**Analysis**

We are interested in estimating the effect that LCP conversations have on lifetime accumulated cost for patients eligible for the LCP registry. The ideal experiment would be as follows: every person that meets the inclusion criteria for the registry is randomized to either receive the LCP conversation or no conversation. We then wait for all patients to die and compare the average total costs accrued in each group, counting from the time of randomization until death.

Comparing this with the data we have, we see that our analytical problems are:

1. We do not see the death of all patients. Some patients are still alive at present day and some have left KP. We do not know what the cost of these patients will be between now and their deaths.
2. There is time in between when patients meet the registry inclusion criteria and when they have their first LCP conversation. This makes it difficult to establish a “t0” for patients who *didn’t* ever have a LCP conversation.
3. Patients are actually not randomized to LCP. We should account for differences in the populations who get and do not get LCP.

Our method follows Lin 2000. This is the simplest approach that handles each of these problems in a mathematically correct fashion. Thankfully, the method is easy to understand: for each month, we regress that month’s accrued cost for all patients still alive onto the patient’s predictors at that time, including an indicator of whether or not they have had LCP yet. To deal with the censoring, patients who are observed for longer times are upweighted in the regression models for later months since they have to stand in for all the other patients who have not yet been in the registry for that many months. The beta for LCP in a given month represents the cost saved in that month by having had a previous LCP conversation. By summing up the betas we can calculate what cost is saved over the remainder of life if the LCP conversation is had in month 1, month 2, month 3, etc. Lin 2000 also provides a method for calculating confidence intervals for these estimates.

**Data Needed**

To perform this analysis, we will need the following tables which should be populated with all of the patients from the registry up until the most recent data available:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| MRN | Date they entered the registry | Date of first LCP conversation | Date of death (if any) | Date they left KP (if any) | Variables measured at registry entry date\* | | |
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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MRN | Month and year | Cost accrued that month | Variables measured at beginning of the month\* | | |
|  |  |  |  |  |  |

\* to be defined with clinician input