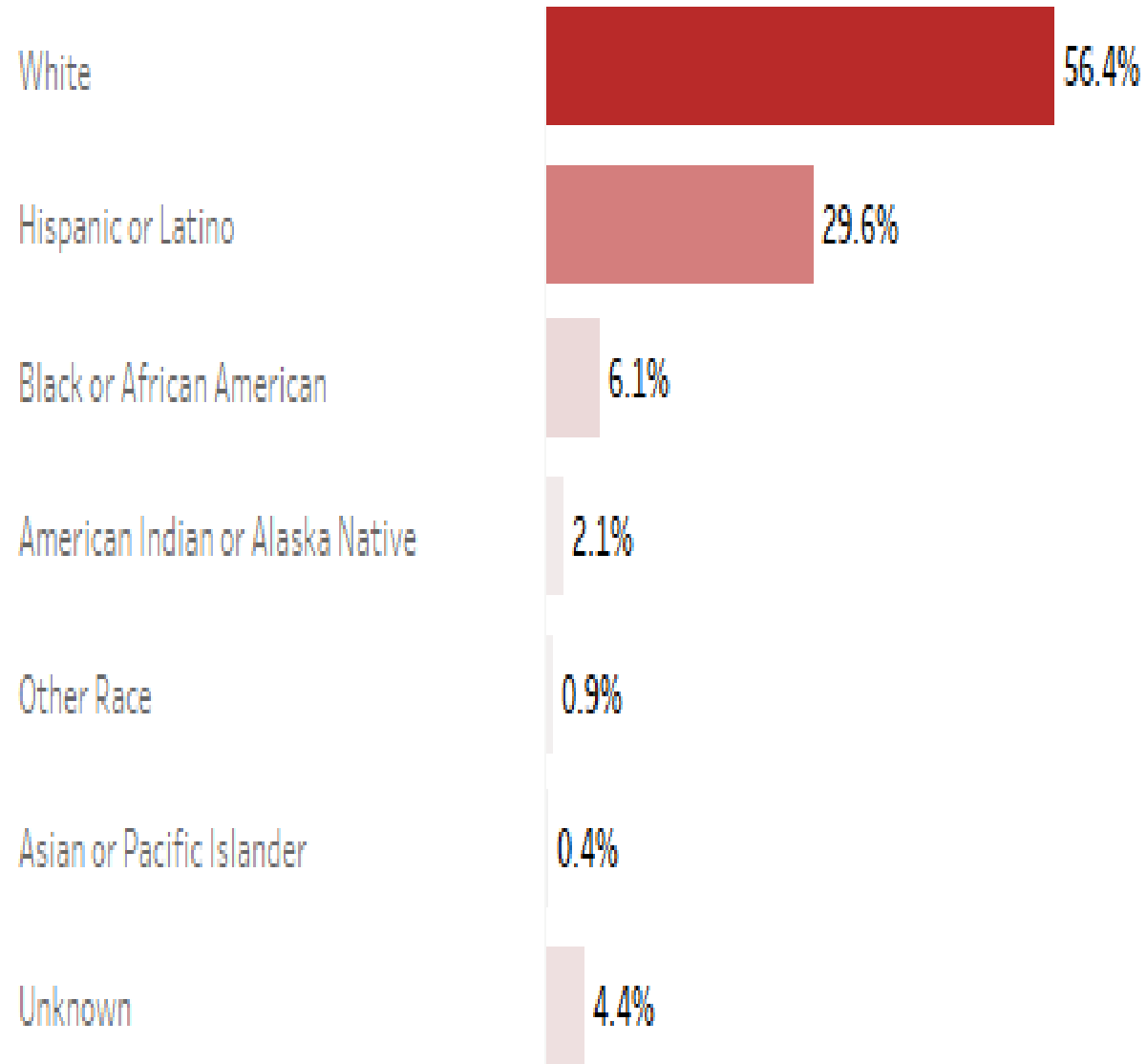
2021



2022???



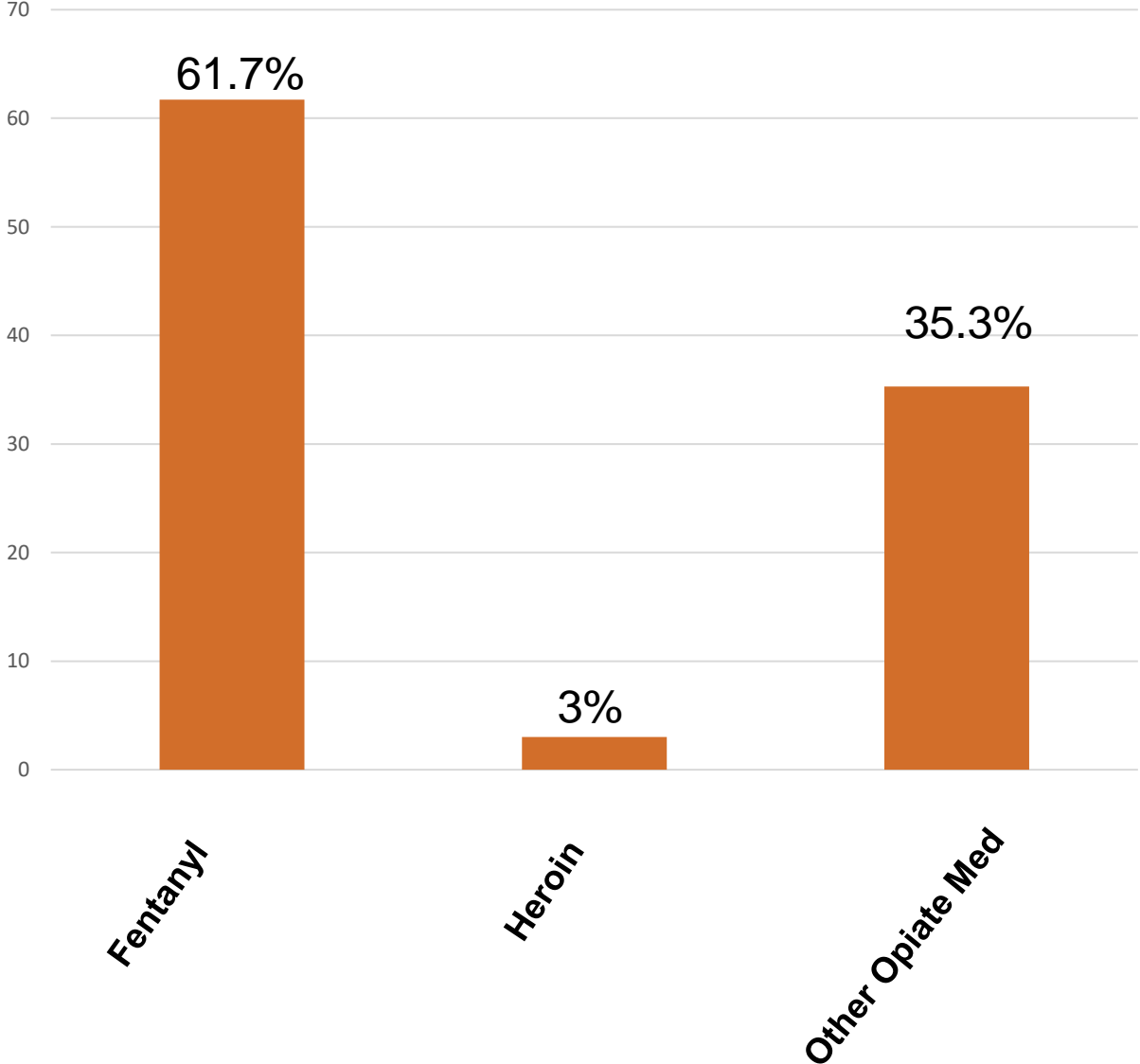
Ethnicity of opiate deaths:



Number of drugs involved in nonfatal opiate ODs:

- 1 drug 39.9 %
- 2 drug 31.0 %
- 3 drug 11.5 %
- 4 drugs 4.0 %
- Unknown 13.1%

Proportion of OD due to specific opiate



Proportion of nonfatal ODs with benzodiazepines and stimulants

Stimulants 34.4 %

Benzodiazepines 11.9 %

Opiate death by place

Residence	36.8 %
Inpatient/ED	22.0 %
Other	41.0 %

Cost

“Hospitalization with mention of opioids resulted in ~ \$2.2 billion in total charges annually 2020-2021”

Total Arizona Budget in 2021 was ~ \$45.1 billion Dollars.

Naloxone was administered to
~ 80 % of suspected ODs:

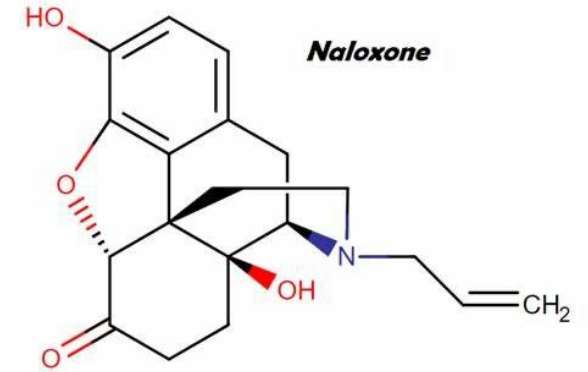
EMS 75%

Law enforcement 19%

Bystander 5%

Narcan:

- Competitive mu receptor antagonist.
- Can be given IV, IM, IN, IO, SQ, ET
- IV administration, approximately 60–65% of naloxone is excreted through the kidney as conjugated metabolites.
- The serum half-life of naloxone is approximately 60 min, though individual variations range from 30–90 min.
- A dose of 13 µg/kg (approximately 1 mg in an 80 kg individual) of naloxone will occupy 50% of available receptor sites in the human brain, but this dose may be insufficient to reverse toxicity.



Naloxone, Narcan prescription

- Only 1 prescription of Narcan is dispensed for 70 high-dose opioid prescription.
- Rural counties are 3 times more likely than metropolitan to rank low in dispensing Narcan.

Naloxone, Narcan side effect?

In non-opiate dependent: At high doses of 2 mg/kg IV or greater, patients experienced only behavioral symptoms such as dizziness, paresthesias, sweating, yawning, nausea, inertia and diminished cognitive performance without serious side effects.

In a patient with OUD studies found that such treatment with naloxone is accompanied by a 30-fold and 3-fold increase in epinephrine and norepinephrine plasma concentrations respectively, and that this catecholamine surge is associated with significant increases in cardiac index, stroke volume index, heart rate, whole-body oxygen consumption and a systemic vascular resistance index decrease, all consistent with the effect of epinephrine.

Naloxone, Narcan pulmonary edema?

Reports of naloxone-associated pulmonary edema following reversal of opioid-induced respiratory depression are diverse. This phenomenon has been observed among young and old patients and after a wide range of naloxone doses. In some cases, the patient had an underlying pulmonary condition prior to the opioid overdose.

Tachydysrhythmias & hypertension have been reported with opiate reversal using Narcan in patients who also use stimulants.

Naloxone, Narcan in the age of fentanyl?

There was no difference between injectable (intramuscular/intravenous) naloxone and intranasal naloxone in the pre-hospital management of opioid overdose.

The onset of action of intranasal naloxone, however, was **slightly longer** than injectable naloxone.

The prevalence of major side-effects was non-significant for both intranasal (0.00%) and intramuscular/intravenous (0.05%) routes of naloxone administration.

Odds of needing a rescue dose was 2.17 times higher for intranasal naloxone than intramuscular/intravenous naloxone.

Fentanyl

Absorption- depends on route of administration

Distribution-lipophilic

Metabolism- Cytochrome P450 3A4








Excretion- Urine 75% (primarily as metabolites, <7% to 10% as unchanged drug); feces ~9%

Half life : 2-4 hours

Transdermal formulation: 5-14 hours

How Long Does Fentanyl Stay In Your System?



 Blood	 5-48 hours
 Saliva	Unknown
 Urine	 up to 3 days
 Hair Follicle	 up to 90 days

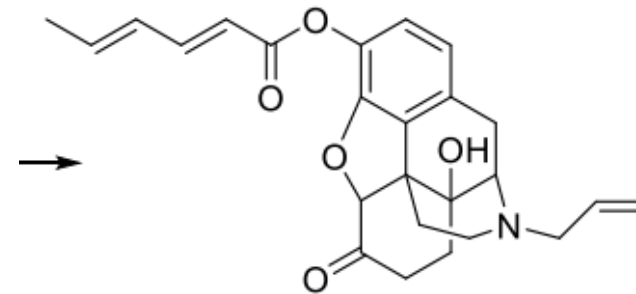
<https://addictionresource.com/drugs/fentanyl/how-long-stays-in-system/>

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New antagonist: NX-90

- 1- Longer lasting
- 2- Better brain penetration
- 3- Higher affinity for the Mu receptor



NX-90

Low hanging fruits in the fight against OD death:

- 1- Increasing Narcan prescription with any opiate prescription.
- 2- Increasing Narcan administration training & rescue.
- 3- Making Narcan available at high school and university.
- 4- Decreasing co-prescription and dispensing of sedatives and respiratory depressants.
- 5- initiating MAT prior to discharge from hospital and release from prison.



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