Population Health Management

Annual ACLGIM Winter Summit
Sunday, December 2, 2012

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Vice President for Population Health Management, Partners HealthCare
Medical Director, Mass General Physicians Organization
Associate Professor, Harvard Medical School
What do you know about US health care?

- Poor quality

- Too expensive


Despite 747 crashing each day, quality has been steadily getting better

<table>
<thead>
<tr>
<th>Deaths Per 1,000 Admissions</th>
<th>1994</th>
<th>1997</th>
<th>2000</th>
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<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>94-04 % Drop</th>
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<tr>
<td>Heart attack</td>
<td>125</td>
<td>112</td>
<td>104</td>
<td>100</td>
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<td>86</td>
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<td>Heart failure</td>
<td>67</td>
<td>57</td>
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<td>49</td>
<td>47</td>
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<td>GI bleed</td>
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<tr>
<td>Hip fracture</td>
<td>44</td>
<td>35</td>
<td>36</td>
<td>35</td>
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<td>31</td>
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<td>Pneumonia</td>
<td>106</td>
<td>91</td>
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<td>89</td>
<td>88</td>
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<td>Stroke</td>
<td>138</td>
<td>121</td>
<td>121</td>
<td>120</td>
<td>119</td>
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<td>24</td>
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<td>AAA repair</td>
<td>103</td>
<td>101</td>
<td>95</td>
<td>87</td>
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<td>CEA</td>
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<td>CABG</td>
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<td>45</td>
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<td>37</td>
<td>35</td>
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<td>Craniotomy</td>
<td>83</td>
<td>79</td>
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<td>71</td>
<td>68</td>
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<td>Hip replacement</td>
<td>4</td>
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<td>PTCA</td>
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 Indicates rate in the previous column is statistically lower at p<0.05. 57 of 72 cells are significantly improved over the prior interval.

MGH mortality rate and cost per discharge, 1821 - 2010

*2010 dollars
Figure 5 – Range of Percentile Ranks of 2010 Acute Hospital Blended Relative Prices

[Graph showing the range of percentile ranks of 2010 acute hospital blended relative prices, with hospitals listed along the y-axis and relative price percentiles along the x-axis.]
What we’re facing…

- **Constraining the growth of healthcare costs is a national priority**
  - Involvement of physicians through changed incentives is unavoidable
  - PPACA includes several new payment mechanisms – the imperative will persist even if the specifics change

- **The market is using the same play book** – closed networks, budget-based risk, cost sharing, restriction of choice – and this may generate the same backlash as 1990s managed care era

- **But...**
  - The economy is much worse
  - Government is more proactive
  - Rate of change is slower (caps on increases, not cuts)

- **And we have...**
  - Better health IT and data for population management
  - Strategies and tactics that we know will improve care and reduce costs

- **Providers will need a playbook that will be successful under any of the new payment models**
Summary

- The focus should be on reducing medical expense trend to as close to the rate of general inflation as we can

- **This means taking risk and changing care models**
  - Shared savings (Pioneer ACO)
  - Bundled payments
  - Global payments (AQC/capitation)
  - Care redesign

- **Challenges**
  - How to make the external incentives internal in a meaningful way, within a complex organization
  - At the right pace
    - Moving *too fast* will lose the docs in the rush to implement – MDs attitude often creates the patient’s attitude (managed care backlash)
    - Moving *too slow* will mean not succeeding under the contracts and worsening the regulatory environment
Economics of managing margin and populations

Legend:
Infrastructure Costs = New PHS Infrastructure costs for Population Health Management
Partners strategy

- **Population management**
  - Evolve the network
  - Patient-centered medical home (PCMH)
  - High-risk care management
  - Focus on managing total medical expense (TME) and payer quality measures
  - Make necessary IT/personnel investments

- **Referral management**
  - Improve quality and lower cost through care redesign/patient affordability initiatives
  - Makes us more attractive as a referral site, potentially increases volume
  - Discount as needed
  - Improve access
Evidence based care improvement tactics

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High risk care management – MGH Medicare Demo

Opportunity

10% of Medicare patients account for nearly 70% of spending

MGH Demo

Medicare selected MGH for a 3-year demonstration project focusing on high cost beneficiaries in 2006
MGH Medicare Demo – program characteristics

- **Enrolled 2,500 highest cost Medicare patients; total annual costs of $68 M**
  - Average number of medications = 12.6
  - Average annual hospitalizations = 3.4
  - Average annual costs = $24,000

- **12 care managers embedded in primary care practices**
  - Coordinate care; point person for acute issues
  - Identify patients at risk for poor outcomes
  - Facilitate communication when many caregivers involved

- **Key characteristics**
  - Care managers have personal relationships with patients
  - Care managers work closely with physicians
  - All activities supported by health IT (universal EHR, patient tracking, home monitoring)

- **Payment model similar to proposed shared savings for ACOs**
  - Paid monthly fee based on number of enrolled patients
  - Required to cover costs of program +5%
  - Success determined using prospective matched comparison group
MGH Medicare Demo – results

Results from Independent Evaluator (RTI)

 ✓ Enrollment
   • 87% of eligible beneficiaries enrolled

 ✓ Targeting of Interventions
   • Interventions focused on the enrolled patients with the greatest opportunity

 ✓ Communication
   • Improved communication between patients and health care team
   • High patient and physician satisfaction

 ✓ Outcomes
   • Hospitalization rate among enrolled patients was 20% lower than comparison
   • ED visit rates were 25% lower for enrolled patients
   • Annual mortality 16% among enrolled and 20% among comparison

 ✓ Savings
   • 7.1% annual net savings (12.1% gross) for enrolled patients
   • Approximately 4% annual savings for total population
   • For every $1 spent, the program saved at least $2.65

See: http://www.massgeneral.org/News/assets/pdf/FullFTIreport.pdf
The Congressional Budget Office (CBO) recently analyzed results for all of Medicare’s disease management and care coordination demonstrations. The MGH/MGPO Demo was the top performer in reducing Medicare expenditures.

Source: Lessons from Medicare’s Demonstration Projects on Disease Management and Care Coordination
Lyle Nelson
Congressional Budget Office
January 2012
Working Paper 2012-01
## Evidence based care improvement tactics

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## MGH virtual visits and technology tools

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<th>Technology</th>
<th>MGH Pilots</th>
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<tr>
<td>• Email</td>
<td>Primary Care Provider reviews patient’s pre-visit questionnaire to determine treatment options and assess the need for visit or phone appointment.</td>
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<tr>
<td>• Videoconferencing</td>
<td>Psychiatrist conducts a follow-up visit with an adolescent patient with autism for medication management.</td>
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<td>• Telephone</td>
<td>Cardiologist calls stable CAD patient to check-in on medications and symptoms between annual visits.</td>
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<td>• Text Messaging</td>
<td>• Primary Care physician is alerted of ‘alarm symptom’ in a patient who is completing an asynchronous virtual visit via web portal.</td>
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<tr>
<td>• Electronic Curbside</td>
<td>• Specialist reviews referral requests and triages to curbside consult – answers PCP questions by email.</td>
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<td>Costs/episode</td>
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**References**

Quality Incentive Program

- **1,700 eligible physicians**
  - Clinically active, non-trainees
  - In at least 2 major managed care contracts
  - Grouped into 3 RVU-based tiers
  - Includes hospital-based and MGPO MDs

- **Incentive payments total $6.5 million/year (~1.5% NPSR)**
  - Started with a bonus check in December 2006
  - Since then, 2 terms, 2 incentive payments per year (July & December)
  - Max of $5,000 per MD per year
  - Plan to pay out ~80% of funds each term

- **3 quality measures per term**
  - 2 are system measures & apply to all docs
  - 1 is chosen by the clinical department in consultation with the QI Program
  - Measurement can be individual, practice group, department or hospital-wide
  - ~140 different measures have been used to date
## MGH QI incentive system measures

<table>
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<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<tr>
<td></td>
<td>T1</td>
<td>T2</td>
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<td><strong>EMR Adoption</strong></td>
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<td>Training</td>
<td>Prelim Notes (%)</td>
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<td><strong>ROE Use</strong></td>
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<td><strong>E-Prescribing</strong></td>
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<tr>
<td>10 scripts</td>
<td>PCPs: 85%</td>
<td>Dept: 90%</td>
<td>*Dept: 80%</td>
<td>Dept: 85%</td>
<td>MD: 85%</td>
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<td><strong>Hand Hygiene</strong></td>
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<td><strong>JC Training</strong></td>
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<td><strong>Safety Rpt. or CC Training</strong></td>
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<td><strong>MD Communication</strong></td>
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<td>Training</td>
<td>Hospital HCAHP S Score</td>
<td>Service HCAHPS Score</td>
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<td><strong>Final Note Timeliness</strong></td>
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*Target was decreased for T1, 2009 due to adoption of more stringent measurement criteria.*
Benefits of improved hand hygiene

**MD hand hygiene.**

**2006 (Q3)**
- Before contact: 30%
- After contact: 71%

**2008 (Q3)**
- Before contact: 79%
- After contact: 93%

**MRSA rate.**

**2006 (Q3): 1.03**
**2008 (Q3): 0.61**


The Use of Modest Incentives to Boost Adoption of Safety Practices and Systems

Omeg S. Meyer, MD, MSc; David E. Torchiana, MD, Deborah Colton, James Mountford, MB, BCH; Elizabeth Mort, MD; Sarah Lenz, Nancy Gugliano, MD; Elizabeth Jamieson; and James Heffernan

**Abstract**

Physician adoption of quality and safety systems has been delayed due to required changes in workflow, up-front investments in training, and shifts in efficiency. Here we report on the application of novel approaches to incentive design, such as the Prospect Theory, and steps to engage leadership and staff physicians in the development of a physician quality and safety incentive program in a large employed physician group. The program couples modest financial incentives along with a broad communications campaign to foster the adoption of electronic health records, the use of electronic decision support for ordering imaging studies, prescribing, and department/division-specific quality and safety targets mapping from new completion times to hand hygiene practices. To date over 1,200 physicians have participated in this program, and it has generated unprecedented interest and energy in quality and safety measurement and improvement. Here we report on the impact of the program on system adoption and incentives.
Examples of department measures

**Care Effectiveness.**
- Perioperative antibiotics
- ACE/ARB for CHF and AMI patients at discharge
- Antibiotics to pneumonia patients
- Normothermia in the OR
- Inpatient stroke standards
- Antibiotics at Cesarean delivery
- Complete transition to OPPE
- Psychiatric global assessment of functioning

**Safety.**
- MD hand hygiene compliance
- E-prescribing
- Admission note timeliness
- Dating peripheral IVs
- Use of patient identifiers
- Safety reporting
- Surgical handoff policy
- Electronic pathology report sign-out

**Coordination/Continuity of Care.**
- Pediatric head injury discharge instructions
- Required discharge summary elements
- EMR/operative note timeliness
- Dermatologic pathology report follow-up
- Radiology/pathology report timeliness

**Efficiency.**
- PCP list review
- Reduced “red” rate for ROE orders
- Cross cultural training
- Deploy anesthesia charting system
- Structured problem list

*These have applied to entire departments or smaller groups of physicians within a department.*
Evidence based care improvement tactics

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Order entry with decision support for imaging

Yearly Growth Rates Before and After Radiology Utilization Management

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<td>Ultr Snd</td>
<td>9%</td>
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<td>MRI</td>
<td>12%</td>
<td>7%</td>
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<td>CT</td>
<td>12%</td>
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Variation in use of high cost imaging

Providers

Ordered by:  

- Green = Patient’s PCP
- Blue = Specialists
- Black line = 95% CI

Practice [N=11942]
Dr. S [N=347]
Dr. R [N=930]
Dr. P [N=661]
Dr. N [N=460]
Dr. M [N=528]
Dr. L [N=2101]
Dr. K [N=1071]
Dr. J [N=217]
Dr. H [N=1304]
Dr. G [N=538]
Dr. F [N=963]
Dr. E [N=839]
Dr. D [N=409]
Dr. C [N=397]
Dr. B [N=700]
Dr. A [N=460]
Utilization and variation both decreased from 2006-2009

Adjusted Images / 100 Patients
By Doctor (N=137)

Doctors sorted by low to high (left-right) in each year

2006 practice mean = 16.1
standard error = 0.74

2009 practice mean = 12.1
standard error = 0.54
Real time trend tool for MGPO/BWPO

Two dashboard tabs – utilization and payment

Ability to toggle between patient populations

Five resource categories on dashboard

Spark line trend charts for each resource area

Five “deep dive” tabs for each resource area

Comparative data for various time periods

Two panels of interactive data

Draft: Data Not Valid for Use
# Evidence based care improvement tactics

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Process for defining episode process standards

1. Document current state process map
   - Activities
   - Hand-Offs/ transitions
   - Phases of care
   - Timing

2. Identify opportunities for improvement
   - Quality improvement
   - Cost savings

3. Assess implications
   - Population mix
   - Quality
   - Cost (internal and market)

Define recommended care innovations
   - System-level recommendations
   - Implementation options
   - Performance metrics to monitor implementation

Themes in Care Redesign Recommendations
- Implement scheduling and navigation functions
- Reduce unwarranted variation in resource use
- Ensure reliable implementation of planned processes
- Develop capacity to monitor patients prospectively, longitudinally
Stroke care map – detailed process map
Defining value in health care: Porter’s framework

Value = \frac{\text{Health Outcomes}}{\text{Costs of Delivering the Outcomes}}

Figure 1. The Outcome Measures Hierarchy.

- **Survival**
- **Degree of health/recovery**
- **Time to recovery and return to normal activities**
- **Disutility of the care or treatment process (e.g., diagnostic errors, ineffective care, treatment-related discomfort, complications, or adverse effects, treatment errors and their consequences in terms of additional treatment)**
- **Sustainability of health/recovery and nature of recurrences**
- **Long-term consequences of therapy (e.g., care-induced illnesses)**

- **Tier 1**
- **Tier 2**
- **Tier 3**

- **Process of Recovery**

- **Health Status Achieved or Retained**

- **Costs of Delivering the Outcomes**

- **Tier 3**

- **Sustainability of Health**

- **Recurrences**

- **Care-induced Illnesses**
Idealized patient journey through an episode of care that includes a procedure

Patient Problem

Assess Appropriateness

Assess Risk

Shared Decision Making

MD encounter

Possible Need for Procedure

Schedule OR

Pre-Procedural Testing

Procedure

Recovery

Tier 1, 2 Outcome Measures

Tier 3 Outcome Measures
Pulling the data together

Admin/encounter data: admission, ED, visit

clinical data: presenting Sx, key interventions

Payer data: Cost and encounters

Patient outcomes

Unit cost analysis

Data Warehouse: comprehensive data storage

Outcome Measures

Admin/encounter data: admission, ED, visit

clinical data: presenting Sx, key interventions

Payer data: Cost and encounters

Patient outcomes

Unit cost analysis

Data Warehouse: comprehensive data storage
## Evidence based care improvement tactics

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### Measurement

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PrOE: Inputs and outputs

**INPUTS**
- Pre-populated data fields (NLP search)
- LMR, OnCall
- RPM, RPDR, CDR, EMPI
- PCI, CABG, Vascular, Harris Joint
- Existing registries

**OUTPUTS**
- Procedure Scheduling
- Internal Performance Dashboards
- Public Reporting
- Billing and Prior Authorization
- Personalized consent form

**Appropriateness**
- Indications & Decision support
- Measurement & analysis of appropriateness and outcomes inform guidelines and indications in real-time
- Data passback to registries (Web service)

**Data Repository**
- EHR note created
- Copy of appropriateness results placed in LMR and CDR

**Data Storage**
- EMR
PrOE – Procedure Decision Support

- Vascular:
  - CEA
  - Left
  - Right
  - CAS

- Cardiac:
  - CABG
  - PCI

- Orthopedic:
Cardiac catheterization is a medical procedure used to diagnose and treat certain heart conditions. A long, thin, flexible tube called a catheter is inserted into the arm, upper thigh, or into the heart. Through the diagnostic test and treatment, doctors determine if the heart has any blockage symptoms or may put you at risk.

**Figure 1**

If a vessel is blocked, your doctor may decide to treat the blockage with an angioplasty procedure. Angioplasty uses an expandable balloon on a catheter to open the artery and remove the plaque. The procedure allows for better blood flow.

**Figure 2**

The risk of blood vessel closing within a year varies depending on the type of stent used. Some stents require extra medicine for at least 12 months. The graph below shows the likelihood of needing a repeat procedure within the next year:

- Low
- Medium
- High

**Percent (%) chance of needing a repeat procedure within a year.**

- **Bare Metal**
- **Drug Eluting**

The graph illustrates the risk of blood vessel closing within a year.
Policy conundrums

- Accomplishing the 20 tactics requires an organization
  - Not much of this can be done in private practice office

- But aggregating providers into organizations gives them market power which may drive up rates
  - Cost = price x utilization

- Will more efficient utilization come with higher prices?

- Will we make a difference fast enough to stop brutal cost cutting?
Glossary to care improvement tactics

- **Access program**: mechanisms that increase patient access to high quality health care and preventative services
- ** Appropriateness**: documentation that procedures are indicated prior to performance of procedure
- **Continuity program**: a systemized process by which patients and physicians are cooperatively involved in ongoing health care management
- **Costs/population**: fixed dollar amounts for all services needed to care for a patient or a group of patients during a particular period of time, regardless of how many episodes of major acute care they receive
- **Costs/episode**: a single payment for all services associated with a hospitalization or other episode of acute care, including both inpatient and post-acute care, and any services needed to treat errors or adverse events during patient’s care
- **Define process standards/multidisciplinary teams/registries**: actively design the experience of a patient seeking care for a particular condition from beginning to end; keep track of adherence to design and track outcomes; continuously improve
- **EHR with decision support and order entry**: electronic health record with synchronous and asynchronous reminders (alerts, templates) and order entry with system defined defaults and forcing functions
- **Hand-off standards**: guidelines to standardize transfer of patient care and improve communication flow among care team members
- **High risk care management**: provide selected high risk patients (multiple conditions, CHF, transplant, etc.) with nurse care coordination services
- **Hospital acquired conditions**: preventable conditions acquired by patients during hospital stay
Glossary to care improvement tactics

- **Incentive programs**: financial and non-financial programs that incent adoption and use of shared systems as well as behavior not incented with productivity incentives (quality targets, efficiency targets, collaboration)
- **Patient decision aids**: objective patient decision support tools (documents, videos) that help patients weigh risks and benefits of elective procedures
- **Patient portal**: website where patients can get lab results, refill meds, schedule visits, ask questions
- **Quality metrics**: measures to assess performance of health care delivery organizations that includes clinical outcomes (e.g. diabetes) and patient satisfaction (e.g. HCAHPS)
- **Re-admissions**: hospital readmissions that could be avoided by improving care coordination and follow-up care
- **Reduced low acuity admissions**: reduction of hospital admissions for potentially preventable events (e.g. COPD admissions)
- **Same day appointments**: reduce unnecessary ED use; improve continuity
- **Shared decision making**: a process by which patients and providers consider outcome probabilities and patient preferences and reach a health care decision based on mutual agreement
- **Variance reporting/performance dashboards**: comparisons of individual physician performance
- **Virtual visit options**: non face-to-face options (phone, email, video) for consultations
- **100% preventive services**: patient reminders (cards, phone calls, texts), care navigators, and provider reminders (synchronous and asynchronous) with registry documentation of receipt or informed refusal for all recommended primary and secondary preventive services