

# Rifampin kinetics poor in children

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Rifampin (RMP), a first-line antituberculosis drug, reaches serum concentrations well below suggested lower limits when a standard dose of 8-12mg/kg body weight is given to children. A pharmacokinetic study, published in the open access journal *BMC Medicine*, suggests that a higher dose of 10-20mg/kg may be more appropriate.

H. Simon Schaaf from the University of Stellenbosch, South Africa, led a team of researchers who studied 54 children admitted to hospital with severe tuberculosis, 21 of whom also had [HIV infection](#). He said, "The mean calculated 2h RMP concentrations in these HIV-infected and HIV-uninfected children were 3.9 and 4.8µg/ml, respectively, at 1-month after treatment start and 4.0 and 4.6µg/ml after 4-months treatment. These values are considerably less than the suggested lower limit for 2h RMP concentrations in adults of 8.0µg/ml".

Although there is some evidence that the low concentrations achieved may be effective in treating tuberculosis, Schaaf and his colleagues sound a note of caution regarding the more severe forms of tuberculosis such as are increasingly encountered in the developing world, especially in association with HIV infection. They write, "In the era of [HIV/AIDS](#), any reduction in the dose of antituberculosis agents reflected by frequency and length of treatment, particularly in more severe forms of pulmonary tuberculosis, may be associated with an increased risk of relapse".

The dosage of RMP recommended for use in children in the United States of America is 15mg/kg with a range of 10-20mg/kg body weight.

The authors conclude that this should be the standard globally, "We believe that the recommended RMP dose of 10-20 mg/kg for children by the American Academy of Pediatrics is a more appropriate dosage range".

More information: Rifampin pharmacokinetics in [children](#), with and without human immunodeficiency virus infection, hospitalized for the management of severe forms of [tuberculosis](#), Hendrik Simon Schaaf, Marianne Willemse, Karien Cilliers, Demetre Labadarios, Johannes Stephanus Maritz, Gregory D Hussey, Helen McIlleron, Peter Smith and Peter Roderick Donald, *BMC Medicine* (in press), [www.biomedcentral.com/bmcmed/](http://www.biomedcentral.com/bmcmed/)

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