Hospital-physician integration and risk-coding intensity

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Presentation to the Massachusetts Health Policy Commission
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Personal Introduction

- Assistant Professor at Northeastern University
- Objective of my research agenda
- Gaps in the evidence base

Personal Introduction

Recent work

- Hospital-cardiologist integration
- Effect of Medicare payment policy on hospital-physician integration
- **Relationship between hospital-physician integration and risk-coding intensity**

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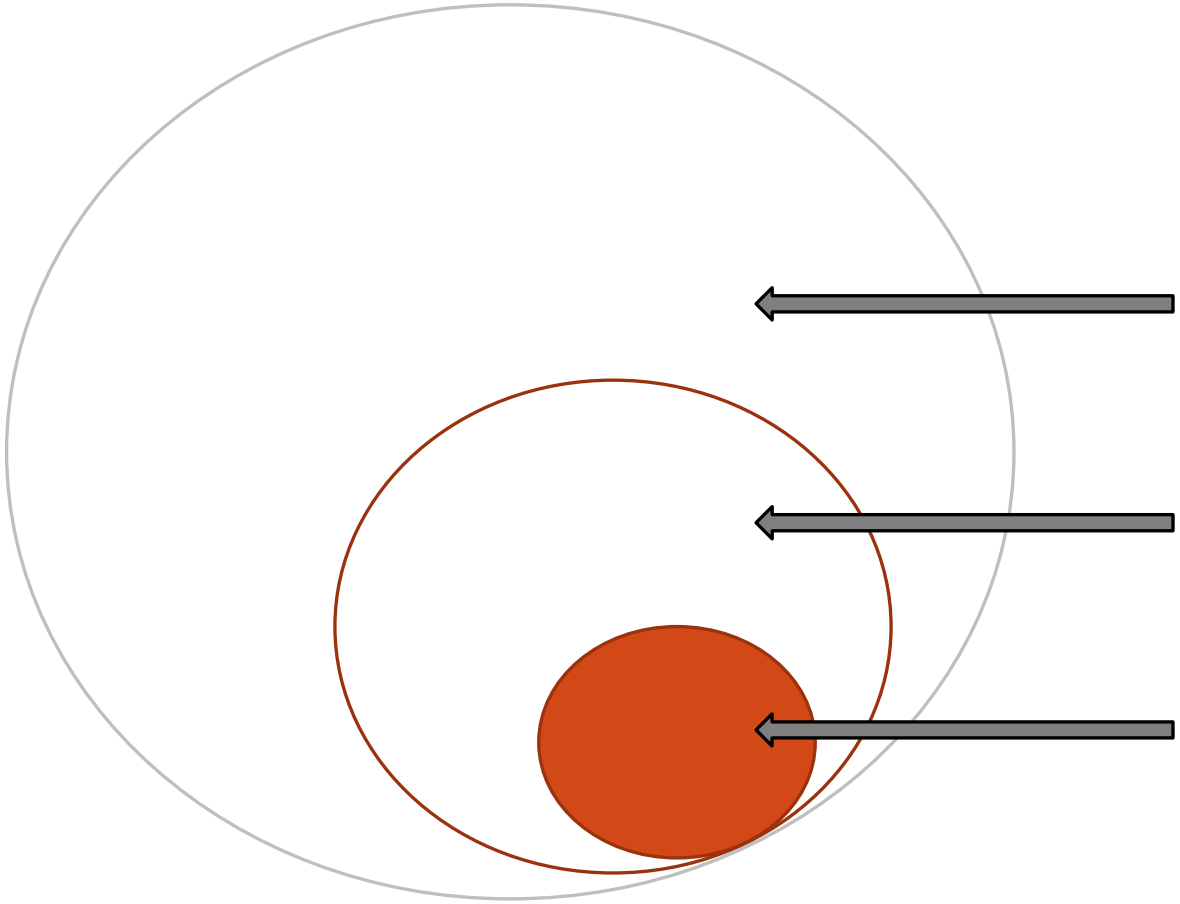
RESEARCH ARTICLE | Full Access

Hospital-physician integration and Medicare's site-based outpatient payments

Brady Post PhD, Edward C. Norton PhD, Brent Hollenbeck MD, MS, Thomas Buchmueller PhD, Andrew M. Ryan PhD

Hospital-Physician Integration



Corporate consolidation

Consolidation in health care

Hospital-Physician Integration

Consolidation in health care

CVS creates new health-care giant as $69 billion merger with Aetna officially closes

- CVS Health and Aetna have closed their $69 billion merger.
- CEO Larry Merlo has outlined CVS' vision for new stores that will include added health services.
- CVS and Aetna announced the deal in December 2017 and received preliminary approval from the Department of Justice in October.

Angelica LaVito | @angelicalavito

Published 10:52 AM ET Wed, 28 Nov 2018 | Updated 12:19 PM ET Wed, 28 Nov 2018

CNBC

Cameron Costa | CNBC

Larry Merlo, CEO of CVS and Mark Bertolini, CEO of AETNA appear on Squawk Box on Dec. 4th, 2017.

HEALTHCARE FINANCE

FOR PAYERS | RES

REIMBURSEMENT | REVENUE CYCLE MANAGEMENT | STRATEGIC PLANNING | CAPITAL FINANCE | SUPPLY CHAIN | ACC

MAR 15, 2018 | MORE ON OPERATIONS

Hospitals acquired 5,000 physician practices in a single year

Since hospital-employed doctors tend to perform services in an outpatient setting, the trend increases costs for Medicare and patients.

Jeff Lagasse, *Associate Editor*

Why would hospitals and physicians integrate?

Physician

- IT support and electronic health records
- Administrative support for growing federal regulations

Hospital

- Market share and leverage with payers
- Take advantage of Medicare payment policy

What we know about hospital-physician integration:

Has been increasing rapidly
(Nikpay 2018, Avalere Health 2019, Sahni and Kocher 2011)

Associated with higher prices and spending
(Baker 2014, Capps 2018, Koch 2017, Jung 2019, Richards 2020, Lin 2021)

Effects on quality have been mixed
(Baker 2016, Christianson 2015, Bishop 2016, Zepeda 2020)

What we know about hospital-physician integration:

Research at Northeastern

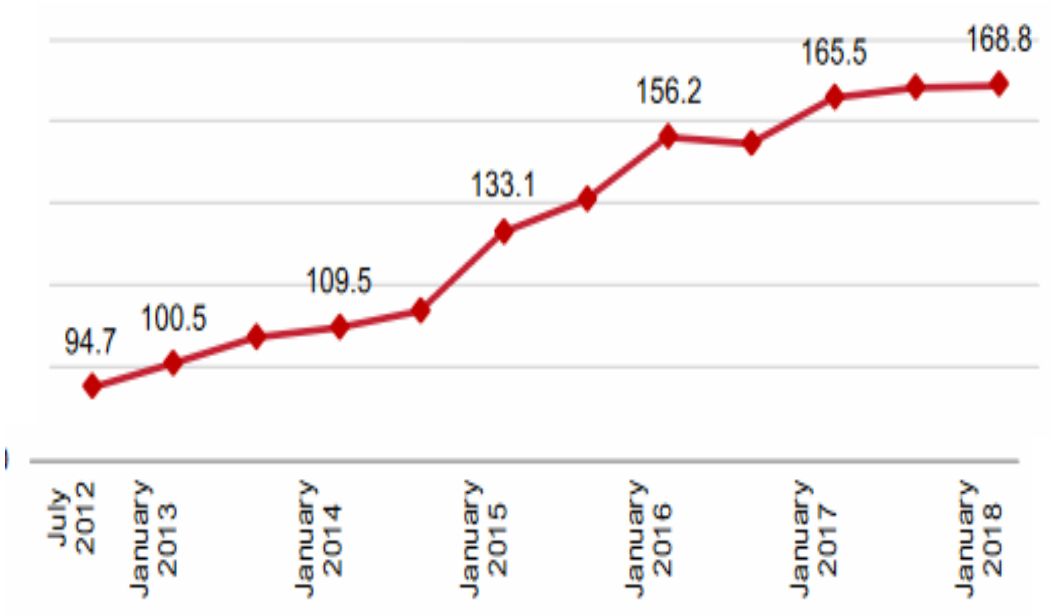
- Inappropriate imaging
- Patients with cardiovascular conditions appear to get more intense care
- MIPS performance

What we don't know:

Whether integration affects how intensely physicians code their patients' clinical severity
(number of diagnoses, intensity of diagnoses)

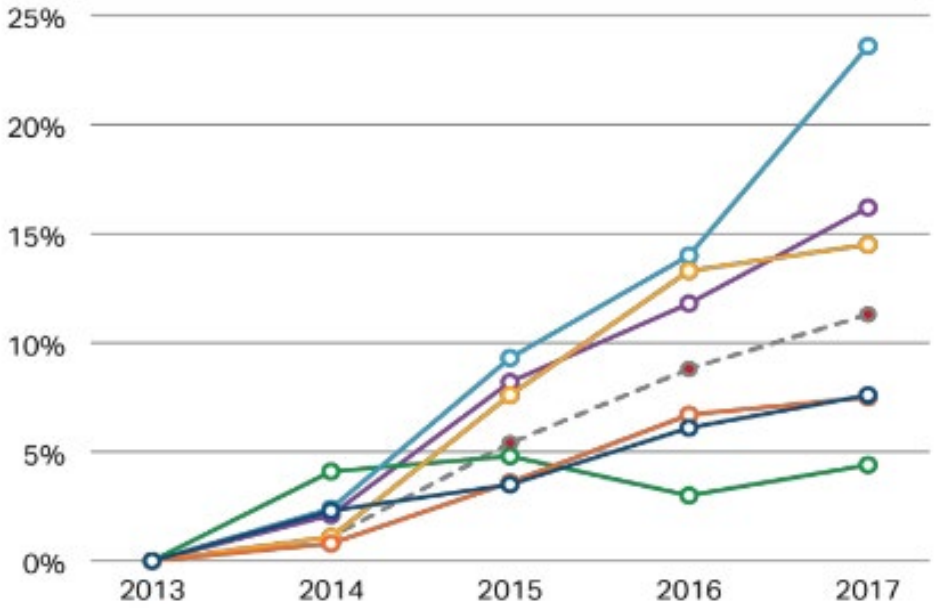
Two trends: are they connected?

Increase in hospital-employed physicians



Source: Physicians Advocacy Institute, Physician Employment and Practice Acquisition Trends 2012-2018

Increase in risk scores



Source: Massachusetts Health Policy Commission Board Meeting materials, 2019

Motivation: why would a hospital want its doctors to code patients more severely?

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Risk scores are highly relevant in reimbursement throughout health care, but especially for hospital systems

Motivation: why would a hospital want its doctors to code patients more severely?

There are at least 3 ways in which integrated physicians might help a hospital system gain more revenue through coded severity:

1) Better information from outpatient settings could translate to higher complexity and higher reimbursement MS-DRGs when that patient becomes hospitalized
   E.g., coronary bypass without MCC: $23,406; with MCC: $34,825

2) Hospital performance in pay-for-performance and alternative payment models: virtually all such programs (HVBP, ACOs, et al) are risk-adjusted

3) Among hospitals with their own Medicare Advantage plans, higher-risk patients generate more plan revenue (risk-adjusted payments)

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Motivation: is there opportunity to affect coding?

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Evidence suggests: Yes

Cottage industry: AAPC has 28 coding certifications available, e.g. “clinical documentation”

OIG report: $5B in excessive spending due to upcoded E/M

MA HPC: Coding effectively added 920,000 residents with cerebral palsy

NBER Research: MA plans successfully pushed providers to code intensely

“Could we call it a ‘hemmorhage?’”

AAPC
Advancing the Business of Healthcare

Office of Inspector General

MASSACHUSETTS
HEALTH POLICY COMMISSION

Upcoding: Evidence from Medicare on Squishy Risk Adjustment

Geruso and Layton, 2020

Aims

Primary:

First-order question: is there any evidence that coded severity increases with hospital-physician integration?

Secondary:

If there are changes, what are some possible mechanisms?

Data and Methods

Methods: what is needed to evaluate this question?

1) Patient risk scores over time

2) Status of physicians' integration with hospitals over time

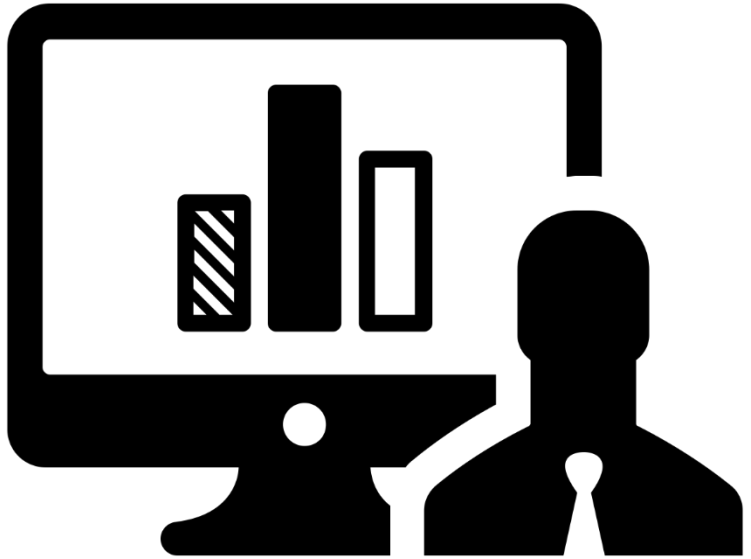
3) Large sample for sufficient variation

The quasi-experiment of interest: In our study window, some physicians become integrated with hospitals (the treatment group). Some physicians do not (the control group).

Data

Medicare claims

- Six years of data (2010-2015)
- Part B/Carrier line items
- About 1.8 billion line items



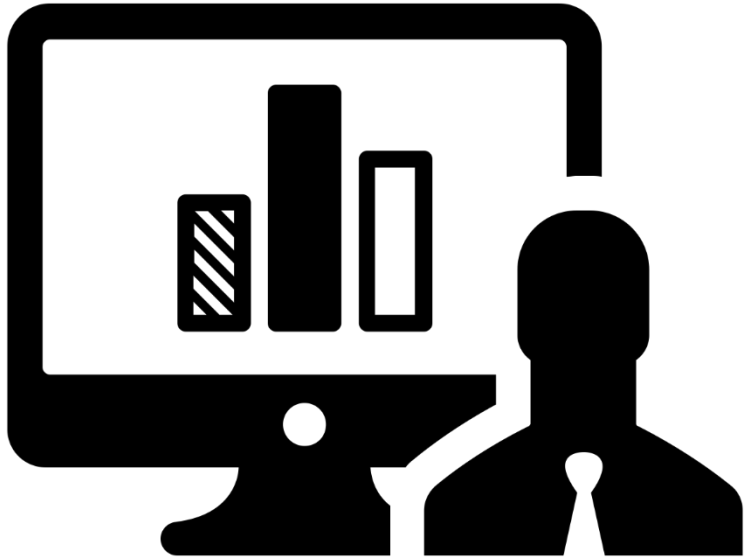
Data

Sample

- Each patient attributed to one primary care physician each year (plurality of care)

- **Fully balanced panel** – no case mix changes

- N = 5,408,352 physician-patient-year observations
- N = 76,009 unique physicians
- N = 901,392 unique patients

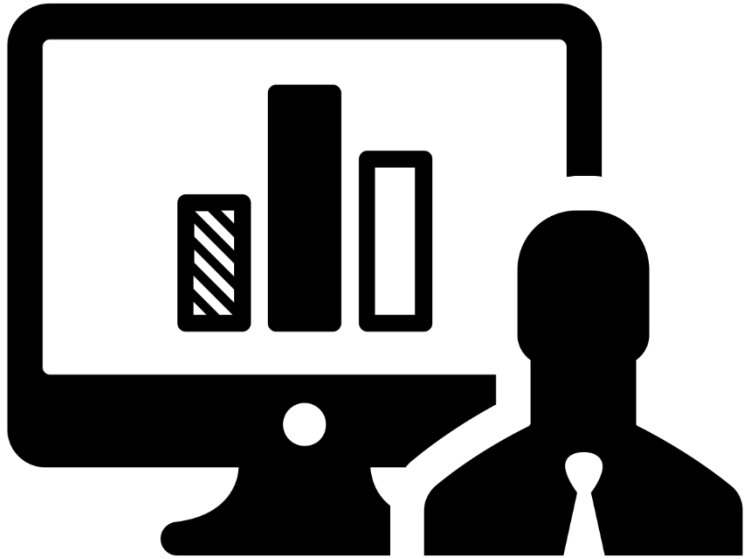


Data

Key variables

- HCC score: a frequently-used composite measure that accounts for patient diagnoses and patient demographics
  - Directly relevant in certain risk-adjusted models, e.g., Accountable Care Organization benchmarks are adjusted for clinical severity

- Hospital-physician integration status: based on place of service code in claims (Neprash / Chernew / McWilliams method)



Analysis

What is the effect of integration on coded severity?

Two-way fixed effects

Stacked difference-in-differences

Event study

What is the effect of integration on coded severity?

Event study

- Show that the parallel trends assumption has credibility
- A fixed effect for each physician-patient pair
- A fixed effect for calendar year
- Identification comes physician-patient pairs that exhibit variation in integration status and HCC score over time
- Fully saturated model with treatment leads and lags

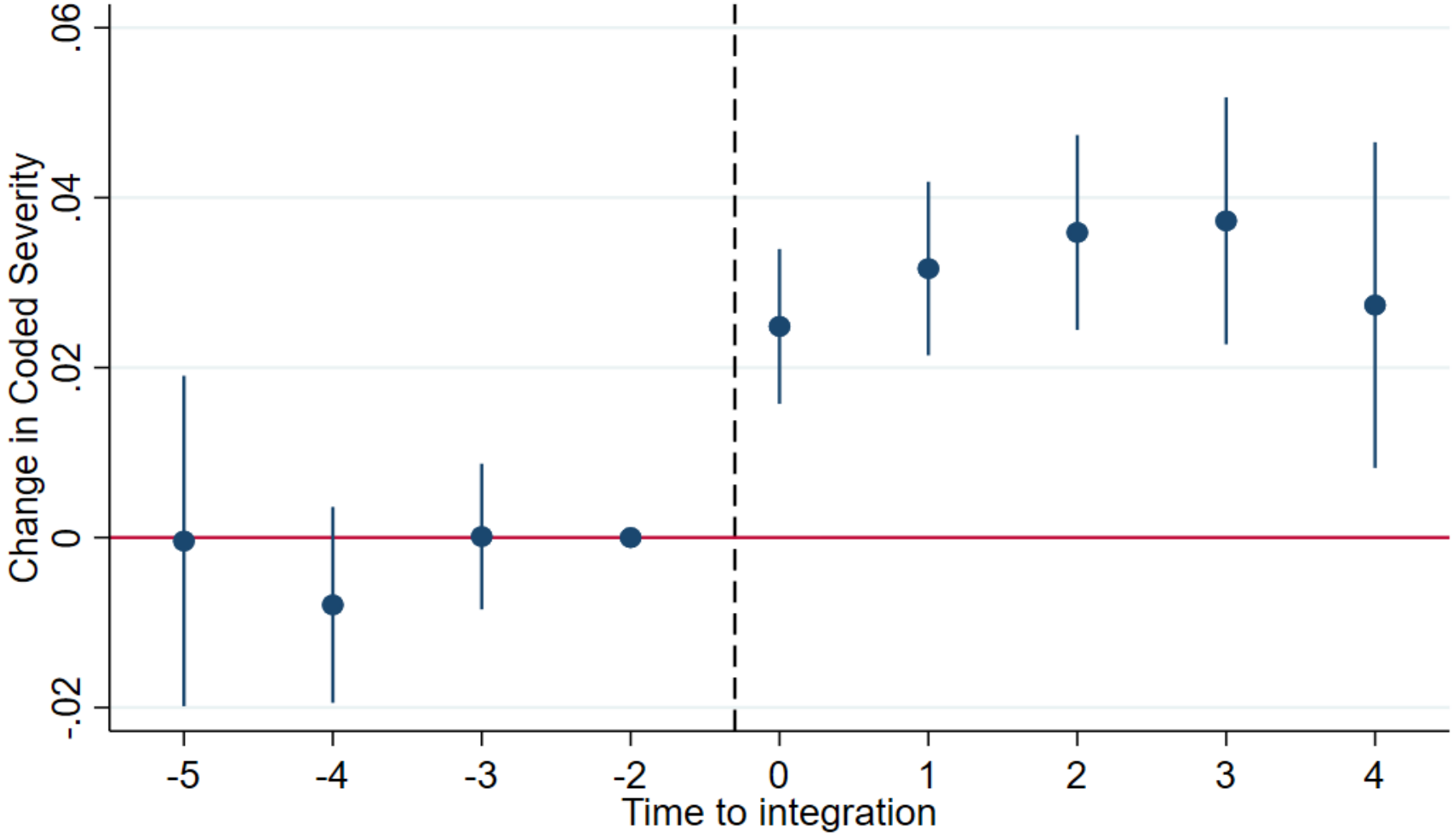
$$Severity_{ipt} = \delta_{ip} + \gamma Year_t + \tau_{pt} + \sum_{l=-5}^{4} \alpha_l \ 1(t - t_i^* = l) \ x \ Treatment_p + \beta X_{ipt} + \varepsilon_{ipt}$$

Results

Analytical results: event study

Analytical results: event study

- None of the leading effects are statistically different from zero
- Significant effects in the post-period:
  - About 2.5 percent in the first post-period
  - Max out at about 3.7 percent in the third post-period



Mechanisms

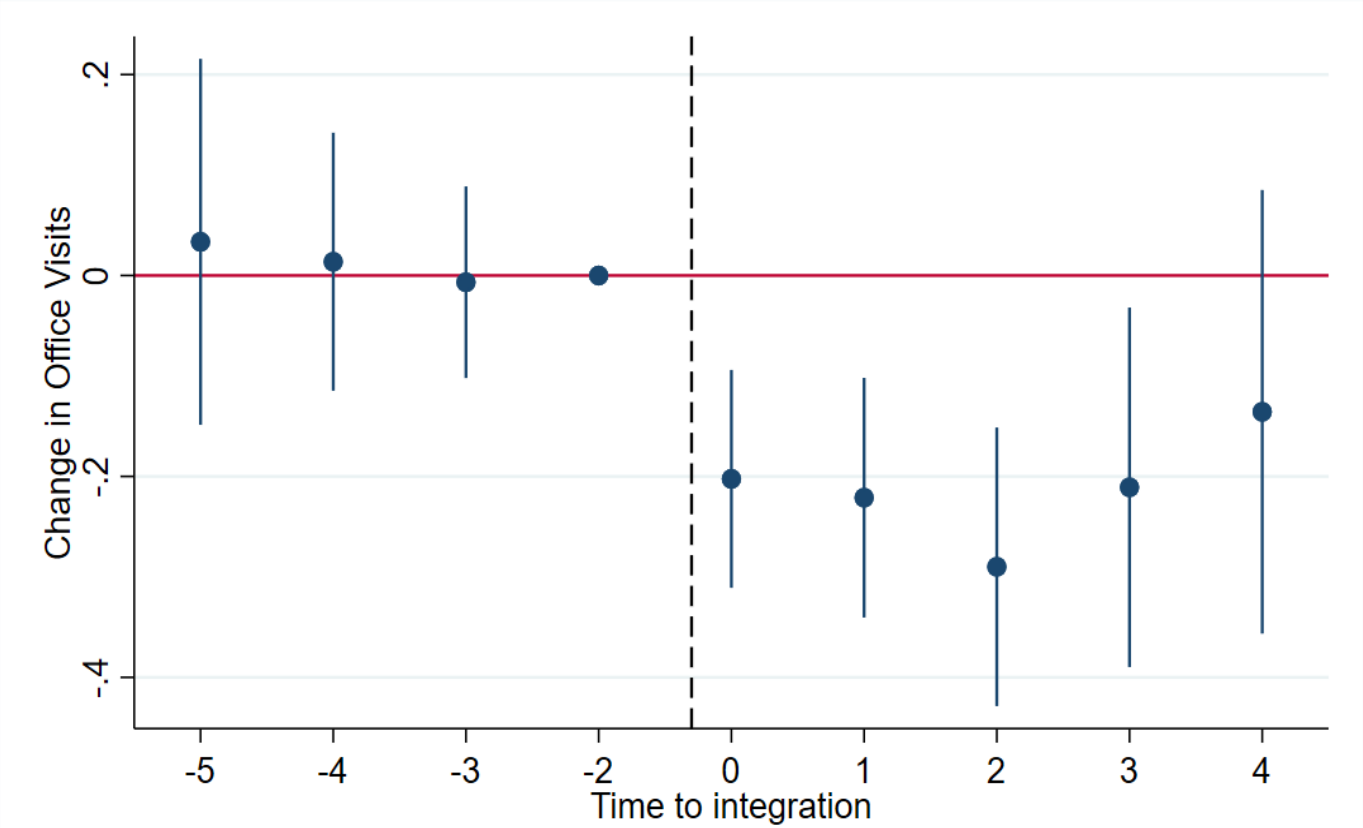
	Storyline	Prediction from storyline
1		
2		

Mechanisms

	Storyline	Prediction from storyline
1	More frequent physician-patient contact in hospital-based systems gives doctors more chances to detect disease. (…could be a good thing!)	Integration will **increase office visits** and lead to higher coded severity.
2		

Mechanism 1: more physician-patient contact

- Integration was associated with *decreases* in physician-patient visits



Mechanism 1: more physician-patient contact

- Interpretation:
  - Office visits has its own effect (intuitive)
  - **More visits is not the mechanism for higher coded severity**

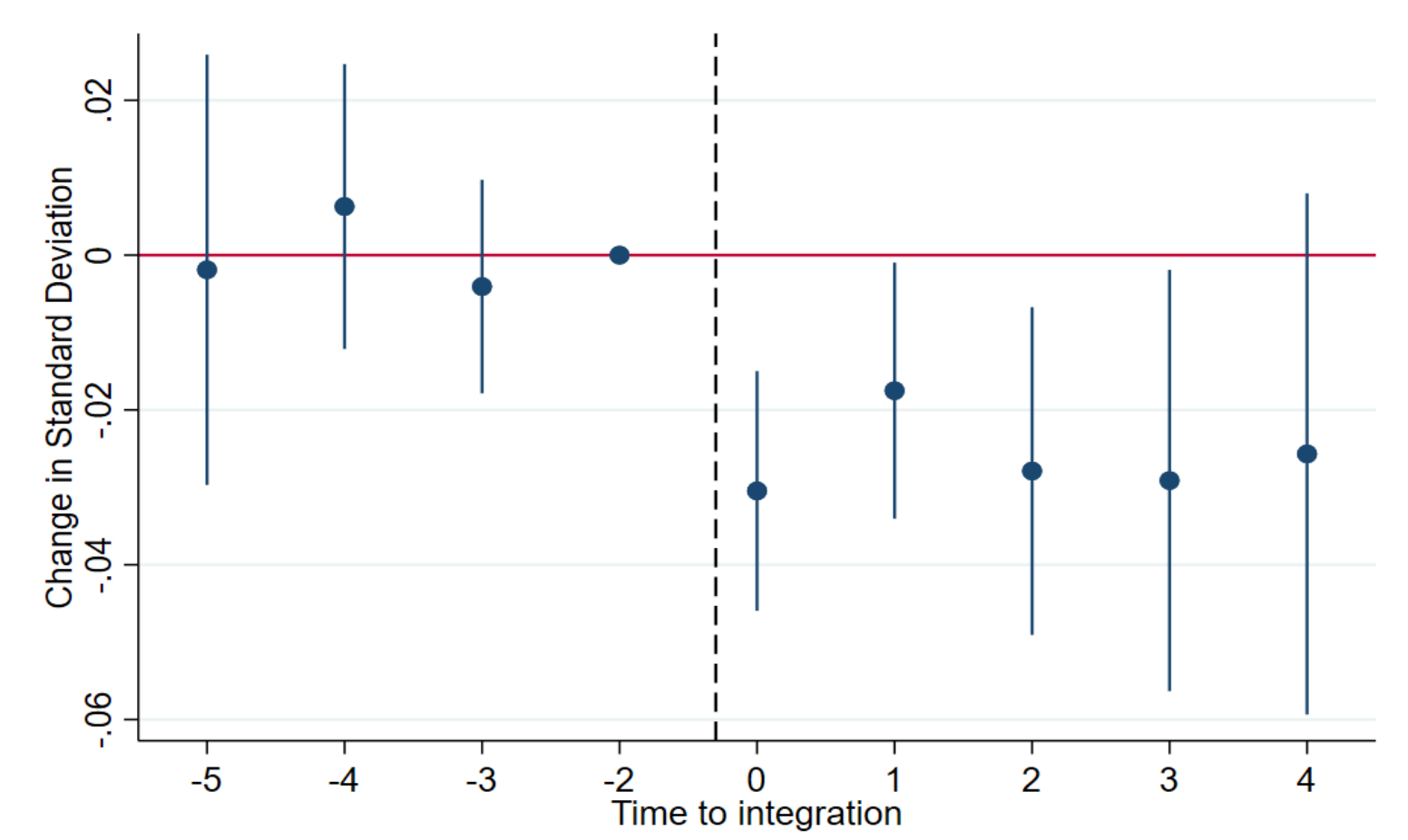
	Coded severity (main model) (1)	Coded severity (control for office visits) (2)
Integration	0.0202*** (0.00288)	0.0240*** (0.00272)
Number of office visits	N/A	0.0263*** (9.55e-05)

Mechanisms

	Storyline	Prediction from storyline
1	More frequent physician-patient contact in hospital-based systems gives doctors more chances to detect disease. (…could be a good thing!)	Integration will increase office visits and lead to higher coded severity.
2	Professionalization of coding: standardize the coding process through centralized billing, software, consultants	After integration, coding of patient illness will become more standardized: We should expect **reduced variance** in HCC scores.

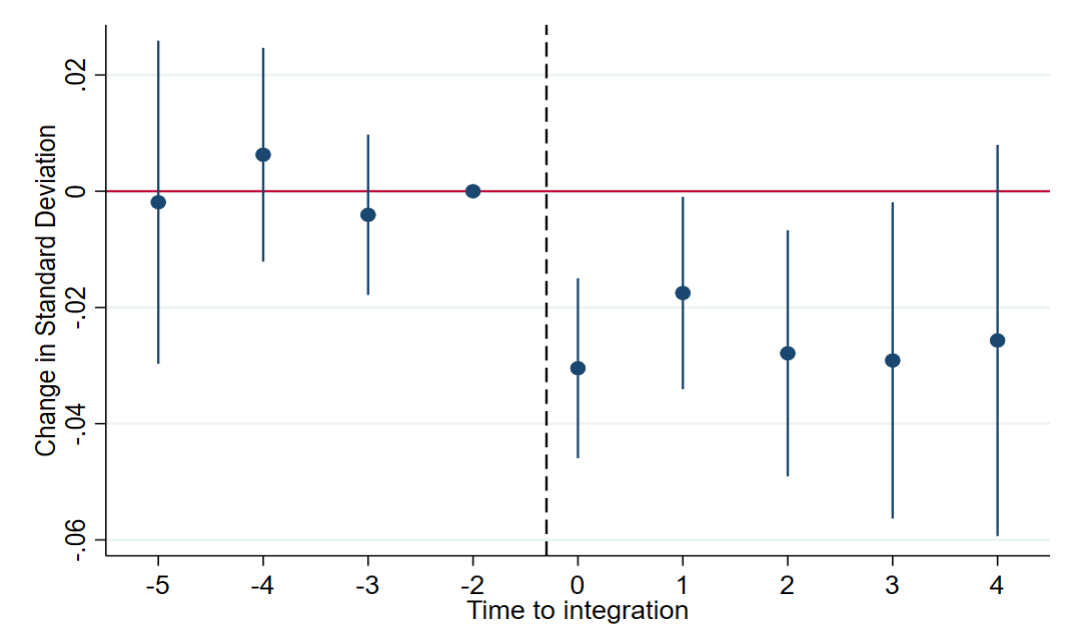
Mechanism 2: standardization / professionalization

- Event study
- Outcome: standard deviation of a physician's patient panel (HCC scores)
- Variance decreases
- Effect size about -4 percent



Mechanism 2: standardization / professionalization

- Interpretation: integration seems to have a standardizing effect on coded severity
- Evidence is, at least, *consistent* with (if not conclusive of) a rationale about back-office professionalization of coding patient symptoms



Event Study

	Standard deviation
Integration	-0.0227*** (0.00713)
Sample mean	0.664
Observations	374,717

2FE

Summary

Summary

Integration was associated with a 2-4 percent increase in coded patient severity.

- Not because of seeing sicker patients (case-mix held constant)
- Not because of more physician-patient contact.
- Plausibly due to back-office professionalization/sharing of resources.
- The risk-score equivalent of aging a physician's patients by 4-8 months

Ongoing extensions

Effects within inpatient settings

Effects when exposure is specialist (e.g., cardiologist) rather than primary care

Effects within Medicare Advantage and commercial settings (the present study, using FFS, represents the lower bound)

Conclusions

Integration will increase Medicare spending through higher patient risk scores.

Hospital systems can improve their results in pay-for-performance models by directing their integrated physicians to more intensely code their patients.

We already know that integration causes increases in utilization and increases in commercial prices; we now know that integration affects risk scores, too

Good or bad?

- Two ways to think about it –
  - Getting diagnoses they should've had all along
  - Needless increase in apparent sickness to game payment

Thank you!

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Questions and comments:

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