***The stratified mrt design: sample size considerations for testing nested causal effects of time-varying treatments***

Often times of high risk occur infrequently. In these cases randomization to treatment might be triggered by a risk prediction so as to avoid providing treatment at the wrong time and potentially providing too much treatment. Furthermore the scientist may want to detect these treatment effects over the next hour during which subsequent treatments may be delivered.

It is critical to stratify randomization to ensure sufficient occasions where the variable of interest (denoted Xt), such as risk, takes a particular value x and treatment is provided and sufficient occasions where Xt = x may require a period of time over which to develop; during this time period further treatment might be provided.

We use potential outcomes [Robins, 1986, Rubin, 1978] to define both the conditional and marginal proximal effect. Each individual has 2^{t+Delta - 1} potential responses at time t.