



Newer Psychoactive Drugs

Epidemiological and Clinical issues

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Introduction

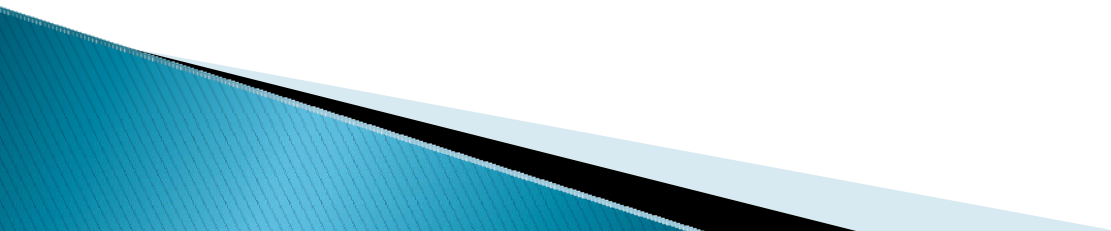
- **Newer Psychoactive Drug (NPS) :A global phenomenon with over 100 countries and territories from all regions of the world having reported one or more NPS**
- **Up to December 2015, more than 600 substances have been reported to the UNODC.**
- **NPS is often linked to health problems ranging from seizures to agitation, aggression, acute psychosis**
- **Potential development of dependence**



NEWER PSYCHOACTIVE SUBSTANCES (NPS)

- ▶ United Nations Office on Drugs and Crime report define (NPS) as

“Substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat” .



Street Names

- ▶ “Designer” drugs
- ▶ “Spice”
- ▶ “Bath salts”
- ▶ “Special K”
- ▶ “Herbal incense”
- ▶ “Legal high”

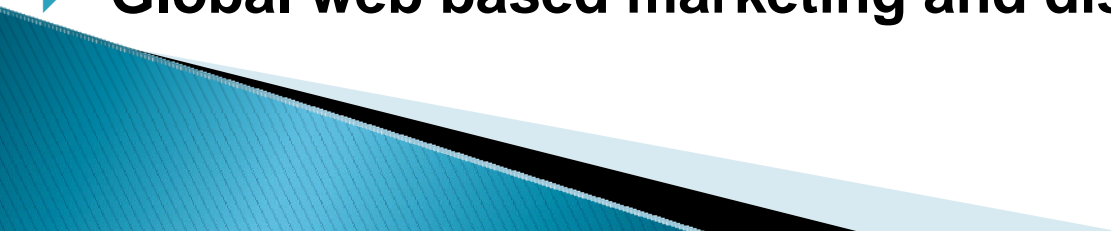


Magnitude

- ▶ **Methamphetamine dominates the global market for synthetic drugs, and is expanding in East and South-East Asia**
- ▶ **M-Cat, Crystal Meth abuse a growing concern for India: NCB report**
- ▶ **"Mephedrone epidemic".**

The city's psychiatrists are flooded with cases of Mephedrone addiction. a new, cheaper drug doing the rounds and is commonly known as 'meow meow' or M-Cat drug

Perceived sources of NPS

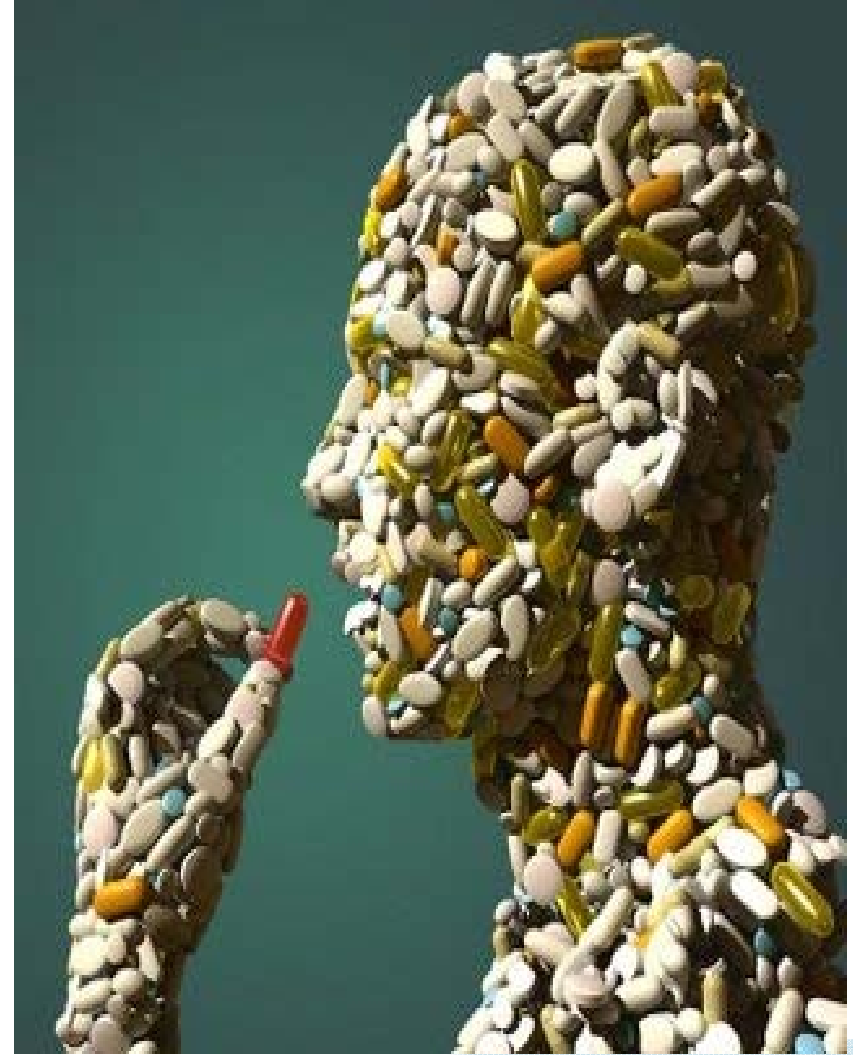
- ▶ Asia followed by Europe, the Americas, Africa and Oceania
 - ▶ In Asia CHINA and INDIA
 - ▶ Domestic manufacture by several countries in Asia ,The America and Europe.
 - ▶ The mode of trafficking by air followed by mail without regional variation
 - ▶ Global web based marketing and distribution
- 

NPS substances group

- Ketamine & Phencyclidine-type substances
- Phenethylamines
- Synthetic cannabinoids
- Synthetic cathinones
- Aminoindanes
- Piperazines
- Tryptamines
- Plant-based substances
- Other substances



CLINICAL FEATURES



Ketamine & Phencyclidine-type substances

- ▶ 'K', 'special K', 'kit kat', 'tac', 'tic', 'cat valium', 'cat tranquilizer', 'vitamin K', 'ket', 'super K'



Frequently sold as ecstasy

KETAMINE



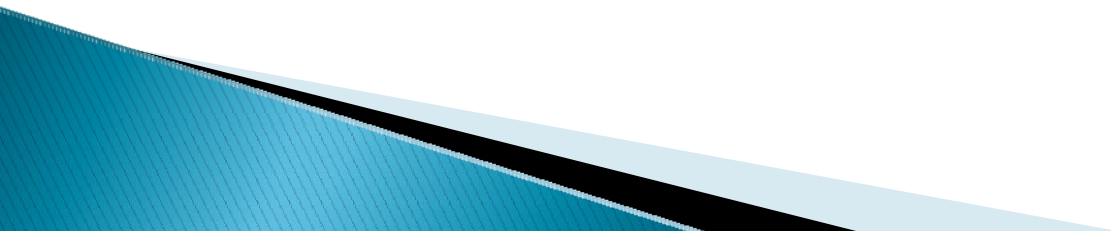
- ▶ Starting and maintaining anesthesia.
- ▶ Chronic pain and for sedation in intensive care
- ▶ Subanesthetic doses - Dissociative state, sense of detachment from one's physical body and the external world
- ▶ Depersonalization and Derealization.
- ▶ "K-land"- a state of extreme dissociation with visual and auditory hallucinations in high doses
- ▶ *Impaired motor function, hypertension ,potentially fatal respiratory problems, amnesia*

Phencyclidine-type substances

PCP, Angel dust

- **Stimulants** : mimicking the effects of traditional drugs such as cocaine, amphetamine, ecstasy.
- ▶ **Dissociatives**. a class of hallucinogens which modulate effects at the N-methyl-D-aspartate (NMDA) receptor
- ▶ Feelings of detachment and dissociation from self and the environment.
- Behavioral toxicity leads to psychiatric syndromes, violent behaviour
- Acute PCP intoxication- range of behavioural effects, mild neurologic and physiologic abnormalities, stupor/coma

Phenethylamines

- Chemically similar to amphetamine, methamphetamine, MDMA
 - **Street name** : '*Europa*' for 2C-E '*4-FMP*' '*RDJ*' for 4-FA;
 - **Stimulants** mediate the actions of dopamine, norepinephrine and/or serotonin
 - **Classic hallucinogens** (*psychedelics*) produce hallucinations
 - Agitation, tachycardia, mydriasis, severe limb ischemia, seizures, liver and renal failure.
- 



CRYSTAL METH

meth, speed, ice, crank



- Boost mood, increase feelings of well-being, increase energy and alertness.
- Reduced appetite.
- Increased and irregular pulse.
- Increased blood pressure and body temperature.





MDMA ,ECSTASY

Molly, Love Drug.

3,4-methylenedioxymethamphetamine.

- Club Drug as popular in night club and also at raves (all night dance parties).
- Available as tablet, pill, capsules. Pills maybe of different colors and may have cartoon like images on them
- Feelings of being alert, hyper, elation, sensory delight and other changes in perception.
- Induces a sense of intimacy with others and diminished feelings of fear and anxiety.

Piperazines (BZP)

- Has similar properties to amphetamine
- Frequently sold as 'ecstasy'. 'pep pills', 'social tonics' or simply 'party pills'. Flying angel
- Stimulants Similar stimulant and hallucinogenic effects as MDMA- mimicking the effects of traditional drugs such as amphetamine, ecstasy.
- Renal Failure, hyperthermia,
- Toxic seizures and respiratory acidosis after the use of BZP alone

Synthetic Cathinones

- Related to Phenethylamines and chemically similar to amphetamine, methamphetamine, MDMA
- Products sold as 'research chemicals', 'plant food', 'bath salts' or 'glass cleaner' and are usually sold in powder, pill or capsule form.
- **Bath salts:** Mephedrone, Methylone, MDPV
- **CNS stimulants** :Mimicking the effects of traditional drugs such as cocaine, amphetamine, ecstasy.
-

Synthetic Cathinone

"Flakka" (alpha-PVP)



- **White or pink, foul-smelling crystal**
- **Eaten, snorted, injected, or vaporized in an e-cigarette or similar device. .**
- **"Excited delirium" - Hyperstimulation, paranoia, and hallucinations -violent aggression and self-injury**
- **Cardiac, psychiatric, and neurological signs**
- **Deaths - suicide**
- **Dangerously raise body temperature and lead to kidney failure.**

Mephedrone

4-methyl methcathinione

m-cat' 'meph' 'drone' 'miaow'



MEPHEDRONE

- ▶ Psychosis
- ▶ Behavioural Problems
- ▶ Agitation
- ▶ Insomnia
- ▶ Socio Occupational Issues
- ▶ Death



Synthetic cannabinoids

- 'Spice gold', 'spice silver', 'spice diamond', 'K2', 'bliss', 'black mamba', 'bombay blue', '**blaze**', 'JWH -018'
- '**Classical cannabinoid**' **Functionally similar THC**
Tetrahydrocannabinol
- Act as **synthetic cannabinoid receptor agonists (SCRA)**
- Cardiovascular problems and psychological disorders
- Addiction and withdrawal symptoms similar to those seen with cannabis abuse



Synthetic cannabinoid



- ▶ **Methods of abuse:** K2 products are usually smoked in joints or pipes, but some users make it into a tea.
- ▶ **Effect on mind:** similar to those of marijuana and include paranoia, panic attacks, and giddiness.
- ▶ **Significant effects on mental health :** disorientation, anxiety and panic. Short-term memory can also be severely impaired.
- ▶ **Effect on body:** Increased heart rate and increase of blood pressure. The long-term effects on humans are not fully known.

Synthetic Cannabinoids

- **K2 or “Spice”** is a mixture of herbs and spices that is typically sprayed with a synthetic compound chemically similar to **THC**, the psychoactive ingredients in marijuana.
- The chemical compounds typically include **HU-210**, **HU-211**, **JWH-018**, and **JWH-073**.
- K2 is commonly purchased over the Internet. It is often marketed as incense.



Aminoindanes

- Highly potent selective serotonin releasing agents such as MDAI and 5-IAI, and ETAI
- Street names of MDAI include '*MDAI gold*', while 2-AI has been found in party pills known as '*pink champagnes*'
- Central nervous system Stimulants -mediate the actions of dopamine, norepinephrine and/or serotonin
- Mimicking the effects of traditional drugs such as cocaine, amphetamine
- Relatively benign at recreational doses
- Slight neurotoxicity in rodent



Tryptamines



- **Classic hallucinogens** (*psychedelics*)
- Most are psychoactive hallucinogens found in plants, fungi and animals
- Street names for some Tryptamines - '*Foxy-Methoxy*' (5-MeO-DIPT) '*alpha-O*' '*alpha*'
- In preparations of dried or brewed mushrooms
- Reported adverse effects - restlessness, agitations, gastrointestinal distress, and muscle tension

MAGIC MUSHROOMS

- ▶ Psilocybin
- ▶ No dependence
- ▶ Enhancement of colors – halos
- ▶ Increased visual and auditory clarity
- ▶ Can cause LSD like trip



Plant-based substances



- **KHAT**

'qat', 'gat', 'chat', 'miraa', 'murungu' and 'Arabian or Abyssinian tea'

- Increased alertness, euphoria, hyperthermia, anorexia, increased respiration rate, heart rate and blood pressure
- Prolonged use of khat : psychiatric disturbances (from psychosis to depression) to damage of major organs of the body

Kratom

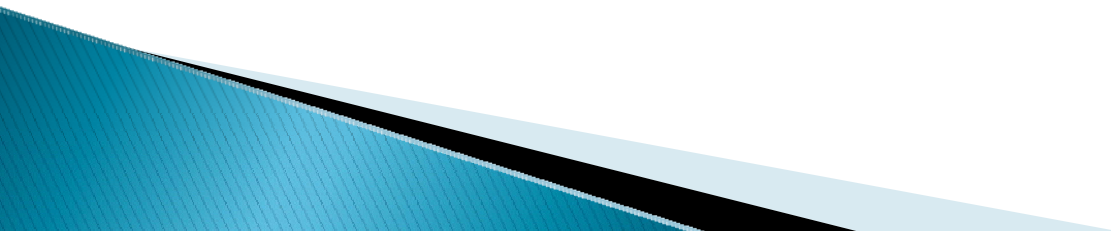
Thang, Thome



- Acts on opioid receptors
- Seems to be **a stimulant in lower doses**
 - Mitragynine
- Seems to be **a sedative at higher doses**
 - 7 hydroxymitragynine
- Often produces a mixed effect
- Adverse effect same as Khat



Other Substances

- ▶ **Classic hallucinogens** (*psychedelics*) : specific serotonin–receptor activities and produce hallucinations
 - ▶ **Opioids**: binding to specific opioid receptors, resulting in morphine–like effects e.g. analgesia
 - ▶ **Sedatives / Hypnotics** central nervous system depressants
 - ▶ **Stimulants**: mediate the actions of dopamine, norepinephrine and/or serotonin
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ROHYPNOL / GHB

The Date Rape Drug



ROHYPNOL



- ▶ Rohypnol or Roofies: **Flunitrazepam**
- ▶ 10 times stronger than Valium
- ▶ Sedative effects appear 15 to 20 minutes after ingestion and last for 4 to 8 hours.
- ▶ **Incapacitate** victims and prevent them from resisting sexual assault.
- ▶ Cause “**antero-grade**” **amnesia**, muscle relaxation, sleep and impair motor skills.

FENTANYL-

Actiq, Duragesic, and Sublimaze.

- ❖ Powerful synthetic opiate analgesic similar to but more potent than morphine.
- ❖ It is typically used to treat patients with severe pain, or to manage pain after surgery.



Street names -Apache, China girl, China white, dance fever, friend, Goodfella, jackpot, TNT,

Effects :

Euphoria, drowsiness/respiratory depression and arrest, confusion, constipation, sedation, coma



- **Injection, transdermal patch, or in lozenge form.**
- **It can be mixed with (or substituted for) heroin in a powder form.**

Withdrawal

- Anxiety
- Restlessness
- Yawning
- Nausea
- Sweating
- Rhinorrhea
- Lacrimation
- Dilated pupils
- Abdominal cramps

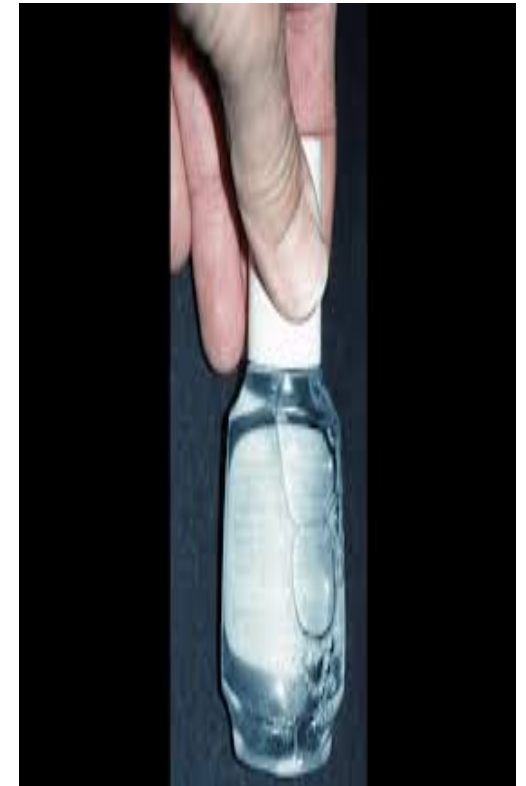
- Diarrhea
- Vomiting
- Piloerection
- Muscular spasm, pain
- Chills
- Increased heart rate, blood pressure
- Increased temperature



GAMMA HYDROXYL BUTYRATE

Liquid G, liquid X, liquid E, fantasy, liquid ecstasy

- Central nervous system depressant
- Stimulant effect at lower doses
- Comparable with ethanol and MDMA
- Euphoria, disinhibition
- Enhanced libido
- Agitation, visual disturbances
- Drowsiness, amnesia
- Unconsciousness and death.





PRESCRIPTION DRUGS



Prescription Medication

- ▶ **Narcotic painkillers:** Oxycontin, Vicodin.
- ▶ **Tranquilizers:** Valium, Alprazolam, Clonazepam
- ▶ **Anti histaminics & Cough:** Syrups.
- ▶ **Stimulants:** Ritalin
- ▶ **Steroids.**



Benzodiazepines

- 4% of all prescriptions from general practitioners are for benzodiazepines (BZDs).
- Over 40% of prescriptions given to people >70 years old
- Night time use tends to increase with age
- Over half current users report daily use for >6 mths
- Limited long term efficacy.

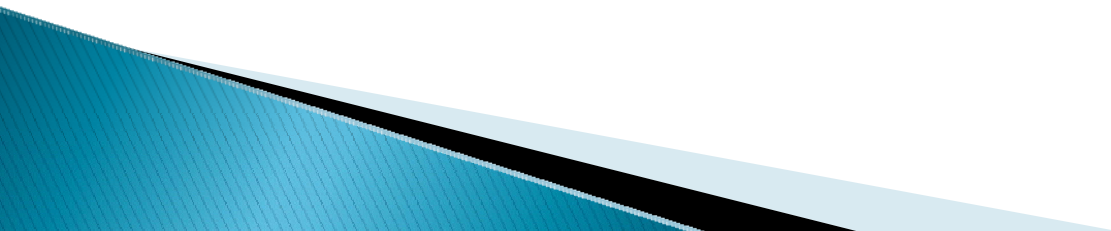


Long Term Benzodiazepine Use

- **Altered use patterns (from night time to daytime use)**
- **Excessive sedation and Cognitive impairment.**
- **Increased risk of accidents.**
- **Dependence & withdrawal**
- **Overdose issues esp. in combination with other drugs.**



Why be serious about NPS?

- **Serious threat to public health and safety**
 - **Unprecedented rate of emergence of a global dimension**
 - **Transient nature of some NPS**
 - **Diversity**
 - **Heterogeneity**
 - **New psychoactive substances are sold in mixtures**
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THANK YOU