

Preventing mother-to-child transmission of HIV in Finland



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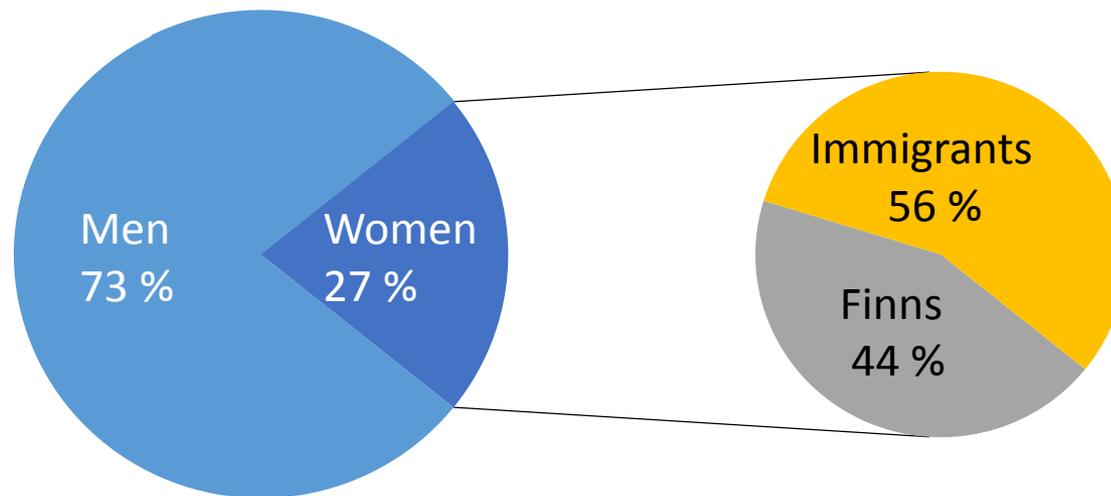
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Conflict of interests

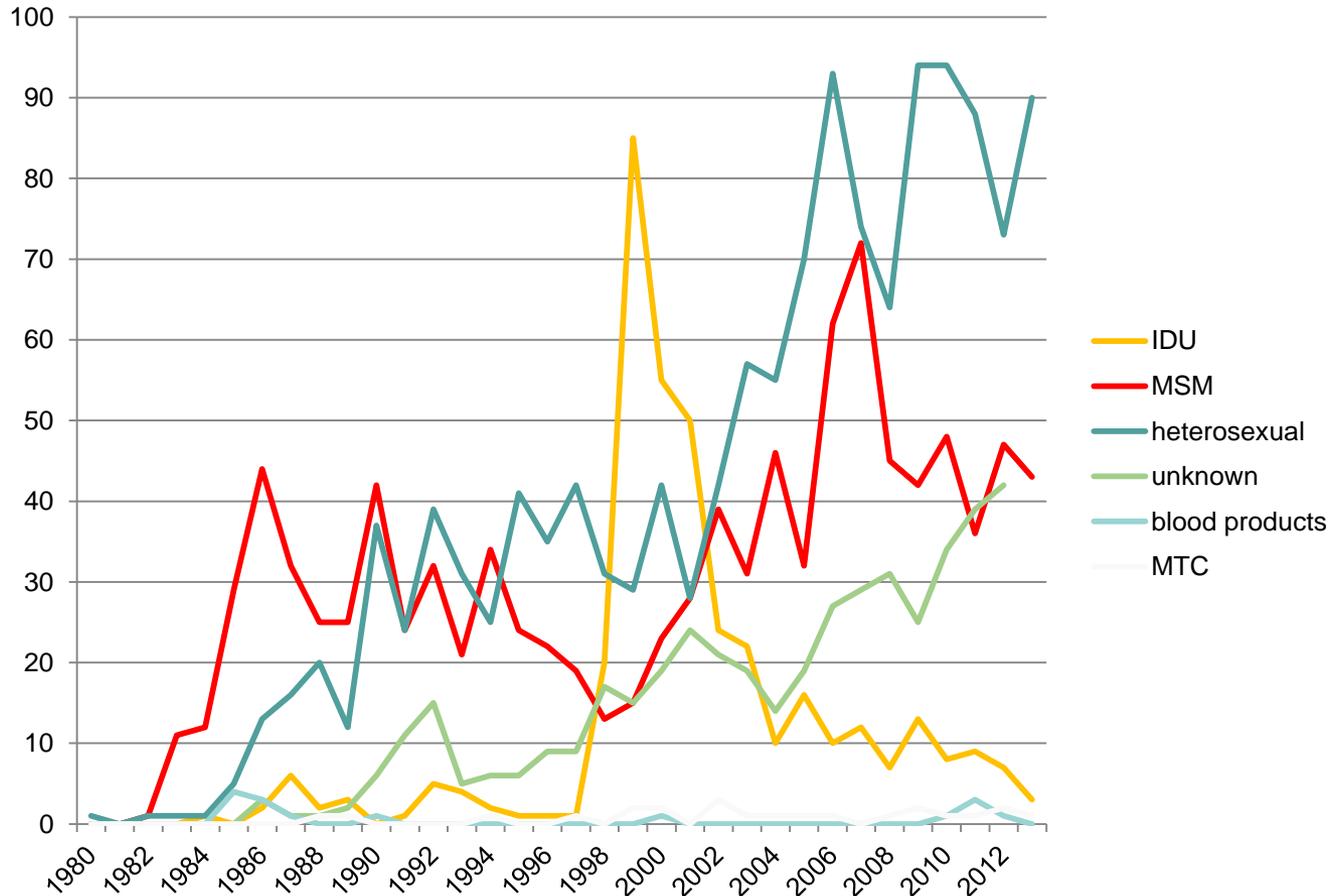
- Specialist in Internal medicine and Infectious Diseases
- Consultant in Helsinki University Hospital, Inflammation Centre, Department of Infectious Diseases and HIV services
- University of Helsinki
- Honoraria, consultation fees, Research grants (Abbvie, BMS, Gilead, GSK, Janssen, MSD, Roche)

HIV in Finland 1981-2016

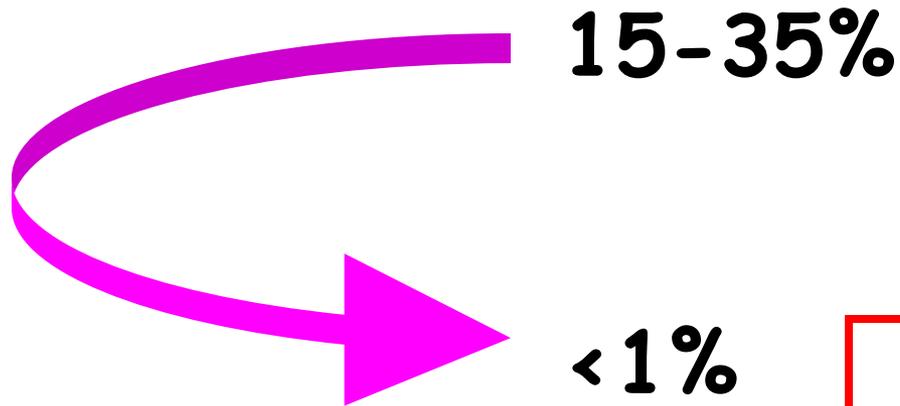


- Altogether 3742 HIV-cases diagnosed, 1019 in women
- In women, the proportion of immigrants (56 %) is significantly higher than in men (25 %)

Annual infections by transmission route



Mother-To-Child Transmission



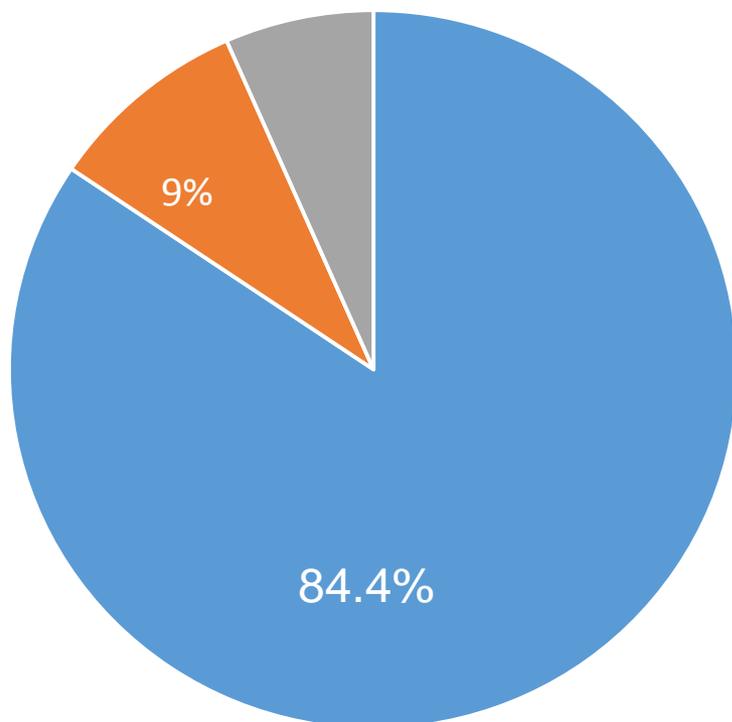
Testing
Mother's ART
Child's ART
Mode of delivery
Formula feeding

HIV-related pregnancies in Finland

- 212 women delivering 290 children after HIV-diagnosis 1993-2013
- 12 deliveries of HIV-positive women before diagnosis 1993-2013
- After 2013 approx. 30-40 deliveries annually

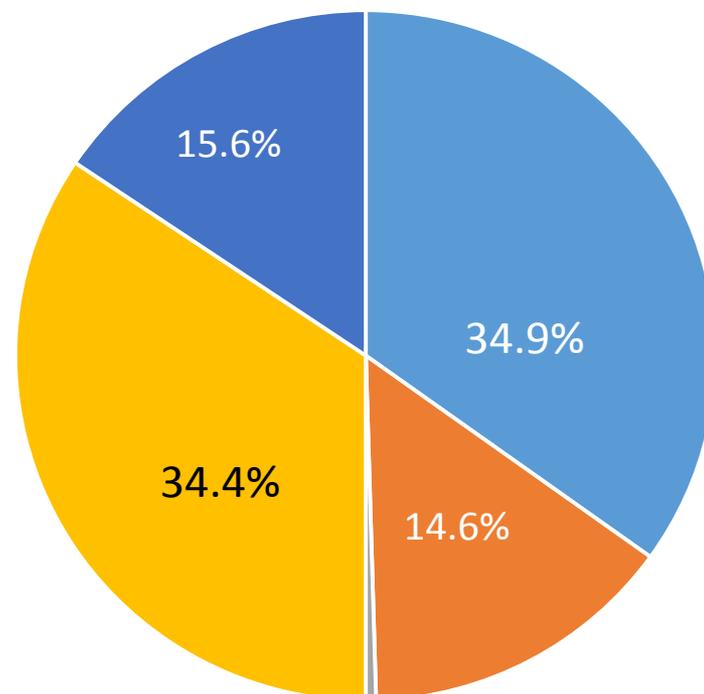
Mothers' demographics

Mode of transmission



■ Heterosexual ■ IDU ■ Unknown/else

Origin



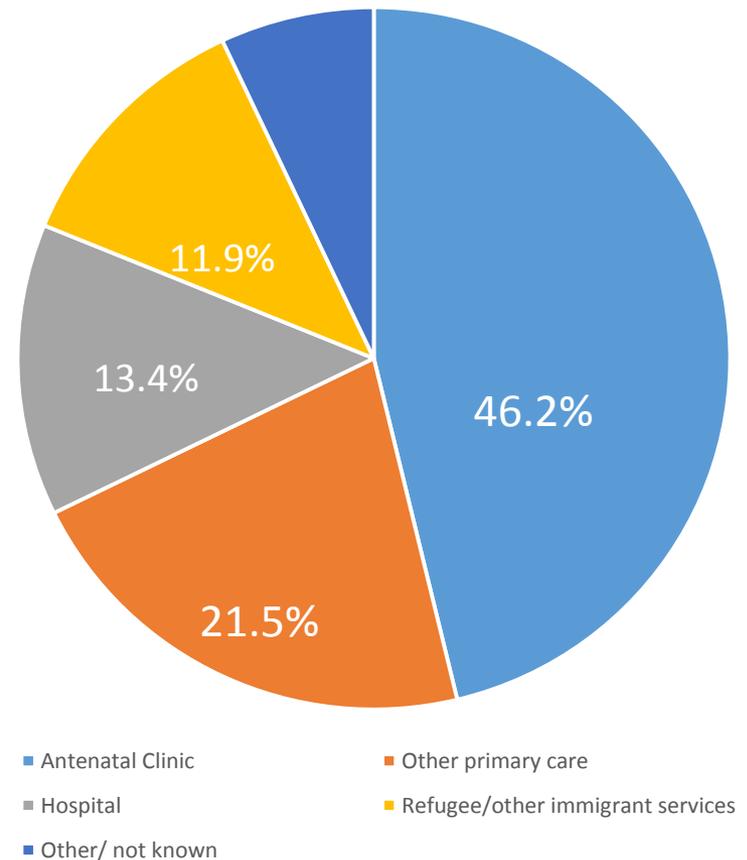
■ Finland ■ Eastern Europe
■ Western Europe and America ■ Sub-Saharan Africa
■ Asia

Antenatal testing in Finland

- Nationwide opt-out testing in first trimester since 1998
- 97,5% of pregnant women are tested in Finland
- Most not-tested already linked in care
- 5-20 new HIV diagnoses annually
- Should fathers be tested too?
- 4 MTCT/year avoided in Finland by testing and treating

Diagnosis of parturients 1993-2013

- 212 parturients, 186 diagnosed in Finland
- In Helsinki Metropolitan area 35.8% of women were diagnosed in antenatal care, outside Helsinki area 65.2%



Linkage to care

- Treatment of HIV is free of charge
- Easy access to HIV outpatient clinic
- Easy access to Opioid Substitution Therapy, very seldom needed
- Multidisciplinary team meetings once a month:
- HIV-specialist, gynecologist, pediatric, midwife, infectious diseases nurse, pediatric nurse, social worker

Mothers' ART before pregnancy

- All HIV-positive patients are offered ART regardless of the CD4-count or HIV viral load in Finland
- Approx. 98% of all patients are on ART
- 96% of treated show viral loads < 50 copies/mL
- Pregnancy potential is considered when starting ART to a woman in her fertile age (efavirenz avoided)

Recommended regimens for pregnant women

- Backbone: either abacavir/lamivudine or tenofovir/emtricitabine
- TAF (tenofovir alafenamide) is not used in pregnant women
- HBsAg positive -> tenofovir/emtricitabine
- Third agent: atazanavir/r, darunavir/r, rilpivirine, raltegravir and increasingly dolutegravir
- Intravenous zidovudine in delivery

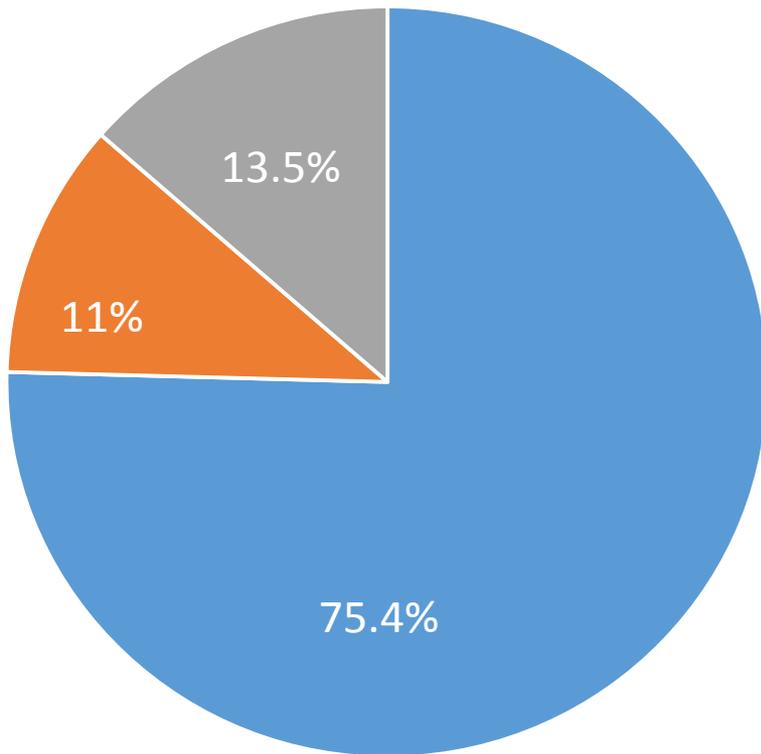
Virological follow up during pregnancy

- HIV viral load (VL) every two months, if undetectable before the pregnancy
- VL once a month until <20 copies/mL, if starting during pregnancy
- VL at gestational week 36 to decide the mode of delivery, preliminary plans made throughout the pregnancy

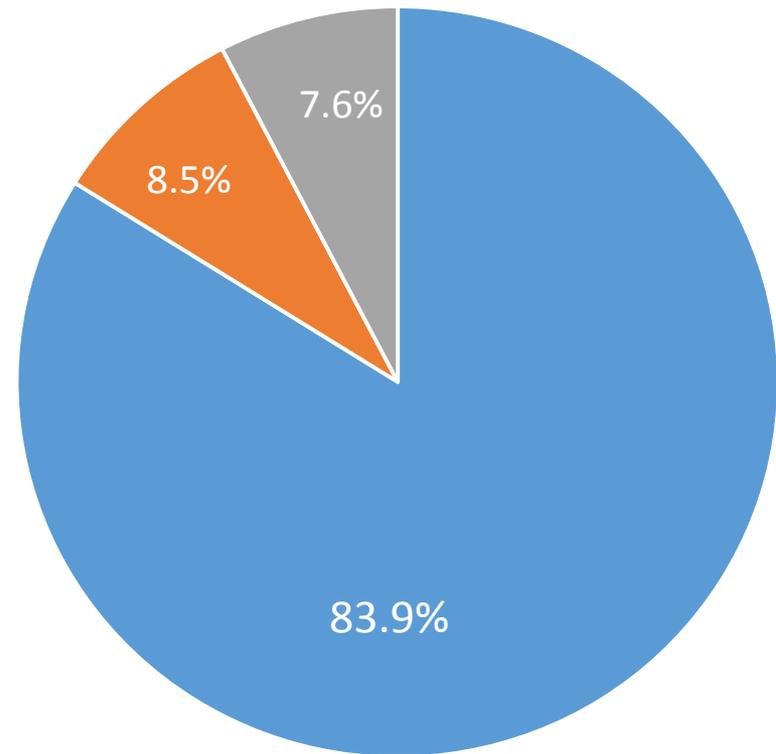
Mode of delivery

- Mode of delivery on obstetrical indications if mother is on ART and VL <200 copies /ml
- If viral load >200 copies /ml -> elective CS at week 38
- If elective CS because of obstetrical indications -> week 39

Mode of delivery and the last viral load preceding the delivery 2010-2013



■ Vaginal delivery ■ Elective CS ■ Emergency CS



■ <50 copies/mL ■ 50-399 copies/mL ■ >400 copies/mL

Indications for CS 1993-2013

- HIV was the main indication for CS in only 7% of all deliveries
- Main indications for elective besides HIV were:
 - Breech presentation
 - Previous CS
- Main indications for emergency CS were:
 - Suspected fetal asphyxia
 - Failure to progress

Management of the delivery

- Avoiding mother-child blood contact, if **obstetrically** possible
- No artificial rupture of the membranes (ROM)
- Induction, if labor starts by rupture of the membranes
- Time from ROM not indication for Emergency CS (since 2016)

Beckerman et al NEJM 1999;341, Mofenson et al NEJM 1999;341, Mandelbrot et al Am J Obstet Gynecol 1996;175, Shapiro et al Obstet Gynecol 1999;94; CotterAM et al. *Am J ObstetGynecol.* 2012,Peters H et al. *BJOG.* 2015, Eppes C. *BJOG.* 2015



Is it possible to eliminate MTCT?

- UK: 3/2117 (0,1%)
- ANRS : 5 /1338 (0,4%)
- ANRS : 56/8075 (0,7%)

Townsend et al AIDS 2008, Warszawski et al AIDS 2008, Mandelprot et al CID 2015

Table 3. Perinatal Human Immunodeficiency Virus Type 1 Transmission Rate According to Timing of Antiretroviral Therapy Initiation and Maternal Viral Load Near Delivery (Enquête Périnatale Française, Metropolitan France, 2000–2011): Stratified Analysis

Maternal VL	Timing of ART Initiation								P Value
	Before Conception ^a		1st Trimester (<14 wk)		2nd Trimester (14–27 wk)		3rd Trimester (≥28 wk)		
	PT, % (95% CI)	No. With PT/Total No.	PT, % (95% CI)	No. With PT/Total No.	PT, % (95% CI)	No. With PT/Total No.	PT, % (95% CI)	No. With PT/Total No.	
Maternal VL nearest delivery, copies/mL									
≥400	2.2 (.7–5.0)	5/230	1.5 (.04–7.8)	1/69	2.4 (1.0–4.9)	7/291	4.4 (2.1–7.9)	10/228	.37
50–400	0.3 (.01–1.8)	1/301	1.6 (.04–8.8)	1/61	1.4 (.5–2.8)	7/515	3.0 (1.4–5.7)	9/297	.06
Undetectable, threshold >50	0.0 (0–1.7)	0/212	0.0 (0–6.8)	0/52	0.6 (<.01 to 3.3)	1/169	0.0 (0–8.6)	0/41	.5
<50	0.0 (0–1)	0/2651	0.2 (<.01 to 1.1)	1/507	0.5 (.2–1.0)	9/1735	0.9 (.2–2.3)	4/452	.002
Missing VL	...	0/111	...	0/20	...	0/100	...	0/33	...
Undetermined child HIV status/287/55/184/77	...

Abbreviations: ART, antiretroviral therapy; CI, confidence interval; HIV, human immunodeficiency virus; PT, perinatal transmission; VL, viral load.

^a In case of treatment interruption of the first ART regimen for >2 weeks in the first trimester, the date of treatment initiation was defined as the time when ART was reintroduced.

MTCT in Finland

- No transmissions, when mother's HIV was known before the delivery
- 3 transmissions altogether (1987, 1994, 2000)
- 2 before the nationwide testing
- 1 mother tested negative but acquired HIV during the pregnancy

Child's ART and follow-up

- ART for 4 weeks
- If mother's viral load is low -> only zidovudine
- Otherwise combined ART
- Only formula feeding
- HIV viral load at two days of age, at two months and four months of age
- HIV-antibodies at 18 months of age

Thank You

