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Leptospirosis is a disease of increasing concern in urban slum environments, where its principal mode of transmission is through contact with infected rat urine in the environment. The standard method for identifying sub-clinical infection with leptospirosis is a serial dilution assay, which in essence gives an interval-censored measure of an individual's antibody response.

I will describe an ongoing longitudinal study of leptospirosis in a Brazilian favela community with a focus on two questions: 1) what are the risk-factors for leptospirosis infection in the community? 2) does a past infection confer partial immunity to future infection? I will argue that the first question can be addressed by converting an individual's sequence of assay data to a binary sequence of indicators of probable infection events, but that the second requires a model for the dynamics of the underlying antibody response.