Cascade of care in children and adolescents with HIV in Russian Federation

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Background

- The cascade of care summarises the 90-90-90 UNAIDS targets, of 90% of HIV+ people knowing their status, of whom 90% receive antiretroviral treatment (ART), of whom 90% are virally suppressed
- By 2019, there were 1,068,839 people diagnosed with HIV in Russia, of whom 50% were on ART, and of those 76% were virally suppressed[1].
- However, there are less data on the HIV care continuum in children and adolescents with HIV in Russia.

Objective

- To summarise the cascade of care in children and adolescents living with HIV in three Russian clinics.

Methods

- We included data on children/adolescents aged <18 years at HIV diagnosis from three Russian clinics within the European Pregnancy and Paediatric Infections Cohort Collaboration (EPPICC).
- Follow-up data from first presentation to HIV care until death, loss to follow-up, transfer to adult care or last visit (data cut-off 1/10/2016) were included.
- As all patients were already diagnosed with HIV, we adapted the cascade of care as follows: (a) initiated ART, (b) virally suppressed (VS) ≤1000 copies/ml and (c) having good WHO immune status* at last visit. The analysis was restricted to patients in active paediatric follow-up (FU) in 2015-2016 and had ≥12 months of FU.
- Characteristics of patients and cascade results were stratified by age of HIV diagnosis:
  i. Diagnosed during "childhood" (age <10) and
  ii. Diagnosed during "adolescence" (age ≥10)
- The proportion with VS and good immune status* at 12(±3) months after ART start was also summarized overall and by calendar year of ART start.

*Defined as WHO non-significant or mild immunosuppression for age: CD4 % ≥30% for children aged <1 year, CD4 % ≥25% for ≥1 and <3 years, CD4 % ≥20% for children aged between ≥3 and <5 years, and CD4 count >350 cells/mm3 for children ≥5 years.[2]

Results

- Of 922 patients followed in the 3 centres, **703** had ≥12 months FU and were in care in 2015/16 and included in this analysis. Of these:
  - **655** (93%) were diagnosed in childhood, of whom 94% had perinatally acquired HIV (Table 1)
  - **48** (7%) were diagnosed in adolescence, of whom 27% had perinatally acquired HIV, 25% sexually-acquired, and 48% had other or unknown mode of transmission
- 94% (618/655) in the childhood group initiated ART compared to 81% (39/48) in the adolescent group.
- At ART initiation, the median age was 2.2 years and 16.1 years in the childhood and adolescence group, respectively. 52% and 58% had advanced or severe WHO immunosuppression at ART start, respectively (Table 1).

Table 1. Characteristics at HIV diagnosis, at ART start and last visit

	Diagnosed in childhood (N=655)	Diagnosed in adolescence (N=48)
	N(%) or median [IQR]	
Sex, female	354 (54%)	33 (69%)
Mode of transmission		
Perinatal	613(94%)	13(27%)
Sexual	0 (0)	12 (25%)
Injected drug use	3(<1%)	3 (6%)
Unknown	36 (5%)	20 (42%)
Parenteral, transfusion, other	2(<1%)	0(0)
Age at diagnosis (years)	1.5 [0.6-2.8]	15.8 [3.0 -16.7]
Advanced/severe immunosuppression at diagnosis[2] (n=649,47)	208 (32%)	23 (49%)
Year of diagnosis	2009 [2006 -2012]	2014 [2013-2015]
Duration of follow up (years)	7.2 [4.4 -10.1]	2.6 [1.7 -3.8]
Initiated ART	618 (94%)	39 (81%)
Age at ART start	2.2 [1.0 -4.6]	16.1 [12.6 – 16.7]
Advanced/severe immunosuppression at ART start (n=340,36)	178 (52%)	21 (58%)
Year of ART initiation	2011 [2008-2013]	2015 [2013-2015]
Status at last follow up		
Transferred to adult care	4 (<1%)	21 (43%)
Lost to follow up	10 (2%)	0 (0)
Still in paediatric care	641 (97%)	27 (56%)

Cascade of care at last visit

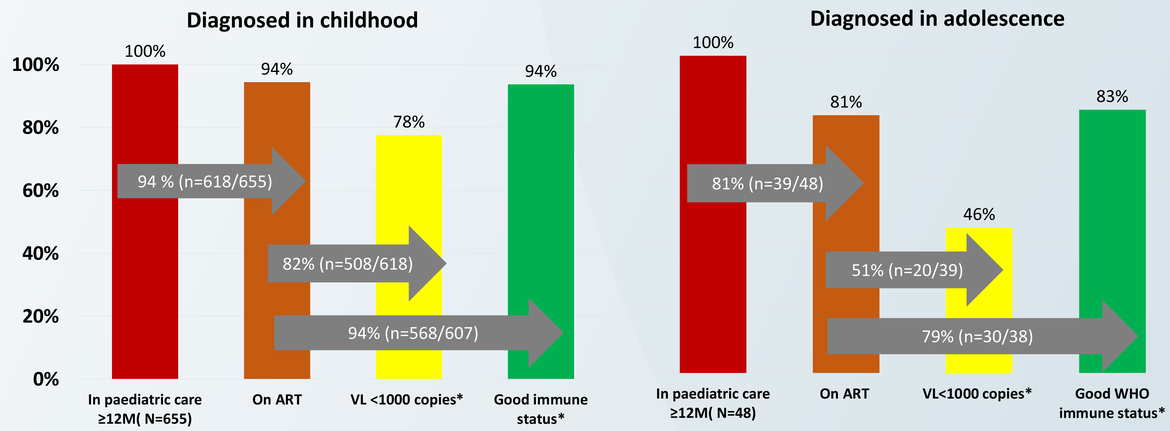

Fig 1. Cascade of care at last visit in children and adolescents with ≥ 12M in HIV care in 2015/16.
*Calculated out of subset with available CD4/VL data at last visit. VL=Viral load

Of **all patients in HIV care** in 2015-16 with 12 months follow-up in the childhood and adolescence groups (Figure 1):

- **94% vs 81%** were on ART
- **78% vs 46%** were virally suppressed at last visit, and
- **94% vs 83%** had good WHO immune status regardless of ART status

When restricted to **patients on ART** in the childhood and adolescence group:

- **82% vs 51%** were virally suppressed
- **94% vs 79%** had good WHO immune status at last visit

Viral suppression on ART by calendar year of ART start:

- Among patients diagnosed in **childhood** and initiated ART**:**
  - **52% (67/108)** of children who initiated ART **before 2008 achieved viral suppression <1000 cps/mL at 12months after ART start, this proportion increased to 62%** (33/63) in those initiated ART in 2008-2011 and **75%** (146/195) in ≥**2012** (p<0.001)
- Most **adolescents** initiated ART from 2012 onwards, **13/21(62%)** were virally suppressed by 12-months of ART.

Conclusions

- **This is one of the first studies to report the HIV care continuum of children and adolescents in Russia.**
- **The proportion of children diagnosed aged <10 years who were on ART and achieved viral suppression improved over calendar year of ART start, and the HIV care continuum shows good progress towards UNAIDS targets for 90% ART initiation and viral suppression.**
- **A lower proportion of those diagnosed in adolescence initiated ART and were virally suppressed, emphasising need for targeted support for timely ART initiation and viral suppression in adolescents.**

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