

## Management of paediatric HIV-1 resistance

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### Abstract

Purpose of review: Children have higher rates of virological failure than adults, often associated with more extensive resistance and limited second-line options. In order to maintain clinical benefits of highly active antiretroviral therapy (HAART) into adulthood, particularly for children starting at a young age, strategies are needed to limit the emergence of resistance and to offer highly effective subsequent lines of therapy. Similarly, well resourced settings face challenges regarding extensive resistance accumulated over the past decade or more, particularly resulting from suboptimal therapies.

Recent findings: Rates of resistance at failure of nonnucleoside reverse-transcriptase inhibitor based HAART are higher in developing countries than in well resourced settings. In the latter, second-generation protease inhibitors tipranavir and darunavir are promising, with tipranavir now licensed for those above 2 years and darunavir showing good trial results in children above 6 years. However, combination with new classes such as integrase inhibitors (currently in phase I trials) and CCR5 antagonists (no paediatric data yet) will probably be necessary to gain maximal long-term benefits.

Summary: Common goals in paediatric HIV for both resource-rich and resource-limited settings are to limit vertical transmission, minimize emergence of resistant viruses in both mother and child where prevention of mother-to-child transmission fails, and limit resistance in children starting HAART. Optimal sequencing of regimens in the absence of resistance testing is a priority research area. Paediatric studies using newer classes of agents are of paramount importance, as well as expanding access to existing antiretrovirals.

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