Can web survey data and wastewater analysis help assessing the number of cocaine users?

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STRUCTURE ET PRODUITS DU MARCHÉ DES STUPÉFIANTS

IUMSP - Institut universitaire de médecine sociale et préventive
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Ecole des sciences criminelles
ADDICTION | SUISSE

SVSV approach

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ILLICIT DRUGS MARKET STUDY

Substances

Value

Volumes

Structure

Number of users

GPS

?

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Backward approach

$$Number\ of\ users\ \times\ quantities\ consumed = volumes$$

$$(N_{inf} \times\ Q_{inf}) + (N_{Occas} \times\ Q_{occas}) + (N_{freq} \times\ Q_{freq}) = volumes$$

$$(N_{tot} \times \boxed{\%_{inf}\ \times\ Q_{\inf}})\ +\ (N_{tot} \times \boxed{\%_{occas} \times Q_{occas}}) + (N_{tot} \times \boxed{\%_{freq} \times\ Q_{freq}}) = \boxed{volumes}$$

Web survey on drugs

Wastewater analysis

! Heavy drug users

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Web survey – heavy drug users

Number of answers
Web survey
CH

Cannabis : 976
Cocaine: 347
(Meth)amphetamines: 288
Ecstasy: 416

Heroine: 26

Routes of cocaine administration
Web survey – CH

Snorting: 93.2%
Smoking: 5 %
Injecting: 1.3%
Oral: 0.5%

Routes of cocaine administration
EMCDDA[1] (Prinzleve et al., 2004)

Snorting: 95%
Smoking: 4%
Injecting: 2%
Oral: -

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Correction

$$\underbrace{Volume_{integrated}}_{} = (N_{int} \times \%_{inf} \times Q_{\inf}) + (N_{int} \times \%_{occas} \times Q_{occas}) + (N_{int} \times \%_{freq} \times Q_{freq})$$

$$f\left(loads(BE)_{integrated}\right) = f(loads_{total} - loads_{problematic})$$

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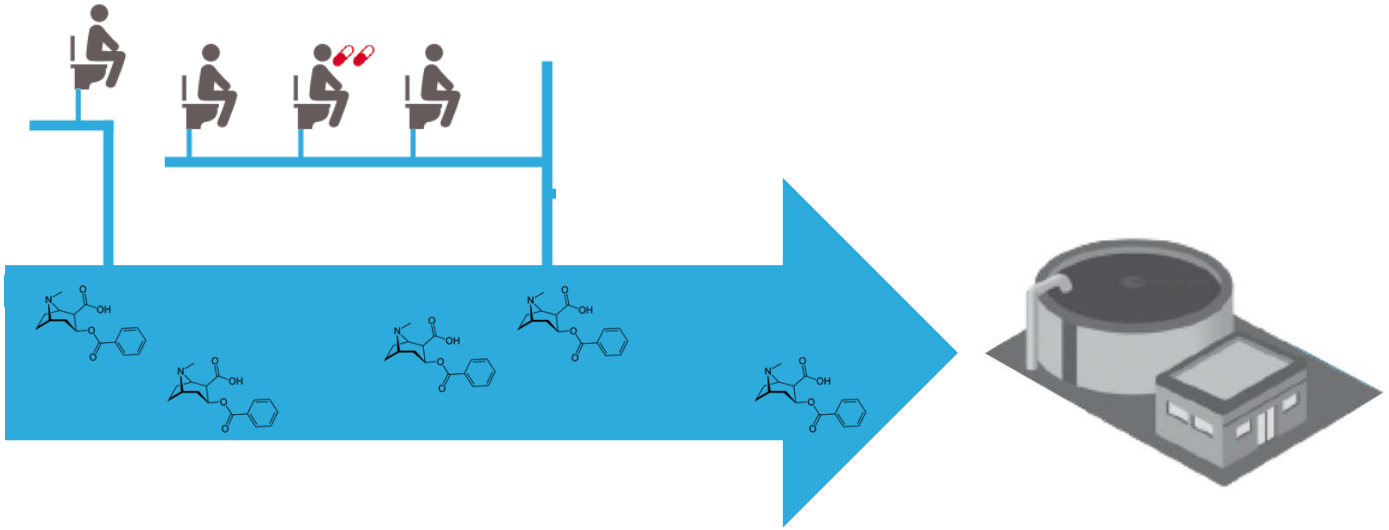

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$(N_{marginalized} \times Q_{marginalized})$ or $syringes$

$(N_{syringes} \times \%_{coc} \times N_{inj/syringe} \times Q_{syringe})/\%_{syringe}$

- Substitution treatment statistics
- Low-threshold facilities survey
- Interviews with drug users

- Interviews with users
- Used syringes analysis
- Syringe exchange programs

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Summary

1. Total amount in wastewater
2. Number of “problematic” users and quantities used

3. Groups of users and quantities in the web survey

Amount related to “integrated” users

Number of “integrated” users + number of frequent/occasional/infrequent

4. Comparison with GPS data

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Conclusions

- Wastewater
  - Total volumes
  - Helps to cover underreporting
- Web survey
  - Excretion rates, groups proportions and quantities for integrated users
- Syringes, interviews with users, low-threshold surveys
  - Number and quantities for marginalized users

- No perfect indicator, need for different sources of data
- Practical case under investigation

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Thank you!

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Bibliography

- EMCDDA (2016) Assessing illicit drugs in wastewater: advances in wastewater-based drug epidemiology. Publications Office of the European Union: Luxembourg.
- Prinzleve, M., Haasen, C., Zurhold, H., Matali, J.L., Bruguera, E., Gerevich, J., Bácskai, E., Ryder, N., Butler, S., Manning, V., Gossop, M., Pezous, A.-M., Verster, A., Camposeragna, A., Andersson, P., Olsson, B., Primorac, A., Fischer, G., Güttinger, F., Rehm, J., Krausz, M., 2004. Cocaine Use in Europe – A Multi-Centre Study: Patterns of Use in Different Groups. Eur. Addict. Res. 10, 147–155. doi:10.1159/000079835.