\* Introduction

   - causal estimators and their nice properties (woud keep this faily short)

* applications of causal estimators in longitudinal setting
* Introduce positivity assumption

   - present our positivity problem

       Show other examples when it may apply as well

- should decide whether to just foucs on being seen in clinic, or also resuppression. Maybe former…?

   - summarize the outline of remaining manuscript (Sections)

       1) Our approaches for dealing with this positivity violation

           - i) Dynamic regime, ii) Cut down data by limiting LTFU length, iii) pick end points (where positivity can't occur) and calc time point specific outcome, and iv) use the end points in a MSM

* Discuss pro's and con's of each approach
* I would list the approaches as follows (not necessarily in this order)
  + Contrast only those treatment regimes for which the postivty assumption is not violated
    - In our example, switch right away and don’t switch
    - Note: If wilining to extrapolate, can also use this approach to estimate counterfactual outcome under regimes for which psotivty violations do occur
  + Use a realistic treatment rule (ie dynamic regime)
    - In other words, we assign you to treatment a unless your covariates make it impossible in which case we assign you to alternative
    - In our example, switch after xx months (unless not seen in which case switch next time seen)
      * You haven’t actually implemented this…
  + Intervene to also set he value of the variable casualing the postivty violation such that the new psitivty assumption for the joint intervention variable holds
    - In our example, look at counterfacutals indexed by intervention on switch time and also being seen every time point..
    - Note: this approach can result in new sparsity problems
      * Example- not enough people follow the new joint regimes (eg switch right away and don’t miss a visit)
  + A related response to data sparsity: choice of how coarsely to discretize the data
    - Tradeoffs: parameters have different interpretation
    - Increase lieklihoof od unmeasured confoudning

       2) Simulations with each of the proposed approaches

(One option is to go ahead and write the paper first and then seen how much is needed here… just don’t want you stuck doing sims forwever. Hwoever I leave this up to you, and either way can work)

       3) Application to our real world data

\* Section 1)

   - Dynamic regime ... should we just avoid this altogether? I was thinking of coming back to it.

Would be nice to have. Maybe implement for the positivity violation caused by visits… we can discuss. I agree can do this last.

       Explain how model works and how we would apply it

       Pro: Very flexible and allows us to get around the positivity

       Con:

* + Still can have major weights (limited options for weight stabilization). thus high variance estimators
  + Different intervention.target parameter. Generally smaller effects. May be less what you are interested in.

   - Cut down data- see my rephrasing above

       Make it so that persons are censored after the first missed visit

       Same as intervening to make them come in at every visit

       Pro: Easy to do and gets "pure" estimate of effect (albeit a very specific effect, and can be different from effect just intervening on switch time is vists themselves affect the outcome)

       Con: Lack of data support. And again a different intervention and thus target parameter (now intervening on more than one variable). May be less what you are interested in.

   - Pick endpoints (I think I would separate the issue of whether or not to pool over time (which is really not about postivty) from the issue of whether or not to pool over regimens which is. In other words, we can choose to focus just on regimes that do not result in psotivty violations. Whether or not we do this, we can use an msm to pool over time.)

       Choose intervention that avoids positivity and use IPTW – yes- this is the heart of it.

       calculate time specific effect (this is different- don’t see how this helps positivity….?)

       Pro: Can estimate the effect of just intervening on orginal variable of interest

       Con: forced to focus on specific counterfactual contrasts (ie contrasts only specific regimes) whereas other might also be of interest. Also, support- lose ability to gain power by pooling over multiple regimes using an MSM.

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\* Section 2)

   - Describe longitudinal data simulated data

   - Use same data for each of the four approaches outlined

\* Section 3)

   - Use each approach with our data

\* Section 4)

   - Discussion

       I haven't considered what we should say here yet. ☺ will not be problem