

Examples of potential Harvard Catalyst projects using Massachusetts health plan data

To highlight the types of research that might be done as part of a sustained collaboration among health plans and the academic community, we take the single example of issues related to Type 2 diabetes mellitus (T2DM). The following research questions might be answered through analysis of combined health plan claims (NB: the following are not proposals, merely general examples):

- How does health care utilization for T2DM vary by geographic area (e.g. zip code or census tract) within Massachusetts. This might begin with assessment of variation in the prevalence of affected individuals. Among individuals who carry this diagnosis, we would examine variation in medicines dispensed (pharmacy claims) and specialty care received.
- Compare rates of complications of T2DM among patients receiving various treatment regimens. Complications could include peripheral vascular disease (identified by claims for fem-pop by-pass or other vascular procedures); hemodialysis (ESRD), and retinal surgery. One could also look at prescription claims for meds generally given for peripheral neuropathy (ex: cymbalta).
- What are the characteristics (age, co-morbidities) of patients with a diagnosis of T2DM who have not received a recommended eye exam in the previous 12 months? (A limited analysis of this question could be done with claims data alone, but we might also identify a cohort who had not received recommended care and contact them with a survey or qualitative interview to identify barriers.)
- How do medication treatment patterns for patients with T2DM or completed referrals for eye exams vary by physician practice group?
- Identify risk factors in insurance claims for complications such as myocardial infarction among patients with T2DM in order to create targeted prevention strategy.
- Test direct-to-patient strategy for MI prevention in large number of health plan enrollees, using health plan claims data as outcomes.
- Conduct a post-marketing study of a new lipid-lower agent among patients with T2DM, looking for rare events (e.g. seizure or liver failure).

The following studies would require going to source health plans for cross-walk to contact individuals identified through analysis of claims.

- Identify patients with T2DM and recent MI to enroll in study of genetic determinants of risk of myocardial infarction, or other complications.
- What are the genetic predictors of response to metformin? The health plan database can be used to identify patients with T2DM who are taking metformin. Patients could be recruited to participate in an interview and to provide specimens for DNA extraction (blood, buccal smear, saliva) in order to study the genetic predictors of metformin response.