Early HIV infection is still not well understood, making construction of models and estimation of parameters difficult. I will describe an approach for dealing with this uncertainty in the context of estimating CTL escape rates. CTLs are immune system cells that kill HIV infected cells depending on the viral genotype, thereby mediating selective pressure from which HIV escapes through mutation. Quantifying the rate of this escape is valuable in understanding the role of CTL response in HIV infection. (Received January 25, 2014)