Hospital-Physician Gainsharing Contracts

1 Introduction

The Centers for Medicare and Medicaid Services (CMS) in 2015 was responsible for 37% of all US healthcare expenditures (20% on Medicare, and 17% on Medicaid). CMS has launched a series of Episode Payment Models (EPMs) since 2013 to improve coordination of care, eliminate duplicate or medically-unnecessary services, and incentivize providers to focus on the quality rather than the volume of services provided. An episode of care is a set of services provided to treat a clinical condition or procedure. Each episode is characterized by a particular DRG (Diagnosis Related Group) and a list of Medicare Part A and Part B eligible services. The exact composition of services included in an episode and the length of the episode vary across EPMs.

EPMs pay participants (financially-responsible entities) a fixed sum (also known as the target price) for a bundle of services and allow them to share gains or losses with collaborators. Typically, collaborators are physicians who provide billable services included in the bundle to CMS beneficiaries. The fixed payment is discounted from the risk-adjusted historical average payment for that bundle of services. EPMs vary from being voluntary in which participants define bundles, e.g. the Bundled Payments for Care Improvement (BPCI) program, to mandatory in which bundles are prescribed, e.g. the Comprehensive Joint Replacement (CJR) program. While shifting financial risk to participants, on the one hand, EPMs offer participants opportunities to profit from care redesign and process improvement, on the other (Bolz and Iorio, 2016). A key challenge for participants is that offering incentives (i.e. sharing gains/losses) to collaborators to participate in care redesign and process improvement implicates several sections of the Social Security Act. These are Sections 1128A(b)(1)-(2): Civil Monetary Penalties, Section 1128(b): Anti-kickback Statute, and Section 1877: Limitation On Certain Physician Referrals, also referred to as the Physician Self-Referral or the Stark Law. The Health and Human Services (HHS) Department, and the Office of Inspector General (OIG) have issued model-specific and general waivers that allow gains and losses to be
shared under some constraints. In this paper, we investigate how hospitals may design gainsharing contracts to induce physicians to select care protocols that maximize the participants’ expected utility.

The statutes mentioned above make it illegal for hospitals to pay physicians to reduce or limit services provided, or to pay them for volume of services or referrals, or to pay them for reasons other than quality and performance improvement. Also, all gains or losses must be documented and must come either from internal cost savings and/or from the reconciliation process. The latter is a process that at the end of each contract year calculates gains and losses depending on how much the participant (and collaborators) billed relative to the target. Note that contracts are 3 to 5 years in duration, and participants and collaborators continue to bill CMS on a fee-for-service (FFS), or Inpatient Prospective Payment System (IPPS) basis. CMS has also implemented stop-gain and stop-loss provisions to limit participants’ and collaborators’ gains and losses. The legal constraints and rules governing gainsharing make it difficult to design rule-compliant and incentive-compatible contracts, particularly when the participants and collaborators have different degrees of risk aversion. Our goal in this paper is to identify such contracts using mathematical models and numerical experiments.

2 Methods
We customize principal-agent models (see for example, Myerson, 1982; Laffont and Martimort, 2009) to our setting, in which the participant first proposes gainsharing agreement (a function of treatment modality as well as quality and performance shocks), collaborators subsequently select a treatment modality, then total savings or losses, individual performance, and aggregate quality are realized, and finally savings or losses are shared with collaborators. We first formulate a benchmark model in which the hospital and all others that provide billable services to CMS beneficiaries are a single entity. We refer to this as the physician-owned hospital scenario. We then construct separate models in which the hospital and each non-employed service provider that bills CMS for services provided to CMS beneficiaries makes individually-optimal decisions. We obtain optimal parameters of easy-to-implement gainsharing plans and evaluate their performance relative to a
benchmark that will be realized with no agency cost.

3 Results and Ongoing Work

Our efforts so far allow us to obtain a gainsharing plan whose components are linear in average gain/loss, and performance and quality shocks that (1) incentivizes collaborators to choose a common treatment modality that is also the participant’s choice, and (2) maximizes the participant’s expected profit.

We characterize the parameters of such gainsharing contract and obtain the following insights: (1) collaborators receive a positive share of the expected gains or losses; (2) a more risk-averse collaborator picks a conservative modality - i.e. one that has lower expected savings; (3) a risk-neutral participant does not share gains or losses; (4) the treatment modality selected in the Hospital and Single Collaborator case is the same as the physician-owned hospital benchmark if and only if a specific condition regarding relative risk aversion holds; (5) collaborator picks a more conservative modality if the performance/quality shock is more volatile; and (6) the more risk averse the collaborator, the smaller the share of his or her expected gains.

We are currently working on a number of extensions of our models, including the cases in which the collaborator’s degree of risk aversion is private information, stop-gain and stop-loss provisions for participants, and limits on gain and loss sharing for collaborators are analyzed, and implications of technical assumptions are explored.

References

