Assessing clinician compliance with national guidelines for pediatric HIV care and treatment in Rwanda

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\section*{Abstract}

Children infected with HIV in resource-limited settings such as Rwanda do not fare well; it is estimated that, without treatment, more than half of HIV-infected children in sub-Saharan Africa will die before age two. Over the past decade, Rwanda has made great strides in increasing access to antiretroviral therapy (ART), however, obstacles remain, particularly for children, including difficulties with early HIV diagnosis, commencement of a treatment plan, and retaining children in long term care. A retrospective cohort of 932 pediatric patients (<15 years old) who commenced ART between 2007 and 2009 was analyzed. Data analysis included Boolean logic and if-then statements to determine the proportion of each metric that met the standard national guidelines. Rwanda’s 2007 national guidelines included:

1. Weight must be recorded at every clinical visit
2. Bactrim prophylaxis must be given for every child. If Bactrim is not given, Dapsone is an alternative.
3. All patients must be screened for TB
   - If screened positive, there must be further documentation (options: treated for TB, TB infection not suspected, or follow-up).
   - If at the start of ART, the child had an active TB contact, then isoniazid prophylaxis must be given
4. May start ART initiation if:
   - World Health Organization (WHO) Stage III or IV
   - Age < 12 months: CD4 < 25% or <1500 cells/mm\(^3\)
   - 12 months ≤ Age < 36 months: CD4 < 20% or < 750 cells/mm\(^3\)
   - 36 months ≤ Age ≤ 60 months: CD4 < 15% or < 300 cells/mm\(^3\)
   - 60 ≤ Age: CD4 < 150 or < 200 cells/mm\(^3\)
   - If there is no documentation, then guidelines were automatically not met
5. ART Regimens
   - First line ART: 2 nucleoside reverse transcriptase inhibitors (NRTI) and 1 non-nucleoside reverse transcriptase (NNRTI)
   - Different medication regimens for a child co-infected with TB (weight-dependent)

\section*{Results}

A retrospective cohort of 932 pediatric patients (<15 years old) who commenced ART between 2007 and 2009 were analyzed. Data analysis included Boolean logic and if-then statements to determine the proportion of each metric that met the standard national guidelines. Rwanda’s 2007 national guidelines included:

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\section*{Discussion}

Over 90% of patients received guideline-compliant care for most parameters, including weight check at ART initiation, Bactrim prophylaxis, and screening for TB. When guidelines became more complex, such as ART initiation or ART regimen (especially for patients co-infected with TB) and properly documenting all health information.

\begin{table}
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\begin{tabular}{|c|c|c|c|}
\hline
Parameter & Count (%) & & Count (%) & \\
\hline
Weight Check at ART Initiation & 96 (95.2) & & 64 (63.5) & \\
  Compliance & 92 (90.7) & & 52 (50.9) & \\
  Non-compliance & 4 (4.0) & & 12 (12.3) & \\
\hline
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There are many gaps in knowledge regarding best practices for pediatric HIV care. Firstly, doses for children are often extrapolated from adult doses because data on proper dosing for children is limited. Secondly, ART dosing must be constantly re-evaluated at each visit based on the new weight of the growing child. Lastly, scaling up of HIV ART access in resource limited settings has been challenging, and it is unclear if national and international guidelines have been met. Appropriate compliance with national guidelines (>90%) indicates that patients are receiving what the government considers ideal care. Fully understanding how successful Rwanda was with achieving compliance with its national guidelines between 2007-2009 would allow the country to focus on areas that need improvement and provide better care to pediatric patients in the future.

\section*{Significance}

There are many gaps in knowledge regarding best practices for pediatric HIV care. Firstly, doses for children are often extrapolated from adult doses because data on proper dosing for children is limited. Secondly, ART dosing must be constantly re-evaluated at each visit based on the new weight of the growing child. Lastly, scaling up of HIV ART access in resource limited settings has been challenging, and it is unclear if national and international guidelines have been met. Appropriate compliance with national guidelines (>90%) indicates that patients are receiving what the government considers ideal care. Fully understanding how successful Rwanda was with achieving compliance with its national guidelines between 2007-2009 would allow the country to focus on areas that need improvement and provide better care to pediatric patients in the future.