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I will discuss several models which have component that models within-host dynamics and a component that models the corresponding epidemiology. The epidemiological models are partial differential equation models while the immunological are ordinary differential equation models. The two systems are linked through the structural variable of the epidemiological model as well as the parameters. I will also include results of analysis of a simple version of a such immuno-epidemiological model. (Received September 24, 2005)