



17th St. & Constitution Avenue N.W.  
Washington, D.C. 20006  
United States of America

Organization of American States

P. 202.458.3000  
[www.oas.org](http://www.oas.org)

**INTER-AMERICAN DRUG ABUSE  
CONTROL COMMISSION  
CICAD**

Secretariat for Multidimensional Security

**FIFTY-SEVENTH REGULAR SESSION  
April 29 - May 1, 2015  
Washington, D.C.**

**OEA/Ser.L/XIV.2.57  
CICAD/doc.2181/15  
29 April 2015  
Original: English**

**SMOKABLE COCAINE IN THE SOUTHERN CONE  
MARYA HYNES, CICAD**

**Inter-American Drug Abuse Control Commission  
Secretariat on Multidimensional Security**

# **Smokable Cocaine in the Southern Cone**

## **57th Regular CICAD Session**

**April 29 - May 1, 2015, Washington D.C.**

**Marya Hynes, M.H.S., OID/CICAD**



**Organización de los  
Estados Americanos**



# Primary Program Objective

To generate key knowledge needed to develop or improve prevention policies and treatment for problem drug users, specifically those who use smokable cocaine substances.



# Specific Objectives

- Develop a network of institutions, researchers and national experts on smokable cocaine substances in the Southern cone, in order to develop a coordinated, efficient, collective effort in the areas of research, preventive interventions and treatment.
- Advance knowledge in specific areas as a basis for developing interventions:
  - Chemical composition
  - Brain function and damage
  - Patient follow up
  - Preclinical studies
- Coordinate and support the exchange of expertise across countries

# Outcomes, Brazil Meeting, May 2014



Organización de los  
Estados Americanos

- Describe the state of existing treatment services in participating countries for those seeking Tx for smokable cocaine use and identify best practices.
- Describe existing prevention activities in high risk areas and identify best practices .
- Design monitoring and evaluation models for prevention interventions.
- Carry out a workshop on current treatment practices for smokable cocaine abuse.
- Develop an integral system of indicators for characterizing the user population in risk areas, with particular focus on co-morbidity and bio-psycho-social impact.
- Design follow up strategies for SC patients.
- Develop a compendium of studies on the chemical composition of smokable cocaine seized in the different countries.
  - Encourage the exchange human resources and training.
- Design mulitcentric brain imaging study on cerebral damage due to SC use.

## Specific studies and new methods

- **Brazil:** two studies 2012 SENAD - Fundación Oswaldo Cruz-FIOCRUZ.  
“Estimate of the number of crack and/or similar substance users in the capital cities of the country” (Network Scale-up Method - NSUM). Indirect method.  
and  
“Profile of crack and/or similar substance users in Brazil”. (*Time-Location Sampling-TLS*) sampling from areas of use in 26 capital cities.
- **Chile:** Characterization of the habitual CBP use population in the Metropolitan area of Santiago (Respondent Driven Sampling- RDS ) 2014
- **Uruguay:** Study of CBP users in Montevideo, RDS and ethnographic study, 2012



# Similarities across countries

- **User profiles:**
  - young adults (not adolescents),
  - majority male but use among females tends to be hidden,
  - polydrug users
  - Diverse user histories, places of use, means of use and of administration.
- **Sociodemographic profiles:**
  - High risk areas
  - Marginalized neighborhoods
  - Unstable housing situation or living on street
  - Low income, unstable employment or unemployed
  - School dropout
- **Poor access to healthcare:** treatment availability does not meet demand geographically, economically nor in terms on patient needs

## Consumption and associated harms

- Majority male, single, race varies by country (80% black in Brazil)
- **30** average age of users
- **8 years** the average time that users smoked SC
- **16** the average number of rocks smoked per day
- **8-14** times higher rate of HIV among SC users than in the general population
- **More than 1/3** live in the street. An additional 10% sleep in shelters or shacks.
- **Nearly half** sought treatment at some point.

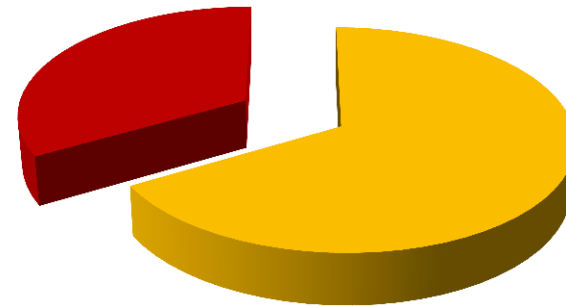


## Consumption and associated harms

- **+50%** More than half used SC daily.

- Significant numbers stated they had experienced and episode of acute intoxication within the past month: 44.7% for SC use, and 22.4% alcohol. (Uruguay)

### Acute Intoxication



■ Crack/smokable cocaine ■ Alcohol

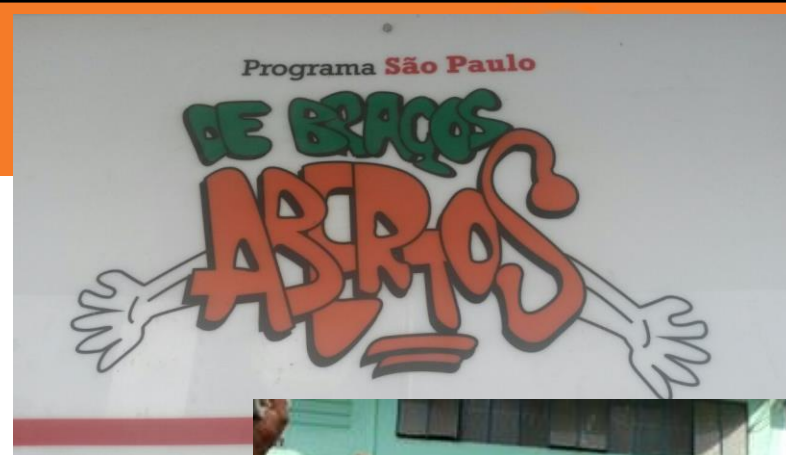


# Outreach and service Strategies

- ❖ Human service agencies that attend problematic SC users help assemble social networks, and may provide social and human services, are not prepared to provide therapeutic support, and function as referral centers (El Hogar de Cristo en Argentina).
- ❖ Agencies that are able to attend both aspects exist
  - ❖ Some are formalized at the state and national level , e.g. CAPSad in Brazil, or los *Equipos de Proximidad* and *Centros de Escucha e Inserción Social* in Uruguay),
  - ❖ Others are local centers (*Caleta Sur* in Chile, *La Fraternidad El Camino* in Paraguay, or *Pontos de Encontro e Cidadania* in Brazil).

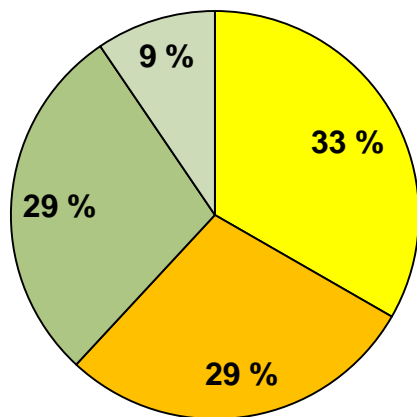
# Strategies

- ❖ Agencies whose primary objective are human services such as sanitation, social inclusion, nutrition, clothing, hygiene, employment, education, social networks
- ❖ .g., *Braços Abertos* in Brazil or the religious community in Paraguay *El Camino en Cateura*.

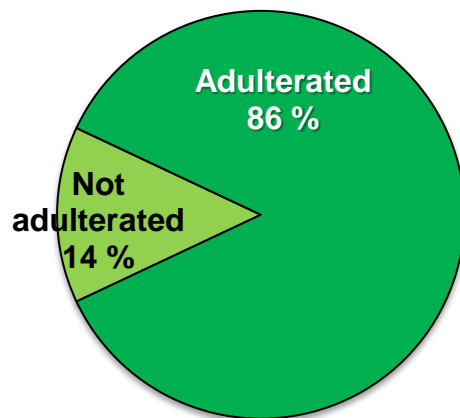


## CHEMICAL COMPOSITION OF COCAINE BASE PASTE (CBP) SAMPLES IN URUGUAY

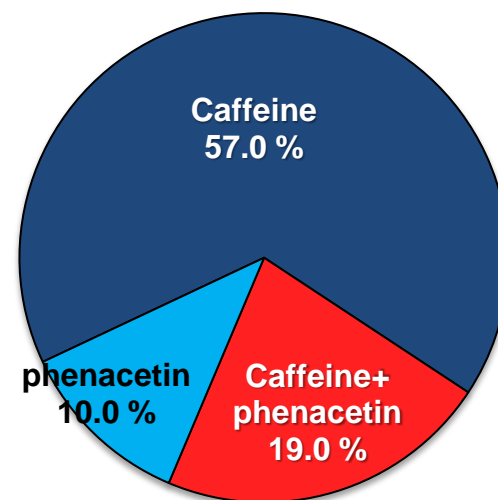
% Cocaine base



Most is adulterated



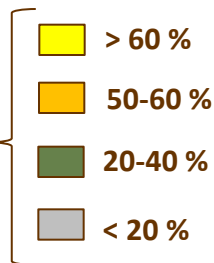
Primary adulterants



• Impurezas: 0.4-4%

The sample had a variable % of cocaine (17-80%). The majority (86 %) is sold adulterated with active substances (caffeine) or with other toxic substances (phenacetin). The impurities are low in proportion compared to cocaine, which suggest that they have only a small influence on the effect of the drug.

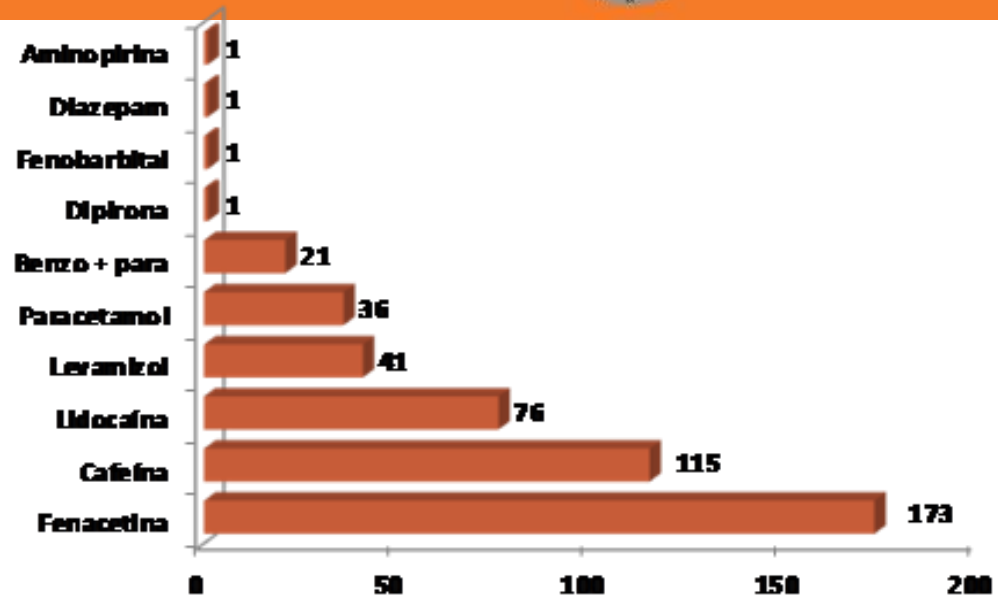
4 categories





# Chemical Composition

## Paraguay: Dilutants and adulterants in samples, 2013



## Chile samples analyzed and results. 2010, 2011 y 2012

Year	total samples	Cocaine base over 10 net grams	percent of total	average purity %	Phenacatin	Caffeine	Carbonates	% samples less than 10 net grams	Samples of cocaine base less than 10 net grams	percent of samples less than 10 grams
2010	40853	10241	25.1	32.81	4076	2412	5646	74.9	25027	61.3
2011	35714	9879	27.7	33.65	797	2036	4280	72.3	21372	59.8
2012	41558	10589	25.5	40.65	564	2142	4284	74.5	25523	61.4

- High quantity of adulterants in samples analyzed, increased potency of toxic effects of cocaine.
- High variability in purity and amount across the region.
- Origin: cocaine HCL from Colombia and base paste from Bolivia and Peru.



## PRECLINICAL STUDY: THE INFLUENCE OF CAFFEINE AS AN ADULTERANT IN THE EFFECTS OF PBC ON THE BRAIN

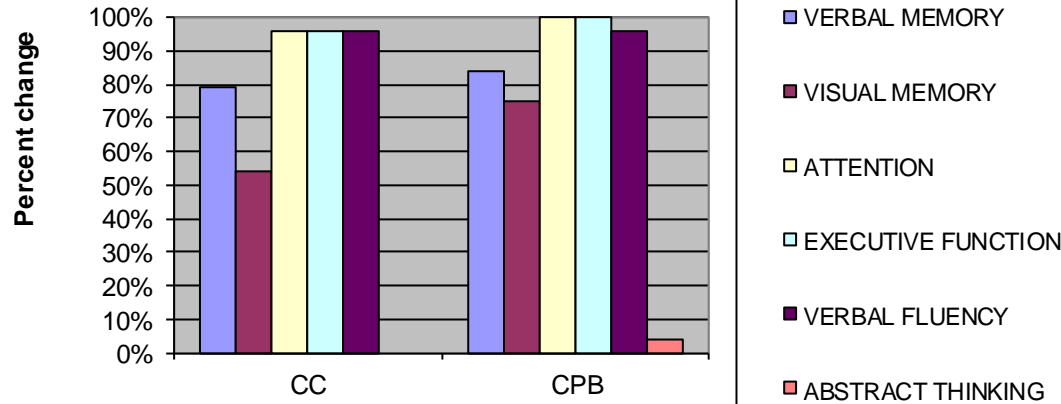
### Principal findings:

- 1) Different samples of PBC induce an acute stimulant effect that is largely dependent on its composition. Nevertheless, samples containing caffeine as an adulterant induce a greater effect. Caffeine, in the right proportions increases the effects of PBC.
- 2) Impurities in the samples do not appear to impact the stimulant effect.
- 3) PBC generates a much greater stimulatory effect after repeated administration followed by a period of abstinence. The presence of caffeine strengthens this effect and accelerates the phenomenon. This process produces plastic changes in the brain that make the subject increasingly sensitive to the drug (this phenomenon also occurs in persons who are already addicted).
- 4) Just as humans are able to self-administer a drug of abuse, so can rats. In an animal model of self-administration, we found that when we allow animals to freely choose, they seek more of the combination of cocaine + caffeine than cocaine alone (in proportions shown in a sample of PBC). These results show the reinforcing effect of cocaine + caffeine is greater than that of cocaine alone. This is what drug dependents are seeking: greater reinforcement power and pleasure. It appears to be more motivating to seek cocaine + caffeine than cocaine alone.
- 5) Current studies are examining whether a similar result occurs using pulmonary inhalation as a pathway.

# Impact on cognition



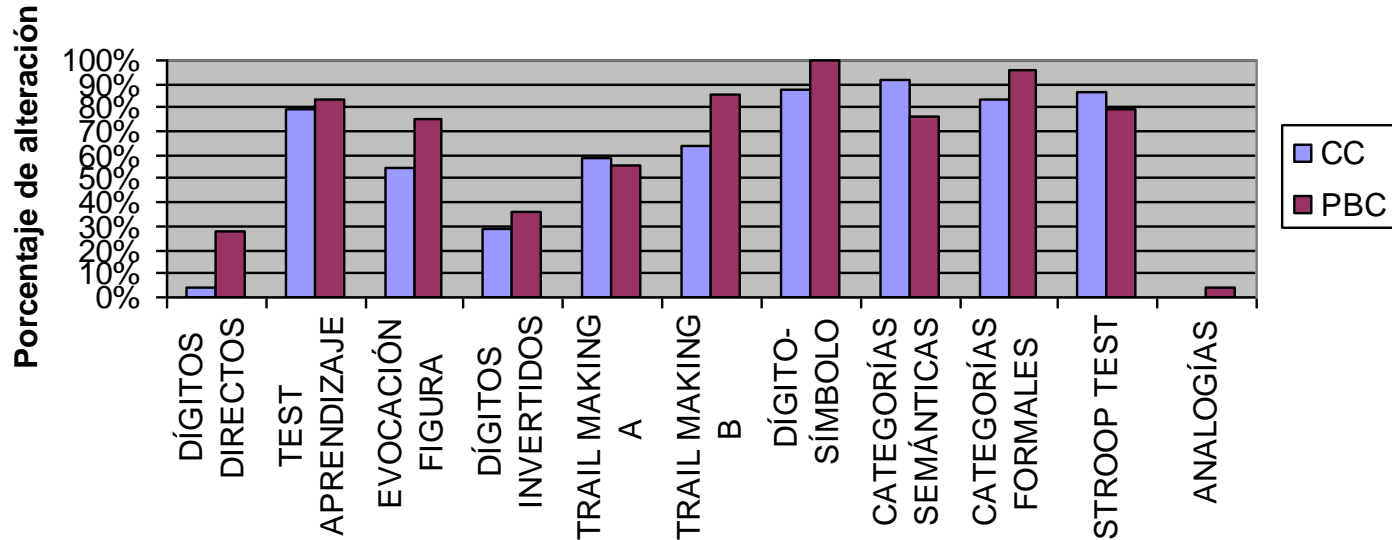
## CHANGED COGNITIVE DOMINION

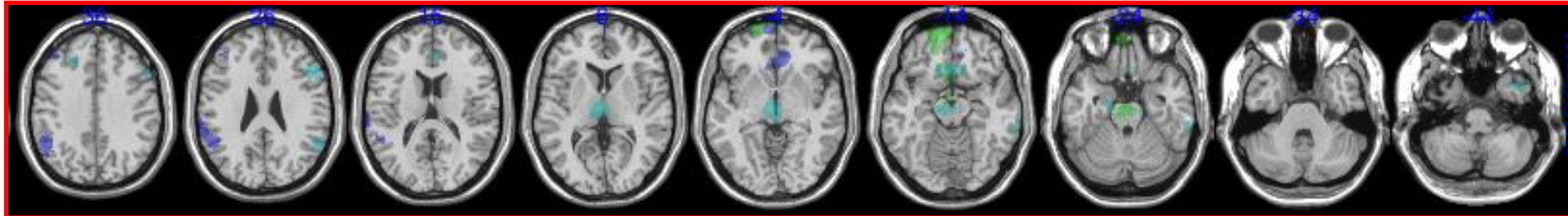


25 CPB (mean age 26.7 ys, Ed Form 8.1 a)  
 24 CC (mean age 27.1 ys, Ed Form 10.2 a)

Silveira A, Ferrando R y col.

## TESTS NEUROPSICOLÓGICOS





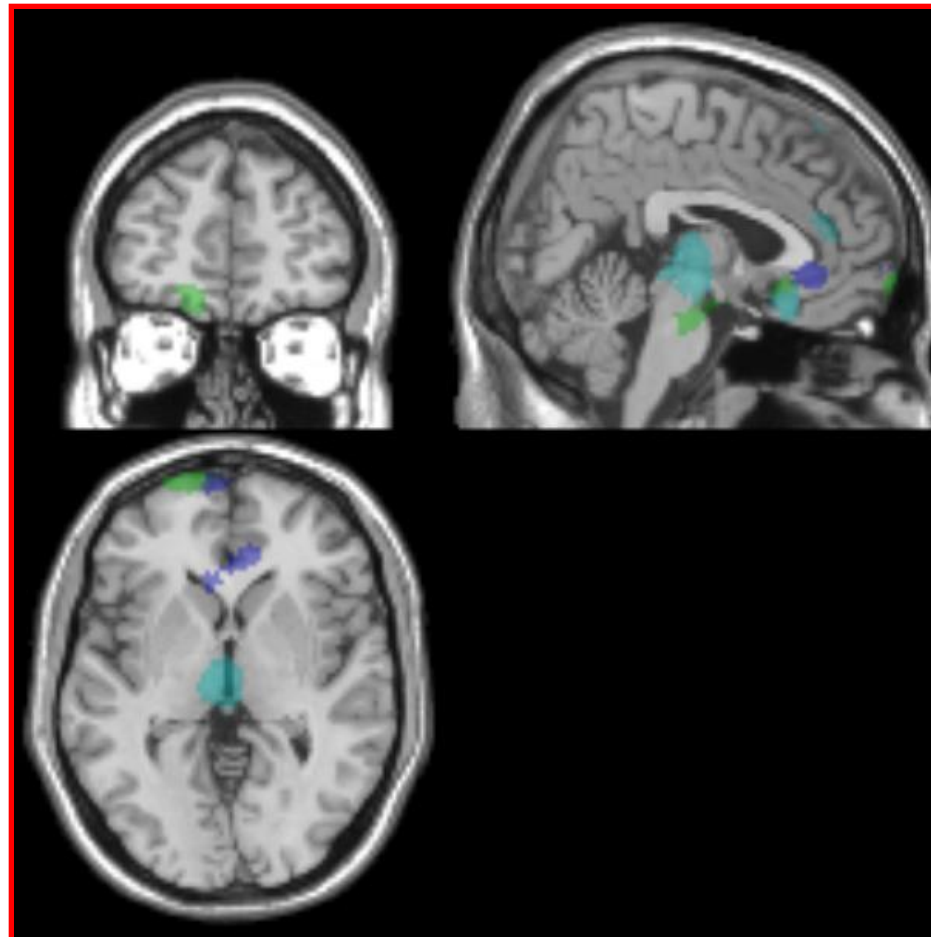
## Correlación con agresión

39 usuarios (21 CC, 18  
PBC) vs 23 CN  
 $p < 0.01$

Usuarios < CN: cian

Correlación con  
agresividad: azul

Correlación con  
personalidad  
agresiva: verde







## **Functional changes resulting from chronic CBP use**

- **Neuroadaptive changes in prefrontal limbic circuits related to positive feedback and reward, conditioning and dependence**
- **Impact critical cognitive areas**
- **More severe among CBP users than cocaine users**
- **Route of administration may be determining factor (nasal vs smoked)**
- **Certain adulterants (e.g. caffeine) may contribute to the addictive effect and to differences with cocaine**
- **May be related to aggressive behavior**
- **Long abstinence is necessary to reverse. Time and degree of recovery are unclear.**



# MULTICENTRIC STUDY

## General Objective

Measure cerebral dysfunction characteristics resulting from chronic use of CBP, degree of reversibility following abstinence, and its relationship with antisocial or aggressive behavior.

- To evaluate the cerebral effects of using CBP in a larger series of patients
- To assess the effects of PBC above and beyond the possible regional differences in composition
- Assess the relationship between aggressive behavior and CBP vs. CC use
- Multicentric recruitment will allow us to evaluate changes resulting from abstinence that have not yet been assessed.

## Metodología

Imagen funcional (SPECT), evaluación neurocognitiva, toxicológica y psiquiátrica



## **Towards the future, 2016 - 2017**

- **Incorporate other countries that histories of SC use into the project.**
- **Broaden studies to cover not only CBP use but also cocaine in general and amphetamine type stimulants.**
- **Expand the scope of the follow up study on patients and availability of treatment services.**
- **Increase the sample size in the chemical composition evaluations of seized SC.**
- **Final results on the mulitcentric study on impact on cerebral function among SC users**
- **Continue to support preclinical studies on SC use**



**¡Muchas Gracias!**

**Marya Hynes**

---

Observatorio Interamericano sobre Drogas (OID)

[mhynes@oas.org](mailto:mhynes@oas.org)