# Health Economics and Organizational Economics

NBER Health Care Bootcamp

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UC Berkeley and NBER

# Why focus on organizational economics in health care?

- New area with i) major impact ii) small literature
- What might you focus on?
  - Administrative costs
  - Incentives
  - IT and productivity
  - Information and decision making
  - New applications and rich administrative data
- Approaches:
  - Granular data from private sector partners
  - Public data sources (new and old)
  - Experiments/interventions
  - Apply tools from ML as well as traditional quasi-experimental toolkit

# A Theme for Doing Good Research in Organization Economics in Health Care

- Focus on details of specific health care organizations
- Even “small organizations” are large in terms of dollars and impact
- Numerous issues and opportunities but work is much more in the “plumber” realm of economics (Duflo, 2017)
- Consider Klemperer (2002) on auction theory:

> “Good ~~auction design~~ organizational economics in health care is mostly good elementary economics, [whereas] most of the extensive ~~auction literature~~ contract theory literature is of second-order importance for practical ~~auction~~ contract and policy design.”

# Outline

- Efficiency, cost and organizational economics
- Information and Incentives
- Vertical Integration and Care Fragmentation
- Nuts and Bolts of Org Econ in Health Care Markets

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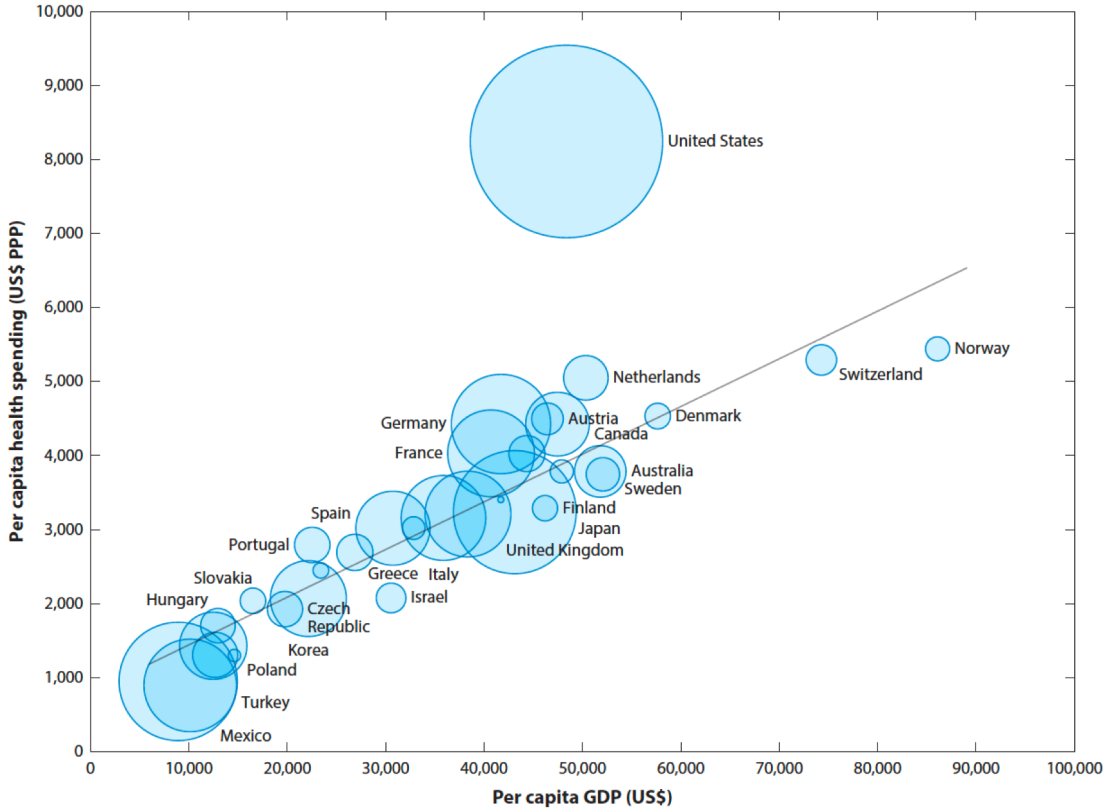
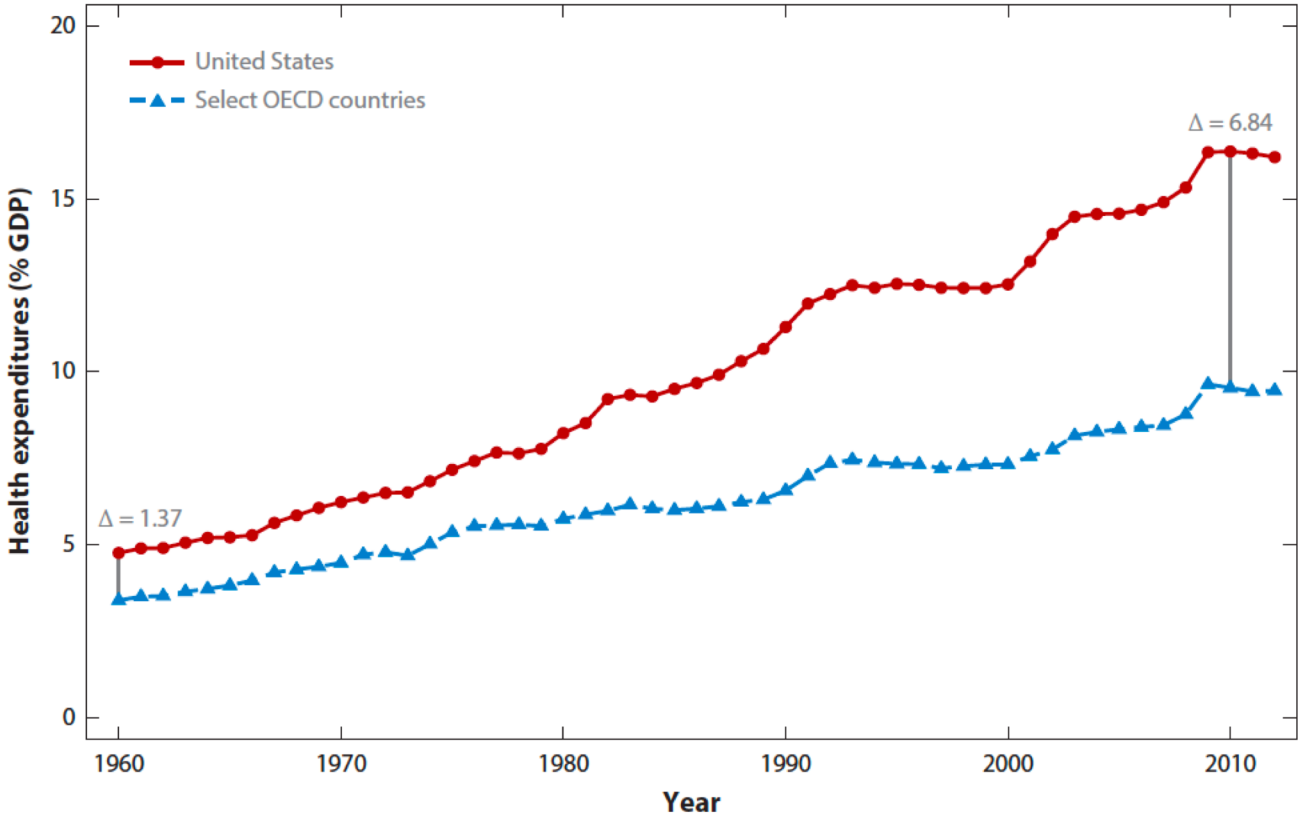
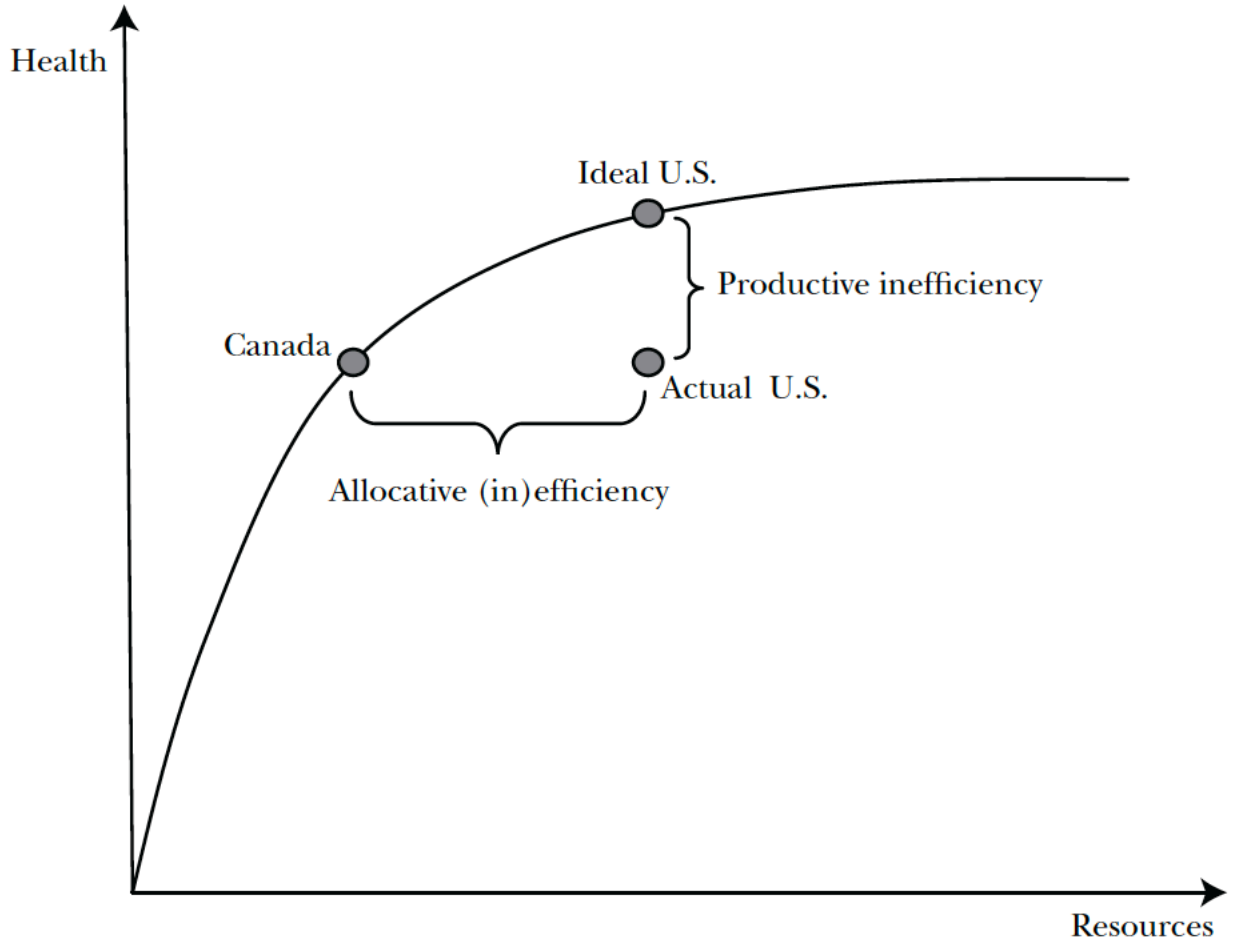
# Health Care Cost and Organizational Econ




Source: Chen and Goldman, 2016

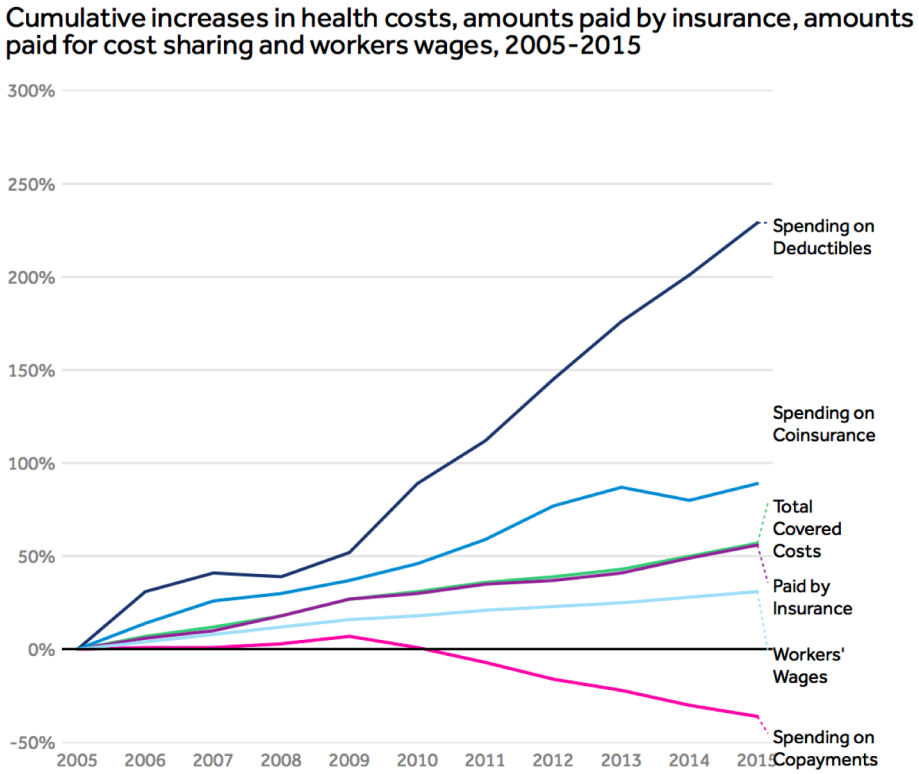


# Efficiency in Health Care: U.S. vs. Canada

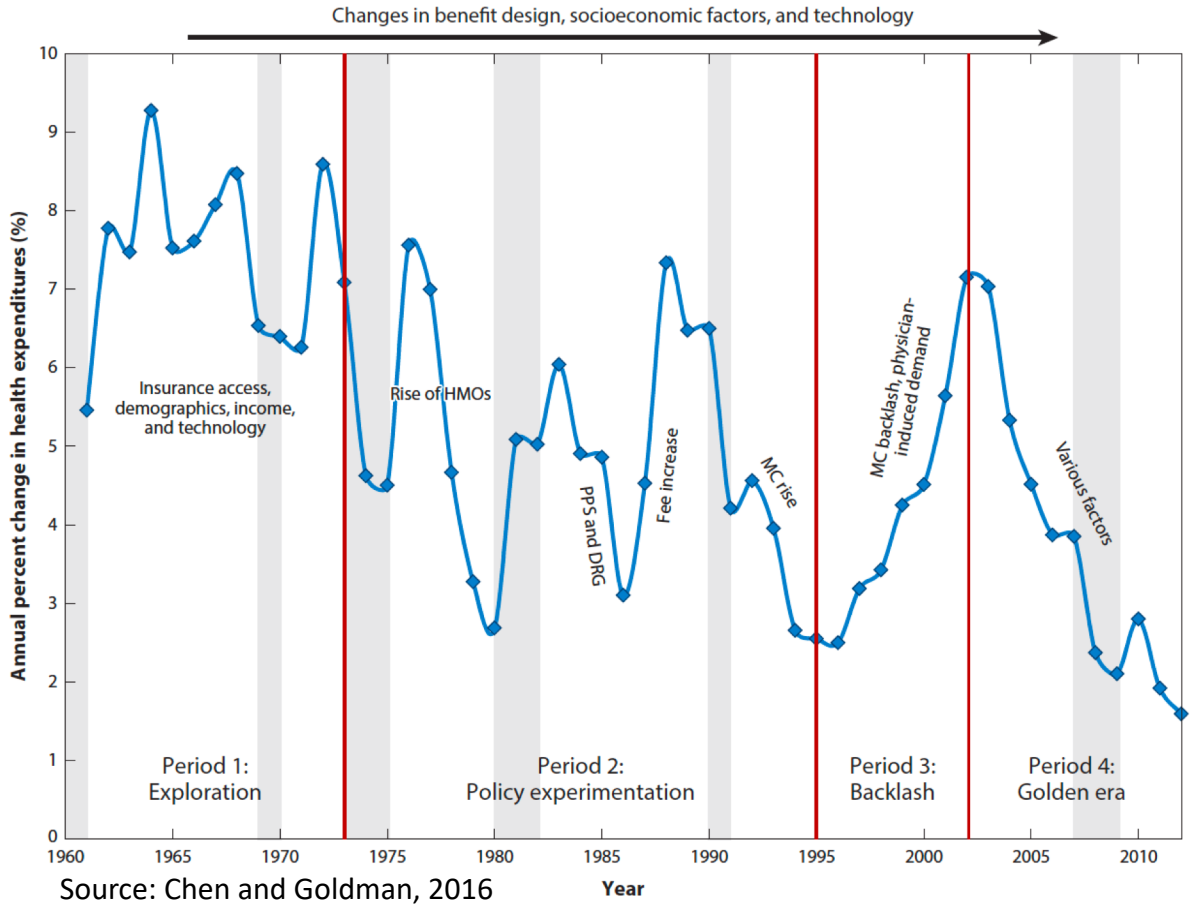



Source: Cutler and Ly, 2011

# Approaches to Efficiently "Bending the Cost Curve"




Source: Kaiser Family Foundation (BLS, CPS, Truven)

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- Reliance on demand side incentives alone has not led to improvements in efficiency (Newhouse, et al, 1993; Brot-Goldberg, et al., 2017)

# What explains spending differences?

**Summary of Hospital and Physician Spending Differences between the United States and Canada in 2002**

| | *Dollars per capita* | *Percent of total difference* |
|---|---|---|
| **Total difference** | **$1,589** | — |
| Provider incomes | $490 | 31% |
| Additional procedures for hospitalized patients | $224 | 14% |
| Administration | $616 | 39% |
| Total accounted for | $1,330 | 84% |

*Source:* Data are from Pozen and Cutler (2010).
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# What explains spending differences? Wages

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# Physician Wages are Higher in U.S. but Not Relative to Opportunity Cost (High Earners)

**Comparison of Physician Earnings across Countries**

| Country | *Specialists* | | | *General practitioners: Ratio to high earners* |
|---|---|---|---|---|
| | *Average earnings (1,000s)* | *Ratio of earnings to:* | | |
| | | *GDP per capita* | *High earners* | |
| **United States** | **$230** | **5.8** | **1.37** | **0.92** |
| Australia | $173 | 5.3 | 2.54 | 0.98 |
| Canada | $161 | 5.0 | 2.11 | 1.41 |
| France | $131 | 4.4 | 1.47 | 0.92 |
| Germany | $155 | 5.4 | 1.45 | 1.06 |
| Italy | $84 | 3.0 | 1.31 | — |
| Netherlands | $286 | 8.7 | 2.56 | 1.06 |
| New Zealand | $87 | 3.5 | 1.47 | 0.86 |
| Norway | $79 | 1.9 | 0.78 | 0.68 |
| Portugal | $79 | 4.3 | 1.11 | 0.69 |
| Sweden | $71 | 2.3 | 0.98 | 0.86 |
| Switzerland | $130 | 3.7 | 0.87 | 0.77 |
| United Kingdom | $114 | 3.7 | 0.80 | 1.02 |
| **Non-U.S. average** | **$129** | **4.3** | **1.45** | **0.94** |
| **Ratio: U.S./Non-U.S. average** | **1.78** | **1.35** | **0.94** | **0.98** |

*Sources:* Data on physician earnings are from the OECD (2010). Average incomes for high earners are based on data in Alvardo, Atkinson, Piketty, and Saez (2011).

# What explains spending differences? Intensity

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# Information and Quality When Motivation is Intrinsic: Evidence from Surgeon Report Cards

Kolstad, AER, 2013

# Introduction

- Why rely on public reporting in health care markets?
  - Health care delivery faces systemic information deficiencies (Arrow, 1963)
  - Quality of care widely believed to be suboptimal in health care (IOM, 2001)
  - Theory shows information problems can lead to suboptimal outcomes (Akerlof, 1970; Dranove and Satterthwaite, 1992; Diamond,1971; Salop and Stiglitz, 1977)
    - Information asymmetries exploited by suppliers
- Public reporting can increase welfare by eliminating/reducing the “missing markets” for information

# Introduction

- Effect of quality reporting on quality is mediated through changes in demand (Dranove and Satterthwaite, 1992; Gaynor, 2006)
- Intrinsically motivated firms and agents may respond to information release independently of demand side effects
  - Motivation is a function of the ability to observably perform well relative to peers
- **Is the impact of quality reporting mediated through changes in quantity or changes in information?**

# Information and Market Outcomes in Health Care

Quality Effects

- Significant improvements in (measured) quality after report card publication (Epstein, 2006; Ghali et al., 1997; Peterson et al., 1998; Hannan, et al., 2003)
- "… there is evidence that the public disclosure of death rates associated with surgery in New York and other states has contributed to reductions in operative mortality…" (Steinbrook, 2006)

Consumer Response

- 20% of patients are aware of report cards and only 12% knew about them prior to surgery (Schneider and Epstein, 1996 )
- Existing studies of referral patterns find small (Marshall et al., 2000; Mukamel and Mushlin, 2001; Schauffler and Mordavsky, 2001) or nonexistent effect (Hannan, et al., 1994; Chassin, 2002; Jha and Epstein, 2004)

Paradoxical Response:

Understanding requires better demand estimates and/or an alternate model of supplier objectives

# Intrinsic Incentives and Equilibrium Quality Choice

- Monopolistic competition between surgeons

$$\max_{\theta_i} U_i = \Pi_i(\theta_i, \theta_{-i}, \Omega) + \Gamma_i(\theta_i, \theta_j, \Omega) = q_i(\theta_i, \theta_{-i} | \Omega) p_{reg} - c(\theta_i, q_i) + \Gamma_i(\theta_i, \theta_j | \Omega)$$

  - Fixed (regulated prices)
  - Concave, additively separable intrinsic utility function relative to a reference group (observed with error)
- FOC:

$$\left( \partial q_i(\theta_i, \theta_{-i}^* | \Omega) \Big/ \partial \theta_i \right) p_{reg} + \partial \Gamma_i(\theta_i, \theta_j^* | \Omega) \Big/ \partial \theta_i = \partial c(\theta_i, \theta_j^*) \Big/ \partial \theta_i$$

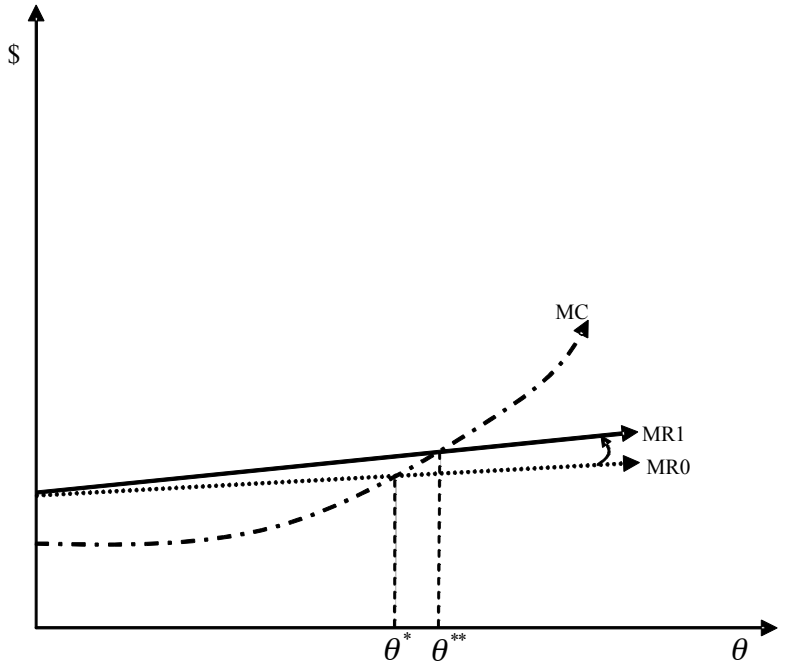
- Intrinsic utility is a function of performance relative to a reference group: $\tilde{\theta}_j \in (\underline{\theta}_j, \overline{\theta}_j)$
- Information enters as a signal contains two elements: quality level for surgeon i and information on the reference distribution

$$\Omega^t \in \{\mu, \varepsilon\}$$

- Intrinsic returns to quality are determined jointly by the information set and the shape of surgeon utility

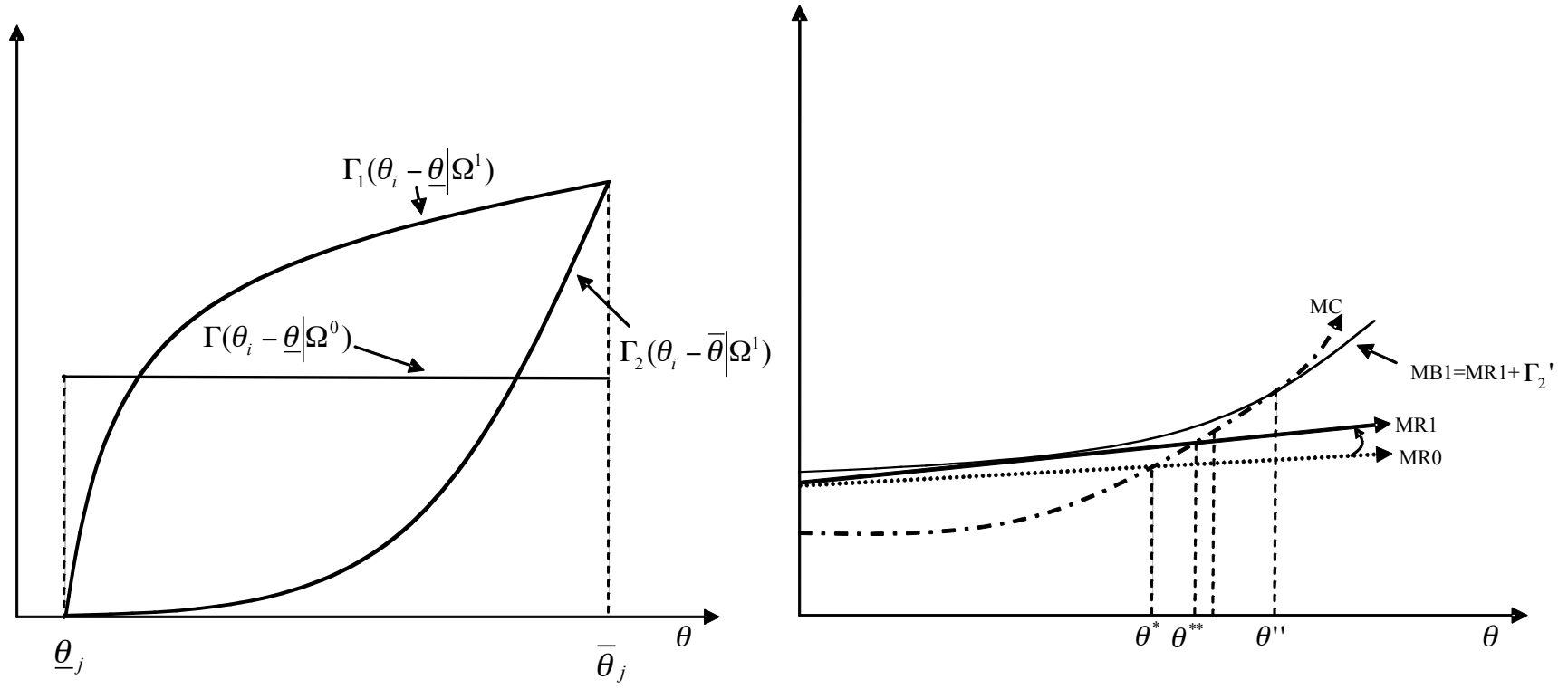
$$\Gamma(\theta_i - \tilde{\theta}_j | \Omega^t)$$

# Surgeon Response to Quality Reporting: Extrinsic Response




- Select profit maximizing quality level: MC=MR
- Introduction of quality reporting alters consumers willingness-to-pay for higher quality surgeons
- Marginal revenue for quality increases
- Quality improvement mediated through demand

# Surgeon Response to Quality Reporting: Intrinsic Response



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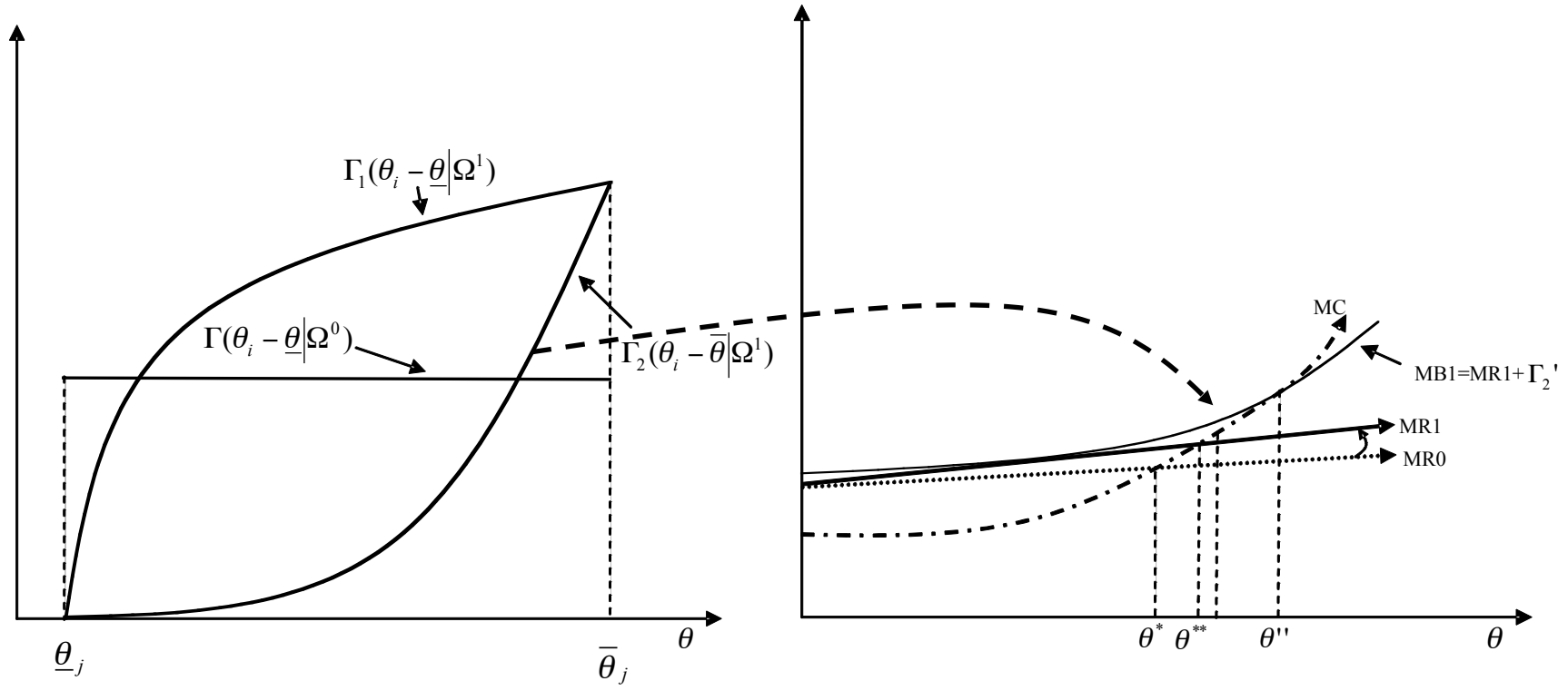


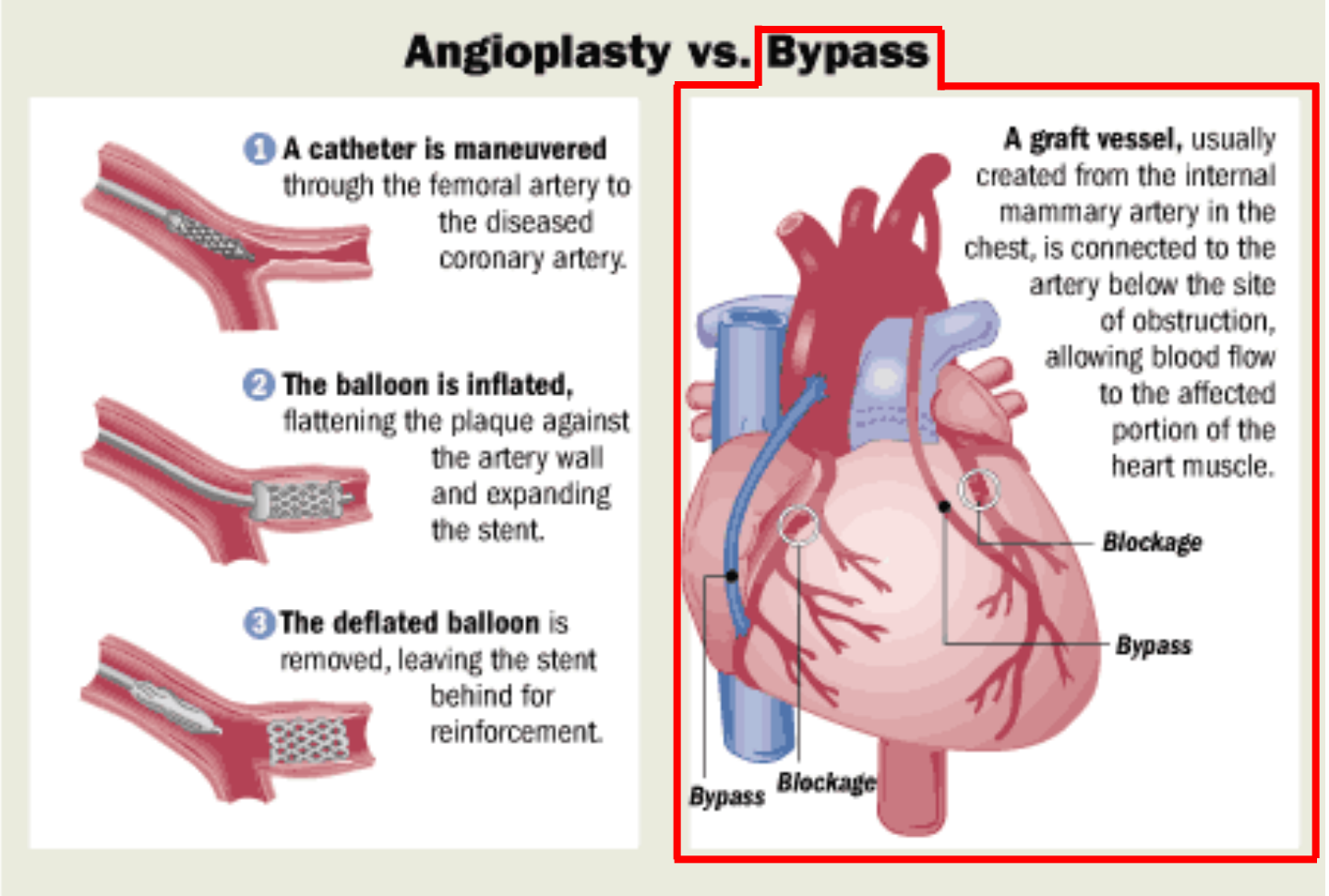
# Two Part Empirical Inquiry

1. Construct a measure of report card related information (unrelated to demand) and estimate effects on quality
   - Exploit information contained in the risk adjustment scheme
2. Compute profit incentives induced by quality reporting
   - Estimate a demand system and simulate altering information regimes.

# Why CABG?

- Relatively standardize procedure
- First and most widely accepted quality reporting efforts (NY, NJ, PA, CA, UK)
- “State of the art” risk adjustment
  - Inpatient mortality is non-zero
  - Predictive risk adjusters vetted in a variety of settings

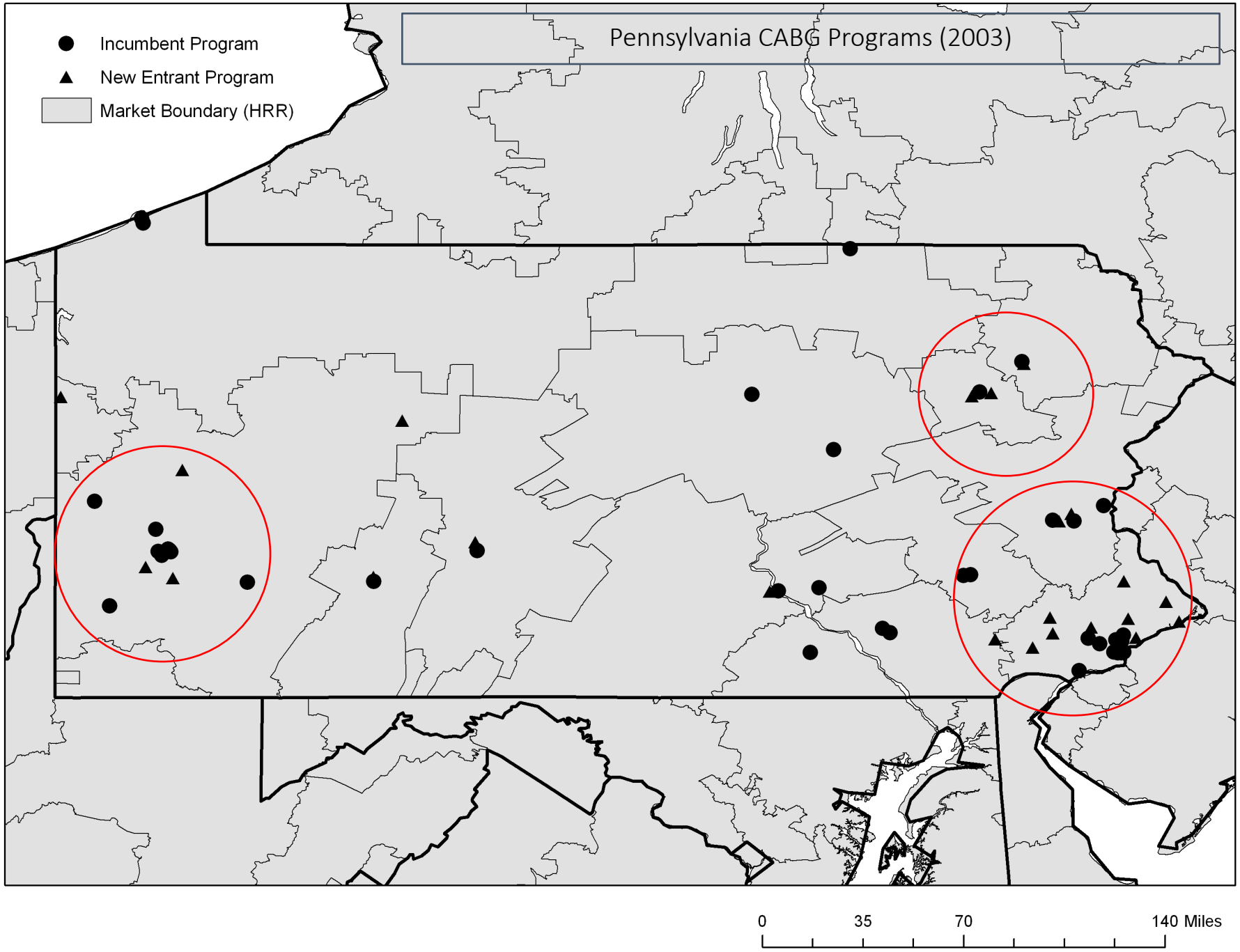
# Empirical Setting: Coronary Artery Bypass Graft (CABG) Surgery




*Source: Thomas Burton, "Bypass Surpasses Angioplasty in Study," Wall Street Journal, May 4, 2004*

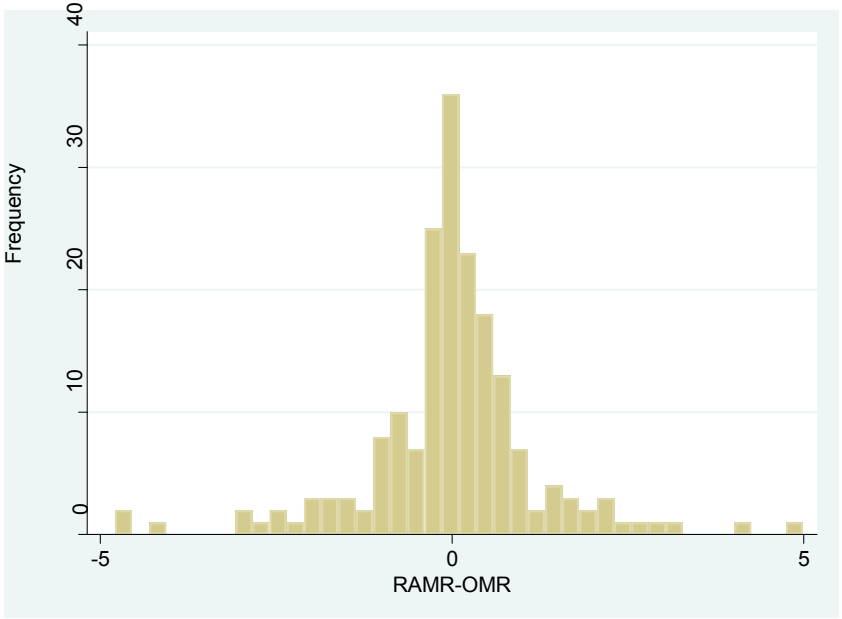
# Empirical Setting: Pennsylvania

- Data from all isolated CABGs in PA 1994-95, 2000, 2002-03
  - Quality report cards released in 1998 (1994-95 data), 2002 (2000 data) and 2003 (2002 data)
- 299 surgeons across 63 hospitals
- 89,406 total surgeries in sample
- 15 markets (HRRs)
- Provider Observables: report card score, RAMR, EMR, OMR
- Patient observables: distance to hospital from patient zip centroids, comorbidities, insurance types (55% Medicare)


Pennsylvania CABG Programs (2003)
Incumbent Program
New Entrant Program
Market Boundary (HRR)
0
35
70
140 Miles

# Measuring Information Related Intrinsic Incentives

- Need a measure of new information for surgeons that was unrelated to demand
- Risk adjustment in quality reporting is a measure of *new* information from quality reporting
  - Know observed mortality but not true patient severity
  - Change in information unlikely to be observed by consumers (a measure of info unrelated to demand)



# Models to Identify Incentives

- Identify effects by observing response to quality reporting, conditioning on market impact
  - Measure extrinsic incentives and regress against observed response
  - Estimate new information unrelated to quantity and regress against quality changes
- Base models:

$$\Delta q_s = \alpha + \beta_n \sum_{n=1}^{5} I_{n,s}(RAMR_{pre} - OMR_{pre}) + X_s + X_h + \varepsilon_{s,h}$$

$$\Delta \theta_s = \alpha + \lambda \Delta \prod_s + \xi_n \sum_{n=1}^{5} I_{n,s}(RAMR_{pre} - OMR_{pre}) + X_s + X_h + \varepsilon_{s,h}$$

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# Quality Effect of New Information

| | Dependent Variable: Change RAMR s 1994-95 to 2000[1] | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| **Intrinsic Incentives** | | | | |
| 1994-95 Report Card Info (RAMR-OMR) Group | | | | |
| Much Better than Expected (0-20%) | 0.790 (0.190) *** | 0.211 (0.199) | 0.761 (0.244) *** | 0.251 (0.206) |
| Slightly Better than Expected (20-40%) | 0.245 (0.235) | 0.105 (0.162) | 0.243 (0.241) | 0.121 (0.230) |
| Slightly Worse than Expected (60-80%) | 0.568 (0.235) ** | 0.482 (0.162) *** | 0.591 (0.233) ** | 0.523 (0.232) ** |
| Much Worse than Expected (80-100%) | 1.976 (0.264) *** | 0.574 (0.250) ** | 2.045 (0.252) *** | 0.624 (0.285) ** |
| **Extrinsic Incentives** | | | | |
| Pred Vol No RC-Pred Vol RC | 0.062 (0.026) ** | 0.045 (0.021) ** | 0.064 (0.026) ** | 0.043 (0.021) ** |
| I[RCDem>0] | -0.258 (0.210) | -0.145 (0.172) | -0.284 (0.215) | -0.255 (0.195) |
| I[RCDem>0]*Pred Vol No RC-Pred Vol RC | -0.049 (0.062) | -0.142 (0.061) ** | -0.055 (0.064) | -0.166 (0.045) *** |
| **Controls** | | | | |
| Mean RAMR 1994-95 | | 0.715 (0.050) *** | | 0.712 (0.051) *** |
| Surgeon License Year (PA) | -42.030 (4.965) *** | -37.772 (3.815) *** | -42.412 (5.858) *** | -38.497 (5.352) *** |
| Surgeon License Year (PA) Squared | 0.011 (0.001) *** | -0.203 (0.040) *** | 0.011 (0.001) *** | 0.010 (0.001) *** |
| Publications | -0.258 (0.047) *** | 0.008 (0.001) *** | -0.273 (0.050) *** | -0.215 (0.047) *** |
| Market Fixed Effects? | No | No | Yes | Yes |
| Observations (surgeon/quarter) | 920 | 920 | 920 | 920 |
| R Squared | 0.1919 | 0.3654 | 0.2154 | 0.3724 |

**,**, and *** denote statistical signficance at the 10%, 5%, and 1% levels, respectively. Bootstrap standard errors are clustered at the surgeons*

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# Relative Role of Incentives

- Simulate change in quality due to report cards under counter factuals:
  - No extrinsic response: $\lambda = 0$
  - No intrinsic response: $\xi_n = \xi_3$
- Compare estimated effects to predicted change without reporting

# Role of Mixed Incentives in Response to Quality Reporting

- Response to quality reporting mediated through **extrinsic** incentives produced a mortality decline of 3.5%
- Response to quality reporting mediated through **intrinsic** incentives produced a mortality decline of 13%
- Intrinsic effects are roughly **4X** the standard profit based incentives due to quality reporting

# Policy Recommendations

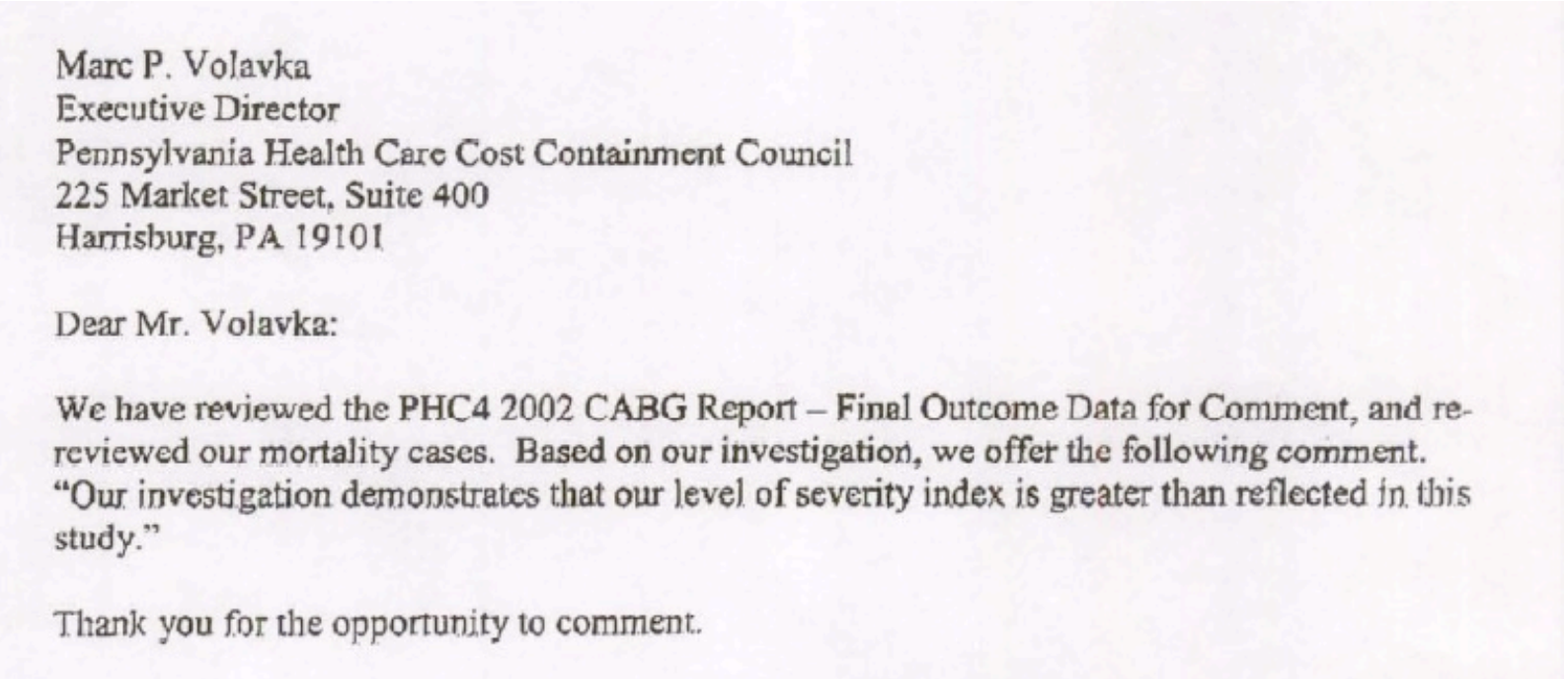
- Information matters for surgeon quality investment
  - Effect primarily mediated through a reference based intrinsic utility model
- Efforts to “dumb down” quality reporting are less likely to lead to large gains in quality
- Gathering detailed clinical data and providing a variety of benchmark comparisons may produce greater improvement
  - Additional benefit to Health Information Technology
- P4P should also include information release
  - Question of how process based direct payment relates to outcome based quality measure, does it undermine intrinsic incentives?

# Opportunities to Integrate Incentives in IT

- Dramatic expansion in IT penetration amongst doctors in the U.S.
- Globally much more IT investment in health care
- Simple interactions of IT and incentives can complement other investment in important ways
  - E.g. P4P without IT may be very different
- Need more nuanced study of the interaction
  - natural experiments with detailed micro data and randomized trials

# Provider Response

- Incentives are only as good as the responding population believes the information is
- Risk adjustment is key for feedback



Marc P. Volavka
Executive Director
Pennsylvania Health Care Cost Containment Council
225 Market Street, Suite 400
Harrisburg, PA 19101

Dear Mr. Volavka:

We have reviewed the PHC4 2002 CABG Report – Final Outcome Data for Comment, and re-reviewed our mortality cases. Based on our investigation, we offer the following comment. "Our investigation demonstrates that our level of severity index is greater than reflected in this study."

Thank you for the opportunity to comment.

# Learning from other settings: Positive Energy/oPower Experiment

- Ayers, et al. (2010) study two experimental roll outs of peer information on energy usage
  - A variety of frames and other treatments but basic idea is to give info on how much energy people use each month compared to their neighbors

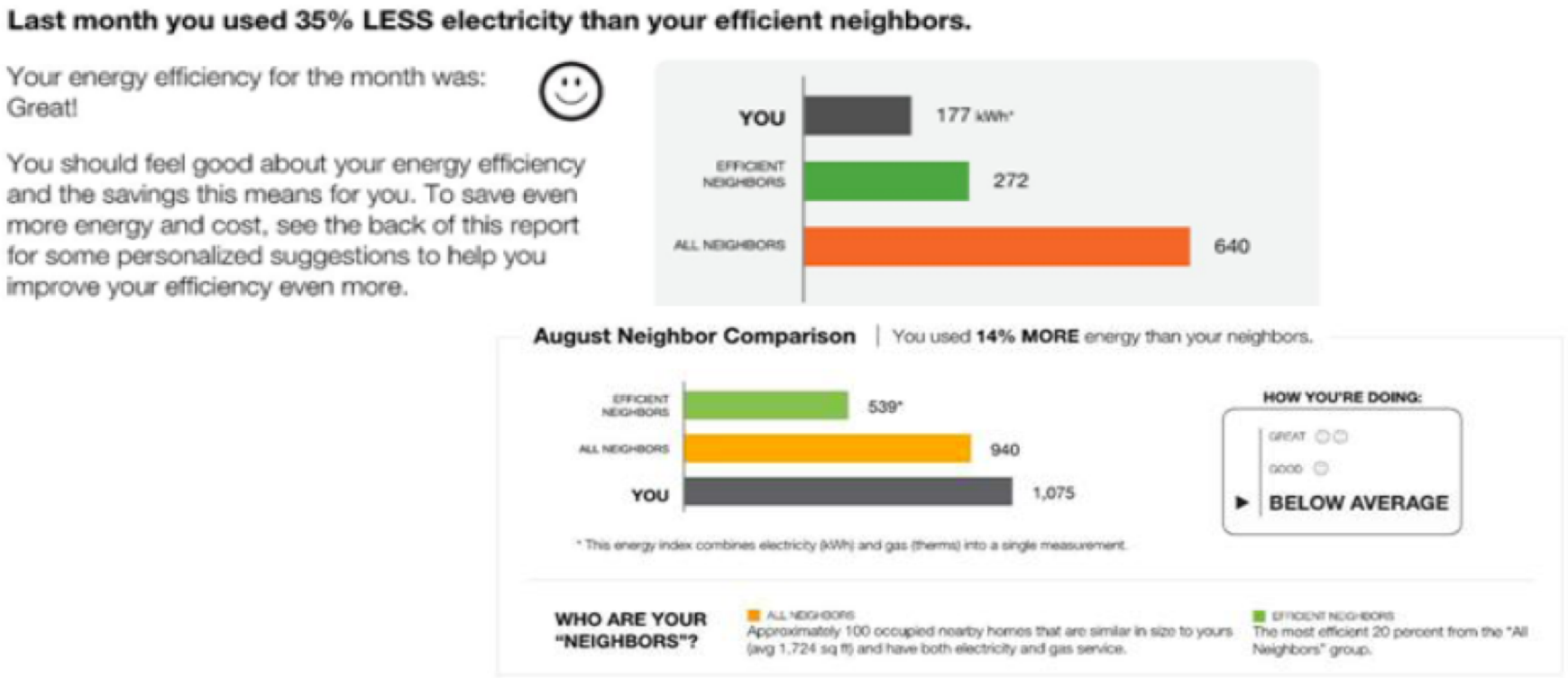
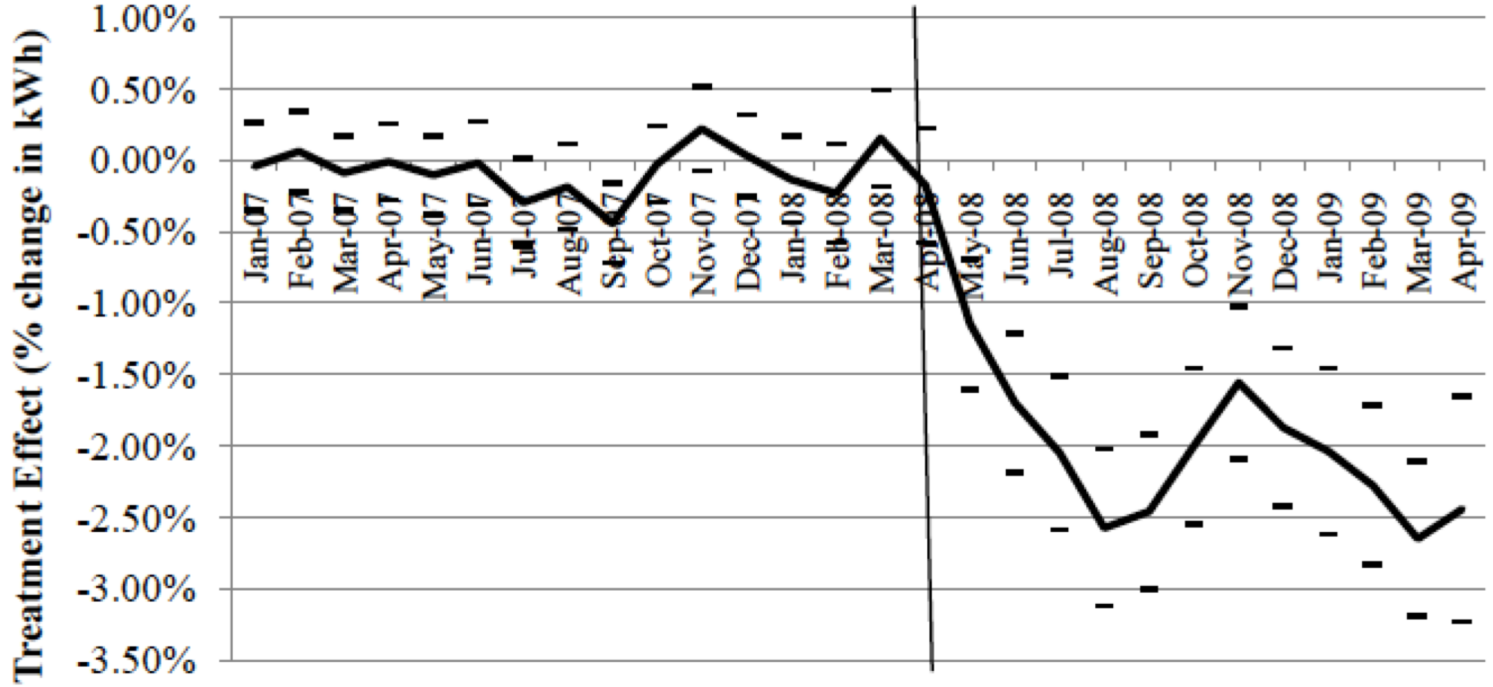


**Figure 2: SMUD Treatment Effect**
**(% change in kWh- with controls)**

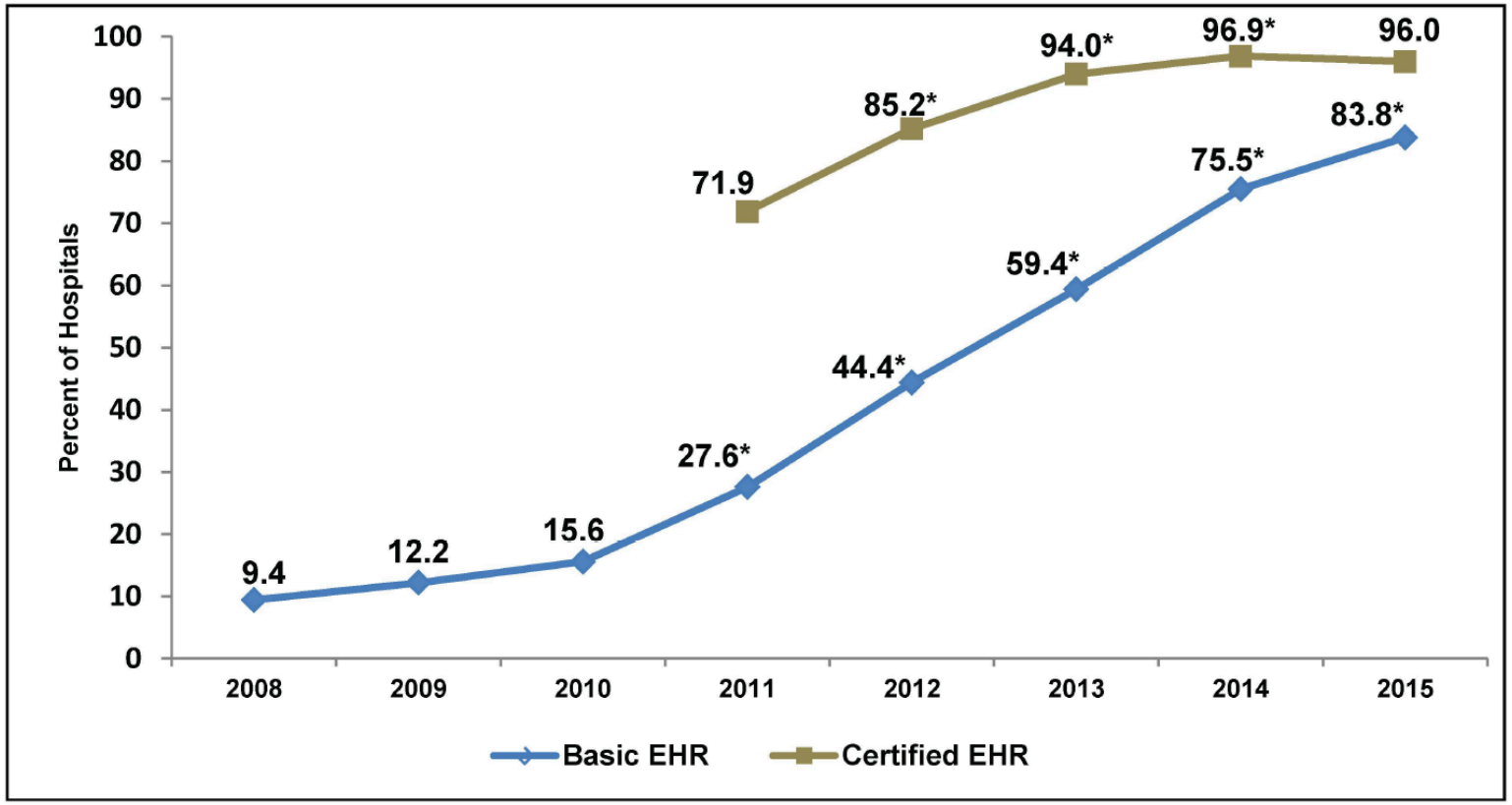



*95% confidence interval shown
**Vertical line indicates first mailing
***OLS regression on natural log of kWh/day clustered on household id with same controls as in Table 1

- Because randomization was at a higher than individual level treatment and control were not balanced on observables fully
- Controlled version is a cleaner treatment effect

# Research Questions: Health IT, Payment Reform and Incentives

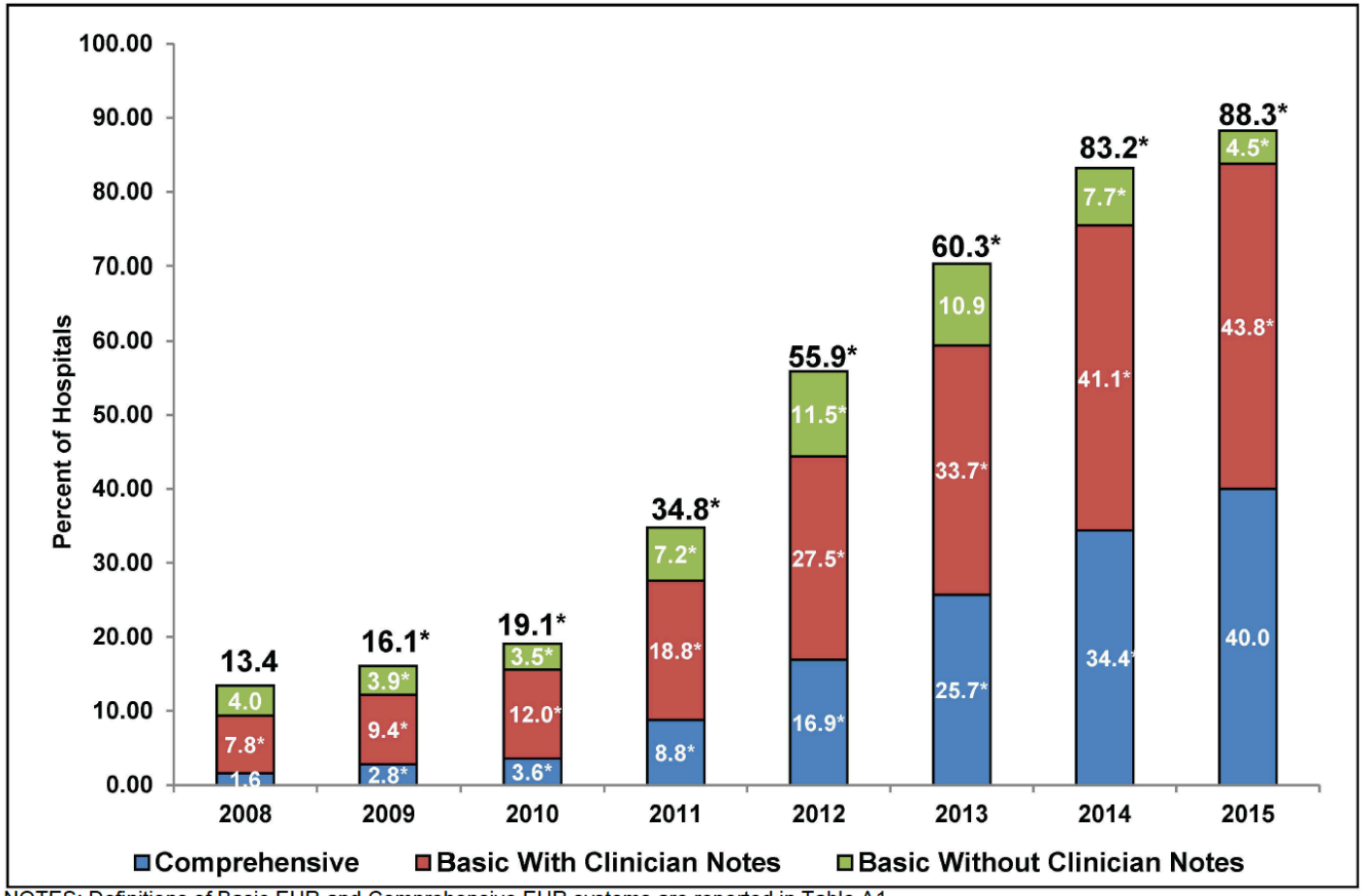
Figure 1: Percent of non-Federal acute care hospitals with adoption of at least a Basic EHR with notes system and possession of a certified EHR: 2008-2015.




NOTES: Basic EHR adoption requires the EHR system to have a set of EHR functions defined in Table A1. A certified EHR is EHR technology that meets the technological capability, functionality, and security requirements adopted by the Department of Health and Human Services. Possession means that the hospital has a legal agreement with the EHR vendor, but is not equivalent to adoption.
*Significantly different from previous year ($p < 0.05$).
SOURCE: ONC/American Hospital Association (AHA), AHA Annual Survey Information Technology Supplement.

# IT Expansion *could* change the way care is delivered and does generate new data

Figure 5: Percent of non-federal acute care hospitals with adoption of EHR systems by level of functionality: 2008 2015.

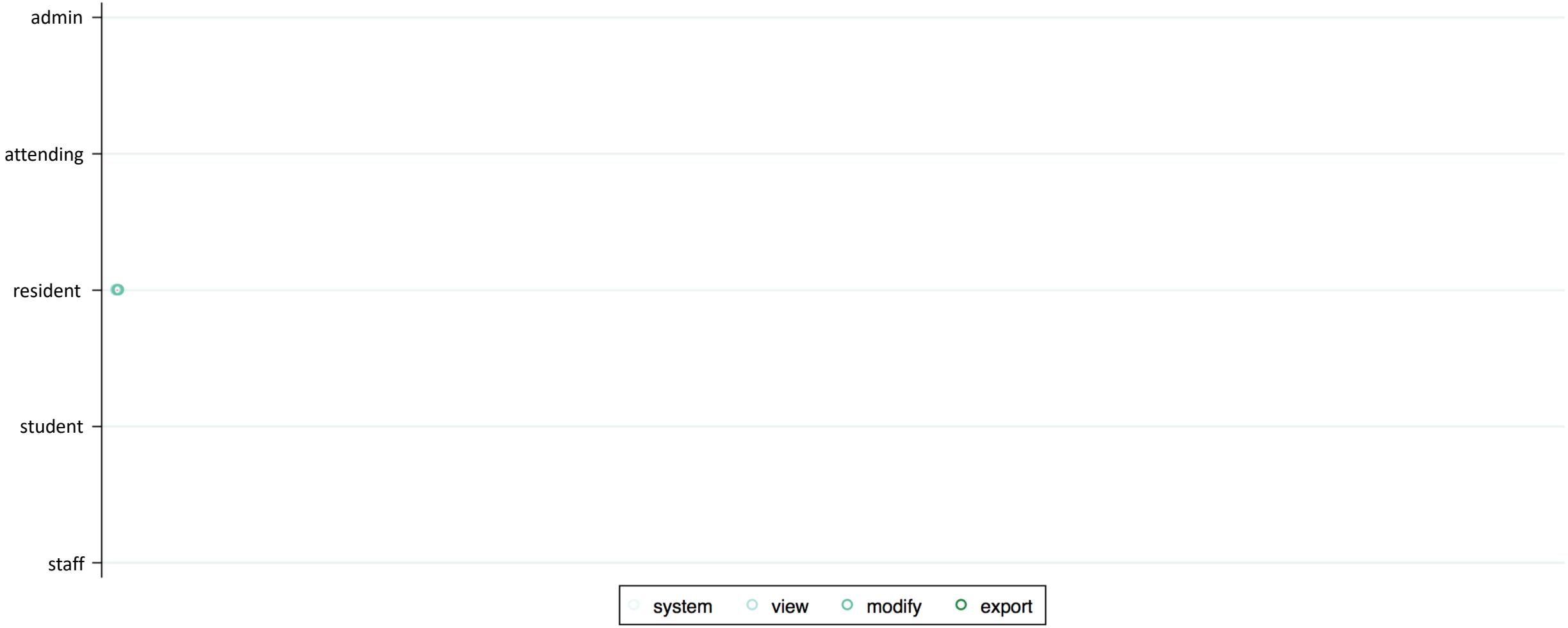



NOTES: Definitions of Basic EHR and Comprehensive EHR systems are reported in Table A1.
*Significantly different from previous year ($p < 0.05$).
SOURCE: ONC/AHA, AHA Annual Survey Information Technology Supplement.

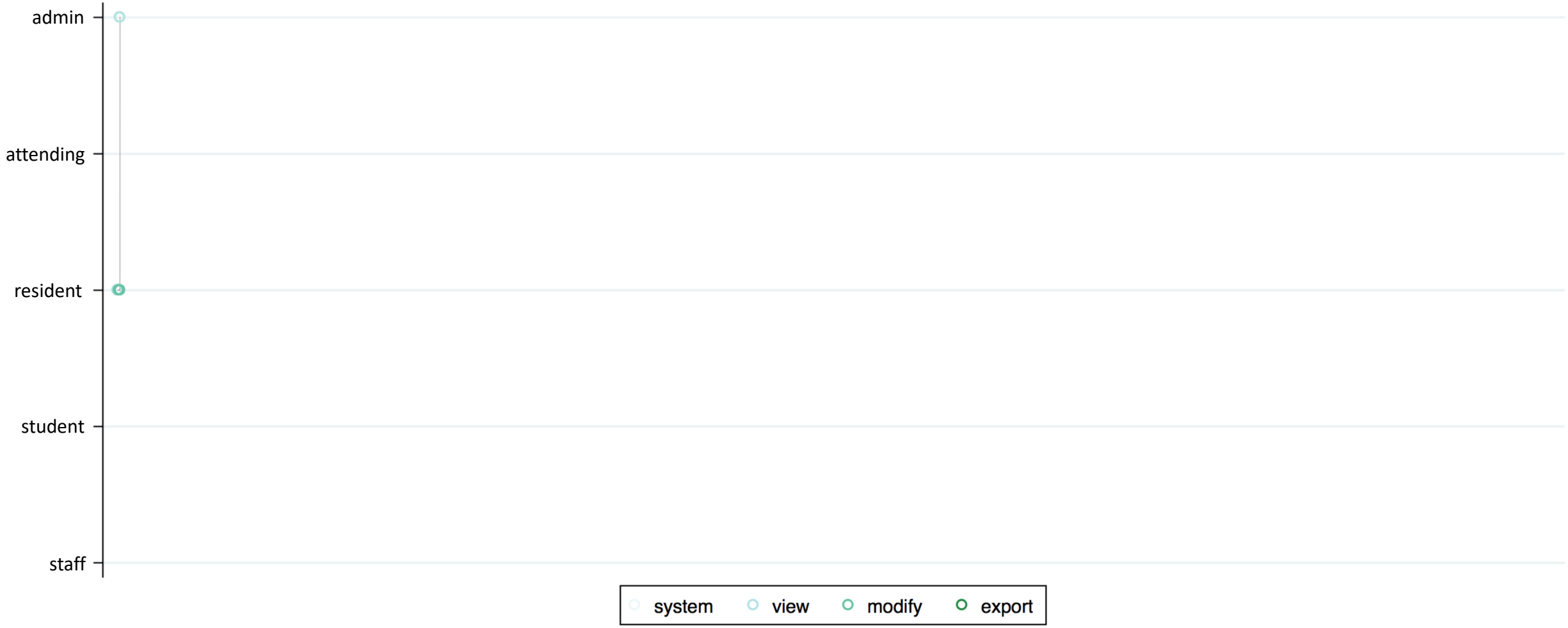
# Example of new data sources

- Universe of meta data from UCSF Epic system
- Covers 2012-2018 and includes detail on all activities by each individual within the system
- Numerous questions and simply describing activity is of interest
- Simple example: understanding the treatment of a cardiology patient from the IT system:
  - There are 4 event types
    - System: The system initiated the event. Example: flag if HR>100 (?)
    - View: The user viewed an element. Example: viewing a patient's note
    - Modify: The user changed an element. Example: signing a patient's note
    - Export: The user printed something. Example: printing a patient's note
  - Within each type, there are many events
    - e.g., within View: Notes Viewed, Visit Navigator Template Loaded, etc.
    - e.g., within Modify: Order List Changed, Order Reconciliation Section Accessed, etc.

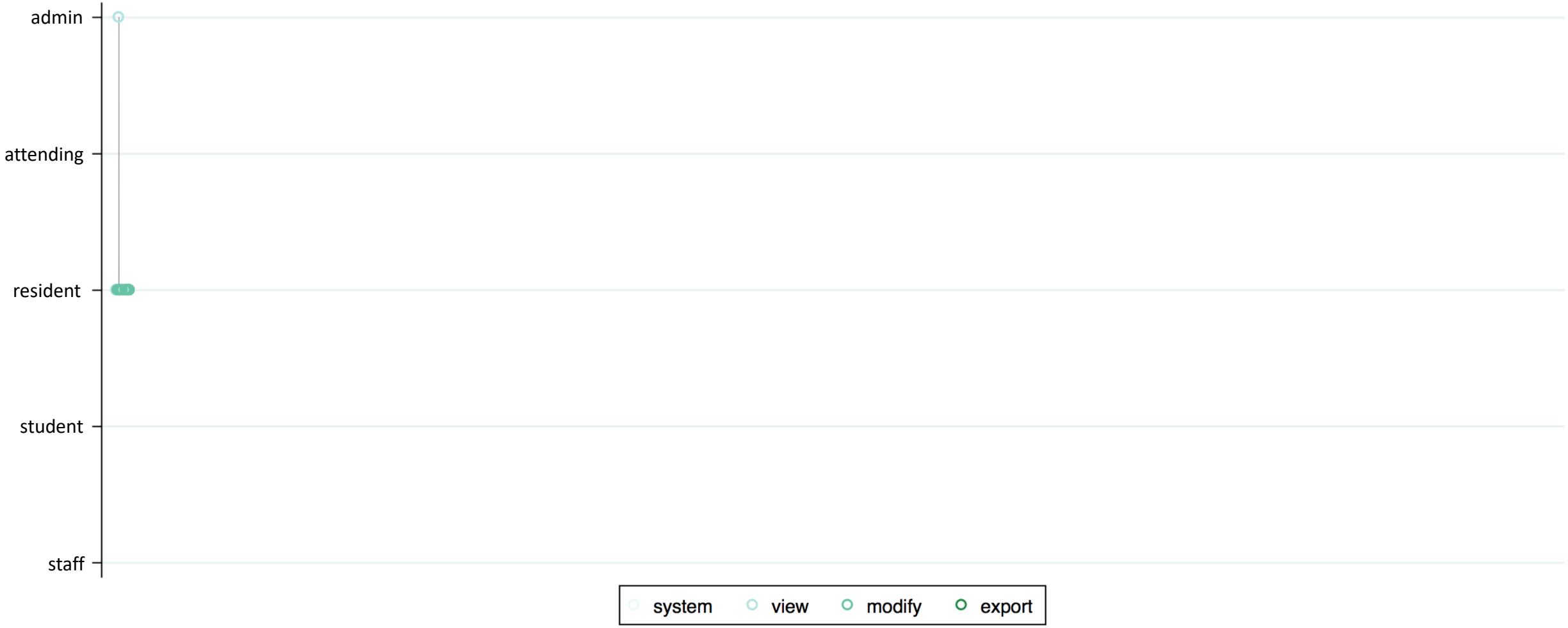
# Life of a patient



# Life of a patient



# Life of a patient



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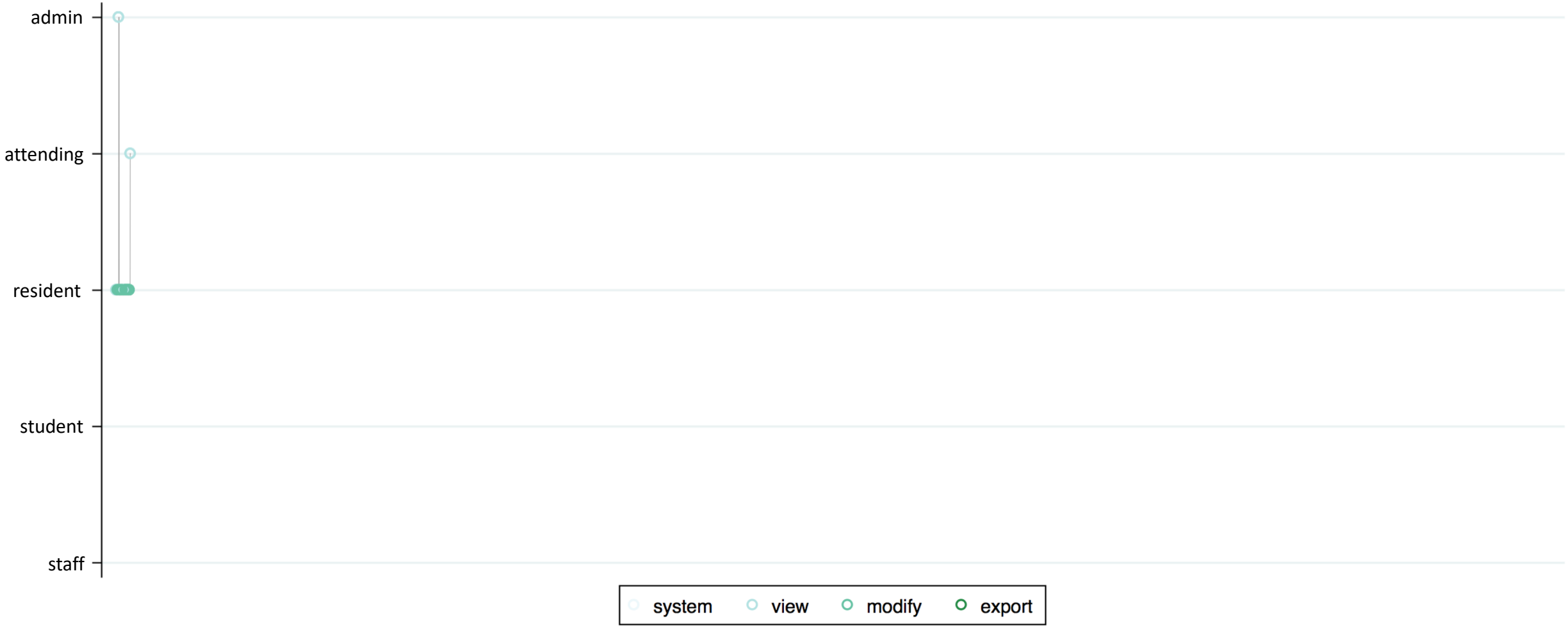

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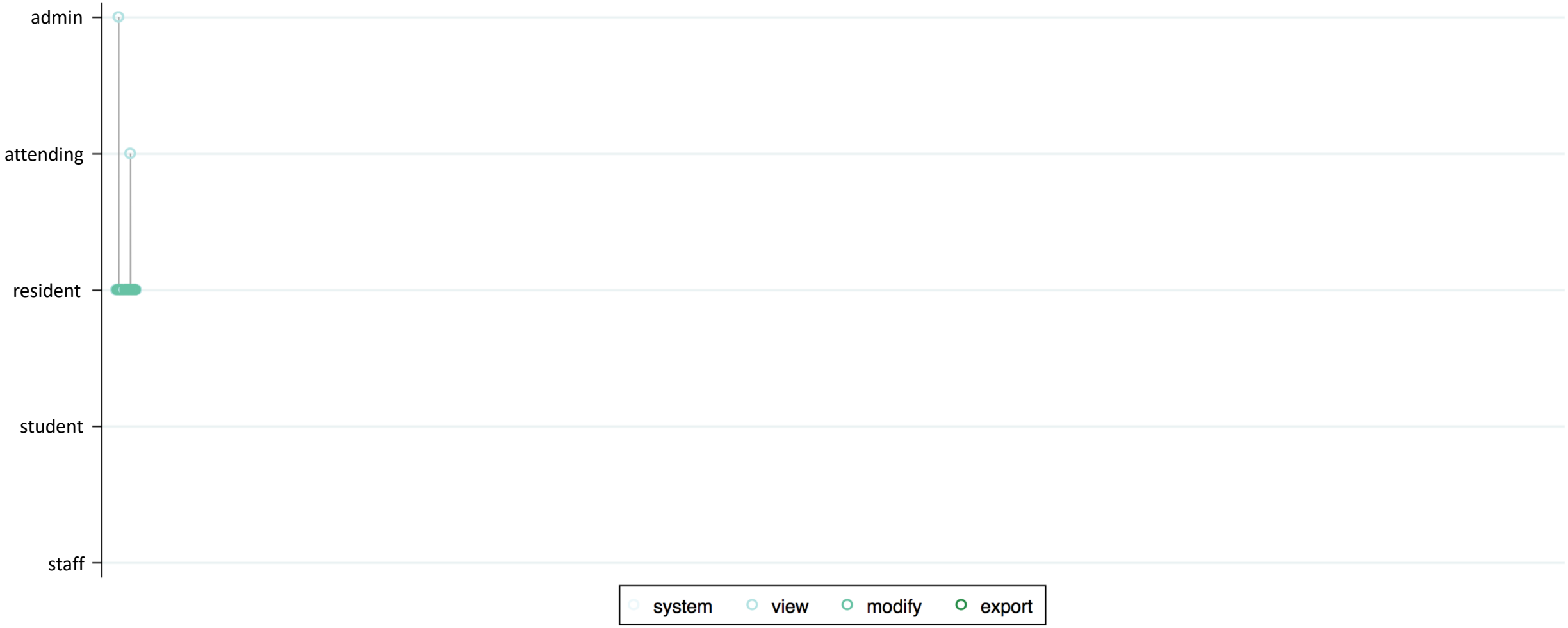

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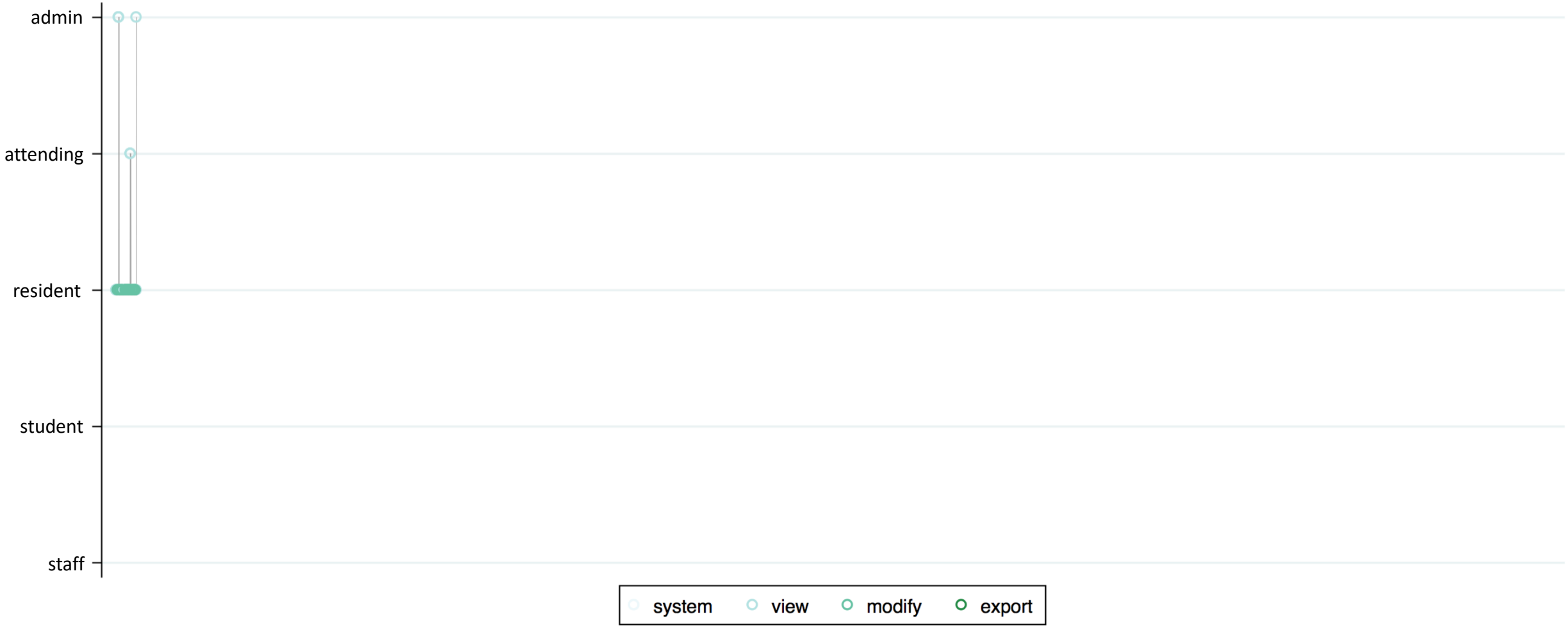

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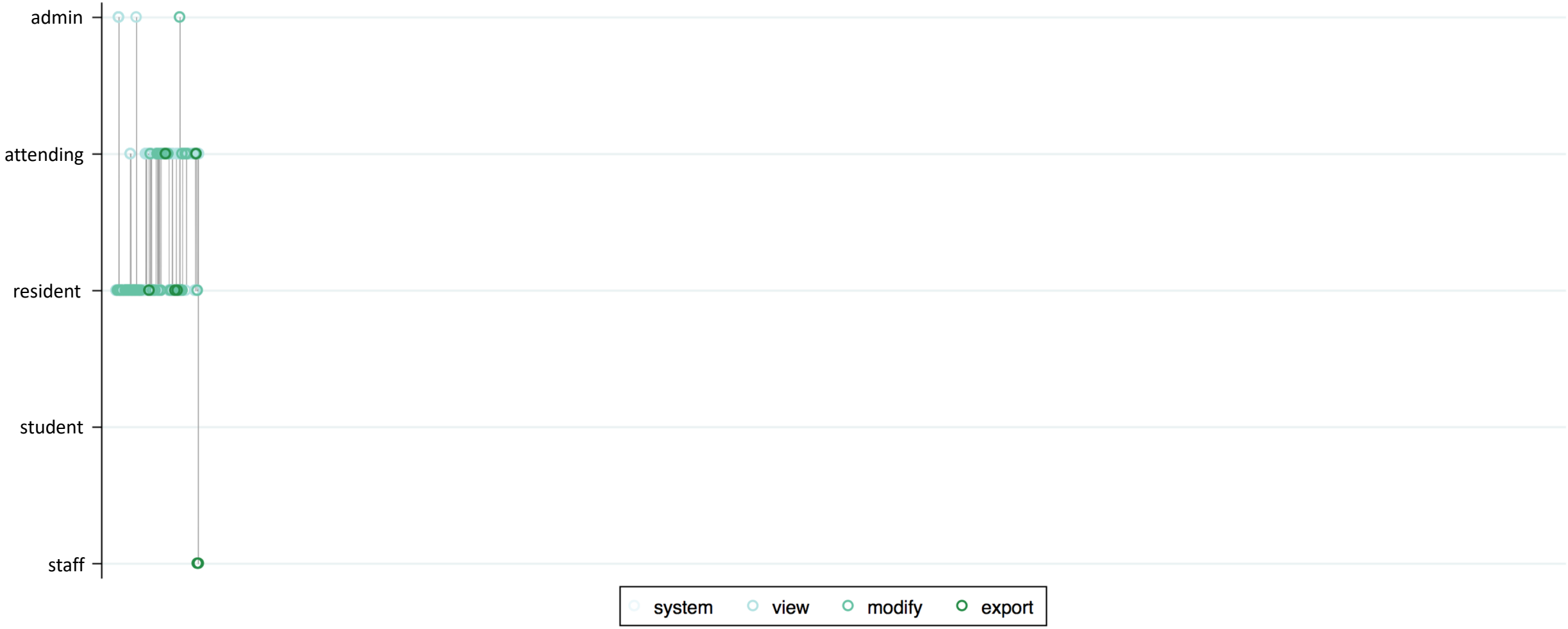

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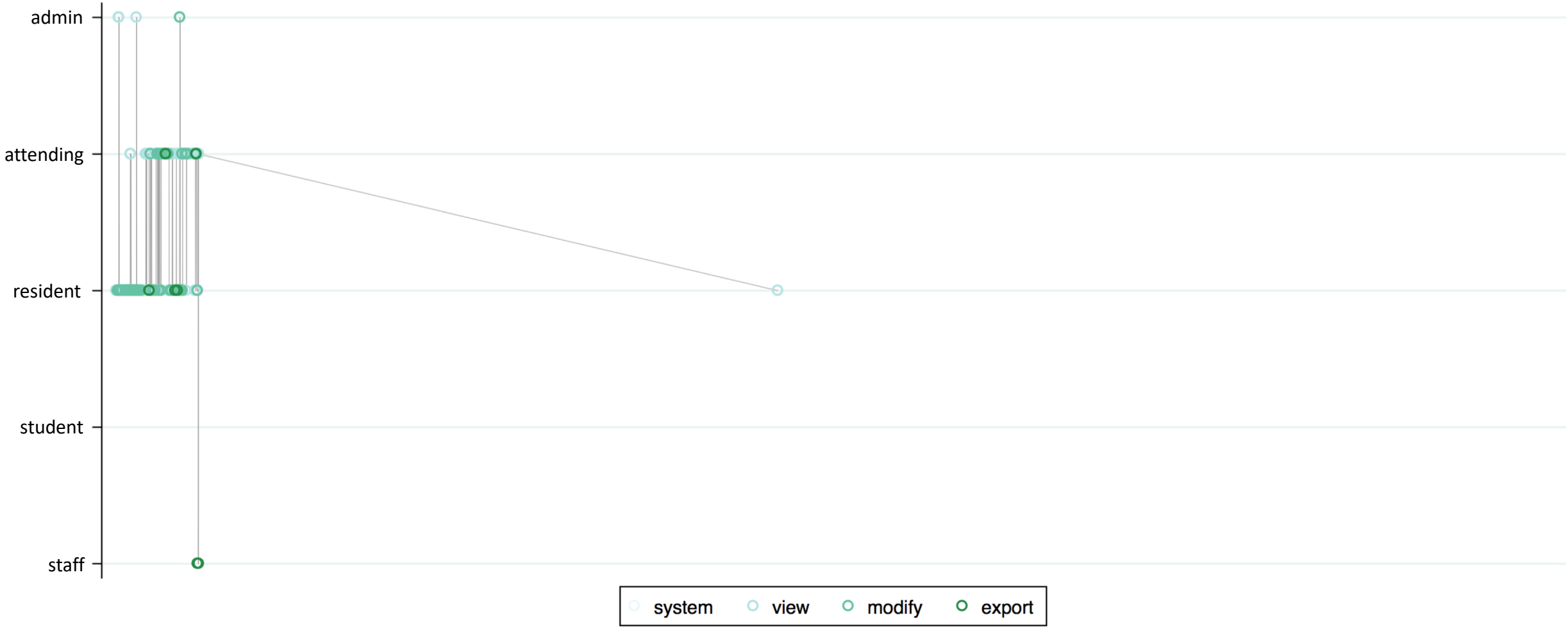
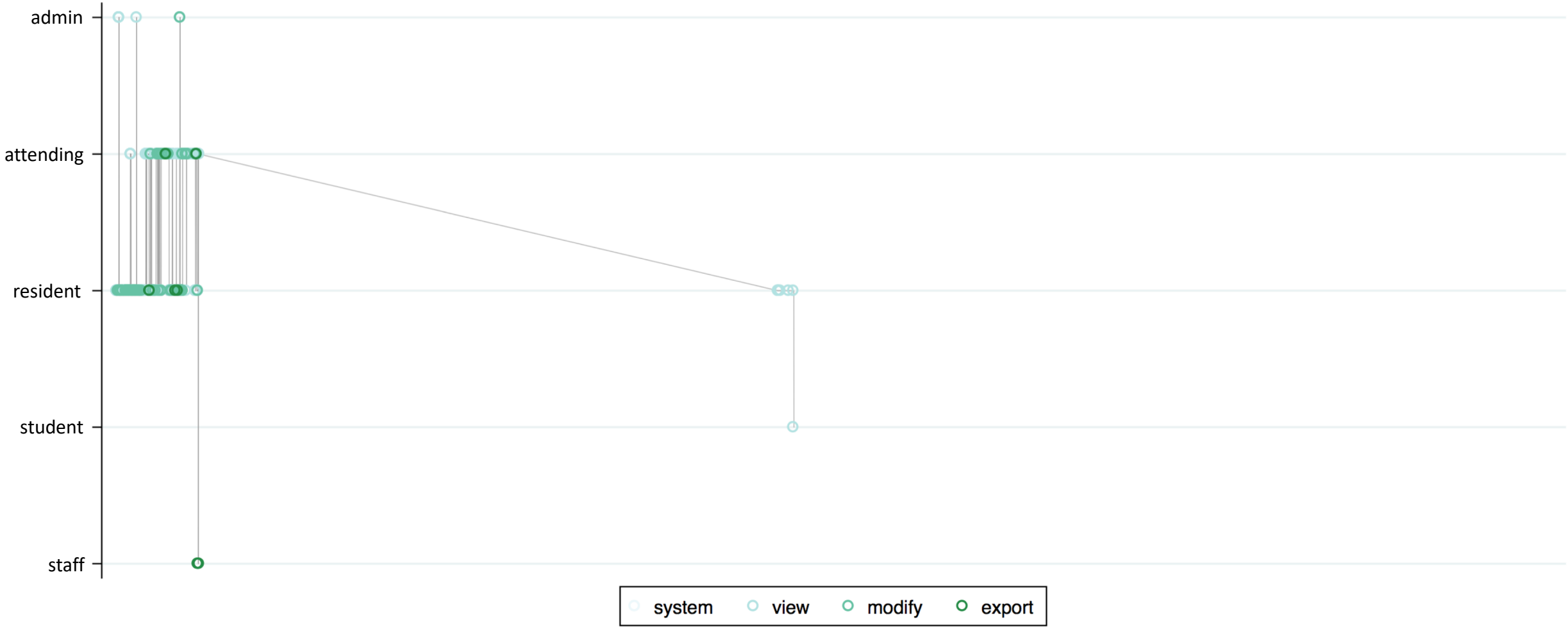
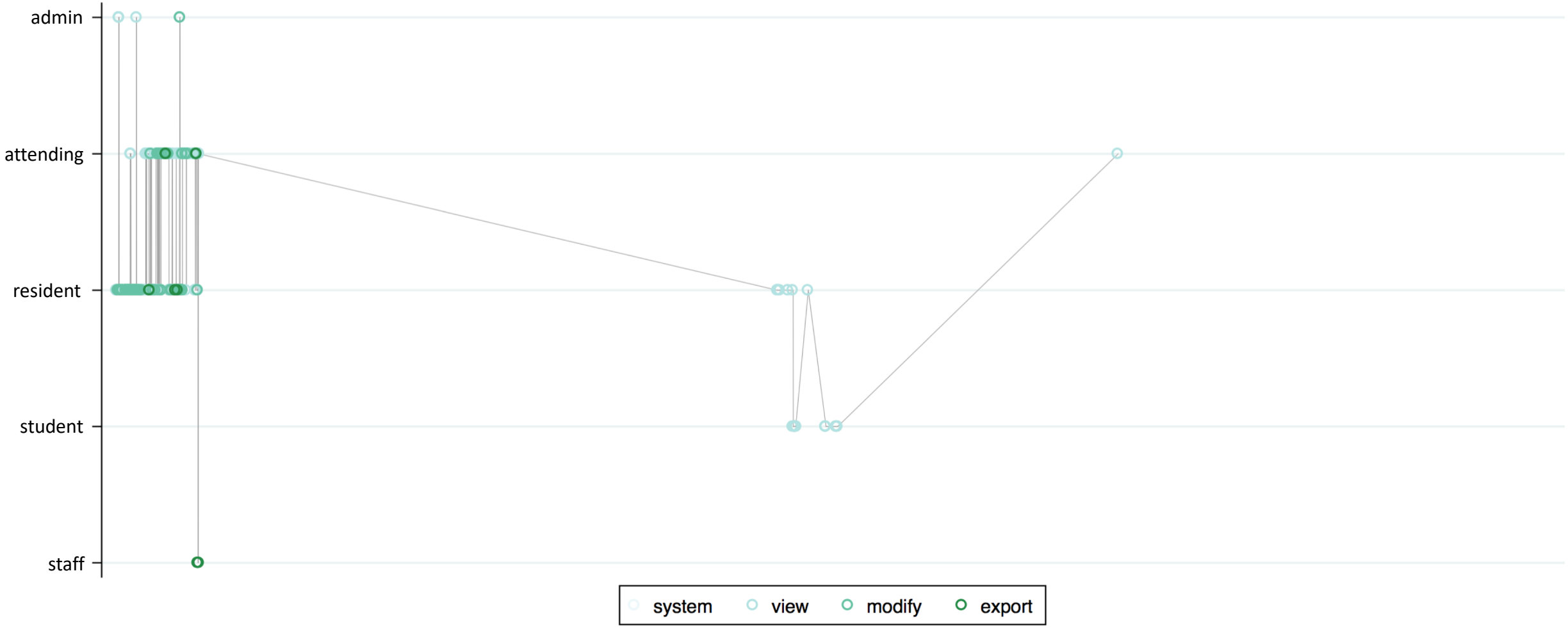


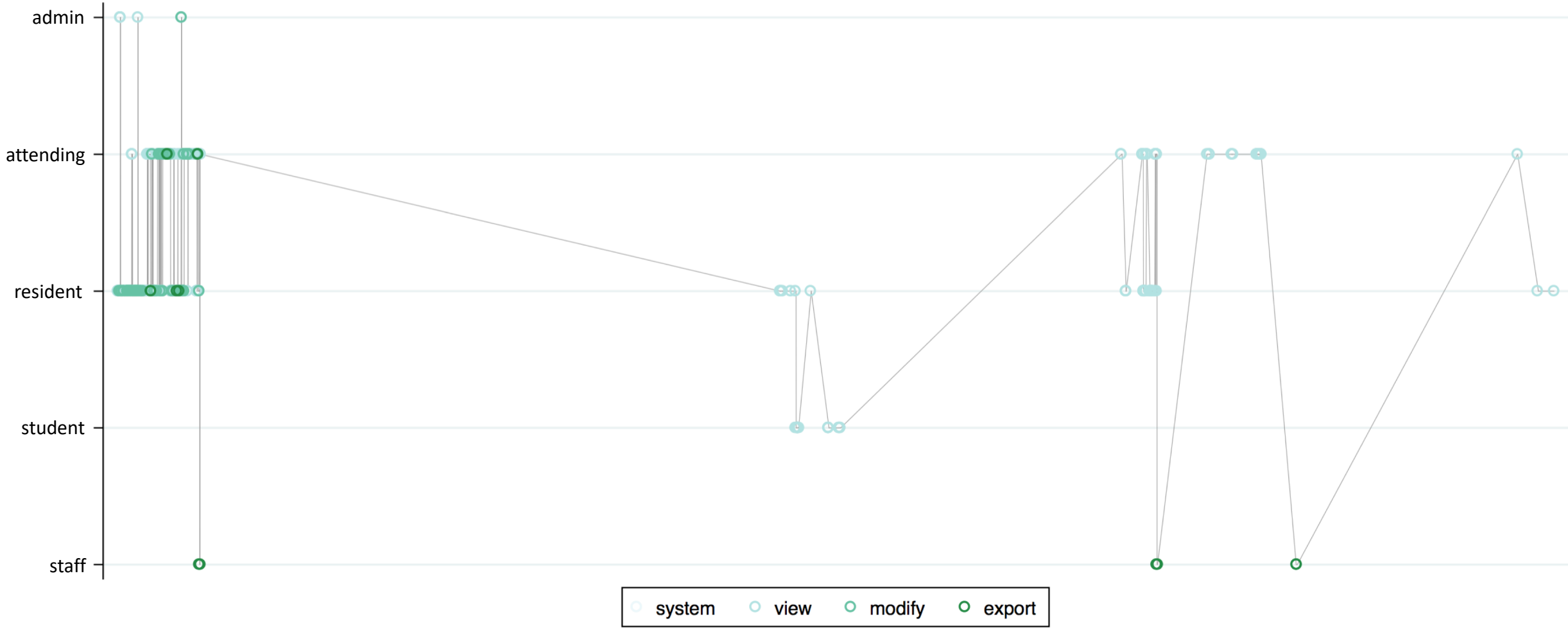
# Life of a patient



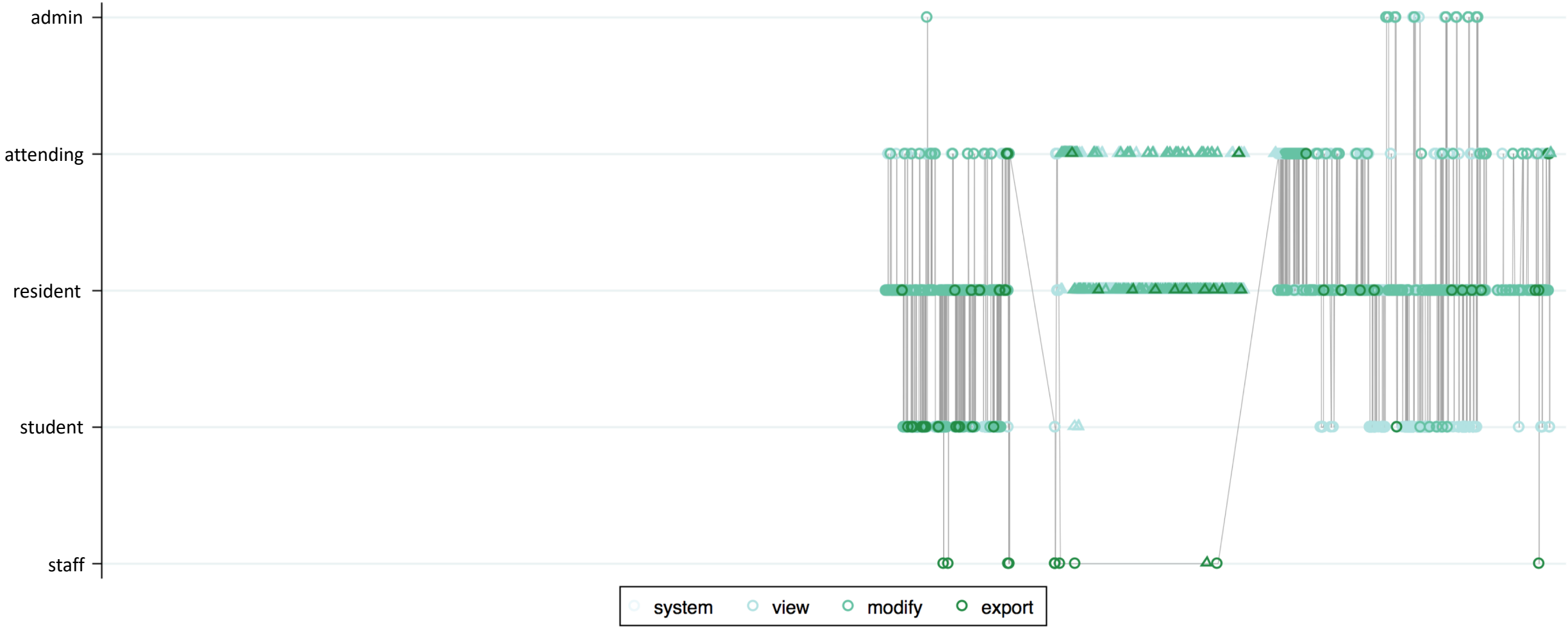
# Life of a patient



# Life of a patient



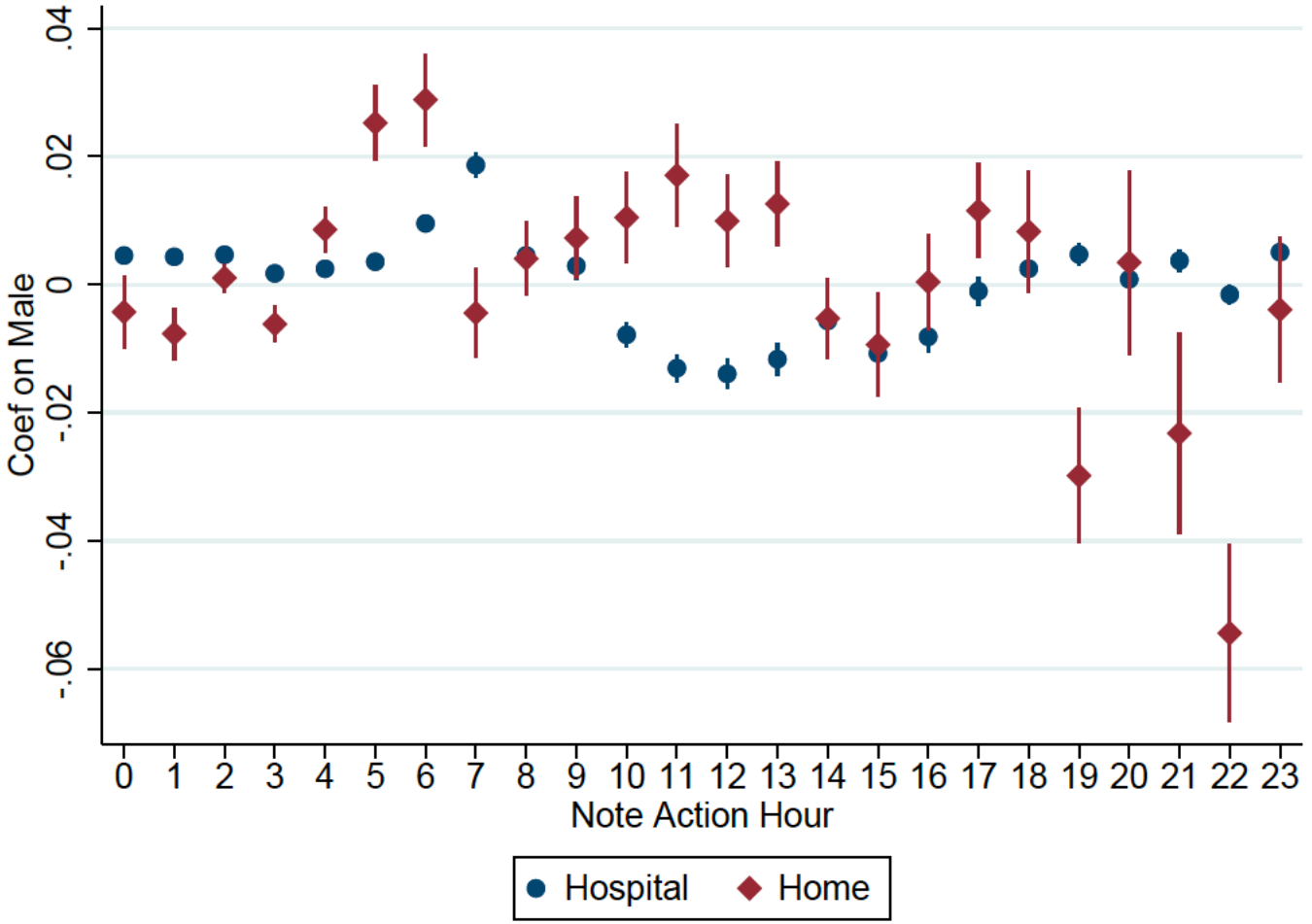
# Lives of two patients



# Gender and Job Structure

- Medicine has performed well in correcting gender imbalance
  - Top medical schools have majority female
  - Faculity in academic medicine, particularly younger cohorts
- Question: does aggregate gender composition mask differences in work?
- Differences in job description may reflect:
  - Job flexibility to enhance opportunities for female employment (Goldin, YEAR)
  - Work expectations that lower life satisfaction and lead to burnout
- Study this question using EMR meta-data to measure work at a granular level (preliminary work)
  - Distinguish in-office from VPN access to Epic system

# Hourly Work Profiles by Gender




Coefficients on male from regressions include rich controls including specialty, medical school, graduation date

# Understanding Information, Incentives and Efficiency

- Numerous models rationalize physician decisions based on private information and rational expectations (e.g. Roy models of treatment)
- Opportunity to leverage rich data and ML tools to better understand how well a physician *could* do
- Einav et al. (2018) explore this issue for end of life spending
- 5% of Medicare beneficiaries die in a year but 25% of Medicare spending is on those who die
- Often interpreted as waste and typically viewed through a lens of pecuniary incentives and full information
- Key question: are doctors spending on people who are going to die?

# Predicting Mortality

- Einav et al. (2018) use Medicare claims (20% sample) data to train an ensemble machine learner to predict mortality
- Use model estimates to assess resources spent by *ex ante* mortality risk (also build "oracle" model weighing actual mortality as a share of the prediction with little change in results

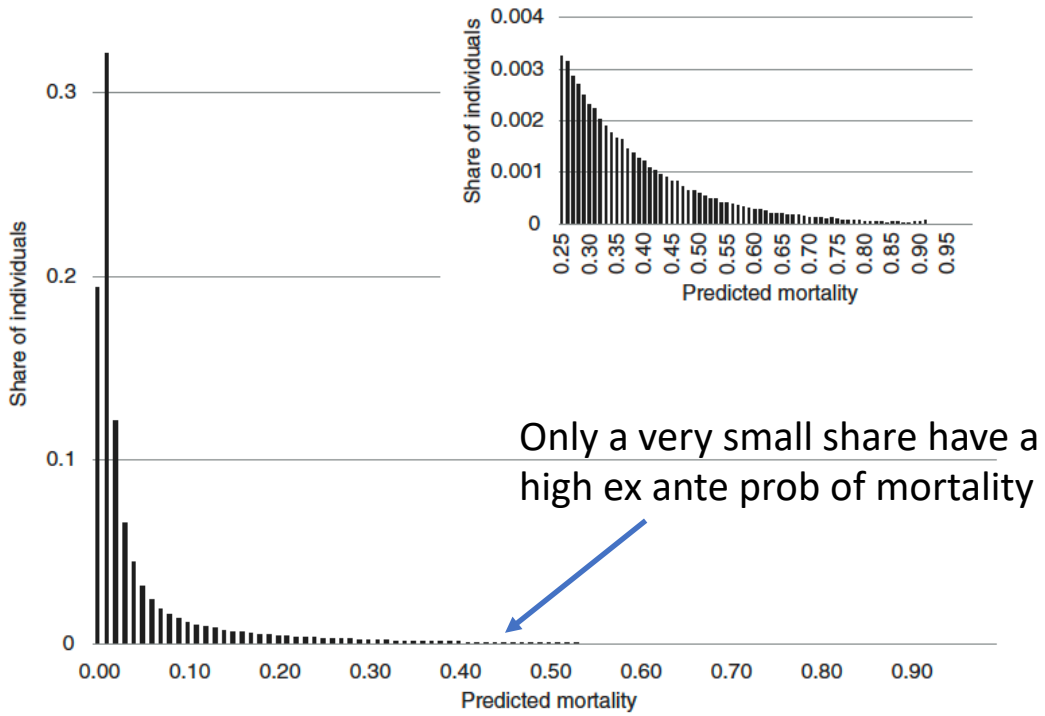



**Fig. 2. Distribution of predicted mortality.** The distribution of predicted annual mortality from 1 January 2008 is shown. Data are from the test subsample ($n$ = 1,877,168). The inset provides more detail about the corresponding section of the distribution.

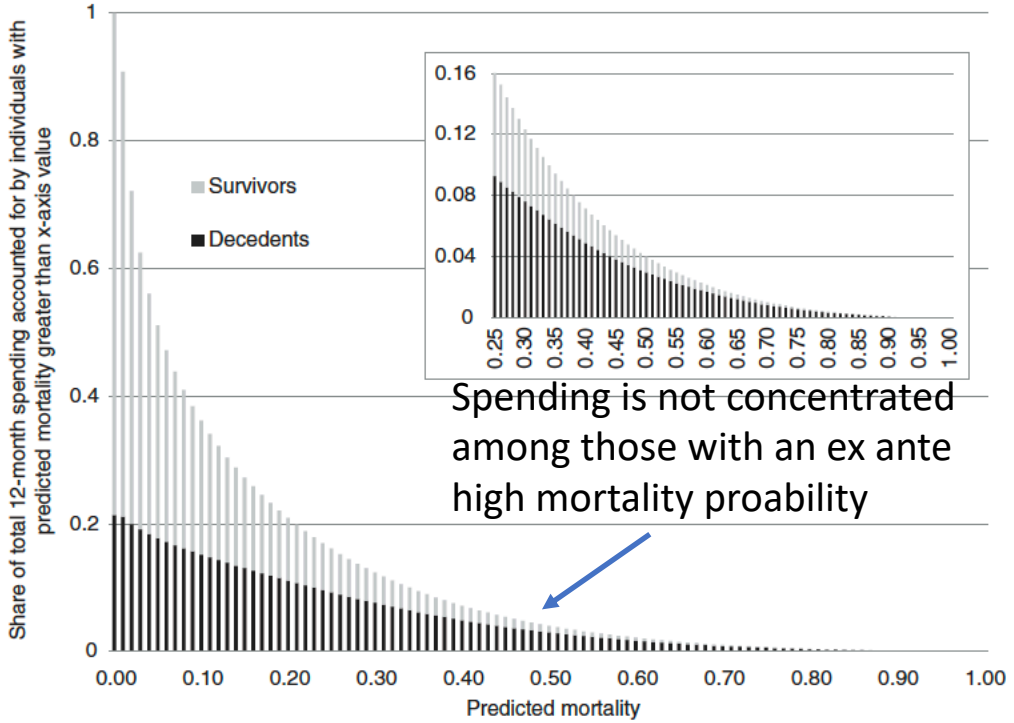
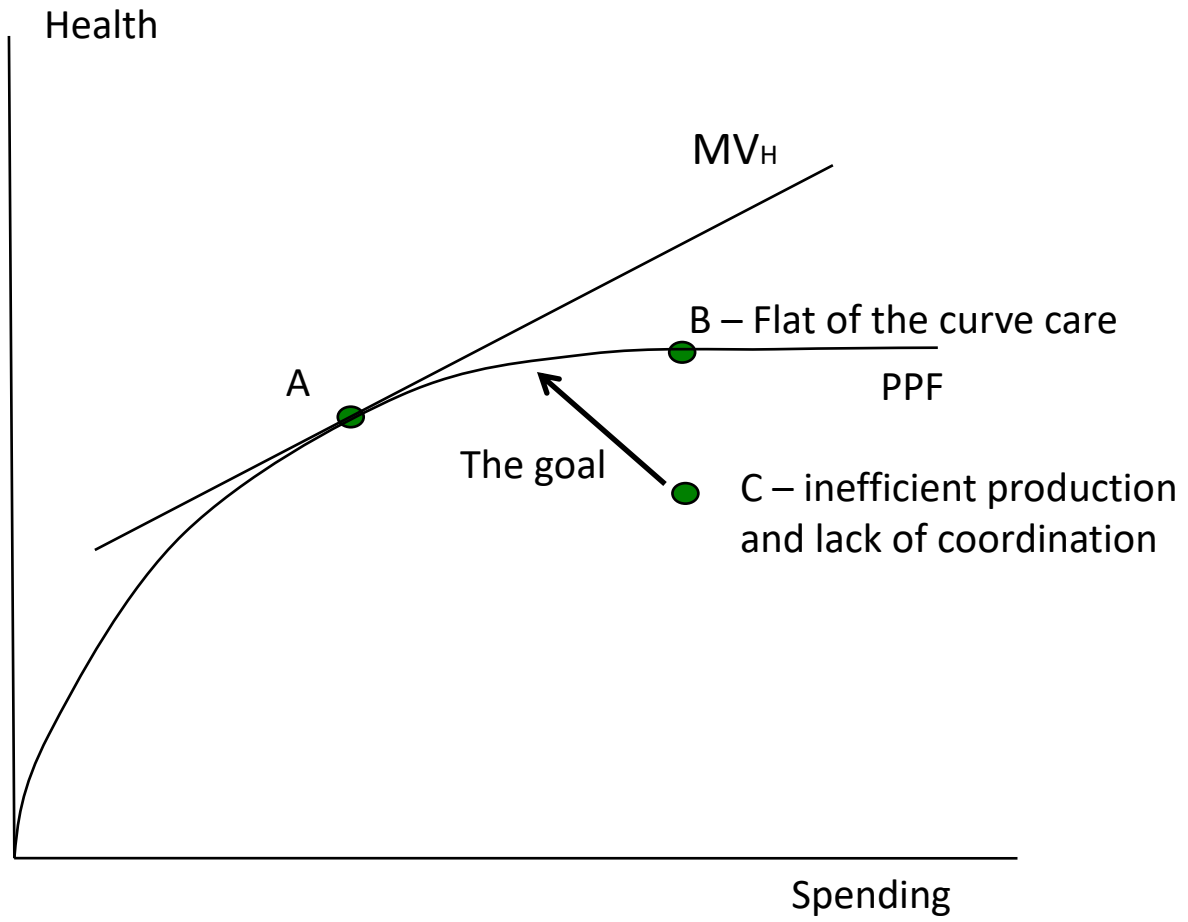



**Fig. 3. Concentration of spending by ex ante mortality.** For each level of predicted annual mortality ($x$ axis), the share of total annual Medicare spending accounted for by individuals with predicted

# Outline

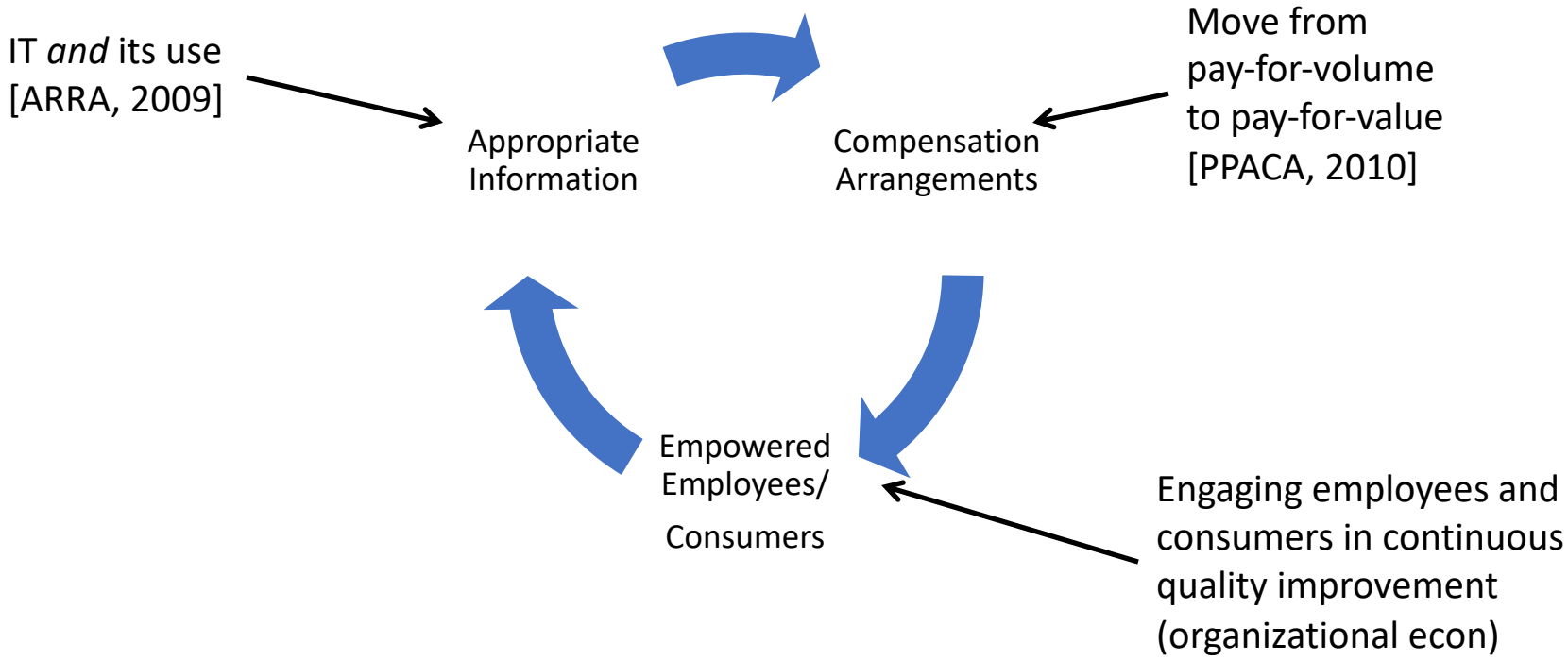
- Efficiency, cost and organizational economics
- Teams and Incentives
- Information and Incentives
- **Vertical Integration and Care Fragmentation**
- Nuts and Bolts of Org Econ in Health Care Markets

# A Framework for Efficiency



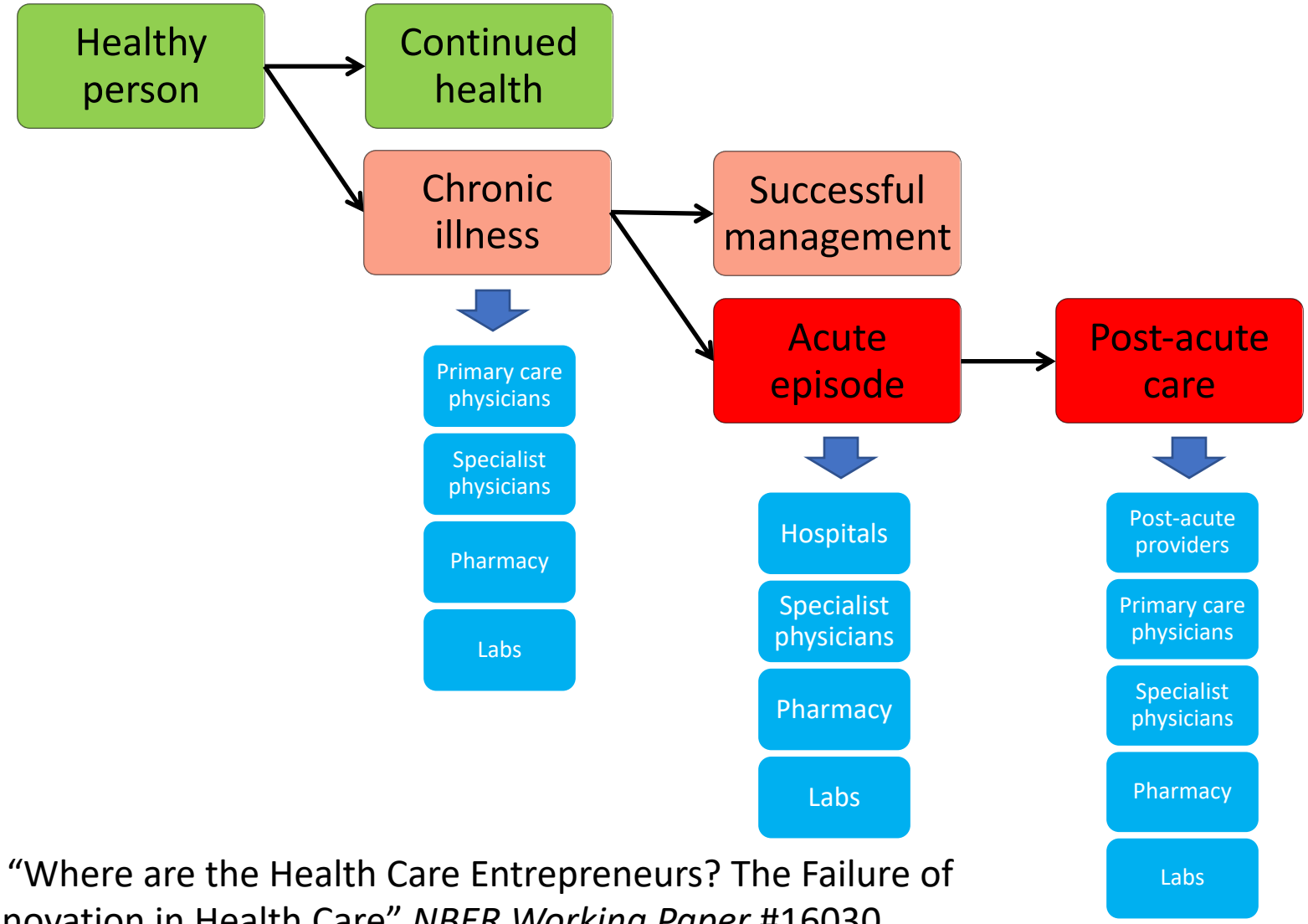

Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

# Medicare-led reform: the theory



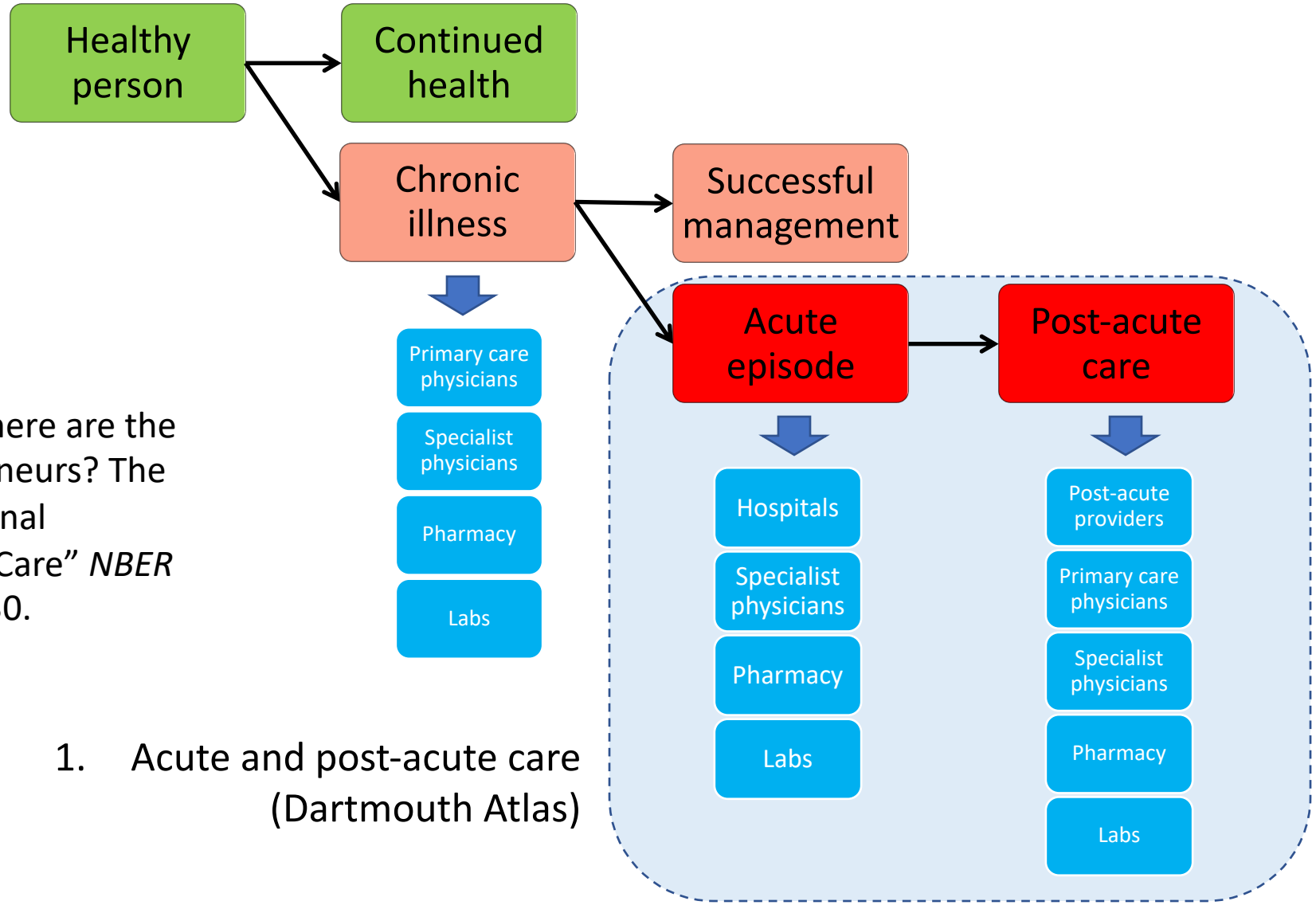

Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

# Three areas of high spending




Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

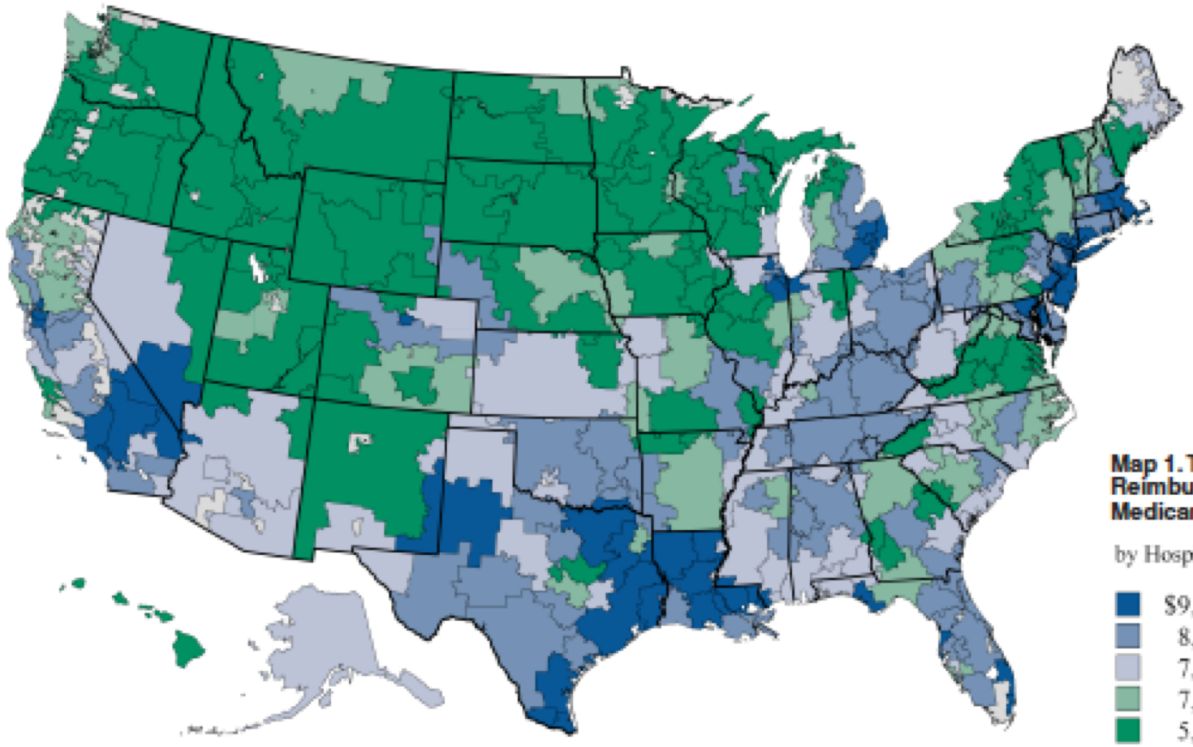
# Three areas of high spending




Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

1. Acute and post-acute care (Dartmouth Atlas)

# Spending Variations



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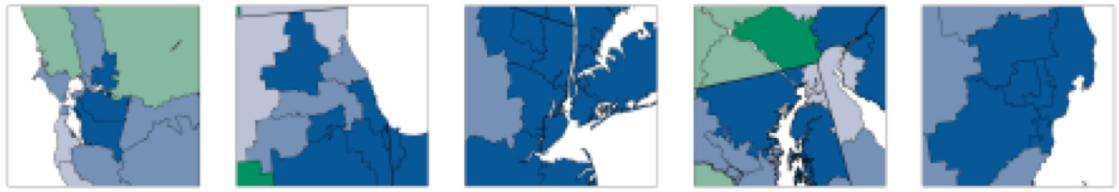
**Map 1. Total Rates of Reimbursement for Noncapitated Medicare per Enrollee**

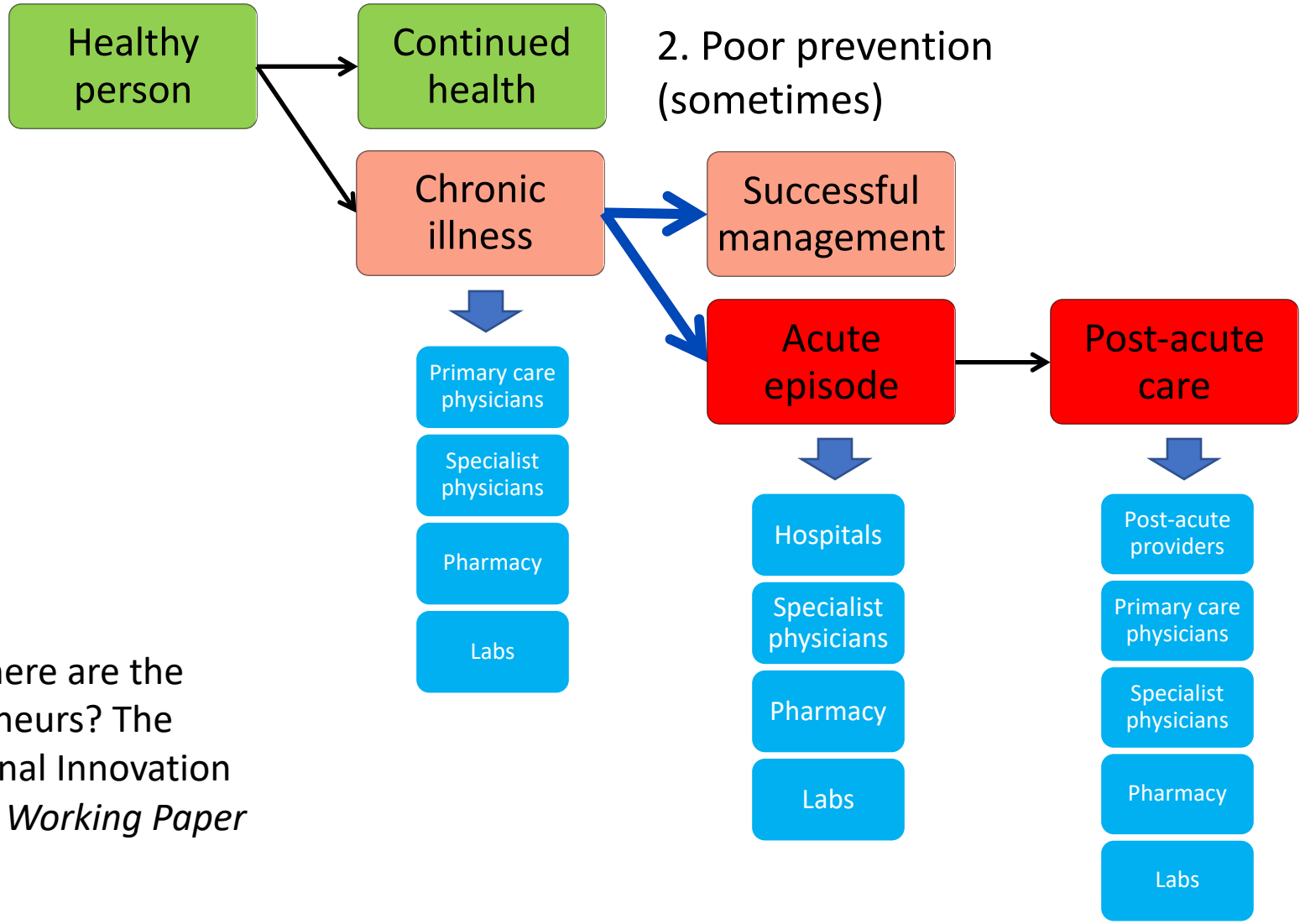
by Hospital Referral Region (2006)

- $9,000 to 16,352 (57)
- 8,000 to < 9,000 (79)
- 7,500 to < 8,000 (53)
- 7,000 to < 7,500 (42)
- 5,310 to < 7,000 (75)
- Not populated



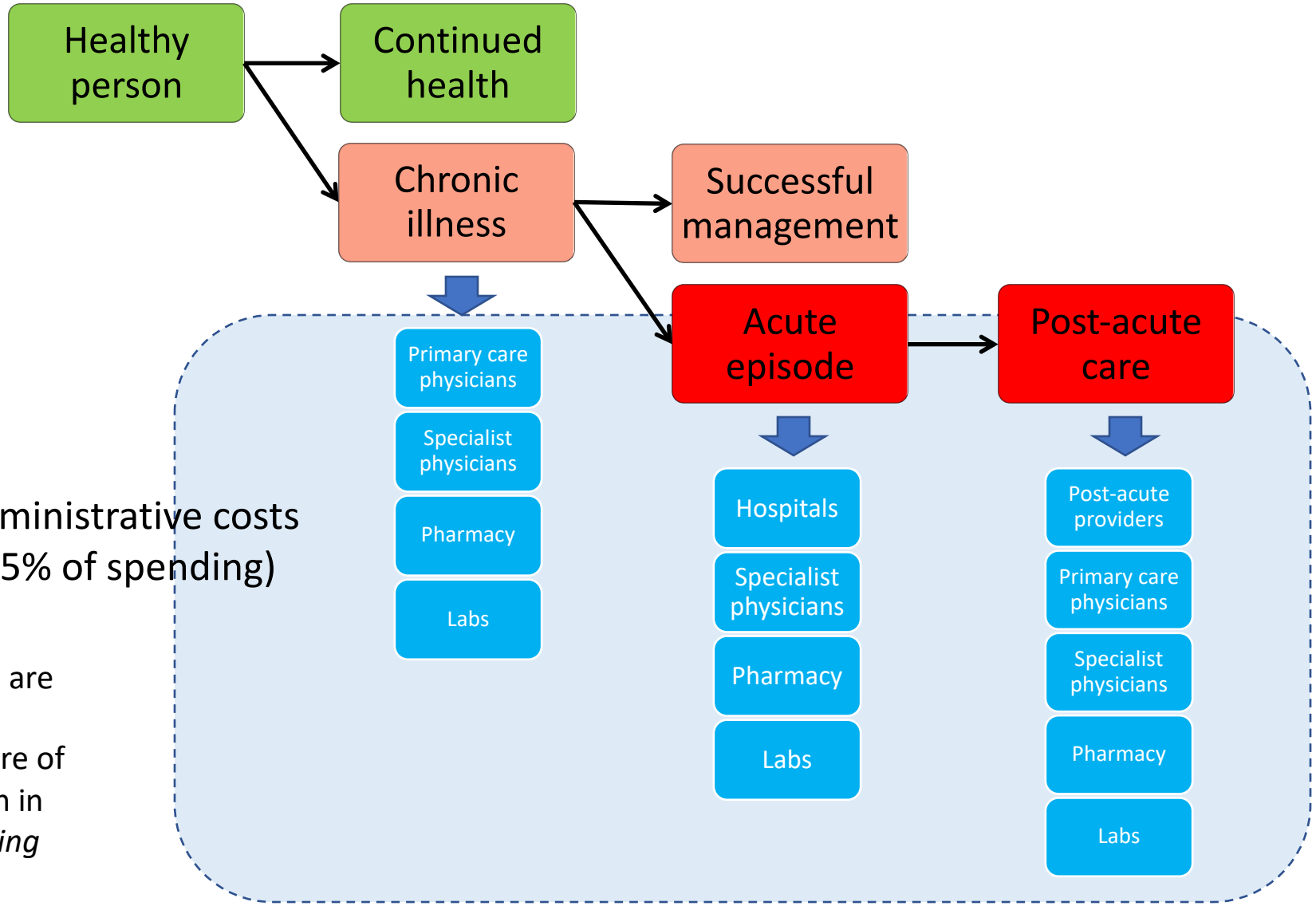
San Francisco | Chicago | New York | Washington-Baltimore | Detroit

# Three areas of high spending




Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

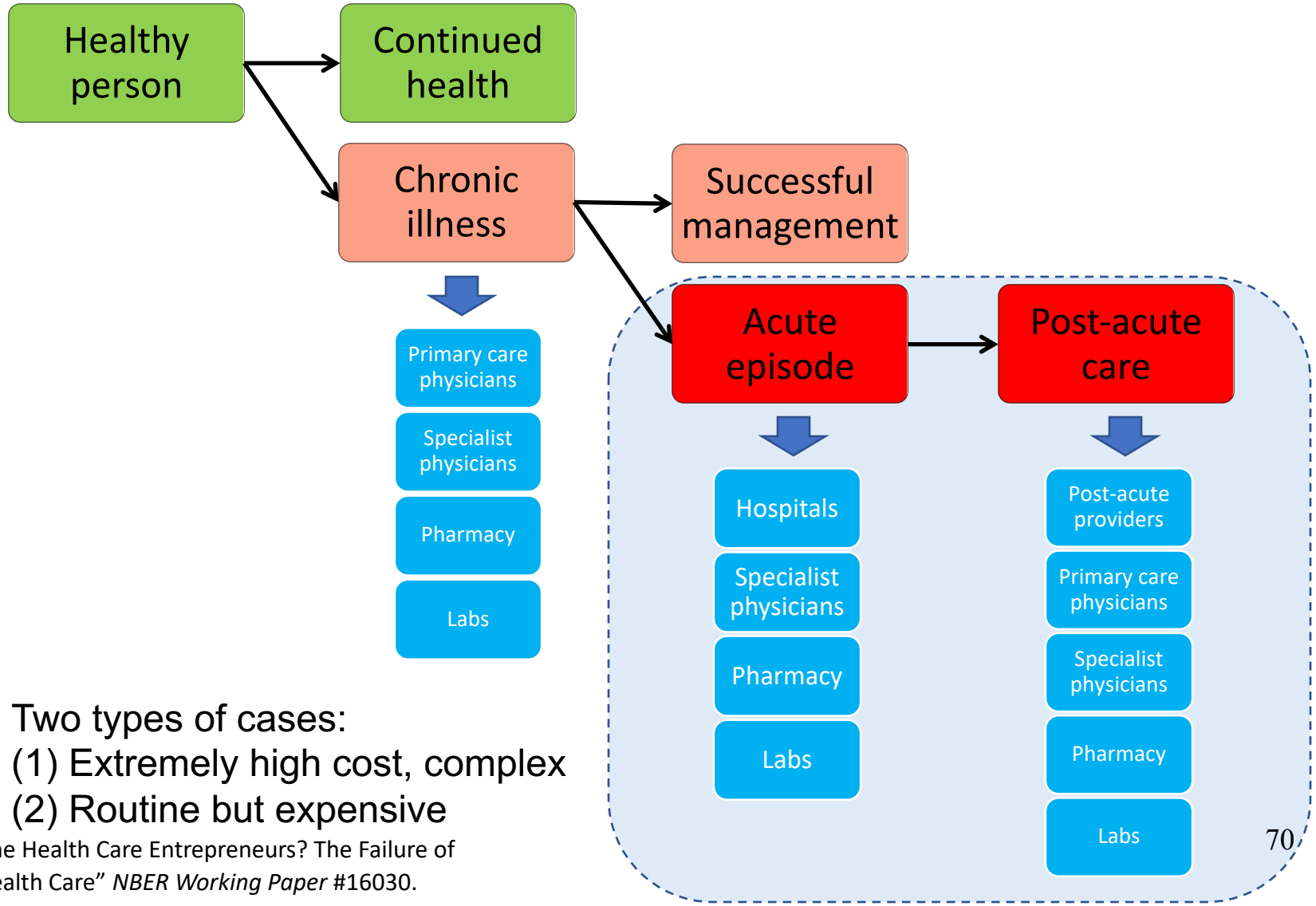
# Three areas of high spending




3. Administrative costs (10-15% of spending)

Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

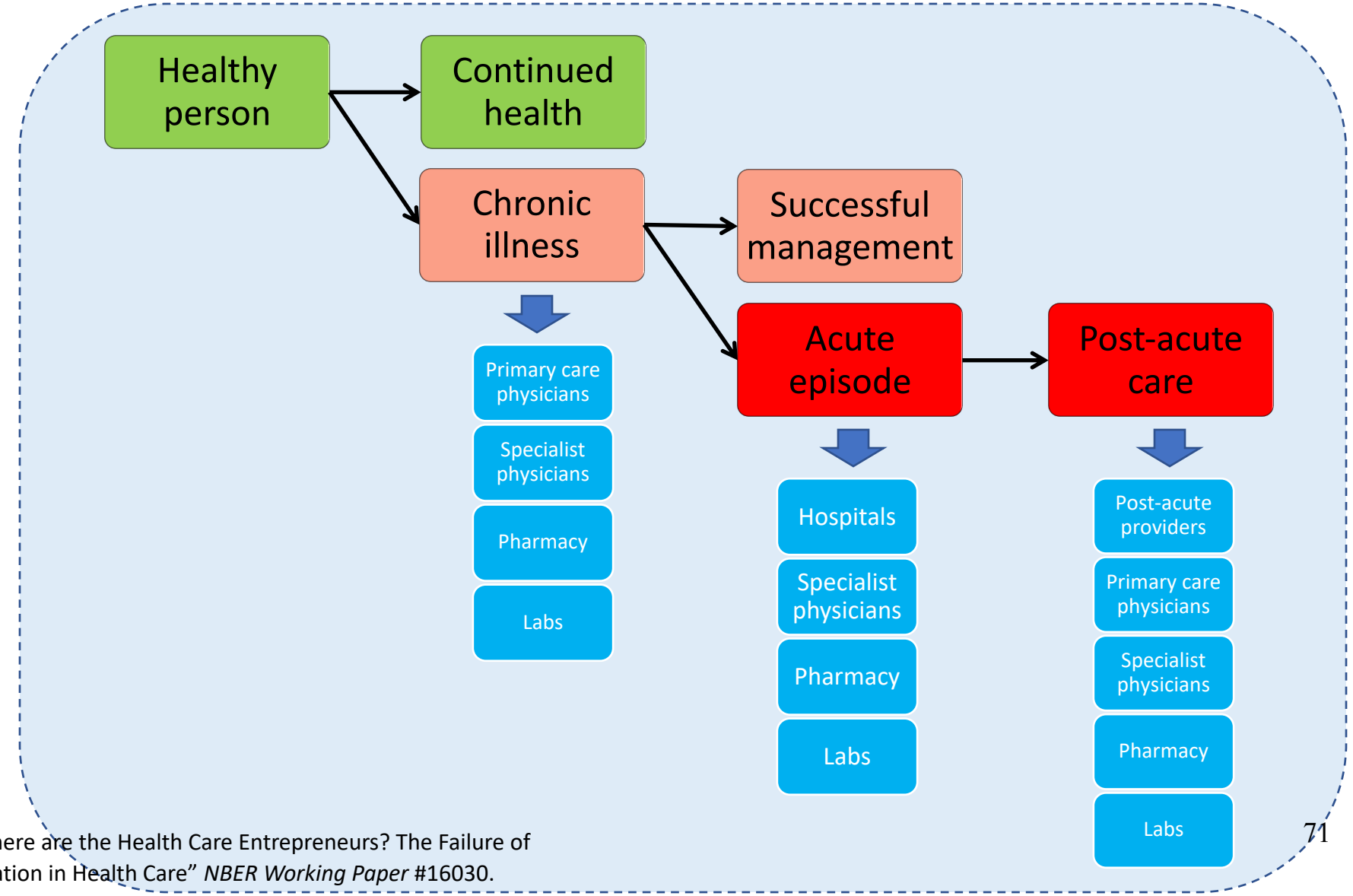
# Bundled acute care payments




Two types of cases:
(1) Extremely high cost, complex
(2) Routine but expensive

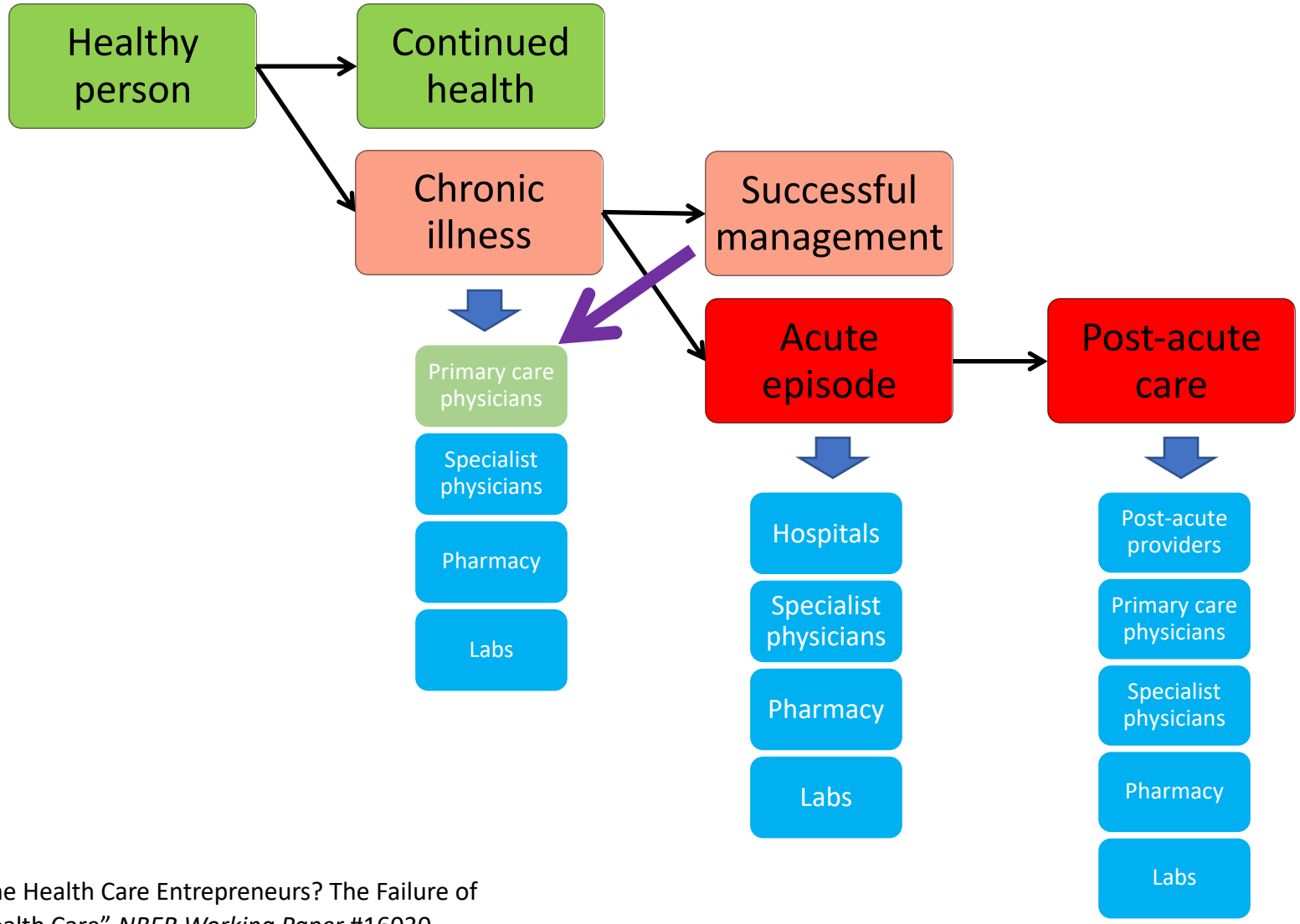
Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

# Accountable Care Organizations



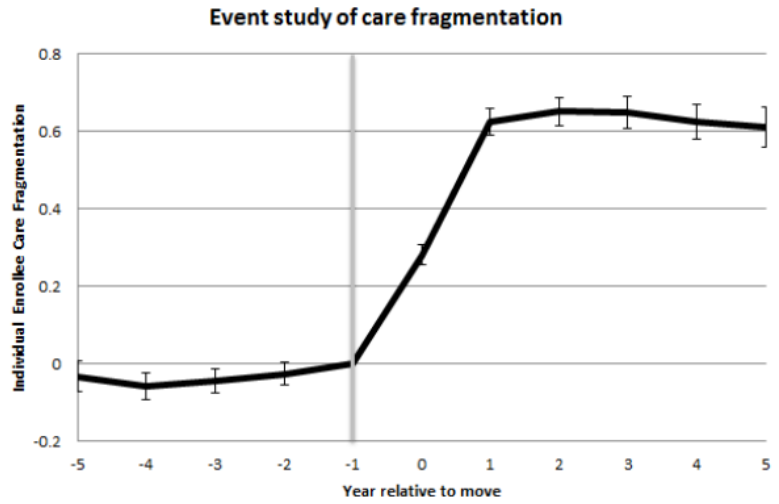

Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

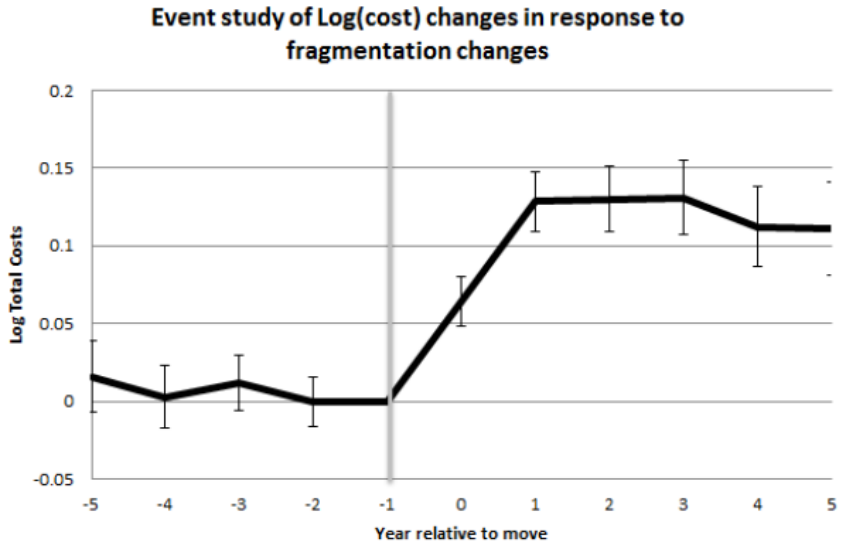
# Performance-Based Payment

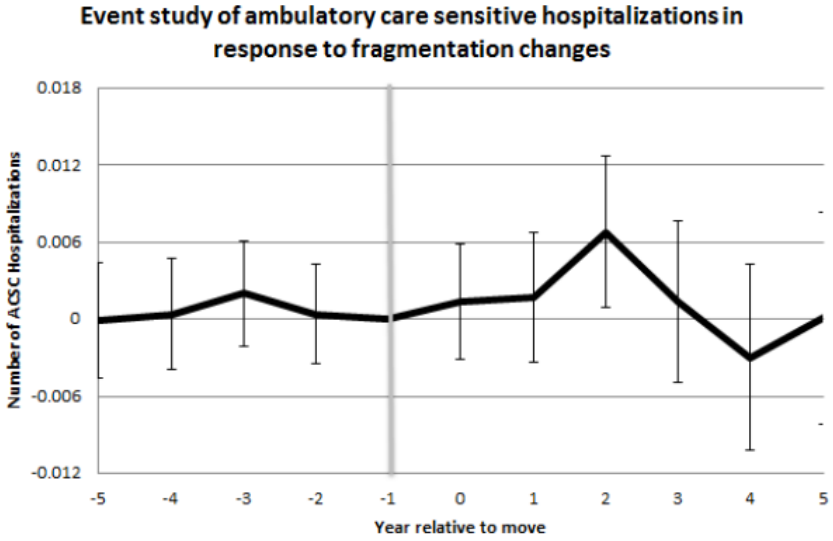



Source: Cutler, D "Where are the Health Care Entrepreneurs? The Failure of Organizational Innovation in Health Care" *NBER Working Paper* #16030.

# Causal Evidence on Fragmentation and Care



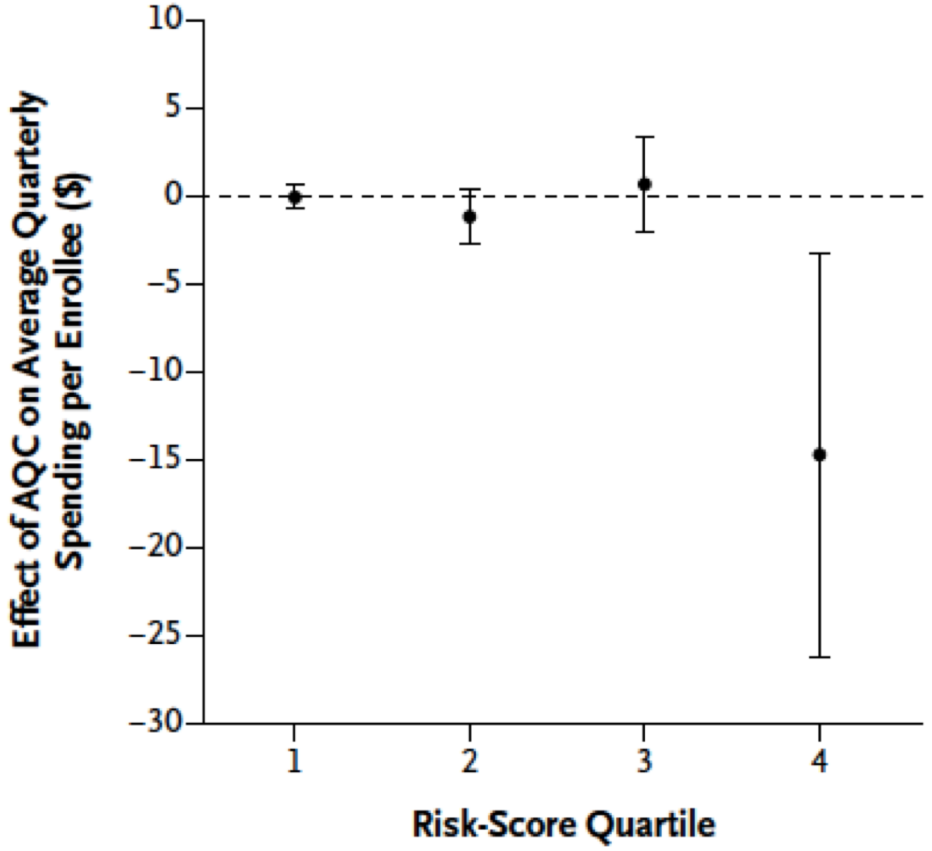




- Numerous studies of fragmentation but hard to find causal evidence
- Agha, et al. (2016) study Medicare beneficiaries who move across locations → event study design
- Increased fragmentation leads to increased cost but little impact on hospitalizations
- At most 25% of variation in cost can be explained by fragmentation

# The AQC Experience

- Beginning in 2009 Massachusetts BCBS allowed physician groups to take on risk for patient cost
- 7 provider groups took on contracts (380k enrollees)
- Year 1 Results:
  - Spent 1.9% less per quarter
  - Improvements in management of chronic conditions but little evidence for preventive care
  - Much of the savings came through changing sources of outpatient care
  - Total cost (including bonus payments for quality) exceeded savings

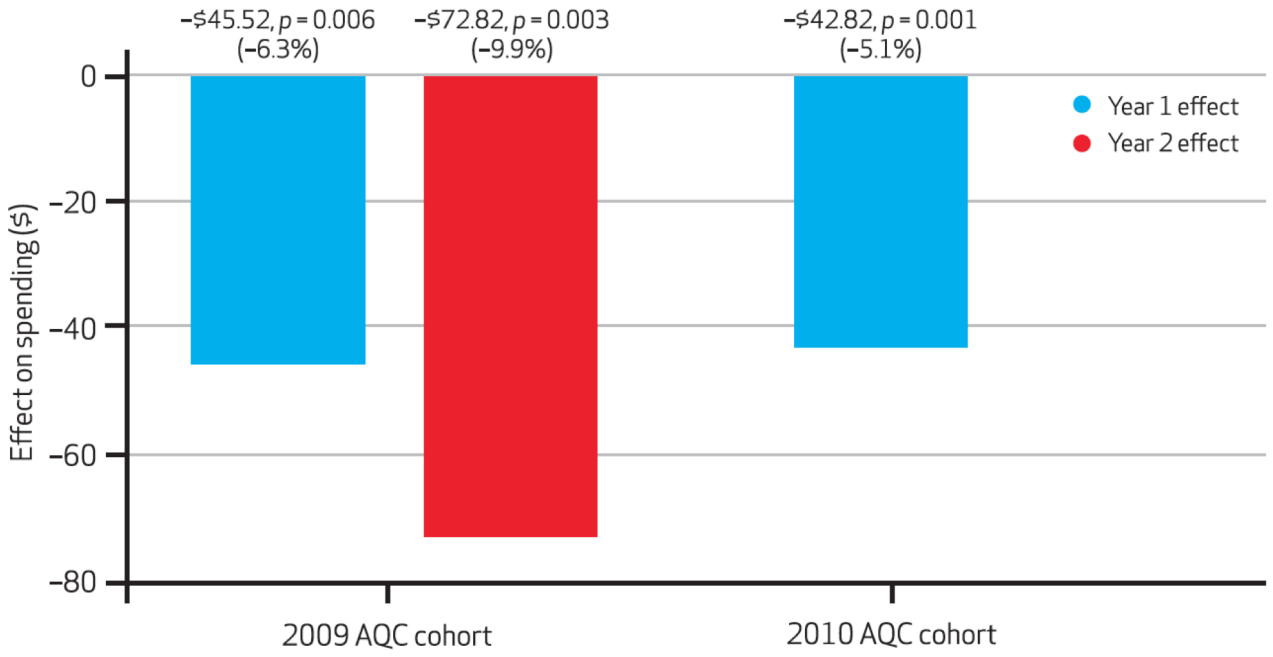



Source: Song, Z, et al. "Health Care Spending and Quality in Year 1 of the Alternative Quality Contract" *New England Journal of Medicine*, 2011.

# Longer Run Impacts of the AQC

- Interested in longer run impacts for providers who were new to risk based payments
- Long run cost reduction and improvements in (measured) quality of care

**Estimated Year 1 And Year 2 Effects Of The Alternative Quality Contract (AQC) On Spending In The 2009 And 2010 Cohorts' No-Prior-Risk Groups, Blue Cross Blue Shield Of Massachusetts**




Source: Song, et al. 2013, "The 'Alternative Quality Contract,' Based On A Global Budget, Lowered Medical Spending and Improved Quality." *Health Affairs*

# Implications for Organizational Economics and Health Research Agenda

- Understanding the detail of how organizations function and how they respond to incentives will be key
  - Role for integration and fragmentation in explaining cost
- Gaynor et al. (2004) develops a central trade-off: pooling incentives across doctors smooths impact of high cost patients on other patients but also leads to free riding (which may be undone by peer monitoring)
- Important question: what make Kaiser Permanente different? Does their lack of expansion imply an inefficient model? (Ho, 2009)
- Better data (e.g. APCDs) and more granular view may yield insights

# Outline

- Efficiency, cost and organizational economics
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- Vertical Integration and Care Fragmentation
- **Nuts and Bolts of Org Econ in Health Care Markets**

# Nuts and Bolts of Organizational Economics Papers in Health

- How does one get started? (Sure, granular data is cool but how can I get access?)
- Organizational economics is messy
  - Most specific settings have numerous interesting and high impact questions (Duflo, 2017)
- Data access can be a primary constraint (see next slide) so start by getting the best data you can
  - RA on projects that have potential additional uses
  - Monitor public data sources
  - Read new papers with an eye on the data section
  - Talk to practitioners (e.g. friends from undergrad, people at your local business school, direct outreach to companies)
  - Look at the trade press (e.g. Modern Health Care, Health Affairs)
  - Generate your own data (e.g. management survey)

# Conclusion

- Organizational economics in health care is a new but growing area of research
- New data sources and interested partners to study these questions
- Requires getting in the weeds (being a “plumber”)
- New methods may be critical to accommodate new data sources
- Tremendous setting to study skilled actors making numerous high stakes decisions (impact beyond health care)
- Important role for information frictions and behavioral incentives/preferences (e.g. information frictions, peer monitoring)