

# Long term public health benefits and cost-effectiveness of DCR for PWID: Results from the COSINUS\* and Cosinus-Eco\*\* studies

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# To begin with...

- No conflict of interest to declare

# Context

- ❑ In 2016, opening of 2 DCR in France: Paris and Strasbourg
- ❑ Experimental study to evaluate their :
  - ✓ **Effectiveness** on PWID health: the COSINUS cohort
  - ✓ **Cost-effectiveness** : the Cosinus-eco study

GAIA Paris



ARGOS Strasbourg



# Effectiveness: COSINUS study

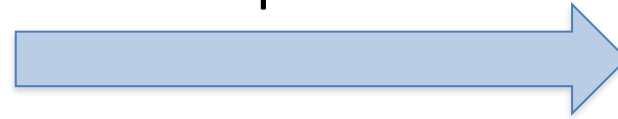
## Main objectives

### DCR

## Drug consumption rooms

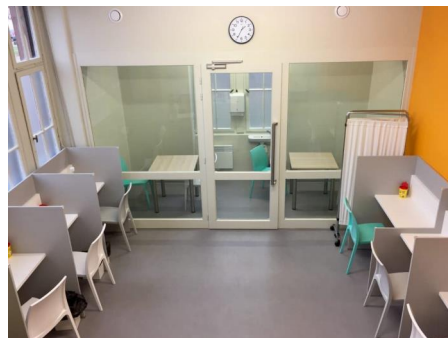
- Dedicated and secure places to inject
- Sterile equipment
- Other harm reduction information and services

Impact ?



## Outcomes

- HIV-HCV risk practices
- Overdoses
- Abscesses
- Emergency room visits





## Methods

- ❑ 12-month longitudinal cohort study enrolling 665 PWID in 4 cities: 2 with a DCR (Paris and Strasbourg) and 2 without (Bordeaux and Marseille)
- ❑ Face-to-face interviews collecting socio-behavioral data at enrolment, 6 and 12 months of follow-up
- ❑ Comparison of DCR-exposed group with DCR-unexposed group using Heckman method to limit non-randomized bias (IMR score)
- ❑ Study of the association between DCR exposure and the 4 outcomes by introducing the IMR score into the mixed-effects probit model

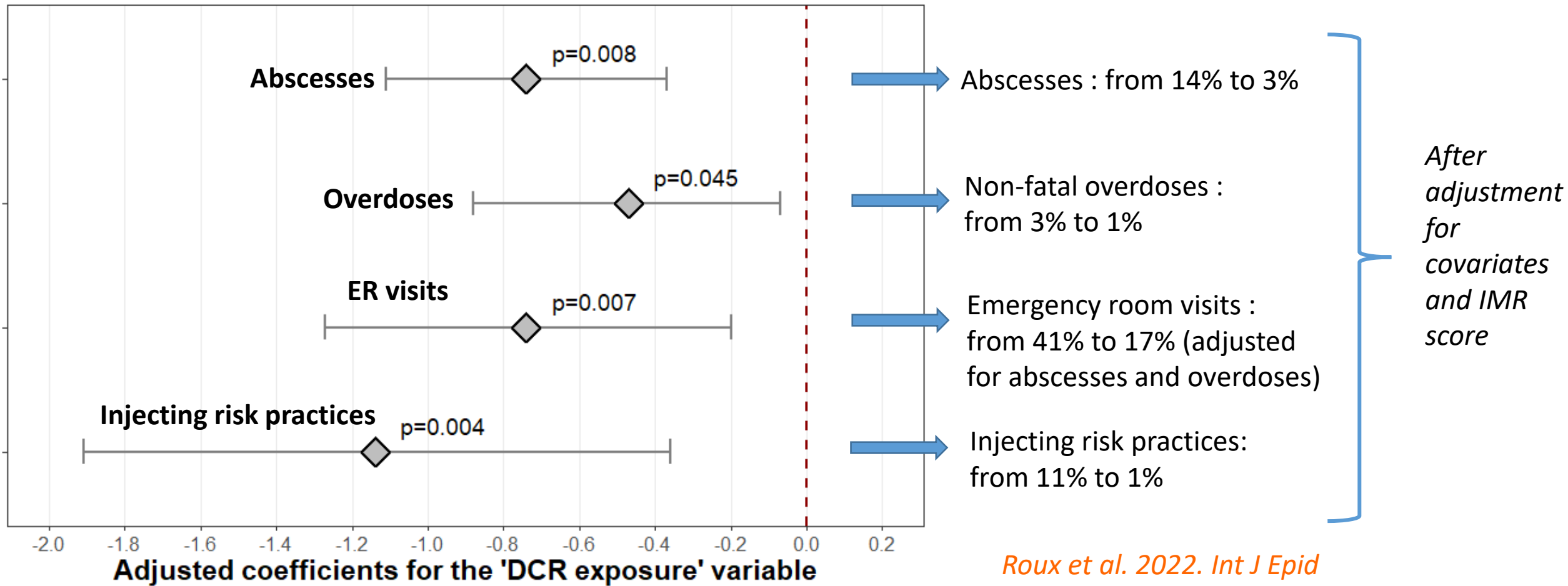
*(outcomes: HIV-HCV risk practices, overdoses, abscesses, emergency room visits)*

*Research conducted under the responsibility of INSERM / CEEI ethics committee approval IRB00003888 of the 11th September 2014 - CNIL authorization of the 6th of May 2015*

# Results

## Impact of DCR exposure on each outcome

Association between DCR exposure and each outcome (adjusted mixed-effects probit model)



IMR score associated with each outcome with p-value < 0.05 or had an impact on the results → introduced into each model

# Cost-effectiveness: Cosinus-eco study

## Main objective :

To evaluate the cost-effectiveness by studying the incremental cost-effectiveness ratio (ICER)

## Secondary objectives :

- ✓ To estimate the number of health events avoided and associated costs
- ✓ To calculate the number of quality-adjusted life-years (QALYs) saved
- ✓ To calculate the incremental costs associated with DCRs opening and functioning

# Methods

## Study population

A fictive cohort of PWID (exposed vs unexposed)

- during 10 years: 2016-2026
- stratified on the city: n=2,997 in Paris and 2,971 in Strasbourg
- simulated until the death of the last followed-up participant

## 2 scenarios

*S1 : current situation with 10-year DCR*

*S2 : fictive situation without DCR (only HR program)*

## Data sources

- ✓ Cosinus study : 4 health parameters
- ✓ Literature review : other health parameters and related costs
- ✓ DCR activities and financial documents : cohort characteristics and DCR-related costs

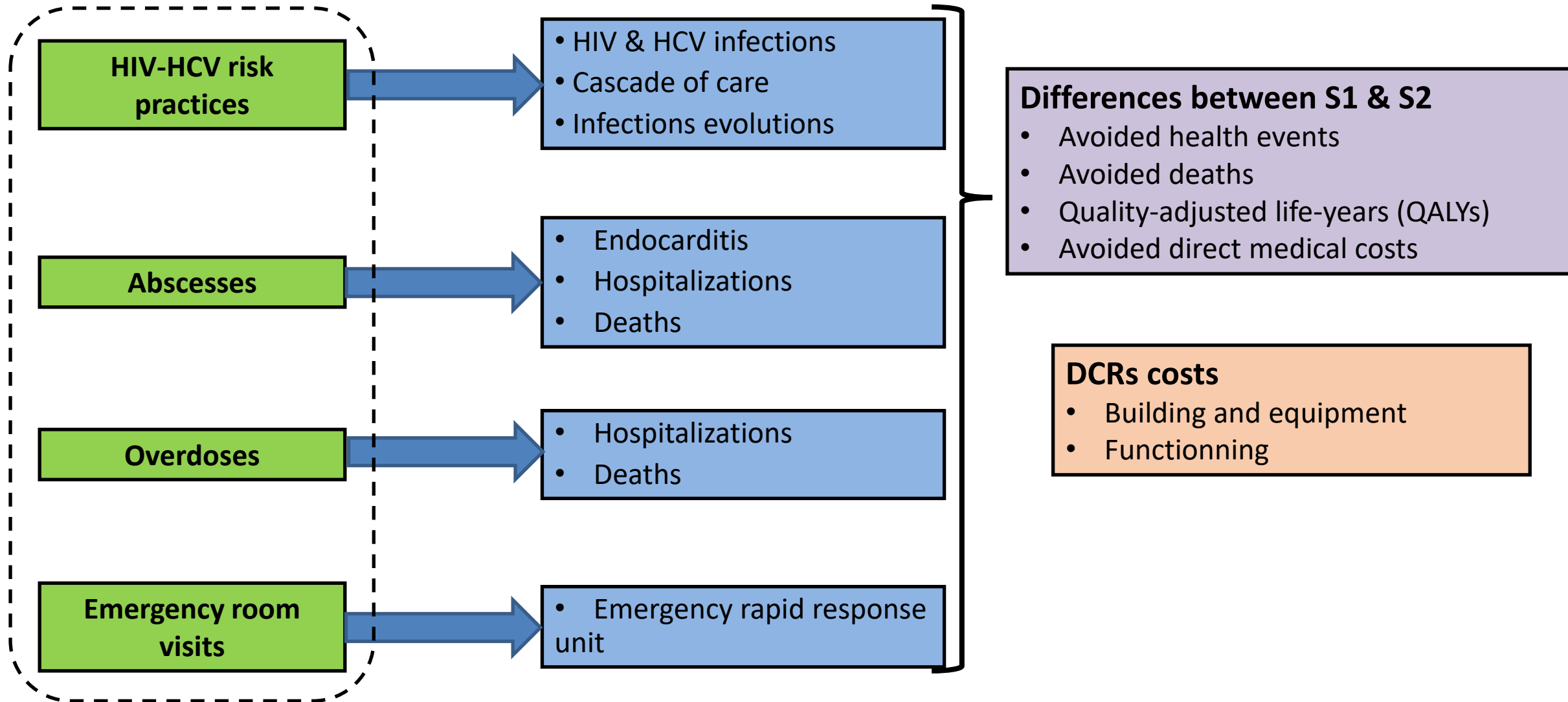
## ICER computation

$$ICER = [cost(S1) - cost(S2)] / [QALY(S1) - QALY(S2)]$$



# Methods

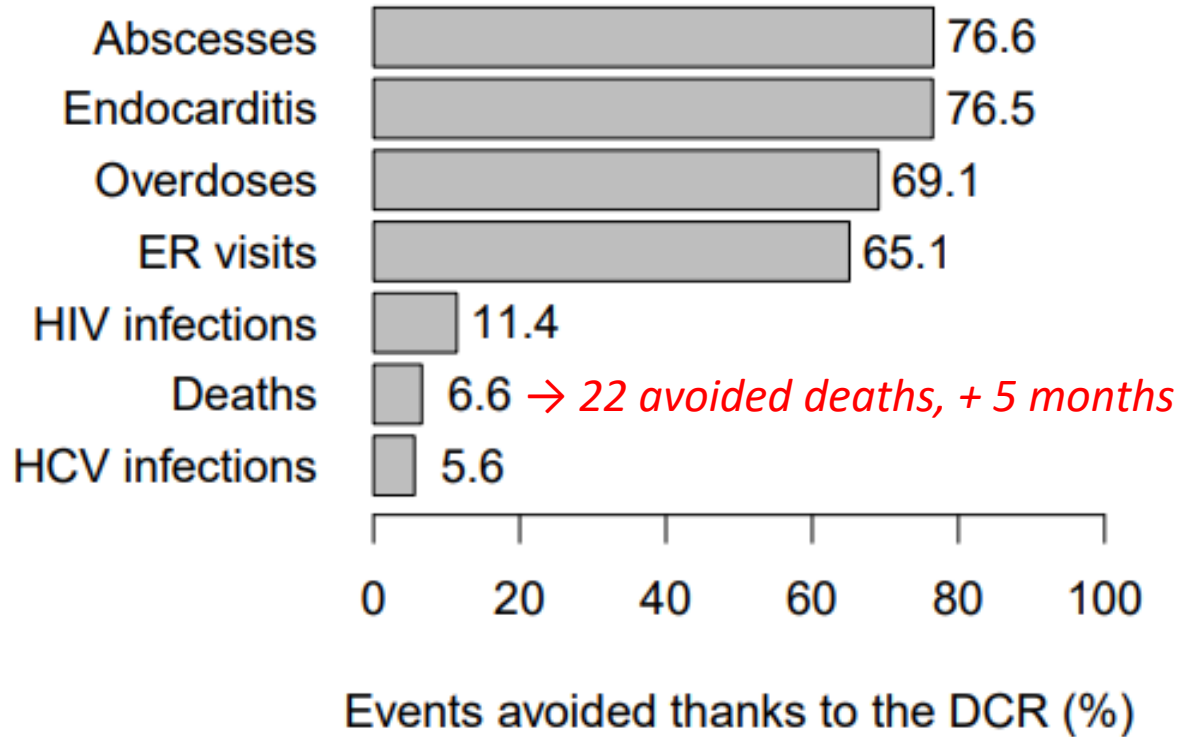
## COSINUS data



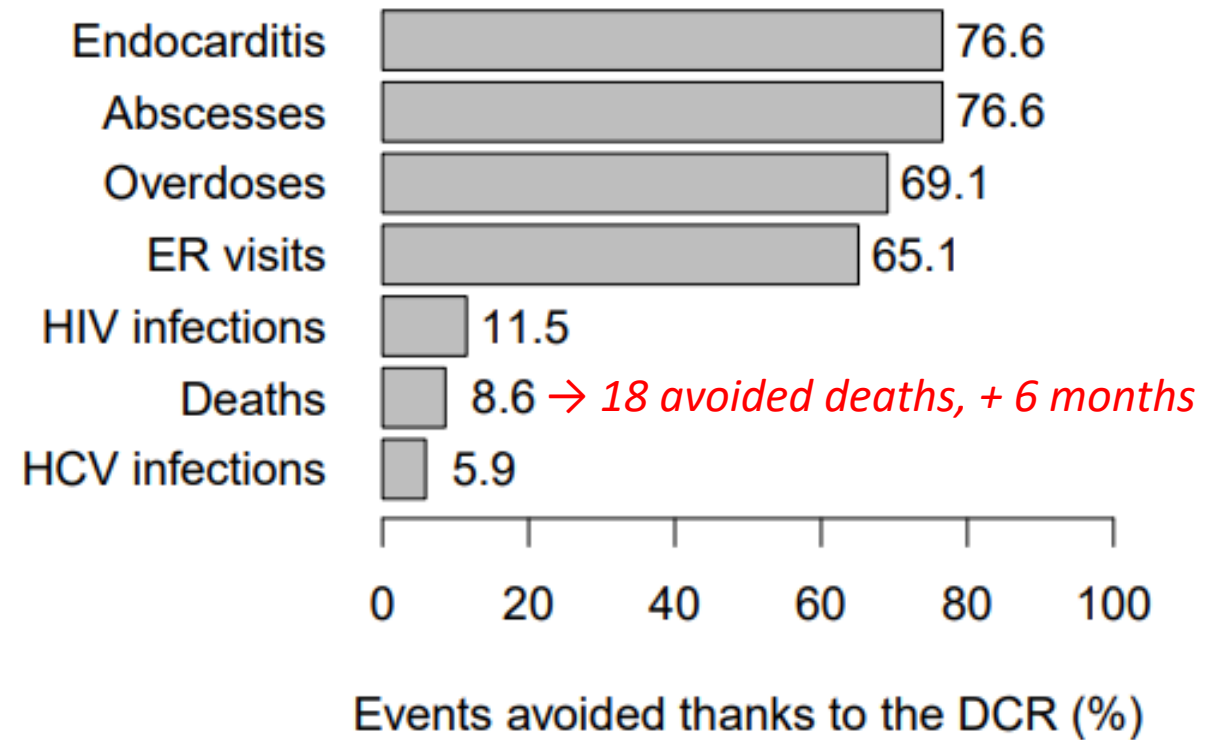
# Results

## Avoided health events – 10-year period

### Paris

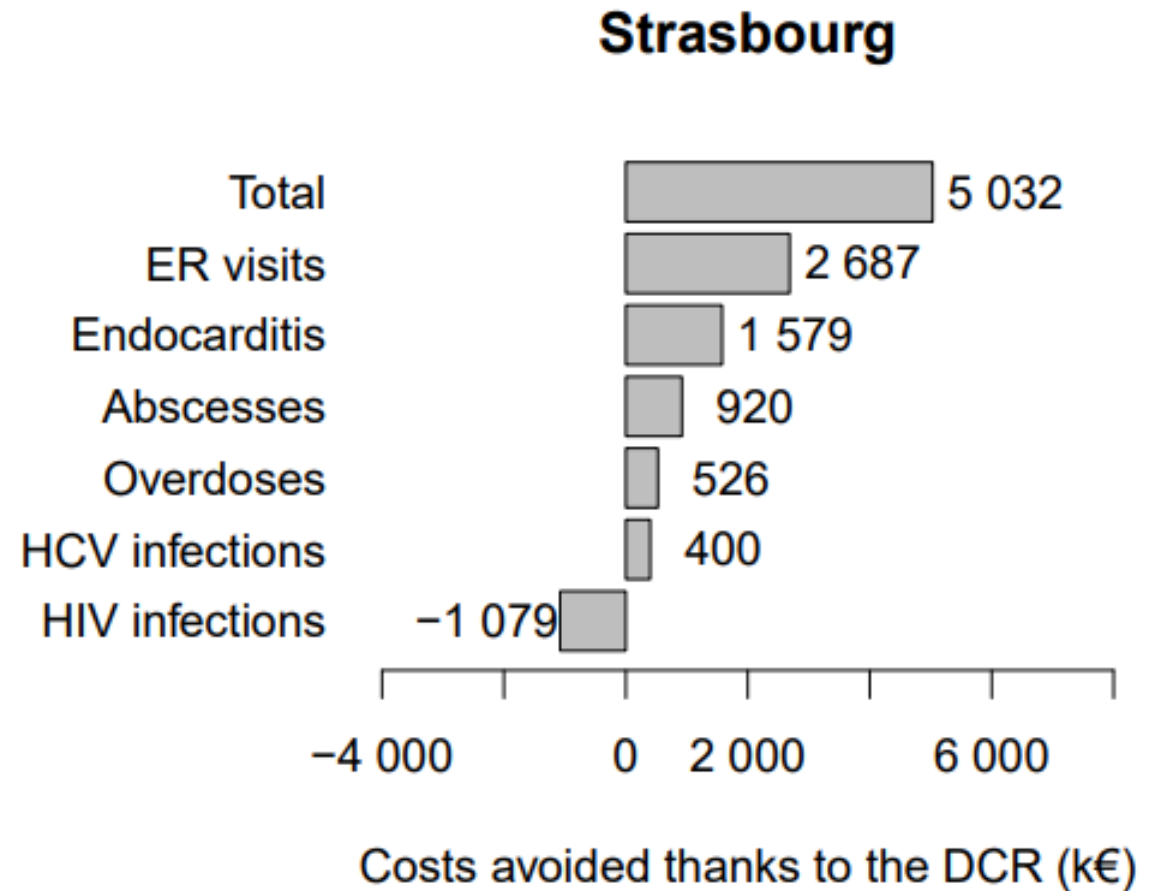
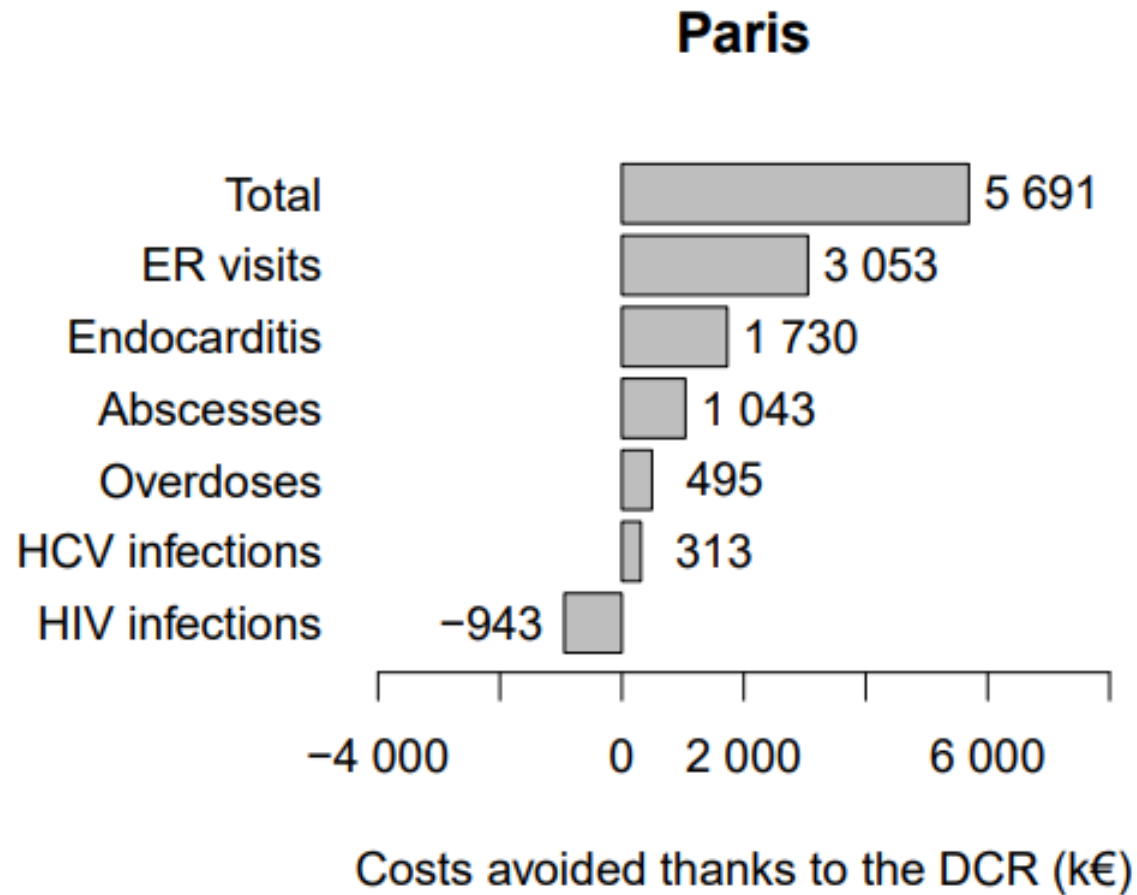


### Strasbourg



# Results

## Avoided medical costs – cohort life



# Results

## Main analysis

	Paris (N=2 997)	Strasbourg (N=2 971)
Differential costs (cost (S1) – cost (S2) (K€, total)	14 372	5 233
Total number of QALYs gained [QALY (S1) – QALY (S2)]	529	635
<b>Cost-effectiveness ratio, euros/QALY saved</b>	<b>27 200</b>	<b>8 200</b>

**e.g. Acceptable cost-effectiveness ratio**

→ Herpes-zoster vaccine : 30 000 to 35 000 euros/QALY

# CONCLUSIONS

## ❑ Health and economic impact of DCRs:

- ✓ HIV-HCV risk practices : 11% of HIV and 6% of HCV infections avoided during 10 years
  - >> Cost saving (around **700 000 €**) for HCV but additional costs (around 2.1 million €) for HIV
- ✓ Non fatal overdoses : 69% of overdoses avoided during 10 years
  - >> Cost saving of around **1 million** euros
- ✓ Cutaneous complications related to injection : 77% of abscesses and endocarditis avoided
  - >> Cost saving of around **2 millions** euros for abscesses and **3.3 millions** for endocarditis
- ✓ Emergency room visits : 71% of events avoided during 10 years
  - >> Cost saving of **6.5 millions** euros

**TOTAL:** cost saving of **11 millions euros**

# CONCLUSIONS

- ❑ DCRs cost-effectiveness ratios are acceptable in France
- ❑ In favor of the sustainability of DCRs
- ❑ For DCR scaling up: our findings support the addition of consumption spaces within existing needle exchange programs

# ACKNOWLEDGMENTS

## Thanks to:

- ✓ all the people who inject drugs that participated in the study
- ✓ colleagues and academic partners
- ✓ institutions

**Thank you for your attention !**

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