962-92-1216 **Patrick Nelson*** (pwn@math.lsa.umich.edu). *Half-lives of HIV infected Cells.*

Fits of mathematical models to the decline in HIV-1 RNA following antiretroviral therapies have yielded estimates for the lifespan of productively infected cells of 1-2 days. Previously, we described the mathematical properties of an extended model that accounts for imperfect viral suppression and the eclipse phase of the viral life cycle (the intracellular delay between viral attachment and release of infectious virions). In this work we fit this extended model to detailed data on the decline of plasma HIV-1 RNA following treatment with the protease inhibitor ritonavir. As the therapy is probably not completely suppressive, we allowed the drug efficacy parameter to vary from 85% to 100%. Using a model with an intracellular delay, the estimated average death rate of virus producing cells, δ, increased from 0.49 day^{-1} to 0.69 day^{-1} (an increase of 41%) as the drug efficacy parameter was reduced from 100% to 85%. Neglecting the intracellular delay, the comparable increase in δ was only about 21%. This work suggests that previous minimal estimates for δ may have significantly underestimated this parameter and that the half-life of a cell in vivo that is producing virus, on average, may be one day. (Received October 02, 2000)