Hospital-Physician Integration and Health Care Spending

**Research Objective**: The degree of hospital-physician integration has been increasing, through direct hospital acquisition of practices or tight, often exclusive contracting relationships. Integration could lower spending by improving care coordination and efficiency. Integration may increase spending by facilitating the use of incentives to provide more services and allowing higher payments when services are delivered in hospital outpatient departments rather than physician offices. We examine the relationship between hospital-physician integration and spending for the care of traditional Medicare patients treated by cardiologists.

**Study Design**: Analysis of spending by patients cared for by cardiologists in hospital-integrated and non-integrated practices. We estimate patient-level regressions in which the dependent variables are measures of spending and the independent variables are an indicator for the physician being in a hospital-integrated practice, patient characteristics, physician characteristics, fixed effects for patient county of residence, and fixed effects for year. Some models include physician fixed effects, so that identification is based on variation over time in integration status for each physician.

**Population Studied**: About 2.1 million episodes of care for traditional Medicare recipients treated by cardiologists between 2008 and 2011. We identified about 22,000 cardiologists who billed for outpatient care in a 20% random sample of traditional Medicare enrollees. For each, we identified hospital affiliation based on billing code patterns, tax ID information on claims, and SK&A physician survey data. For each physician, we identified his or her patients presenting in an outpatient setting for a new episode of care. We followed each patient for 90 days and measured total spending on outpatient care (including physician services and related facility charges), inpatient care (including physician services and related facility charges), and other services.

**Principal Findings**: 90-day spending for patients presenting in an outpatient cardiology setting averages $4,700. Without physician fixed effects, patients of cardiologists in integrated practices spend about 7% more within 90 days of the initial visit than patients of non-integrated cardiologists (p<.01). In models with physician fixed effects, patients of integrated physicians spend about 4% more (p<.01). About 2/3 of this is due to increases in hospital admissions and associated spending; the remainder is due to higher outpatient spending. The major drivers of higher outpatient spending are evaluation and management spending (primarily due to higher payments per service) and procedures (primarily driven by the quantity of services consumed).

**Conclusion**: Hospital-physician integration is associated with higher spending. This is unlikely to be due simply to selection of high spending physicians into integrated arrangements.

**Implications for Policy or Practice**: Integrated relationships may allow providers to take advantage of higher payments when services are provided in outpatient departments as opposed to physician offices, and integration may lead to increased use of outpatient procedures and inpatient services. Policies that would affect the amount of integration in the future should consider the effects on spending as well as other aspects of health care delivery.
Medication Concordance and Adherence in Low Income Patients with Uncontrolled Diabetes, Hypertension, and Hyperlipidemia: A Randomized Controlled Trial of Medication Reconciliation by Health Coaches

Research Objective: Lack of concordance between prescribed and taken medications and poor medication adherence are major barriers to effective control of chronic conditions such as diabetes, hypertension and hyperlipidemia. We sought to determine if medical assistants trained in health coaching increased medication concordance and adherence.

Study Design: Patients were randomized to receive a health coach or usual care for 12 months. Concordance for medications prescribed for diabetes, hypertension or hyperlipidemia was assessed at baseline and at 12 months by reviewing patient's bottles or medication list and comparing it to the medication list found in the medical chart. 'Concordance for charted medications' was defined as the percent of medications listed in the chart that were also reported by the patient. Because this definition ignores prescription medications taken by the patient that are not in the chart, concordance for all medications was defined as the percent of all medications (whether from chart or patient report or both) both listed in the chart and taken by the patient. Medication adherence was defined as the mean number of days out of the last 7 the patient reported taking their medications and as the percent of patients in each arm who reported taking all of their medications at least 5 of the past 7 days. Multivariate modeling was used to compare change concordance and adherence from baseline to 12 months by study arm, adjusting for baseline concordance and intervention.

Population Studied: Study participants were 441 low-income English or Spanish-speaking patients age 18 to 75 with poorly controlled type 2 diabetes, hypertension and/or hyperlipidemia at two urban federally qualified health centers.

Principal Findings: Participants did not differ significantly at baseline for concordance, adherence, or other characteristics compared. At baseline, patients in usual care were taking 73% of their charted medications and patients assigned to receive coaching were taking 71%. At 12 months, while usual care patients were still taking 73% of their chart-listed medications, the coached patients were taking 83% (difference=10%, p<.01). When both chart-listed and patient-reported medications were considered, concordance between the two was 64% in usual care and 62% in the coached group at baseline and 67% compared to 74% at 12 months (difference 7%, p=.06 unadjusted, p=.03 adjusted for baseline concordance). Mean number of days adherent at 12 months was 5.7 in the usual care group and 6.1 in the coached group (difference=0.4 days, p=.09 unadjusted, p=.003 adjusted for baseline adherence). The proportion of participants adherent to all medications was 70% at baseline and 75% at 12 months for the usual care group, compared to 66% at baseline rising to 86% in the coached group (difference=11%, p=.014 unadjusted, p=.022 adjusted for baseline adherence).

Conclusion: Medication reconciliation by medical assistants increased medication concordance and adherence compared to usual care.

Implications for Policy or Practice: Medical assistants trained in medication reconciliation can increase both concordance and adherence for low-income patients with diabetes, hypertension or hyperlipidemia.