Update Slides

Dominic DiSanto; Junwei Lu, Tianxi Cai

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Logistics: Committee Selection

- Nima - LMTP
- Rajarshi - Semi-parametrics
- Third member?

Verity Meeting Review

- Treatment strategy
  - Positivity violations? Is this accounted for in LMTP based on how we create the assignment $\mathbb{d}$ function?
  - See next slide

- Work with simple problem:
  - Simple (binary) treatment (see $\mathbb{d}$ notes on next slide)
  - 2-dimensional Hawkes process

- **Goals** under simple problem
  - Identify estimand $\mathbb{E}[(\lambda_k^{(1)} - \lambda_k^{(0)})(T)]$ or $\mathbb{E}[\int_{t-\delta}^{t} (\lambda_k^{(1)} - \lambda_k^{(0)})(s)\mathrm{d}N_k(s)]$
  - State identification assumptions for estimation (i.e. rigorous argument for "causal" problem)

Treatment Strategy

- The MTP positivity assumption for well-specified d allows for treatments to occur with probability 0
  - Emphasis on well-specified d

- $(a_t, h_t) \in \operatorname{supp}(A_t, H_t) \Rightarrow (\mathrm{d}(a_t, h_t), h_t) \in \operatorname{supp}(A_t, H_t)$
  - In practice if drug Y is never assigned after health event 123.45, can incorporate in the d function

$$\text{e.g. } \mathrm{d}(a_t, [h_{1t}, h_{2t}], \varepsilon_t) = \begin{cases} TNFi & if\ h_{1t} = 0\ \&\ h_{2t} = 0 \\ CDA & h_{1t} = 0\ \&\ h_{2t} = 1\ \&\ \epsilon_t < 0.5 \\ IL-6R & h_{1t} = 1\ \&\ h_{2t} = 1\ \&\ \epsilon_t < 0.5 \end{cases}$$

$$(A_t, H_t)_{t \in T} \perp \varepsilon_t \sim U(0, 1)$$