

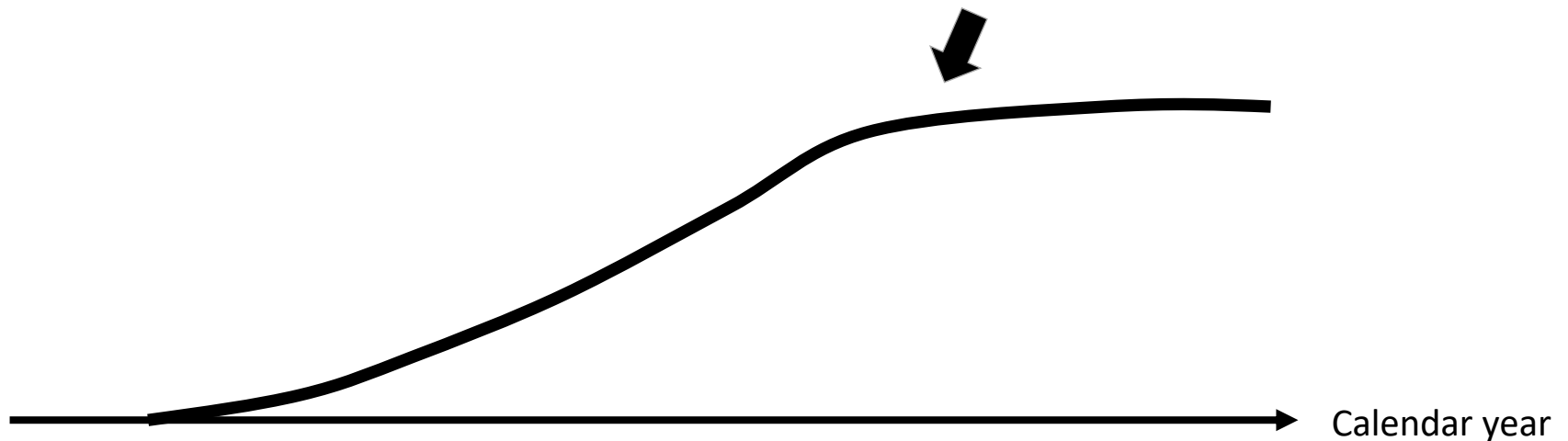
# The HIV epidemic in two Baltic States: A tale of two stories?

Lise Marty, Anda Kivite, Liis Lemsalu, Kaire Vals, Dominique Costagliola, Ruta Kaupe, Indra Linina, Inga Upmace, Kristi Rüütel, Virginie Supervie and the HERMETIC study group

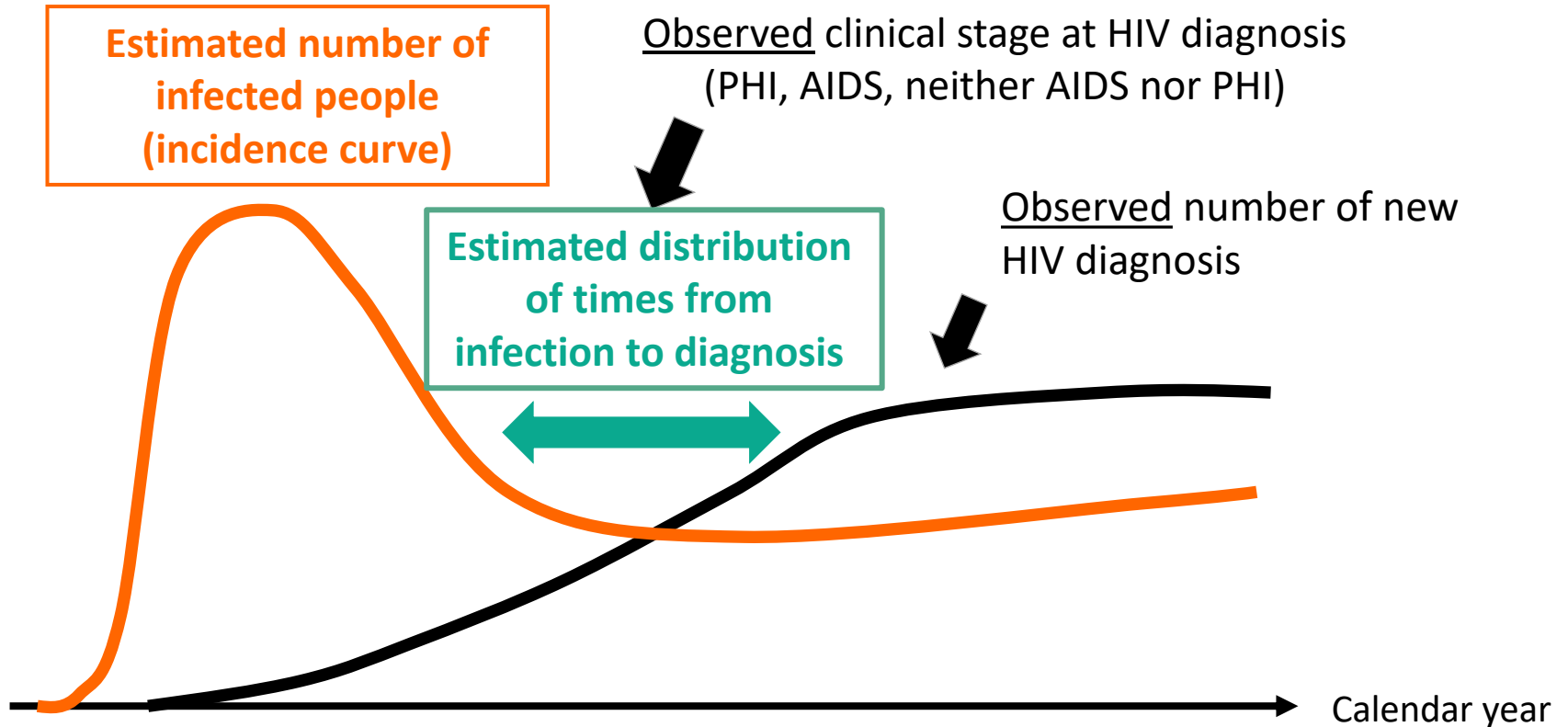
# Principle of the back-calculation method

Observed clinical stage at HIV diagnosis  
(PHI, AIDS, neither AIDS nor PHI)

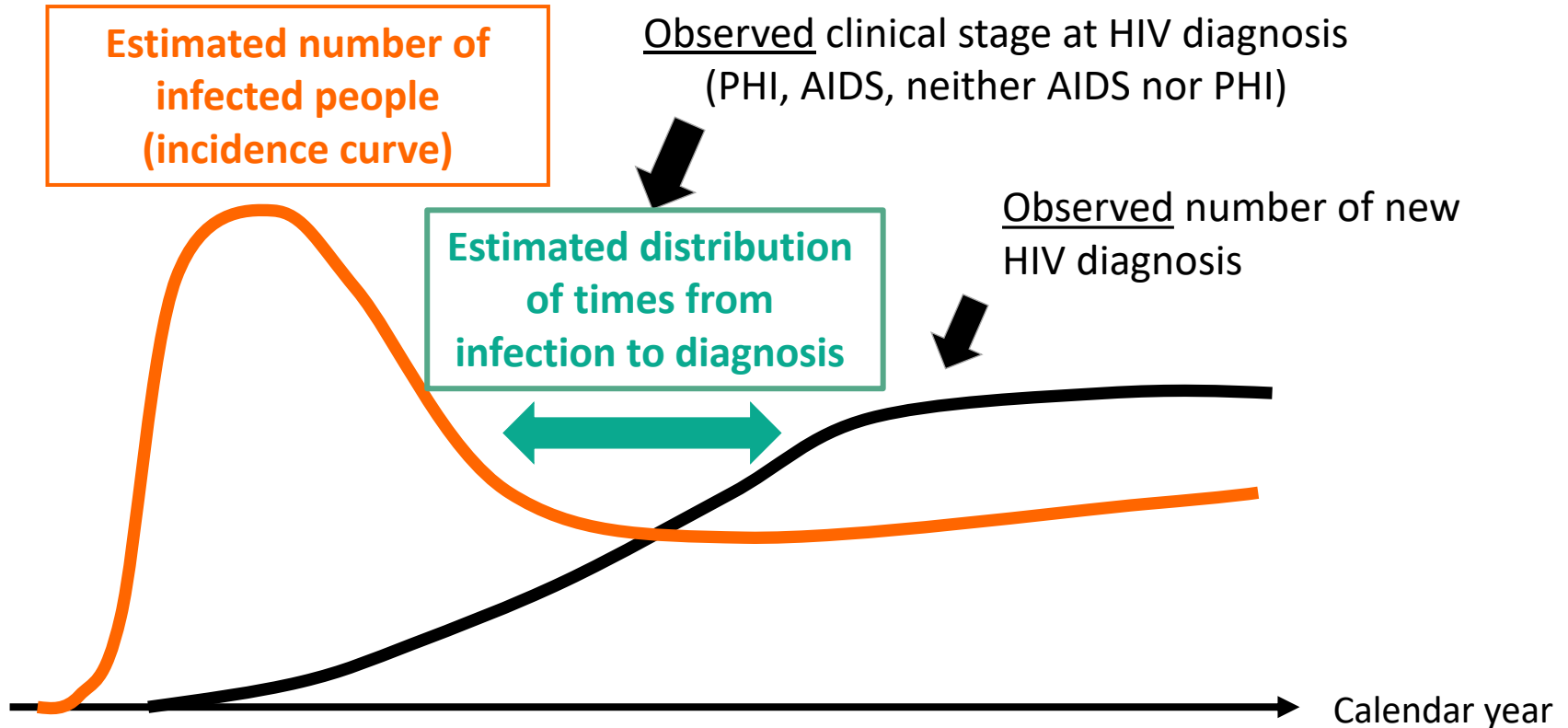
Observed number of new  
HIV diagnosis



# Principle of the back-calculation method



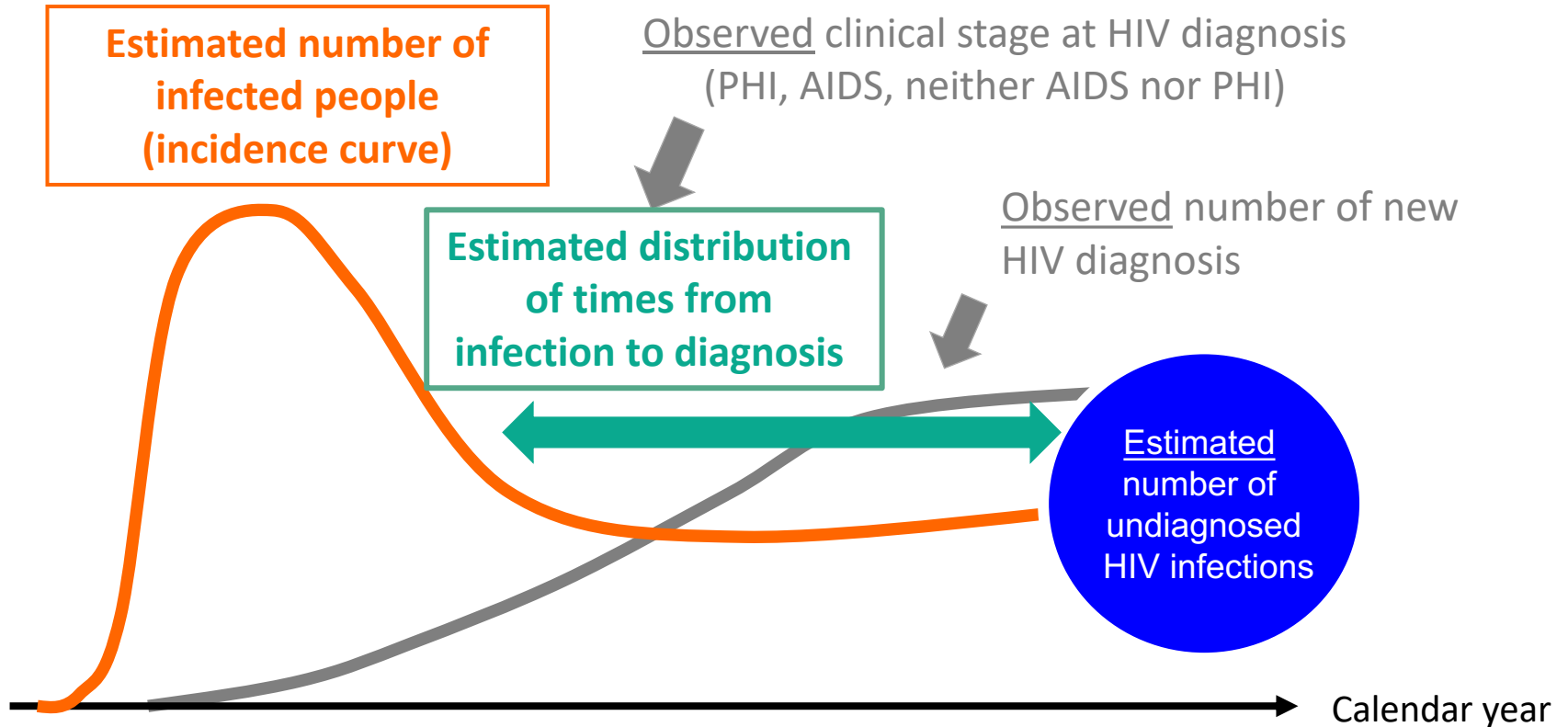
# Principle of the back-calculation method



## HYPOTHESIS

- PHI diagnosis = uniform distrib. with median of 3 months
- AIDS diagnosis = Weibull distrib. with median of 10 years
- Diagnosis before AIDS onset and without PHI symptoms = estimations of 2 parameters defining a modified weibull distrib

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# Presentation of Latvia and Estonia

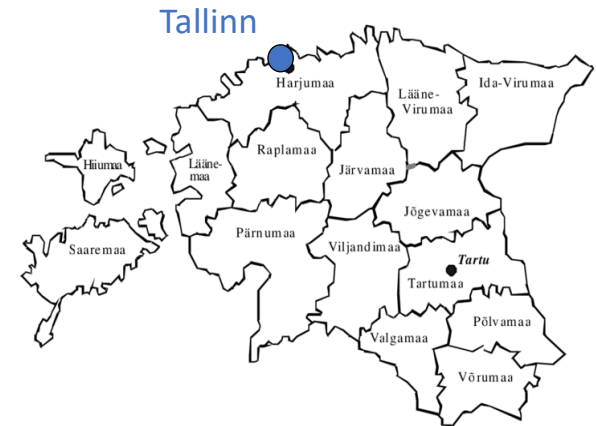


## Estonia

~890 000 inhabitants\*

Capital City: Tallinn,

~290 000 inhabitants\*



\*Aged 18-69

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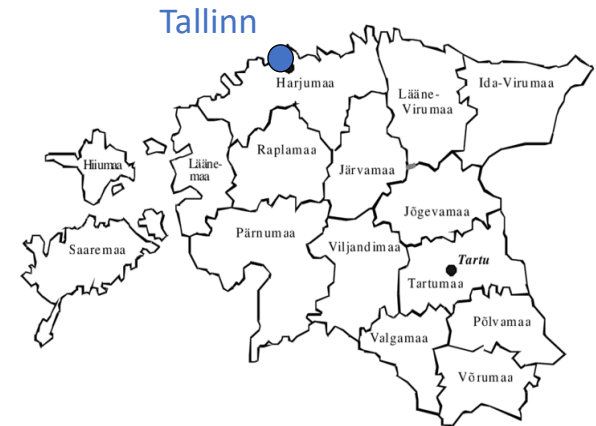


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## Latvia

~1 340 000 inhabitants\*

Capital city Riga,

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# Presentation of Latvia and Estonia



## Estonia

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~290 000 inhabitants\*

1.74 new diagnoses per 10000



## Latvia

~1 340 000 inhabitants\*

Capital city Riga,

~420 000 inhabitants\*

1.85 new diagnoses per 10000



\*Aged 18-69

## Highest rate of new HIV diagnoses in Europe

Major HIV outbreak among people who inject drugs (PWID) in the early 2000's :

→ HIV prevalence of around 55-60% in Estonia (Lemsalu, pers.com.), around 28.6% in Latvia (Kivite et al 2016)



# Surveillance systems

- Latvia:

- Mandatory notification of HIV infection, AIDS, and death to the Center for Disease Prevention and Control of Latvia
- One HIV Reference Laboratory confirms and reports all confirmed new HIV cases
- Data on: sex, age, HIV exposure group, clinical stage, place of residence , CD4 counts at diagnosis

- Estonia:

- Mandatory notification to the Health Board by both doctors and laboratories
- Problem of double-reporting before 2008: data from the Health Insurance Fund and the prison health care were also used
- Data on: sex, age, HIV exposure group (since 2010), clinical stage, nationality, place of residence, CD4 counts at diagnosis

- Multiple imputation of missing data was performed

- Population sizes:

- Persons who inject drugs were defined 0.9% of the population aged 18-69 in Estonia (Uusküla et al. 2013), and 0.93% in Latvia (Kivite et al. 2016)
- Men who have sex with men were defined as 1.65% of men aged 18-69 in Latvia (definition from Marcus et al.2013, BMC Inf Dis)

# Number and rates of undiagnosed infections in 2016

	Latvia		
	Number of undiagnosed HIV infections in 2016 (95% CI)	Population aged 18-69	Undiagnosed prevalence rate per 10000 in 2016 (95% CI)
Global <sup>¶</sup>	1826 (1495-2249)	1337491	13.7 (11.2-16.8)
Male	1196 (929-1609)	639056	18.7 (14.5-25.2)
Female	630 (478-853)	698435	9.0 (6.8-12.2)
PWID	631 (463-876)	12439	507.0 (372.2-704.3)
Male PWID	459 (330-647)	8208	558.8 (400.9-788.2)
Female PWID	173 (87-313)	4229	406.9 (204.9-739.0)
MSM	66% 286 (152-501)	10544	270.6 (143.3-474.5)
Heterosexual men	453 (284-734)	620304	7.3 (4.6-11.8)
Heterosexual women	459 (338-637)	694206	6.6 (4.9-9.2)
Heterosexual men and MSM	x	x	x

Most affected population in terms of rate are PWID (specially in Latvia)  
 But heterosexuals and MSM accounts for most undiagnosed infections