ARE HIV+ MIGRANT CHILDREN IN EUROPE AT INCREASED RISK OF POOR OUTCOMES ON ART?

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Background

- Adult studies in Europe have reported higher burden of HIV among migrants as compared to native populations, and differences in key characteristics including more women, younger age and more advanced disease at HIV diagnosis among migrants [1-3].
- Large adult studies on outcomes on ART by migrant status across western Europe reported increased mortality and poorer immunological and virological response in some migrant populations (e.g. women from key regions) as compared to native patients [2,4].
- Few comparable studies have been conducted in children and have been limited to national cohorts[5-6].

Objective

To assess the effect of migrant status on risk of AIDS and death after ART initiation in children followed in observational cohorts in the EPPICC network (Figure 1).

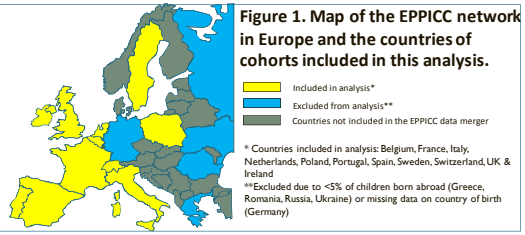

Figure 1. Map of the EPPICC network in Europe and the countries of cohorts included in this analysis.

Methods

Pediatric HIV observational cohorts across 16 European countries contributed to an individual patient data meta-analysis carried out in December 2014.

Inclusion criteria: Children aged under 18-years at initiation of combination ART, followed in cohorts where ≥5% of the paediatric population are migrants (defined as born abroad from the country of the cohort) were included.

Outcome: First AIDS event or death among children AIDS-free at ART initiation. Follow-up was from ART start to death, last visit in paediatric care or 21st birthday. **In sensitivity analysis**, we assessed new/recurrent AIDS or death in all children, including those with AIDS diagnosis at ART start.

Statistical analysis: Hazard of first AIDS event or death was assessed by migrant status, using multivariable Cox models, adjusting for key confounders including sex, mode of transmission, age, WHO severe immunosuppression for age [7] and calendar year at ART start, initial regimen and region. Missing baseline values were imputed.

Results

- Of 2,284 children from 11 European countries, 55% were migrants (of whom 85% were from Africa), the proportion of migrants varied by country, from 5% in Poland to 97% in Sweden.
- At ART start, migrant children were older, more likely to be severely immunocompromised and TB co-infected, but fewer had AIDS diagnosis as compared to domestic-born children (Table 1).
- Median follow-up after ART start was 5.4 [2.3,8.7] and 7.6 [3.1,11.1] years among migrants and domestic-born children, respectively (p<0.001).

Table 1. Characteristics at ART initiation by migrant status

		Domestic-born (%) (n=1028)	Born abroad (%) (n=1256)	P
Sex	female	563 (55)	625 (50)	0.017
Perinatal infection	yes	1003 (98)	1107 (88)	<0.001
Age, years	median [IQR]	1.8 [0.3, 7.2]	8.1 [4.0, 11.7]	<0.001
	<3 years	597 (58)	238 (20)	
	3-10 years	265 (26)	557 (44)	
	>10 years	166 (16)	461 (37)	<0.001
WHO immuno-suppression (n=835, 889)	Severe	353 (42)	429 (48)	0.013
TB coinfection	yes	7 (0.7)	28 (2)	0.003
AIDS diagnosis	yes	192 (19)	182 (15)	0.012
Initial ART regimen	bPI	346 (34)	378 (30)	
	NNRTI	595 (58)	811 (65)	
	3NRTI/Other	87 (8)	67 (5)	0.002
Calendar year	<2004	372 (36)	358 (29)	
	2004-2007	352 (34)	435 (35)	
	>2007	304 (30)	463 (37)	<0.001

Note: IQR interquartile range; TB tuberculosis; bPI boosted protease inhibitor; NRTI nucleoside transcript inhibitor; NNRTI non-NRTI

AIDS and death

- Of 1,901 children AIDS-free at ART start, 103 (5.4%) had ≥1 AIDS event and 14 (0.7%) died (a child can experience both events). Rate of AIDS/death was 1.02 {95% CI 0.85, 1.23} per 100 person-years.
- Cumulative probability of AIDS/death at 5 years after ART start was 6.0% {95% CI 4.6,7.7} in migrant vs. 5.0% {95% CI 3.7,6.7} in domestic-born children (p=0.17) (Figure 2).
- After adjustment, the hazard of AIDS/death was not significantly higher among migrant children (adjusted hazard ratio (aHR) 1.45 {95% CI 0.90,2.33}, p=0.129) (Table 2).

Table 2. Effect of migrant status on hazard of first AIDS event or death after ART initiation (95% CI)

	Migrant status	event/N	Unadjusted HR	Adjusted HR*	P'
Main analysis (exclude children with AIDS at ART start)	Domestic	43/835	1	1	
	Migrant	68/1066	1.30 (0.89-1.91)	1.45 (0.90-2.34)	0.129
Sensitivity analysis (Including those with AIDS at ART start)	Domestic	75/1028	1	1	
	Migrant	93/1256	1.05 (0.77-1.42)	1.29 (0.88-1.88)	0.199

*adjusted for sex, year of birth, mode of transmission, initial ART regimen, region (UK/Ireland vs rest of Europe), calendar year, age, low WAZ, detectable HIV RNA and low CD4% at initiation of ART; missing baseline values were imputed. ' P-value for adjusted model.

Results continued

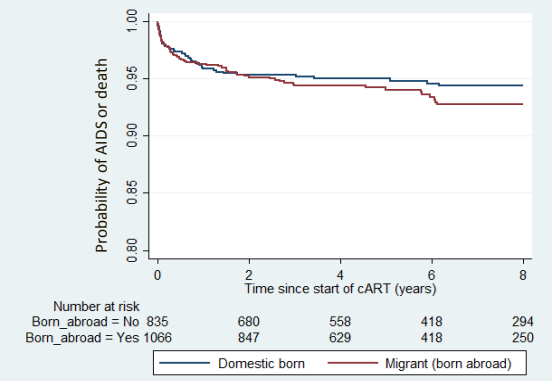

Figure 2. Cumulative probability of AIDS or death among children AIDS free at ART initiation, by migrant status

Sensitivity analysis

- When including children with AIDS at ART initiation (n=2284), 141 (6.2%) had ≥1 AIDS event and 36 (1.6%) died after ART start.
- Cumulative probabilities of AIDS/death at 5 years were 7.1% migrant vs. 7.3% domestic-born children (p=0.75). In the adjusted analysis there were no significant effect of migrant status (aHR 1.29 {95% CI 0.88,1.88}, p=0.199).

Conclusions

- Migrant children in Europe were older and more likely to be severely immunocompromised at ART start. After adjusting for characteristics at ART start there was no significant increase risk of AIDS/death when compared to domestic-born children.
- This may be partly due to the rarity of events and/or selection bias of long-term survivors among migrant children, or it may indicate equality in care in these settings.
- Limitations: There were no data on socio-economic or orphan status. We did not assess retention in care or long term immune/virological outcomes by migrant status.

References

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Acknowledgements

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