

CELAC

*“Progress and challenges in scientific research treatment, pharmacological strategies and vaccines against drug addiction”*  
*12-14 November, Santiago ,Chile*

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## **“Assessing treatment needs for inhalant abusers”**

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# Content

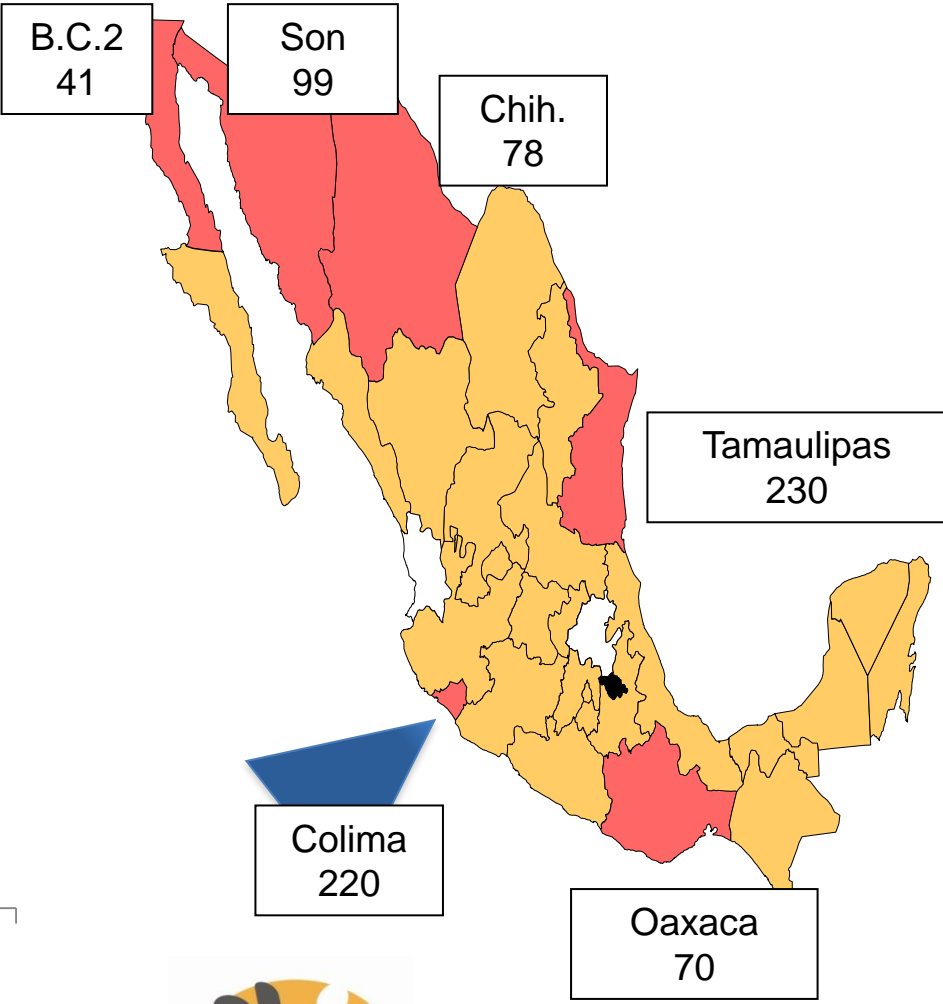
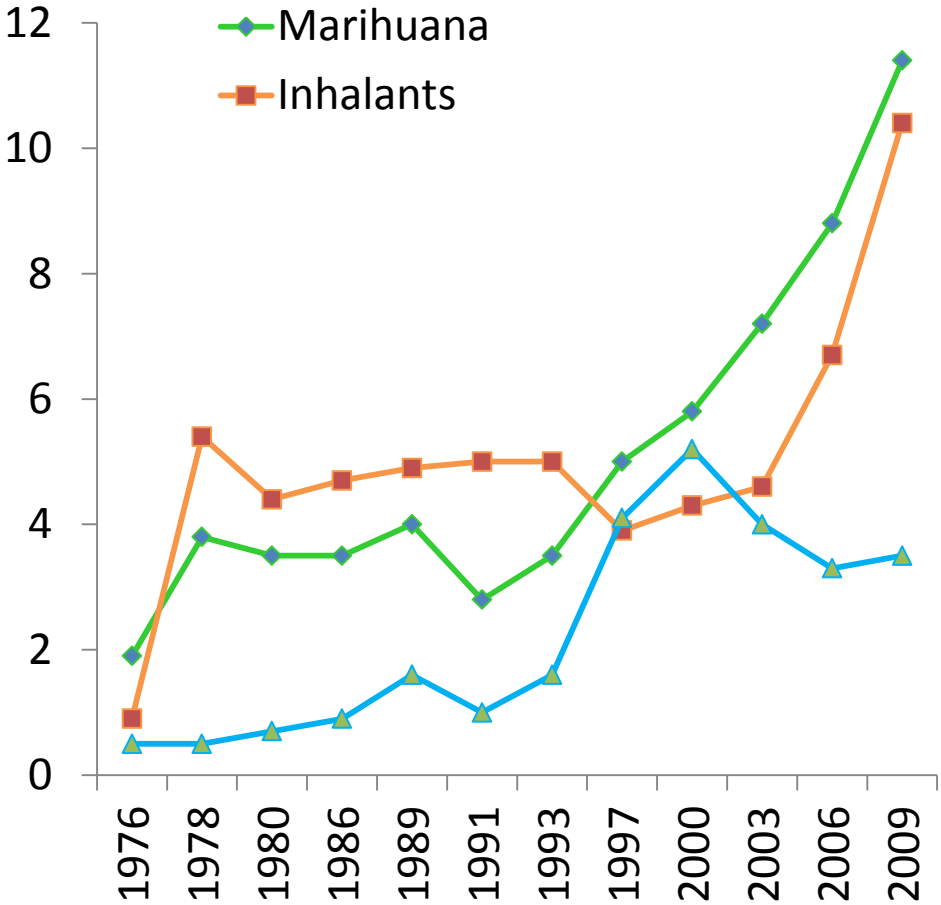
- Background:
  - The context
  - Inhalants
    - Type of substances, users, effects, extension, trends
- Treatment needs
- Evidence from neurosciences
- Treatment models
- Challenges for public policy

- ✓ Include in the document the need for research about inhalants
- ✓ Can we construct bridges between social, basic and clinical research?



# Patients from "Nueva Vida" treatment centers HEROINE 2010 – 2011

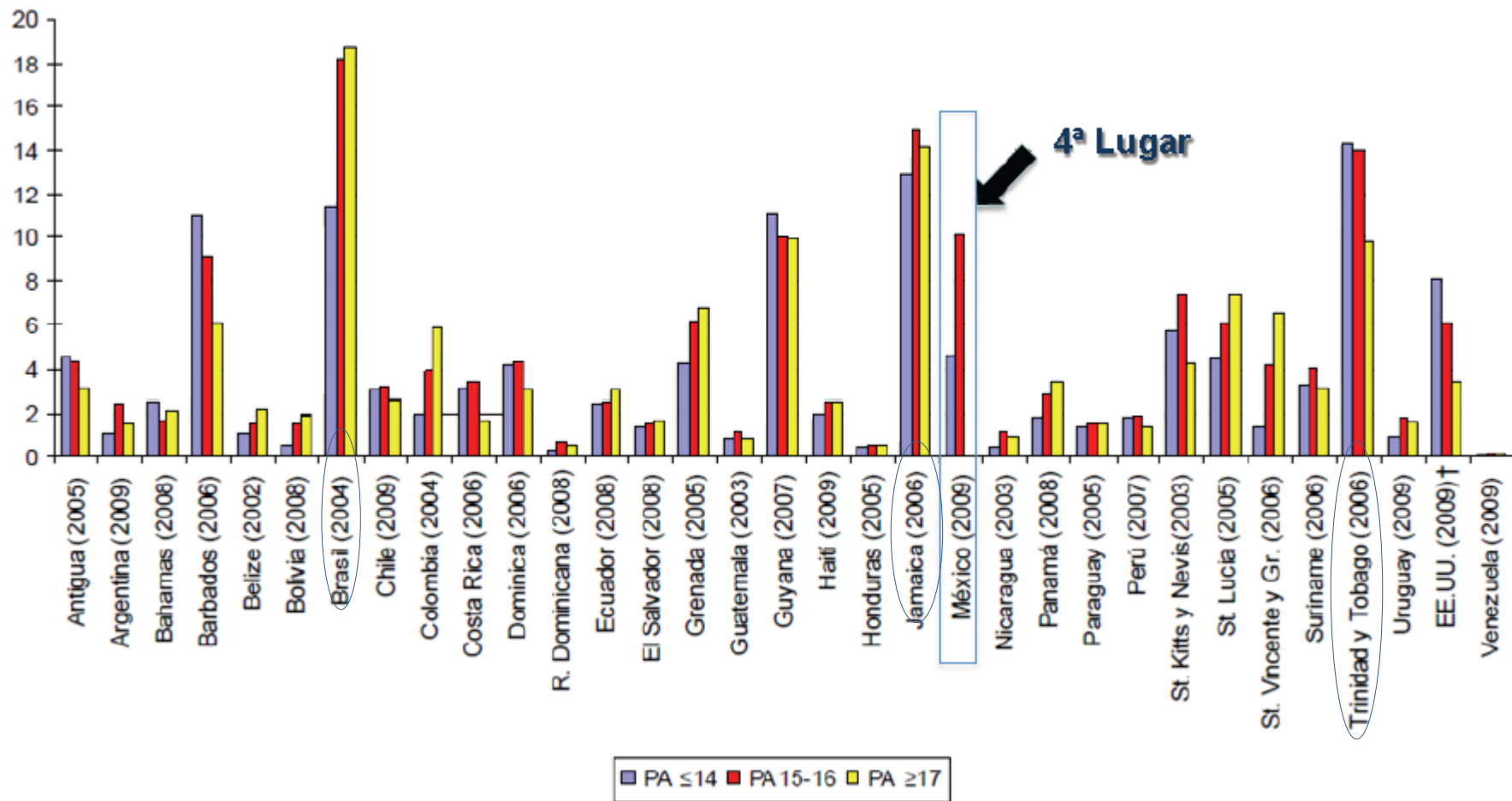
## Drug use trends among highschool students Mexico City



De la Sern y cols., 1991 Medina-Mora y cols., 1991;  
Villatoro y cols., 1997, 2000, 2003, 2006

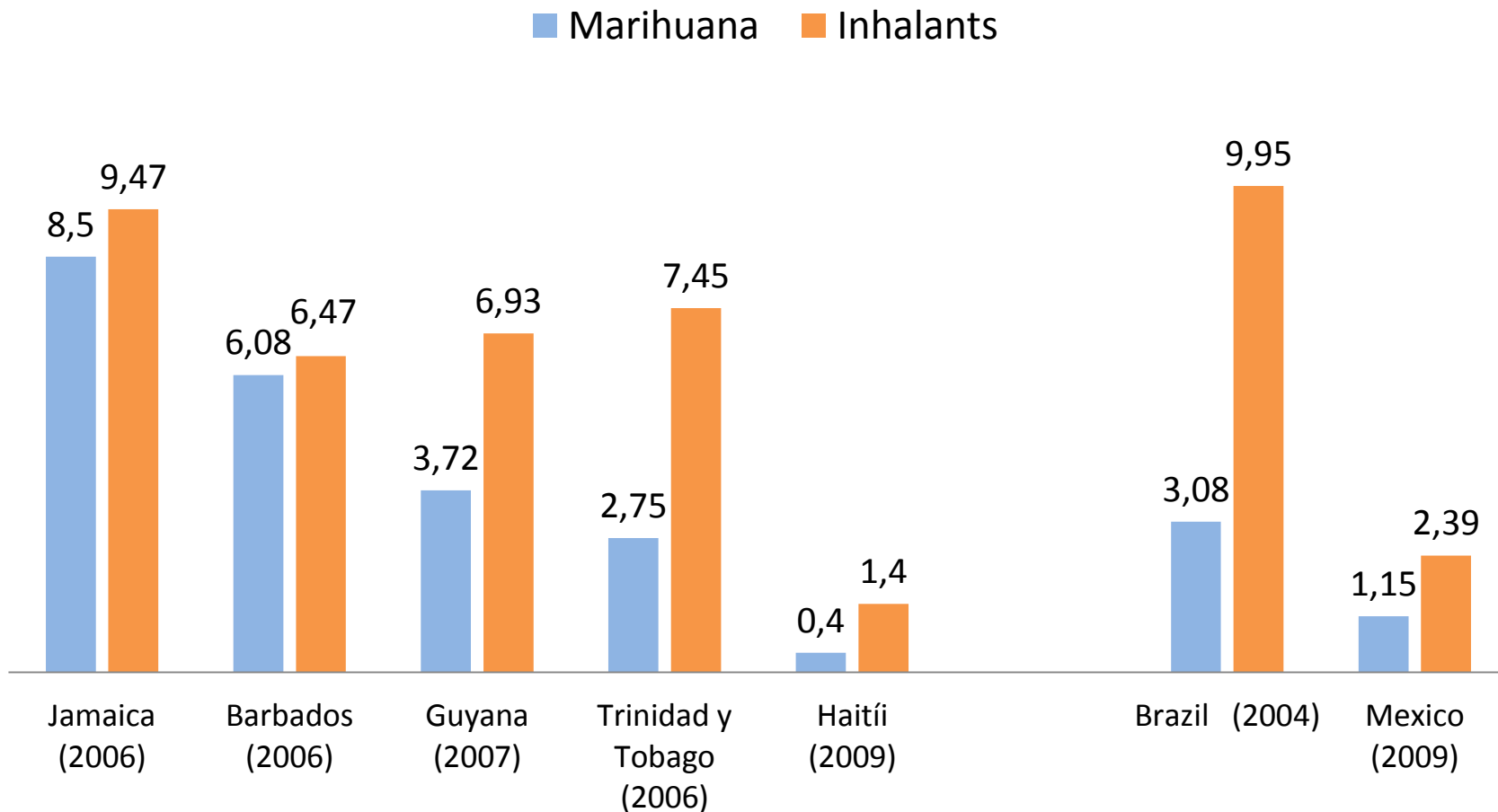


# Prevalence of inhalant use in the last year by age groups. Secondary students



# Countries where prevalence of inhalant use in the last 30 days was higher than marihuana use

## Secondary *students*



# Drugs & violence



| Country        | Drug Traffic | D. Traffic Crime | Use            | Local drug distribution | Crimes by addicts |
|----------------|--------------|------------------|----------------|-------------------------|-------------------|
| Mexico         | High         | Very High        | Low increasing | Low increasing          | Low increasing    |
| Sweden         | Low          | Low              | Medium         | Low                     | Low               |
| United Kingdom | Low          | Low              | High           | High                    | High              |
| United States  | Low          | High             | High           | High                    | Very High         |

*Countries differ in the type of problem they face*

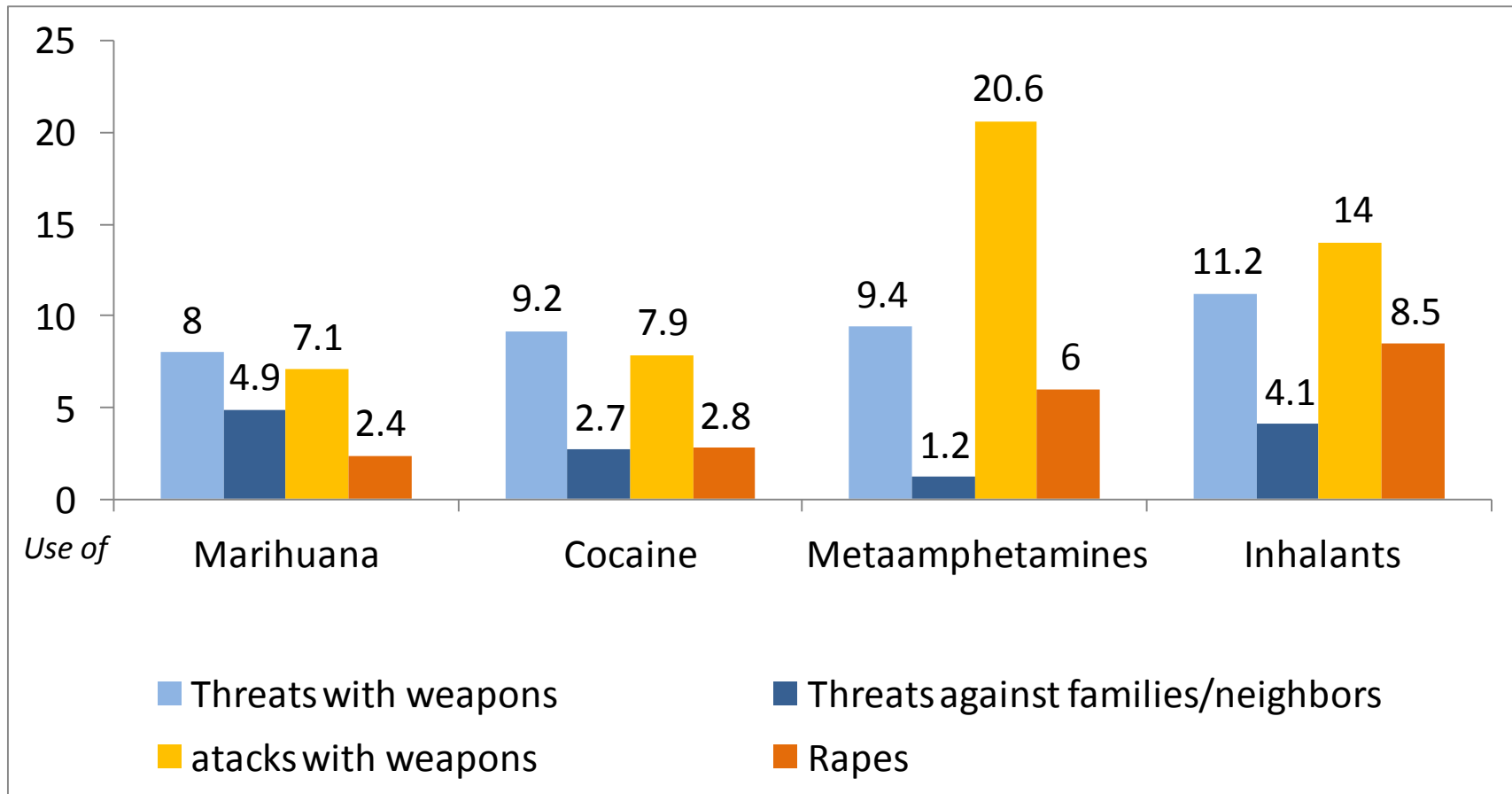
# Relation with delinquency

## *Drug distribution at the local level*

- Secretaría de Seguridad Pública del DF,
  - 27 000 persons arrested due to drug distribution “narcomenudeo.”
  - From 2009 to 2012 – national average - 8,800 persons arrested, 24 per day.
- General Attorney Office (PGR),
  - 40 % of persons arrested were drug users -90% marihuana

# Relation between security in the community and drug use

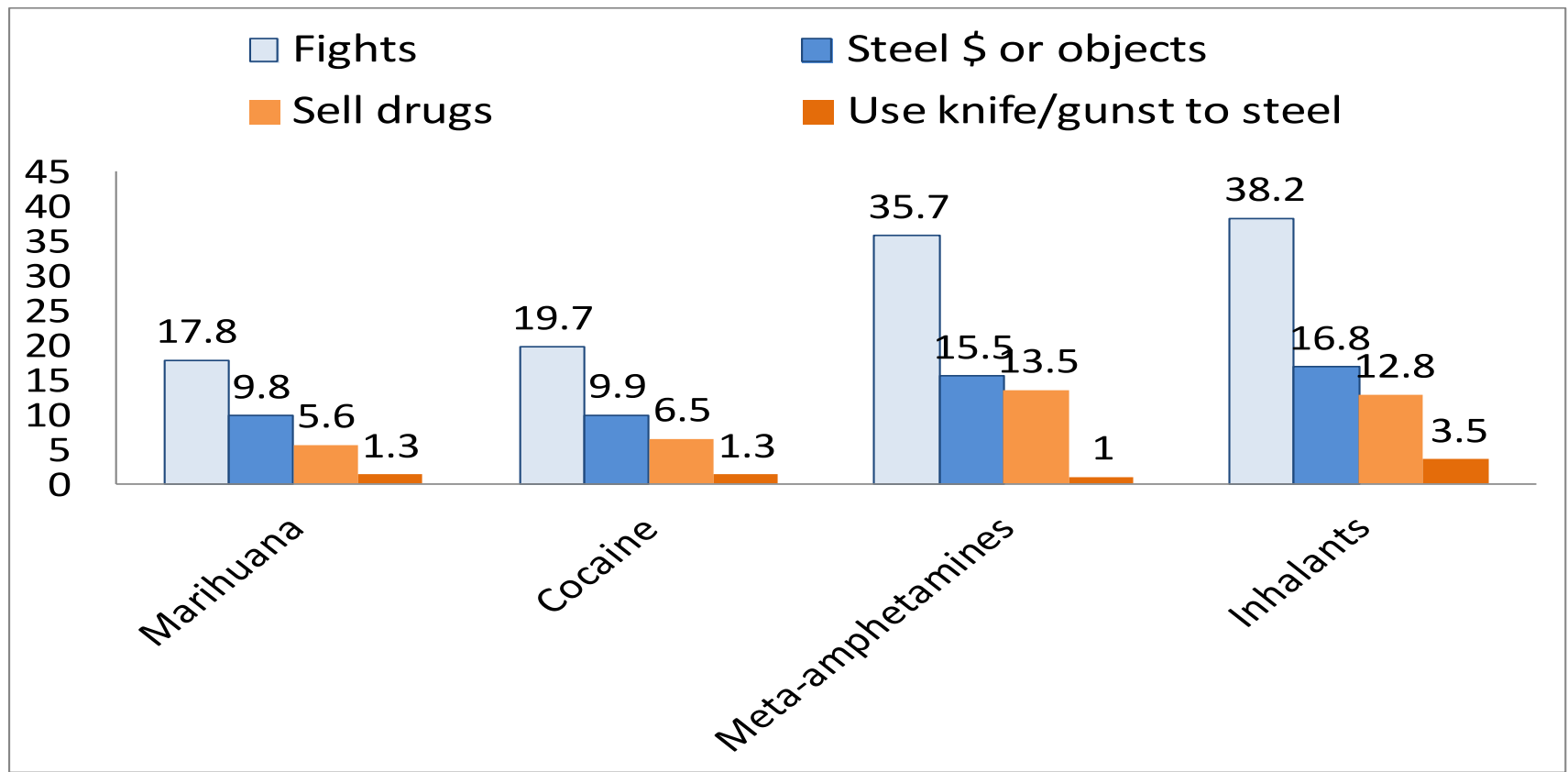
*Proportion that answered that the events occurred frequently*





# Relation between the type of drug used and antisocial behavior

*Proportion from 12 to 65 years of age años*



# Distribution

- Commerce of toluen inside the street network
- Available in shops
- Deviation of substances from official sources for distribution on the streets
- Distribution searching for new markets adding colors, flavors in places od distribution of illegal drugs

# Consuming Group



- ✓ Children and adolescents in street situation
- ✓ Marginated adults with cognitive problems
- ✓ Students
- ✓ Adolescents and youth out of school
- ✓ Exposed workers



*Treatment needs vary*

# Boys and girls working on the streets

In Mexico: Inhalant abuse varies between **3%** among working children living with their families to **74%** among those living in the streets



- ±26% has hoped to be death
- 10.9% has attempted suicide
- 1.5% reports support from an institution

# Harmful use of inhalants

## *Treatment need*

- Abuse/dependence
- Other problems:
  - Injuries related to accidents and violence
  - Health problems
  - Neurological problems
  - Other disorders
    - Mental health
  - Social problems
    - Behavior problems
    - Victimization, discrimination, etc.
- Health and social protection
- Treatment models
- Human security

*Medical,  
behavioral,  
Psychoso-  
cial  
treatment*

## Inhalants

- Wide and diverse group of legal products
- Incluyen:
  - **Solvents** (toluen, glue, gasolin)
  - **Aerosols** (pinturas, deodorants, aerosols, etc.)
  - **Gases** (in lighters, etc.,)
  - **Nitrites** (video head cleanres, deodorants for interiors, etc.)
- Widely available and very cheap

Are other forms of treatment possible  
*Lessons from neurociencies*

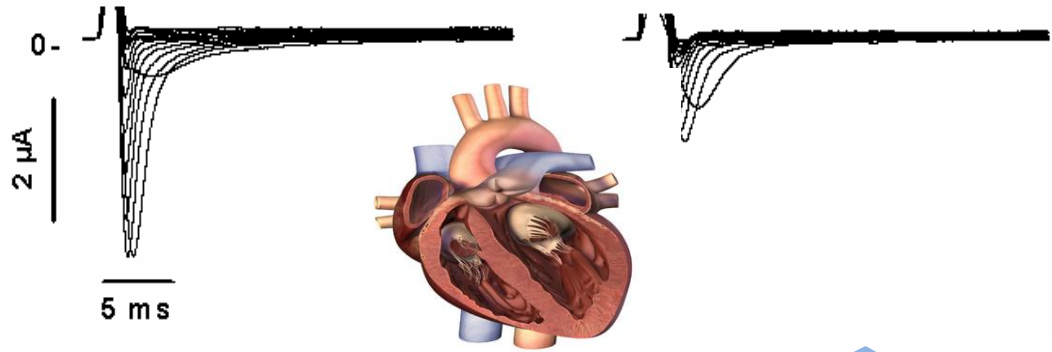
In spite of the increase in reserch project addressinf the neurobiology of inhalants:

- The biggest proportion is conducted using toluene–
- Research that simulates human practices (exposition to brief periods of inhalation with great concentrations
- Little is known of abstinence
- Reversible

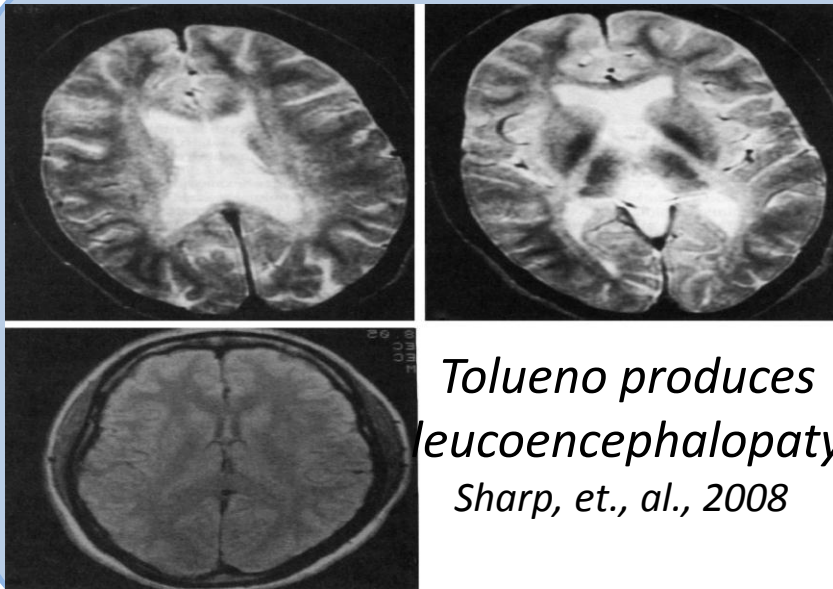
*There is evidence that the more widely used inhalants share celular mechanisms and have similar effects of other drugs, particularly depressors of the Central Nervous System*

# Effects

Illusions and hallucinations



Emotions under the effect of inhalants = irregular heart beat (Cruz et al., 2003)



*Toluene produces leukoencephalopathy  
Sharp, et., al., 2008*

Brain damage due to lack of oxygenation



Affects development

(Cruz et al., 2003)

*More prevalent among the younger*



# EFFECTS

## *Acute*

+

*Similar to alcohol and other CNS inhibitors*  
*Initial stimulation and persistent inhibition*

+

Anxiolitics  
Antidepressants  
Anticonvulsant

-

Impaired motor coordination  
Emotional liability I  
Difficulty to speak

## *Chronic*

-

Neurotoxicity  
Cognitive impairment  
Head aches

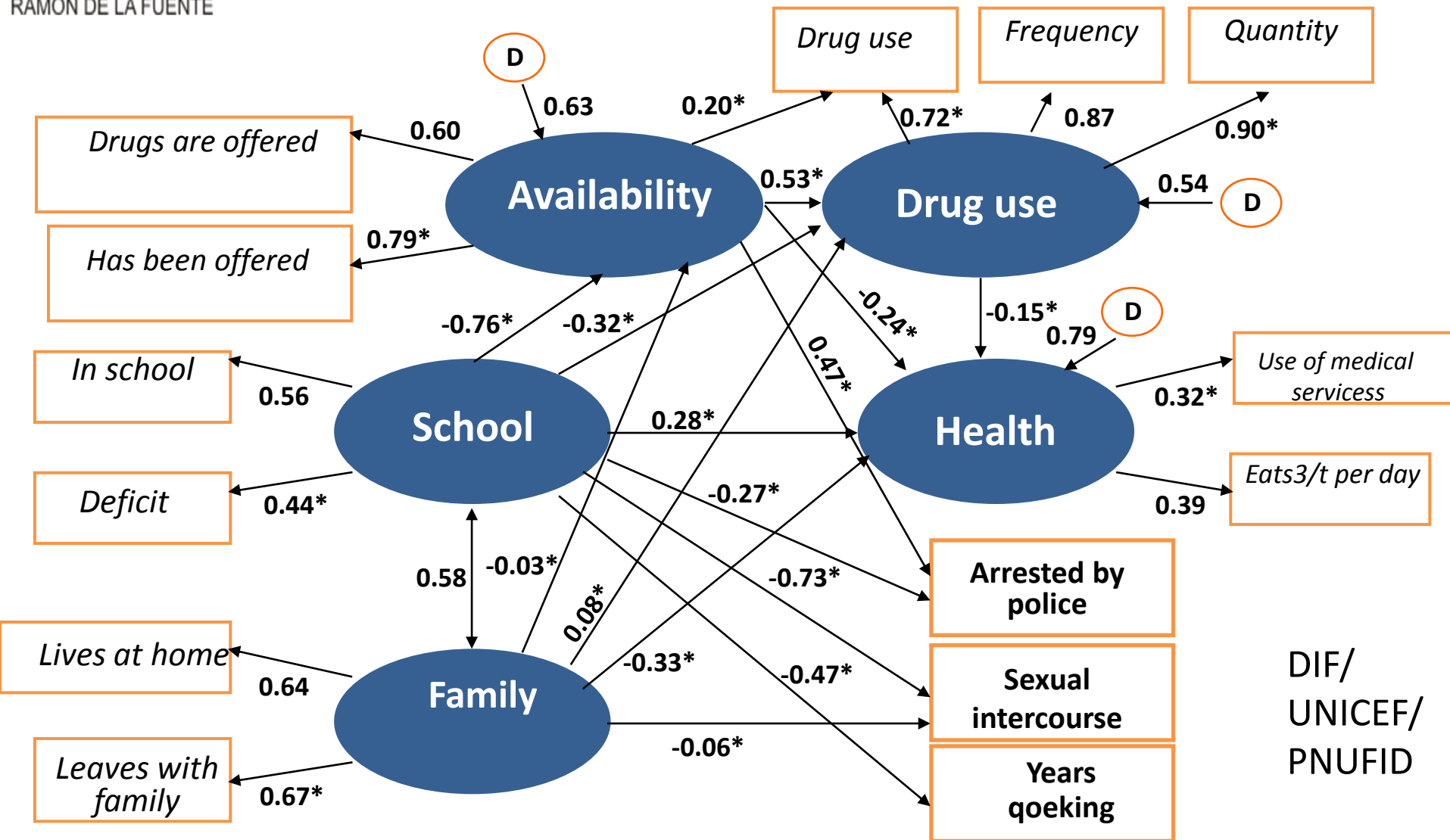
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Disminishment of sensorial abilities (loss of vision, audition and coordination)

-

Increase in mental disorders  
Sleep distrubances

# Working adolescents Predictors of drug use



DIF/  
UNICEF/  
PNUFID

Valores Estandarizados:  $X^2 = 996$  gl = 63 p < 0.001 RCFI = 0.97 RMSEA = 0.03

# Good practices

- ✓ Brief intervention for adolescents
- ✓ Teaching family (*brief residential, integrated emotional interventions, plus sports, school & labor skills, family problems, etc.*)
- ✓ WHO intervention program with street children)
- ✓ Adaptation of the WHO model for the prevention of sexual commercial exploitation
- ✓ Other network models, private and public investment

# Towards a better response

- Different type of users – tailored interventions according to their needs
- Development and quality of life (*education and employment skills, opportunities, etc.*)
- Access to health systems for different health needs (*vaccination, nutrition, acute and chronic disorders, including mental health disorders*)

# Recommendations

- More basic research that incorporates different substances grouped under the name “Inhalants”,
  - Preclinical and clinical studies – treatment alternatives
  - Funding traslational research from the lab to clinical environments and from controles escenarios to the community
- More action with what we know
- Redesigning products.
  - Regulating availability in formal and informal stablishments.
  - Education, concientization, community movilization
  - Integrated treatment



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# Lessons from neurociences

- Facilitan la neurotransmisión inhibitoria y bloquean los mecanismos excitatorios.
- El tolueno en particular, aumenta los niveles de dopamina en el cerebro y sus efectos ocurren en concentraciones que no disuelven las membranas; por lo que el daño neuronal no es una consecuencia, inmediata e inevitable del abuso de solventes.

*Se requiere más apoyo para la investigación básica.*

# Other effects

- Toxicity associated to lead (gasoline)
- Burns (computer cleansers)
- Rethinopathy and metahemoglobinemia associated to nitrites (“popers”)