Changing the Game of Patient Experience
Insights from Game Theory

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presented to Fuqua Health Sector Advisory Board
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A bit about me ...

1. **Research**: Economic theorist
   - especially game theory and “games buyers and sellers play”
   - “Isotone Equilibrium in Games of Incomplete Information,” *Econometrica*, 2003

2. **Teaching**: “Game Theory for Strategic Advantage”

3. **Practice**: “Game-Changer”
A bit about me ...

1. **Research**: Economic theorist
2. **Teaching**: “Game Theory for Strategic Advantage”
   - **ambition**: give students *strategic advantage* in the strategic interactions (“games”) in their lives
   - **audacity**: as their final project, student teams must identify (and creatively “solve”) a pressing strategic challenge
   - e.g. “A Scourge of Piracy in Somali Seas” by Beca Howard, Dan Flack, Phil Johnston, Jeff Markman (2012)
   - e.g. “Upholding the Hippocratic Oath: Overcoming Challenges Posed by Drug-Seeking Patients” by Alex Kerr, Blake Lloyd, Dan Reese, and Sarah Schiavetti (2012)
3. **Practice**: “Game-Changer”
A bit about me ...

1. **Research**: Economic theorist
2. **Teaching**: “Game Theory for Strategic Advantage”
3. **Practice**: “Game-Changer” – in the book, essentially, I did *about a dozen* final projects of my own!!*, e.g.
   - **online fraud**: “Vacation Rental by Owner” [HomeAway, airbnb]; “eBay Reputation”
   - **deceptive fundraising**: “Dialing for Dollars” [InfoCision]
   - **price-post collusion**: “Price-Comparison Sites” [PriceGrabber]
   - **perverse agency**: “Real-Estate Agency”
   - **molecular diagnostics**: “Antibiotic Resistance” [Cepheid]
   - ...
A bit about me ...

1. **Research**: Economic theorist
2. **Teaching**: “Game Theory for Strategic Advantage”
3. **Practice**: “Game-Changer” – my current interests include several relevant to medicine [*focus of talk*] [*in the book*]:
   - *molecular diagnostics & reversing antibiotic resistance*
   - *molecular diagnostics & drug development* [presented at GSK]
   - *viruses & nanoviricides* [never presented]
   - *patient satisfaction & perverse incentives*
   - *new frontiers for relational medicine* [presented at PRTBTC]
Game Plan

• The strategic ecosystem of complex care

• Perverse metrics

• Relational medicine [as time permits]
What are Games?

“No Man is an Island, Entire of Itself”
- John Donne, 1624

A game is any situation with multiple interconnected decision-makers, i.e. in which my decision impacts you and/or your decision impacts me.
Strategic ecosystem of complex care

PRIMARY GAMES
– patient and provider(s)

– communication
– treatment selection
– adherence
– billing
– satisfaction
– ...

Patient

Provider Team
Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

– coordination of care
– competition for resources
– …
Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

KEY THIRD-PARTIES
– hospitals

– reputation / visibility
– co-location
– patient data
– pricing / billing
– financial incentives for doctors
– ...

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Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

KEY THIRD-PARTIES
– hospitals
– insurance providers & government payers

– negotiated pricing
– co-payments
– formularies
– incentives for hospitals
– ...

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Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

KEY THIRD-PARTIES
– hospitals
– insurance providers & government payers
– sources of medical info

“[From] the beginning, we wanted scientific credibility to be a clear differentiator of what we are doing.”
– Paul Wicks, R&D Director, PatientsLikeMe
Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

KEY THIRD-PARTIES
– hospitals
– insurance providers & government payers
– sources of medical info
– family

– influence treatment choice
– influence compliance
– emotional support
Strategic ecosystem of complex care

PRIMARY GAMES
– patient and providers
– among provider team

KEY THIRD-PARTIES
– hospitals
– insurance providers & government payers
– sources of medical info
– family
– satisfaction surveyors

“For nearly 30 years, Press Ganey’s mission has been to support health care providers in understanding and improving the entire patient experience.” – pressganey.com
Game Plan

• The strategic ecosystem of complex care

• **Perverse metrics**
  – *Case Study*: patient satisfaction in the ED

• Relational medicine [as time permits]
The Danger of Tying Incentives to Metrics

“The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.”

- Donald T. Campbell, president of the American Psychological Association, 1976
Ecosystem Focus – Perverse Metrics
Ecosystem Focus – Perverse Metrics

[treatment]  [incentives]

[satisfaction monitoring]  [satisfaction incentives]
Incentives: Surprisingly Subtle
Multiple Tasks

• Providers must often balance multiple essential tasks
  – e.g. communicating with patient vs. documenting chart
Incentives: Surprisingly Subtle
Multiple Tasks

• Providers will tend to allocate effort AWAY from tasks that are not measured by performance metrics
  – e.g. if patient satisfaction is the metric, providers will tend to focus more on communication and less on documentation
Incentives: Surprisingly Subtle
Multiple Tasks

- Providers will tend to allocate effort AWAY from tasks that are not measured by performance metrics.
- If both tasks equally important, not using any task-specific metrics may be best.
Incentives: Surprisingly Subtle
Gaming the System

- Absent any incentives, a **valid metric** may exist that is associated with the desired outcome
  - e.g. patient satisfaction with discharge is associated with lower hospital readmission rate, where a plausible causal channel is patient understanding of discharge instructions.
Incentives: Surprisingly Subtle
Gaming the System

- Once incentives are introduced, the metric may become invalid as providers focus on boosting the metric for its own sake
Example: Invalid & Perverse Metric

Customer Satisfaction

“Attempting to measure and reward accuracy in paying surgical claims, [a large insurance company] kept track of the number of returned checks and letters of complaint received from policyholders ...”

-- “On the folly of rewarding A, while hoping for B” by Steven Kerr, Academy of Management Journal, 1975
"When in doubt, pay it out!"

- Before claims adjusters are incentivized to minimize complaints, the number of complaints might well be a valid metric of an adjuster’s work quality.
“When in doubt, pay it out!”

- Diligence and Fairness
- Lax Payout Standards
- Accuracy of Claim Payouts
- Few Customer Complaints

• BUT once incentivized to optimize this metric, adjusters abandoned accuracy entirely – the metric became *perverse* as well as invalid!
Is Patient Satisfaction a Valid Metric of High-Quality Care?

“Patients can sense if a hospital is doing things right. If you want to figure out if a hospital is providing high-quality care, asking patients if they were satisfied is a better indicator than whether the staff competently performs a battery of tests.”

-- Rick Staelin, Fuqua professor of marketing, February 2011
… Not In All Ways [Surgical Care]

“In a study of surgical care, patient satisfaction was not associated with performance on process measures (antibiotic prophylaxis; appropriate hair removal; Foley catheter removal; deep vein thrombosis prophylaxis).”

... And Not Always [Open Communication]

“A 2012 study by investigators in the Dana-Farber Cancer Institute found that patients who were better informed about the grim nature of their cancer and the goals of their treatment were less satisfied with their physicians. Such findings put a physician in a quandary: a more informed patient or a more satisfied one?”

-- Haider Javed Warraich, resident in internal medicine, Beth Israel Deaconess Medical Center, in LA Times, October 2013
Patient Satisfaction Incentivized (by Medicare)

“Patient satisfaction is a key and growing measure of success in healthcare today. Starting in October 2012, Medicare will begin taking patient satisfaction into account when reimbursing hospitals ... This will create even more competition between hospitals to satisfy patients, with those garnering the best scores receiving more money.”

Patient Satisfaction Influenced (by hospitals)

“AccuVein’s study found that 93% of patients would give a hospital a higher satisfaction score if vein illumination were utilized. Furthermore, 94% of patients expressed the desire to have vein illumination used each time they were stuck, suggesting a desire to have a facility-wide adoption of the technology.”

-- AccuVein press release, March 2012
Patient Satisfaction Incentivized (by hospitals)

“More physicians, no matter their specialty or practice setting, are finding their care graded on patient-satisfaction surveys that are used to determine pay.”

-- American Medical News, November 2012
Game Plan

• The strategic ecosystem of complex care

• Perverse metrics
  – *Case Study:* patient satisfaction in the ED
    • Press Ganey ED scores: invalid + perverse
    • what hospitals (and Medicare) can do about it

• Relational medicine [as time permits]
Emergency Medicine – Core Mission

Emergency physicians’ core mission is to stabilize at-risk patients until they can be admitted to the hospital for further care ...
Emergency Medicine – Ancillary Task

Emergent / Acute

Non-Acute

... but they also serve non-acute patients who are not ill enough to be admitted to the hospital.
Many sorts of metrics can be used to evaluate ED performance, e.g.

- clinical outcomes
- satisfaction of admitting physicians w/ ED care
- satisfaction of ED patients
Whose Satisfaction Counts?

“Patients admitted to the hospital do not receive Press Ganey emergency department satisfaction surveys. Some questions about the emergency department may be included on inpatient surveys, but [they only] count toward inpatient satisfaction scores.”

-- Drs. William Sullivan and Joe DeLucia in Emergency Physicians Monthly, September 2010
Critical Patients Don’t Count!!

- The only surveys that “count” are those from patients who are NOT admitted to the hospital.

[ED satisfaction survey]
Emergency Patients Don’t Count!!

- Low satisfaction scores can lead to job termination or less take-home pay.

Emergent / Acute

Non-Acute

[salary adjustment; job termination]

[satisfaction survey]

[satisfaction report]
“Nearly one in eight respondents [emergency physicians] had their employment threatened due to low patient satisfaction scores [on Press Ganey surveys].”

-- Emergency Physicians Monthly, December 2009
Perverse Incentive for Insufficient Care (?)

“[The fact that admitted patients don’t count creates a moral dilemma.] Should emergency physicians and nurses provide appropriate yet time-consuming care to high acuity patients, or should they provide a minimal amount of medical care to the sickest patients so that they can focus more attention on patients who will be completing satisfaction surveys?”

-- Drs. William Sullivan and Joe DeLucia in Emergency Physicians Monthly, September 2010
• Emergency physicians will never fail to treat the critically ill ... but they have an incentive to offer more “customer service” to satisfy non-acute.
Non-Acute Satisfaction Influenced

• Many EDs are focused on how to decrease non-acute patients’ wait-time:

“Recently, Trinitas Regional Medical Center won a coveted Press Ganey award for improvement in patient care response. ‘This was a great milestone for us,’ says Joseph Kuchinski DO, Chairman, Emergency Medicine”

Source: http://www.trinitashospital.org/emergency_medicine.htm
Non-Acute Satisfaction Influenced

• Many EDs are focused on how to decrease non-acute patients’ wait-time:
  – by offering “bedside registration”

“Our ultimate goal is to get patients in and out of our department as quickly, and as efficiently, as possible ... We provide **bedside registration**, which saves time for many patients.”

Source: http://www.trinitashospital.org/emergency_medicine.htm
Non-Acute Satisfaction Influenced

• Many EDs are focused on how to decrease non-acute patients’ wait-time:
  – by offering “bedside registration”
  – by dedicating resources to non-acute patients

“Trinitas Regional Medical Center Emergency Department ... has 15 acute-care beds, a six-bed observation area, a six-bed "Fast Track" area for patients with minor illnesses and injuries.”

Source: http://www.trinitashospital.org/emergency_medicine.htm
“Our patient flow consultants have decades of hands-on operational and clinical experience ... We help your hospital optimize existing resources and achieve real results, [e.g. by] separating different patient flows that are competing for the same resources to optimize availability and usage.”

Financial Incentive vs Mission Incentive

- The **financial incentive** to satisfy non-acute patients is not well-aligned with the core **mission incentive** of caring for the critically ill.
**My own view**: Given the ED’s compelling mission incentive, insufficient care for the critically ill is unlikely

**BUT** service focus on non-acute patients could potentially detract from service and satisfaction of admitted patients
• Patient satisfaction focus could also encourage physicians to provide patients with their desired treatment, even if not clinically indicated.
“Many patients expect to receive an intervention that only a clinician can provide, a prescription for a medication. Patients may not be interested in alternatives to opioids and may be dissatisfied if their requests are not met. Research suggests this is a common pattern and confirms that fulfillment of patient expectations usually results in a more satisfied patient.”

Patient Expectations Influenced

“Our consulting experts help your organization:

1. Understand how expectations shape patients’ evaluations of their health care experiences
2. Implement practices to manage patient expectations
3. Customize practices in response to your patients' unique expectations”

Inappropriate Care Incentivized

“More than 40% of [emergency physicians who responded] had altered treatment due to the potential for a negative patient satisfaction survey, [resulting in complications including] kidney damage from IV dye [for CT/MRI scans], allergic reactions to medications, hospital admits for ‘oversedation’ with pain medications, and Clostridium difficile diarrhea.”

-- “Could Satisfaction Surveys Be Harming Patient Care?”, Emergency Physicians Monthly, December 2009
Emergency Departments and the Prescription Drug Abuse Epidemic

• In 2010, 2.4 million Americans used prescription drugs for nonmedical reasons for the first time, and 7.0 million Americans had used within the last month

• In 2009, more than 1.2 million ED visits occurred because of the misuse or abuse of prescription drugs, compared to 974,000 ED visits because of the abuse of illegal drugs
Inappropriate Narcotic Prescriptions Incentivized in the ED

“If you’re going to criticize me for not giving out narcotics, and you never praise me for correctly identifying a drug seeker, then I’m going to give out narcotics."

-- Dr. Thomas Benzoni, long-time emergency physician in Sioux City, Iowa, quoted in the New York Times, April 2012
Changing the Game: Wilkes County, NC

- In 2009, Wilkes County ED changed its painkiller-prescribing practices, committing to:
  - ALWAYS check controlled-substance database (PDMP)
  - NEVER prescribe long-term supply [50 → 9 pills]
  - ALWAYS offer next-day referral w/ pain specialist

“While the volume of patients in the ED decreased initially because of this policy, the nature of complaints shifted over time to more serious cases that needed emergency attention, leading to higher reimbursement rates and improved patient satisfaction scores.”

Saving Lives: Wilkes County, NC

• **Good News**: Overdose deaths have plummeted in Wilkes after community-based “Project Lazarus” reforms

• **Bad News**: Many Wilkes addicts still got opioids by visiting EDs in other counties

• **Good News**: Building on Wilkes’ success, “Project Lazarus” reform now expanding statewide [with nationwide attention]
Game Plan

• The strategic ecosystem of complex care

• Perverse metrics
  – *Case Study: patient satisfaction in the ED*
    • Press Ganey ED scores: invalid + perverse
    • *what hospitals (and Medicare) can do about it*

• Relational medicine [as time permits]
Inappropriate Care Incentivized
What Medicare Could Do

• ED patients only seeking pain relief need care from a pain-management specialist
  – for such patients, hospitals ought to be “graded” (only!) on whether their care was successfully transferred to appropriate specialty care

• More broadly, Medicare & Medicaid could encourage / mandate more effective coordination of care, following the Wilkes Model
The Wilkes Model**

1. “The region's Medicaid authority and hospital system jointly placed a **case manager in the ED** to coordinate care, including active follow-up for referrals [and] treatment of the underlying cause of their chronic pain.”

2. “Patient–prescriber agreements were mandated for a subset of chronic pain patients on Medicaid in Wilkes.”
   - “**patients were locked into using a single pharmacy and single prescriber** for all opioid therapy ... to place responsibility for prescribing opioids in the hands of a single physician, who would be aware of all the concomitant medications and patient history”
Inappropriate Care Incentivized
What Hospitals Should Do

• Hospitals’ common practice of using Press Ganey scores to incentivize emergency physicians not only creates perverse incentives, but could also decrease overall patient satisfaction!
  – many hospital patients are admitted through the ED
  – if satisfaction matters, emergency physicians should be rewarded for satisfying these patients as well
  – as it stands, ED focus on non-acute patients imposes “negative externality” on inpatient unit
Inappropriate Care Incentivized
What Hospitals Should Do

• Overall hospital satisfaction scores can be increased by replacing Press Ganey ED scores with “satisfaction impact” measure of ED care.

• If serving admitted patients is more mission central, hospitals should reward emergency physicians on inpatient satisfaction only!!
  – under such a system, EDs would still have an incentive to treat patients quickly, etc, but only to the extent that speed of care does not undermine quality of care to those who will be admitted.
Game Plan

• The strategic ecosystem of complex care

• Proper and perverse provider incentives

• Relational medicine
  – ... and patient feedback
Ecosystem Focus – Relational Medicine

[diagnosis / treatment]

[communication]

[compliance]
Ecosystem Focus – Patient Feedback

[diagnosis / treatment]
[communication]
[compliance]

[satisfaction survey]
[satisfaction report]

HCAHPS
Hospital Consumer Assessment of Healthcare Providers and Systems
Stifled Communication

• “The HCAHPS survey should be administered prior to any other inpatient survey”

• “Certain types of communication are not permitted, since they may introduce bias”, e.g.
  – DON’T SHOW signs with “Always” or “10”
  – DON’T SAY “Let us know if we are not listening carefully to you”
  – DON’T ASK “Did the nurses always answer your questions”

• BUT this quest for bias-free results may have stifled opportunities for meaningful relational feedback ...
Example of Relational Feedback
Bathroom Help

• HCAHPS Q10: “How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?”
  – suppose patients were able to indicate each morning [e.g. via iPad app] whether they could have used more help during the night
  – some might decline to say, for fear of displeasing staff, so reported satisfaction will tend to be biased
  – BUT any indication of unmet need would allow for meaningful follow-up to improve patient experience during the hospital stay
Example of Relational Feedback
Bathroom Help

• Such clinically-relevant feedback during a hospital stay DOES appear to be allowed by HCAHPS rules:
  – “inpatients should not be given any survey during their hospital stay, [that is, any formal survey] in which the primary goal is to ask standardized questions of a significant portion of a hospital’s patient population.”

  BUT

  – “it is permissible for patients to be asked about their hospital experience during their hospital stay where this is a normal part of clinical rounds or patient treatment/care activities ...”
Example of Relational Feedback Patient Understanding

• HCAHPS Q3: “How often did nurses explain things in a way you could understand?”
  – suppose patients were able to indicate after each clinical encounter [e.g. via iPad app] whether they understood the nurse’s explanation
  – those who are confused could be directed to additional resources [e.g. tutorial videos] or receive follow-up to go over any points of confusion
Example of Stifled Feedback (??)  
Patient Understanding  

• Such clinically-relevant feedback during a hospital stay DOES NOT appear to be allowed:  
  – “The following are examples of the types of questions that are NOT permissible: ‘Did your doctor/nurse explain things in a way you could understand?’”

• [Is this true? Does Medicare really bar hospitals from asking patients, after but outside of each clinical encounter, whether they understand their diagnosis / treatment options / etc?]
Concluding Summary

• High-quality medical care is the product of a complex strategic ecosystem

• We can improve the quality of care by recognizing doctors and patients as “players” in games
  – [modest proposal] doctors’ “incentive to satisfy” can be tweaked to improve ED-hospital coordination of care
  – [radical proposal] every clinical encounter can be woven into a new sort of “medical relationship,” enabled by advances in info technology, that could set the standard for quality health care and deepen patient loyalty
THANK YOU!!

COMMENTS, CRITICISMS, QUESTIONS PLEASE!