



Overview of drug misuse in Mauritius

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Drug misuse in Mauritius

Opium den

Brown sugar



Opium poppy



Papaver somniferum

Raw opium

1. Boiled with lime
2. Filtered
3. Reheated with NH_4Cl

Morphine powder

1. Brown heroin
2. White heroin

Diacetyl morphine

Source of picture: google pictures

<http://www.manoneileen.com-opium-poppies-2/>

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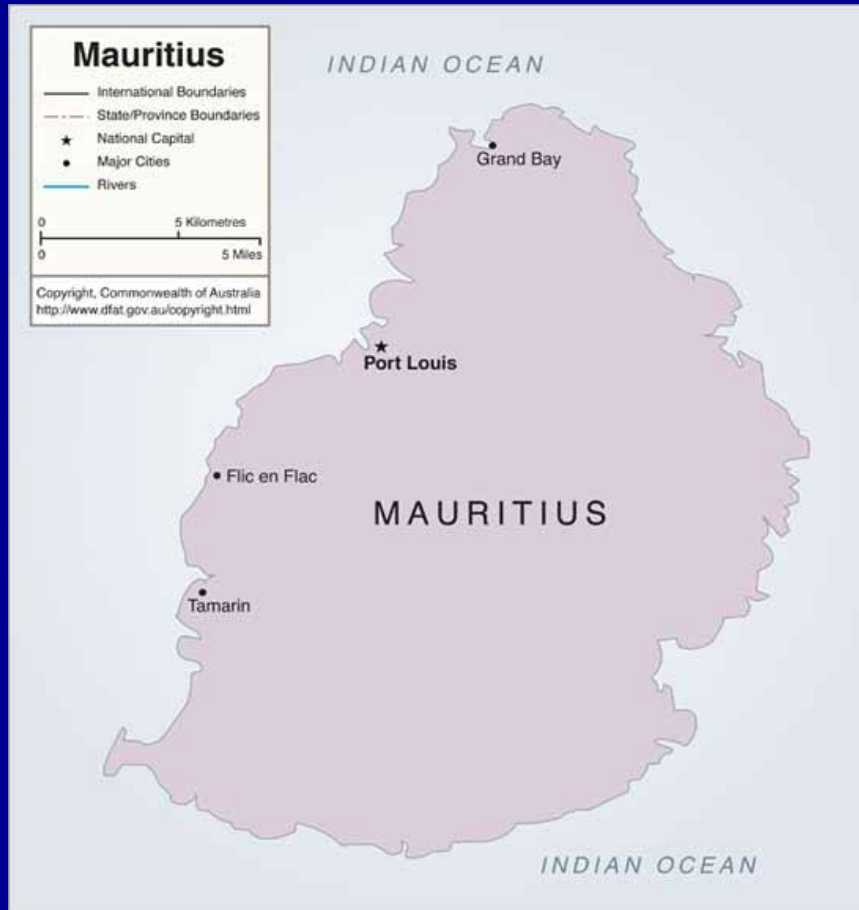




Heroin: From Afghanistan to Mauritius



Heroin: Routes into Mauritius



Air route
Sea route
Postal route
Drug mules
Hidden in objects

Heroin bullets



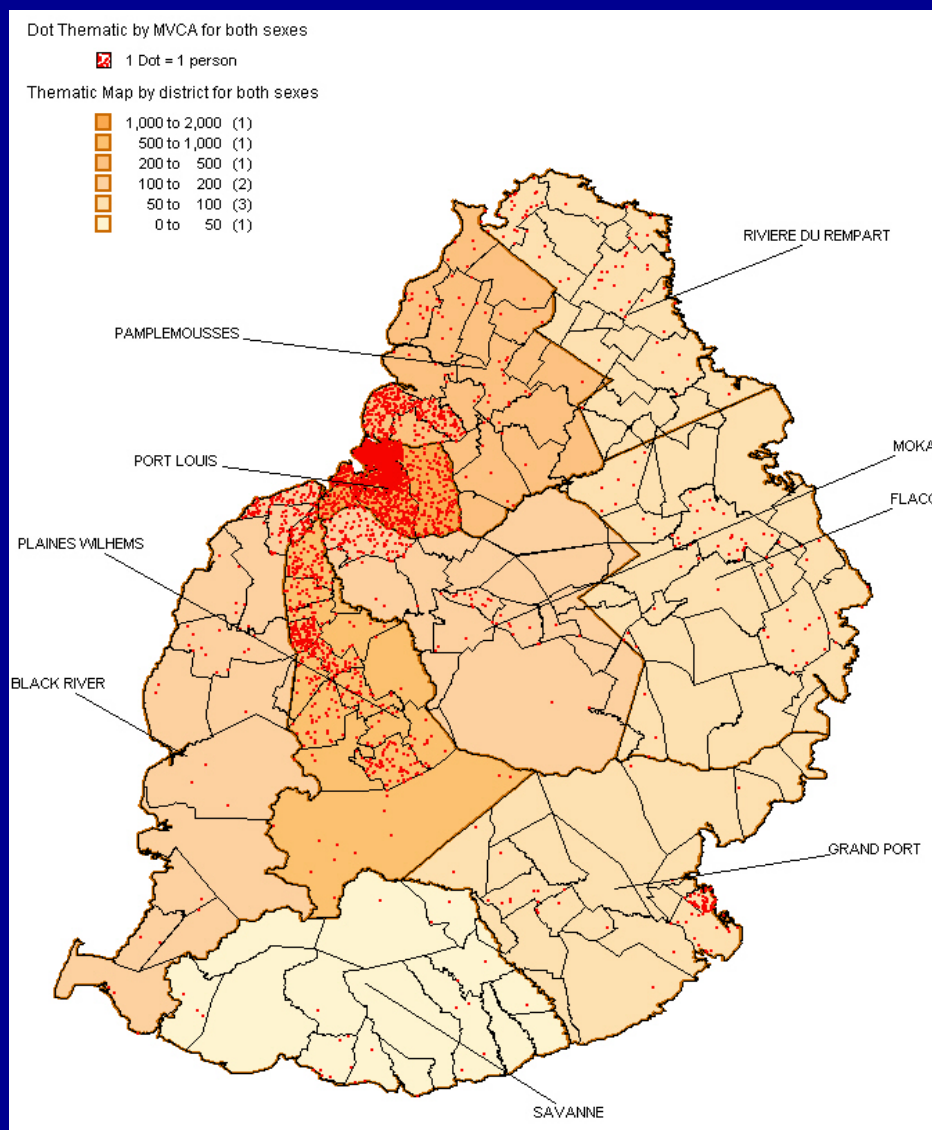








SPREAD OF IV DRUG USERS IN MAURITIUS



source: Health Statistics report, 2011 Department of Medicine
University of Mauritius

Why is heroin addictive?

Natural opiate in our body:

- endorphines
- enkephalins

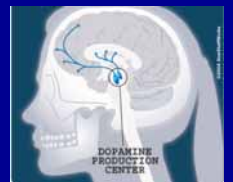
Opiate receptors:

- μ , κ , δ , σ .

Medicinal opiates

- Cough mixtures
- Analgesics (codeine, morphine)

Upregulation of opiate receptors

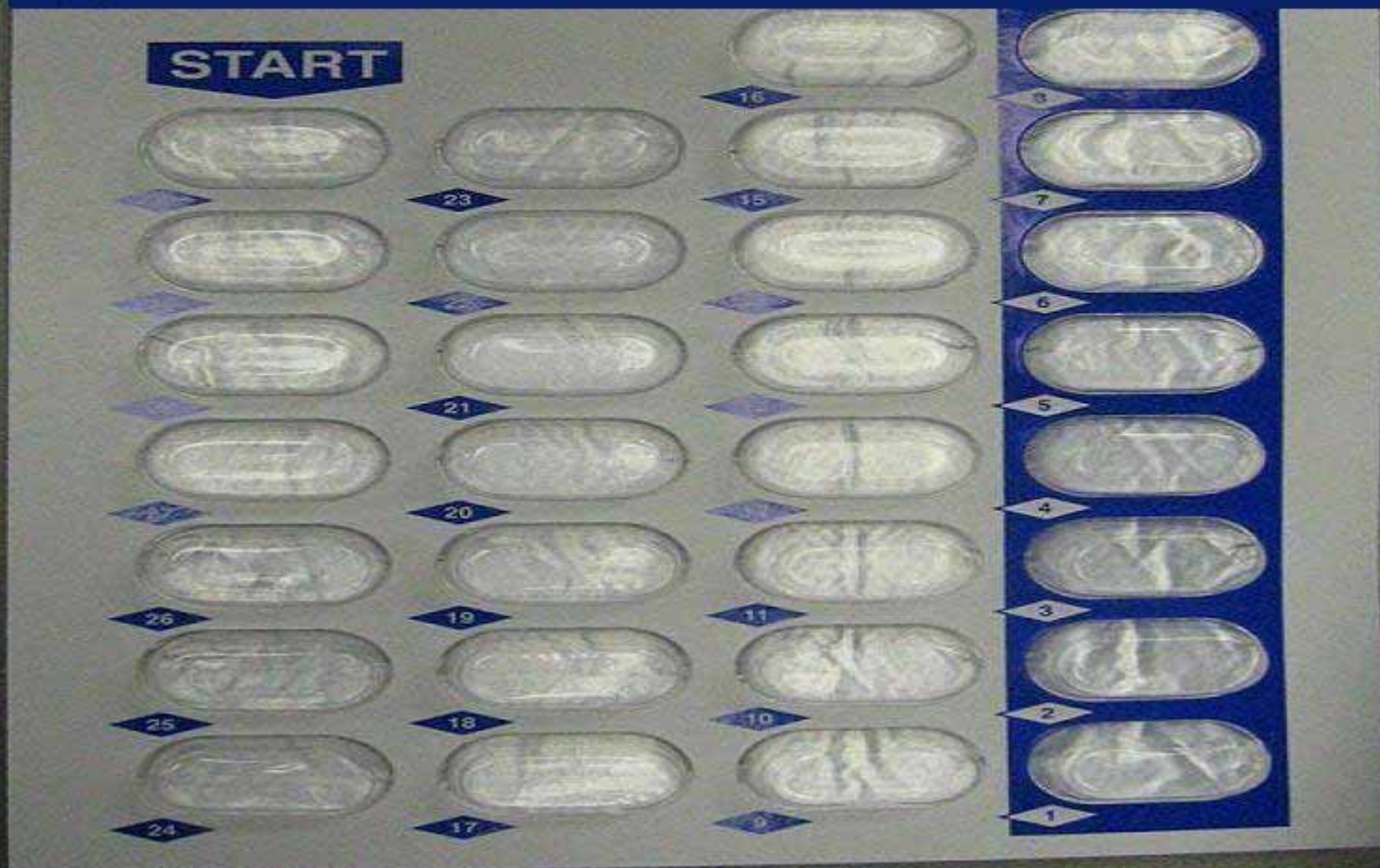


SC Pharma NDC 12496-1310-2 30 Tablets Rx only

SUBUTEX®

Buprenorphine HCl Sublingual Tablets

8 mg



HIV/AIDS Cases 1995-2012

Source: Health Statistics Report; <http://health.gov.mu>

Distribution of HIV/AIDS cases by Gender & Age Group 1987-2012

World drug report, 2011 (UN publication)

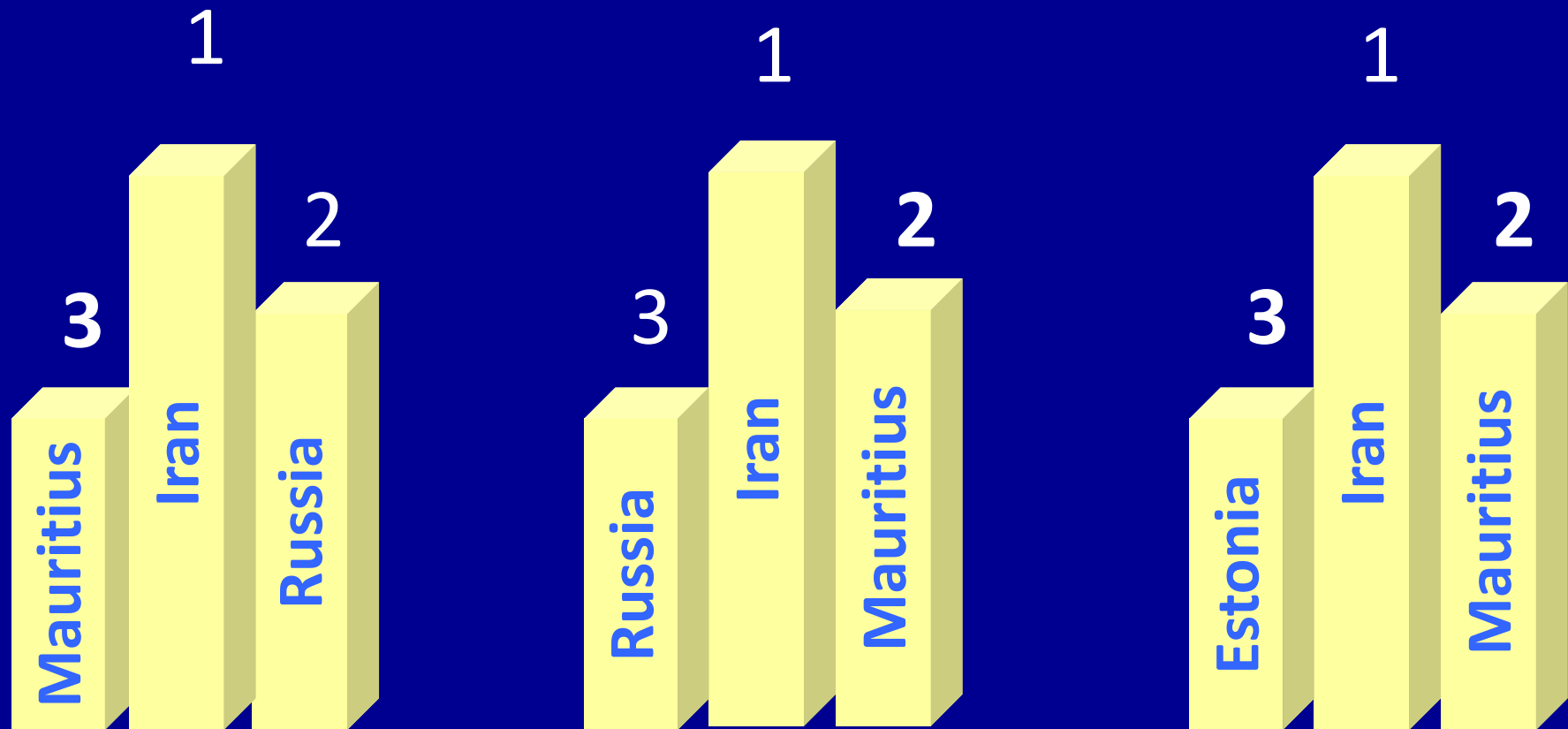
- “Mauritius, Kenya and Egypt are the countries in the African continent with the highest prevalence of opiate use.”
- “Mauritius also has a high prevalence of injecting drug use and a concentrated HIV epidemic among these users.”

Source: Rapid assessment study, UN, 2010

USE OF OPIATES, 2010

source: UN World drug report, 2010;
<https://www.unodc.org/unodc/data-and-analysis/WDR-2010.html>

WORLD OPIATE USE PER CAPITA		WORLD OPIATE USE PER CAPITA	
1. Iran	2.8%	Kenya	0.7%
2. Costa Rica	2.7%	USA	0.6%
3. Afghanistan	2.5%	Canada	0.5%
4. Mauritius	1.9%	France	0.5%
5. Russia	1.6%	Bangladesh	0.4%
6. Scotland	1.5%	Egypt	0.4%
7. Malaysia	1.3%	Australia	0.4%
8. Ukraine	1.3%	South Africa	0.4%
9. Kazakhstan	1.3%	Sri Lanka	0.1%
10. Estonia	1.2%	Jamaica	0.1%
11. Tajikistan	1.0%	Singapore	0.01%

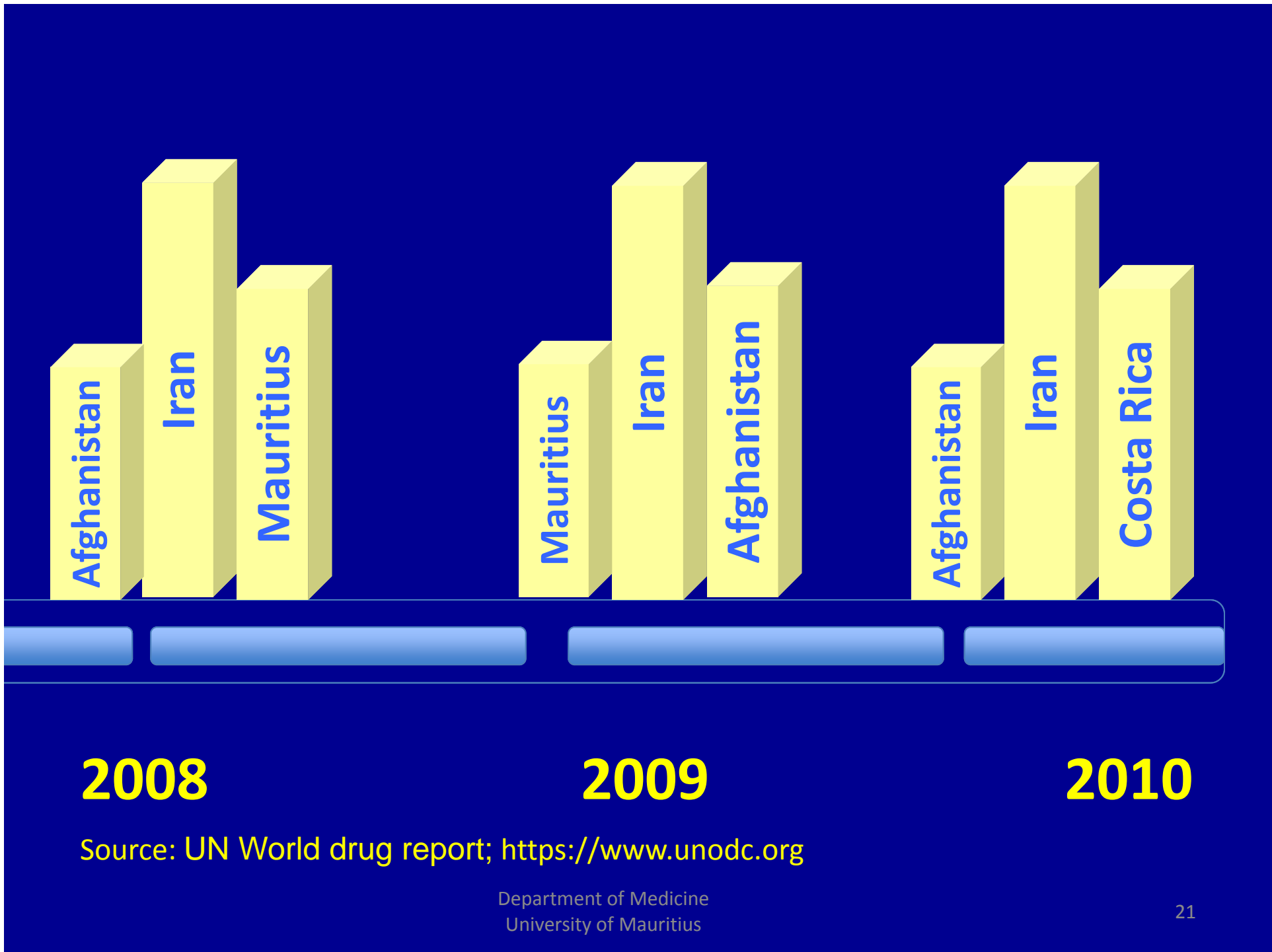


2005

2006

2007

Source: UN World drug report; <https://www.unodc.org>



2008

2009

2010

Source: UN World drug report; <https://www.unodc.org>

HARM REDUCTION PROGRAMME IN 2006

- Needle exchange programme
- Methadone substitution treatment

By-product of MST

Illicit methadone

Loitering

Treatment of opiate addiction



Methadone

Subutex

Naltrexone tablets

Naltrexone implant





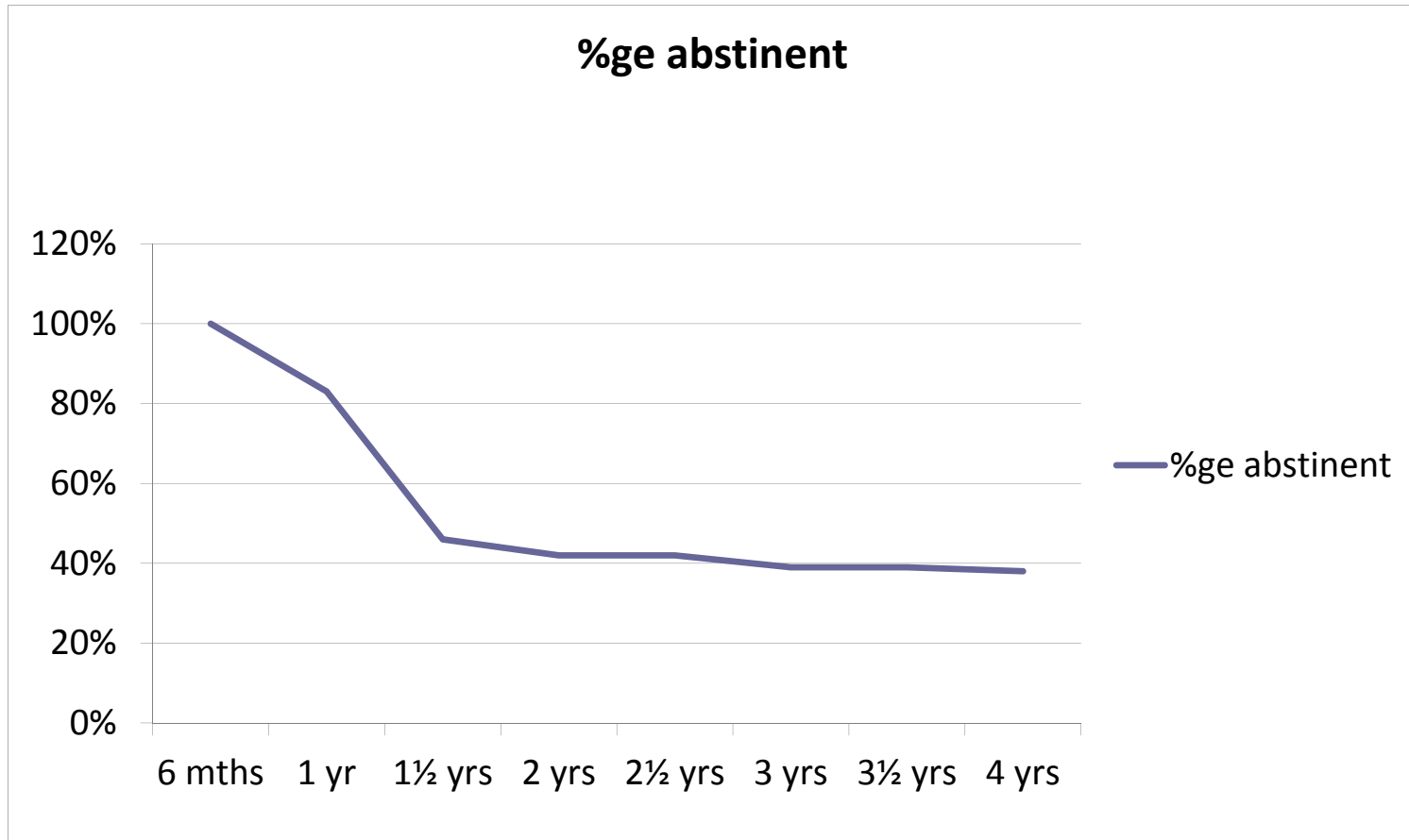
- **Naltrexone implant treatment for buprenorphine dependence - Mauritian case series.**
- **Jhugroo A, Ellayah D, Norman A, Hulse G; Journal of Psychopharmacology April 2014**
- Between 2007 and 2010,
 - 24 opiate dependent patients travelled to Perth from Mauritius to have the O'Neil double Naltrexone implant
 - Went in batches of 4-6, accompanied by care workers
 - 4 of them later had repeat Naltrexone implants
 - Upon return to Mauritius, reviewed regularly by their care workers for general follow up and to assess their level of opiate abstinence.

Duration of abstinence	Number of opiate-abstinent patients	Total number of patients in study
6 months	24	24
1 year	20	24
1½ years	11	24
2 years	10	24
2½ years	10	24
3 years	7	18
4 years	5	13
Never relapsed	10	24
Currently abstinent	13	24

Percentage of opiate free patients after 1st implant at follow up

6 months	100 %
1 year	83 %
1½ years	46 %
2 years	42 %
2½ years	42 %
3 years	39 %
4 years	38 %

Abstinence over time after first implant



Cannabis



Synthetic cannabinoids

Synthetic cannabis is a psychoactive designer **drug** created by spraying natural herbs with synthetic chemicals, analogues tetrahydrocannabinol (ingredient from natural cannabis)

WHITE WIDOW



Synthetic cannabinoids

**Binding affinity and potency of
synthetic cannabinoids is 10-100 X
that of natural cannabis**

**Clinical syndrome of cannabinoid-
induced psychosis**

Synthetic Cannabinoids

POISON SPRAYED ON LEAVES!



- Technically a classified as poisonous
- Chemical designed to effect the same brain receptors as THC – CB1 & CB2
- Up to 100 times more potent than real marijuana
- Full Agonist vs. Partial Agonist



ArmyTimes

4 October 2010

armytimes.com

October promotions 27  Cutoff scores 29

Deadlier sniper rifles *Upgrades add range and firepower* 18

Go officer  West Point wants more enlisted soldiers 28

CHEAP, LEGAL & ADDICTIVE

The Army's hidden drug problem
— and why
the brass
can't stop it

20



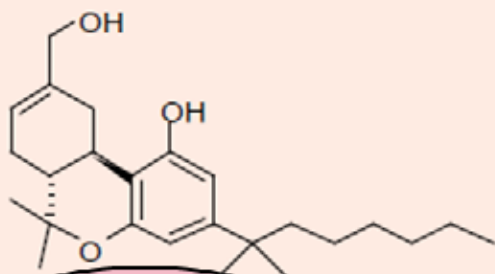


Venom of black mamba reported to be a strong morphine-like analgesic but without the strong side effects of morphine and not reversed by naloxone.

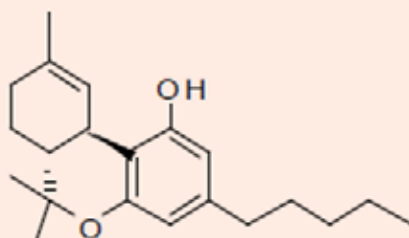




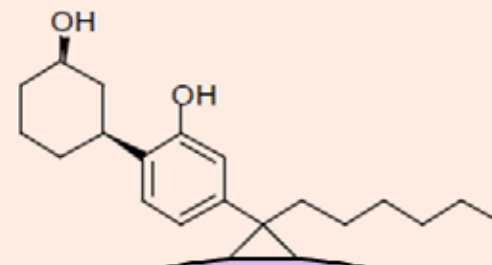
Classical and Non-Classical Cannabinoids



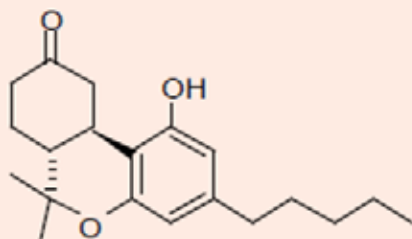
HU-210 (1)



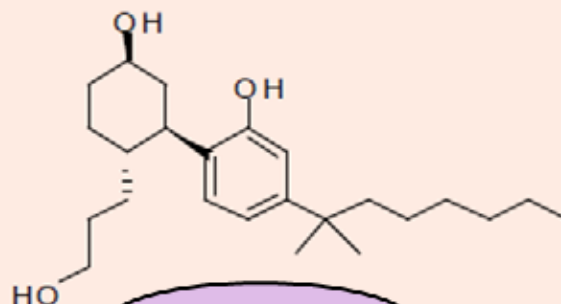
Δ^9 -THC (2)



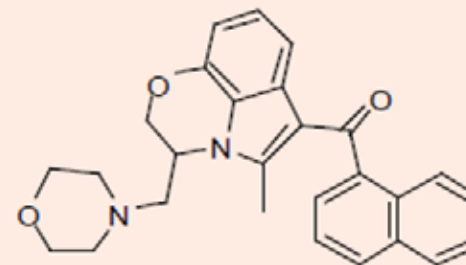
CP 47,497 (3)



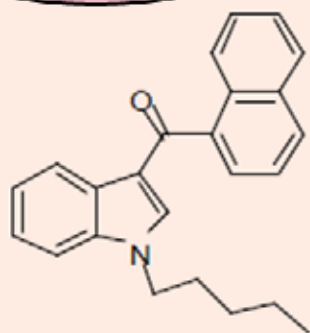
Nabilone (4)



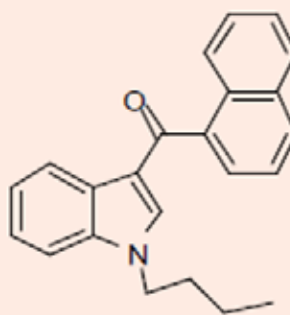
CP 55,940 (5)



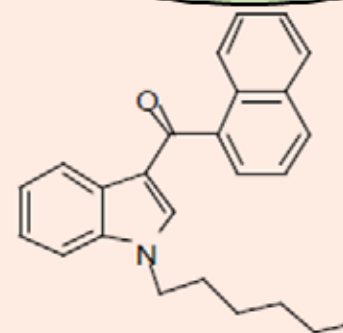
WIN 55212-2 (6)



JWH-018 (7)

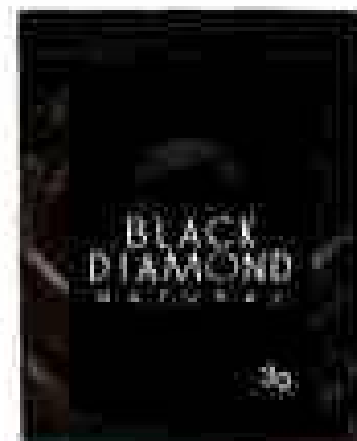


JWH-073 (8)



JWH-019 (9)

Courtesy of Cayman Chemical, Ann Arbor, MI, USA



Cough mixture

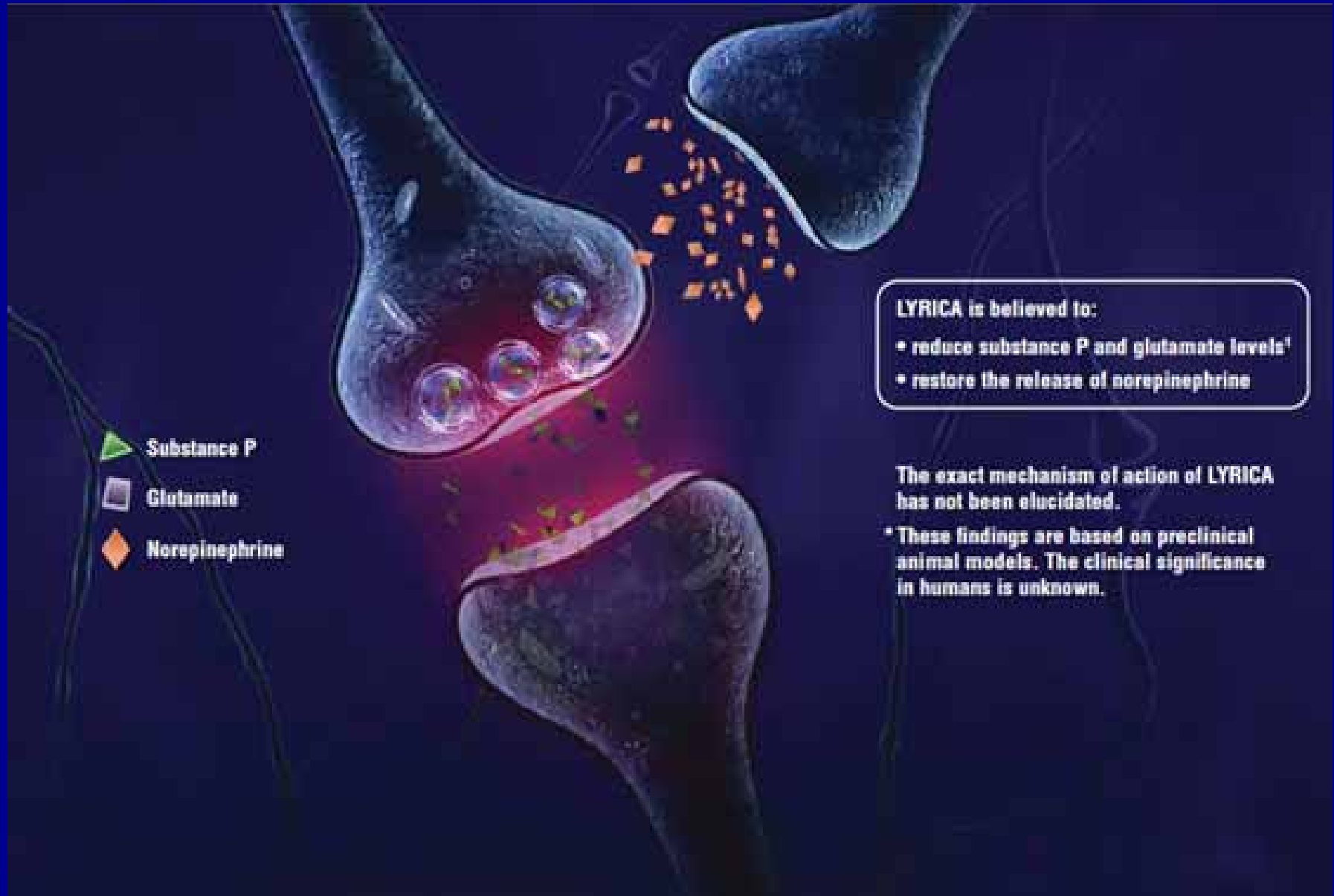
Codeine

Pseudoephedrine

Taken by youngsters as believed to
“prolong sexual endurance”

Progress to harder drugs

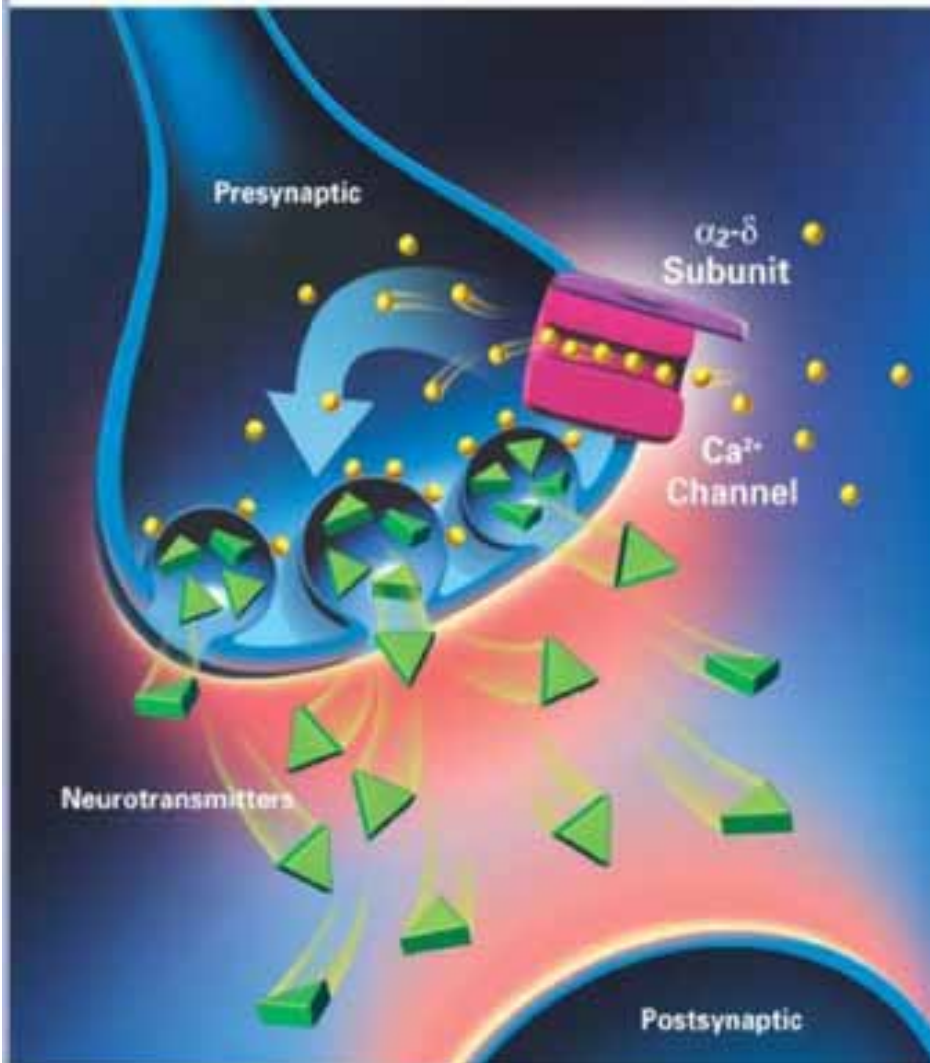
Pregabalin (Nova, Lyrica)



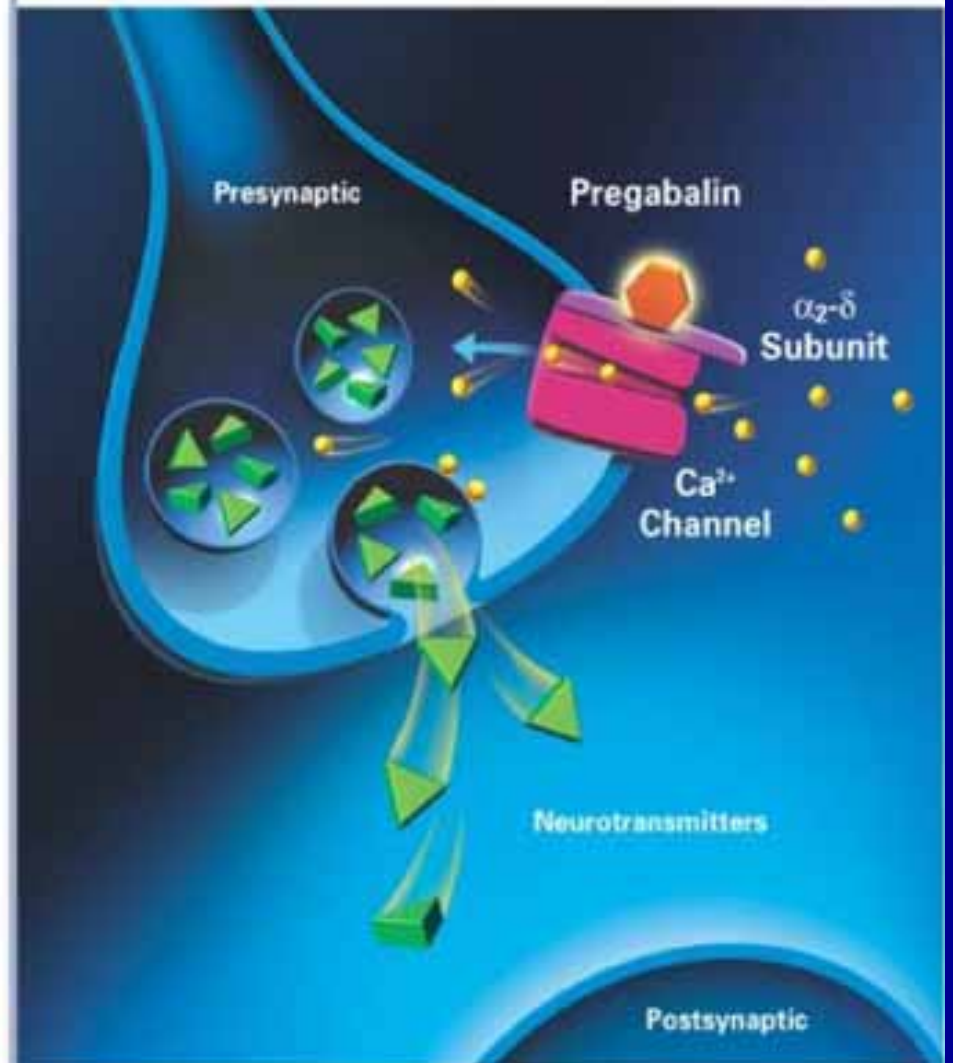
mechanism of action of pregabalin

- Pregabalin binds to presynaptic neurons at the alpha2-delta ($\alpha 2-\delta$) subunit of voltage-gated calcium channels.
- Drug binding reduces calcium influx into presynaptic terminals.
- Decreased calcium influx reduces excessive release of excitatory neurotransmitters (eg, glutamate, substance P, noradrenaline).

Hyperexcited Neuron



Modulation of Hyperexcited Neuron With Pregabalin



Treatment with pregabalin significantly improves sleep and pain in patients with fibromyalgia.

Other challenges

Nova

pregabalin

Benzodiazepines

Rivotril, Diazepam

Antidepressants

Prothiaden

