Health Quality Partners’
Advanced Preventive Service℠

Brief Overview – Framework for Design, Program Description, Results

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CEO & Medical Director
Health Quality Partners (HQP)
Who we are and what we do

• Dedicated to Research and Development
• Non-profit, 501c3, founded in 2000
• Approach: use disciplines of public health, systems design & analysis, and quality improvement
• Mission: design, test, and spread new models of care that improve the health of populations, and the quality and experience of health care
Current Areas of Work at HQP

• Medicare Coordinated Care Demonstration (CMS)
• Medicare Advantage (Aetna)
• Consultant\collaborators for urban Medicaid ACO (Camden Coalition of Healthcare Providers)
• Comprehensive Primary Care Initiative (Princeton Health Care Medical Associates)
• Health Systems Redesign
  – Improving Systems Initiative (Doylestown Hospital)
  – Cancer care coordination model (Clinical Cancer Center at Froedtert & the Medical College of Wisconsin)
Framework for Designing a New Model

• We need effective systems of prevention for chronic disease
• Highly effective prevention improves health
• For higher risk populations, improved health reduces use of acute care services and lowers cost
• THE KEY: Understand and address the root cause determinants of health of a specific high risk population
  – DEFINE, DESIGN, DEPLOY, REFINE
  – Advanced Preventive Service
Creating an Advanced Preventive Service

• Define
  – Target population and *root cause determinants of health*

• Design
  – Portfolio of several (dozens) of evidence-based preventive interventions
  – Standards, protocols, procedures, communication loops
  – Team roles, work flows, staff training, mentoring and monitoring
  – Participant education

• Deploy
  – Community-based approach with extensive collaborations and data sharing
  – Frequent contacts (1:1, group, phone)
  – Very longitudinal (absent significant, durable shift in participant risk status)
  – Case finding, outreach, engagement, individualized (person-centered)
  – Service data capture and advanced program analytics

• Refine
  – Ongoing improvement guided by performance analytics, outcomes, staff observations, participant feedback, collaborator feedback

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Population Served

- Traditional Medicare and Medicare Advantage
- Chronically ill with heart failure, coronary heart disease, diabetes, chronic lung disease
  - Other risks as well; prior admission or high risk score
  - Median age 81 years

Collaborating with 100+ physician practices and 7 health systems
Care team composition and locus

- RN’s deliver the care (currently n=16)
- Program is freestanding and delivered throughout the community (home, doc offices, hospital, rehab, community centers, program office)
  - Touchdown space provided by major health system partners
- Significant administrative, management, data, and analytical support – commensurate with HQP’s R&D mission
  - Medical Director, CEO (MD)
  - SVP, Program Architect (MSW)
  - Director of Operations
  - Senior Clinical Lead (NP)
  - Director of Care Management (RN)
  - Chief of Finance and Analytics (MBA)
  - Chief of Information Technologies
  - Administrative, Data Collection, and Outreach Support staff

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Mode and freq

**In one year (1/22/2012):**
With approx. 660 active patients
Contacts = 19,240 contacts
In-person = 11,926 (62%)
At-home = 7,289 (38%)
Mechanisms of coordinating with other providers

• The What: Information Management is Essential
  – Disciplined and Reliable
    • Communication protocols or standards (internal and external to team)
  – Timely
  – Contextualized
  – High-value and important (to recipient)

• The How: Ideally as the Recipient Prefers
  – Customize to individual physician or organization preference
  – Phone and Fax remain mainstays even in the digital age
  – EMR’s are up and coming, but better for asynchronous, non-urgent communications
  – Occasional face-to-face meetings (used judiciously & ideally in care flow)
Use of Technology

• Population health impact possible with minimal external data feeds
  – BIGGER impacts are possible WITH external data feeds (if well analyzed)

• Advanced Preventive Service Platform
  – First generation fully in use at HQP 10/2012
  – Secure, privately-hosted ‘cloud’ service
  – Scalable, resilient, adaptable
  – Mobile devices with cellular internet connect
  – Capture service data from field (near real-time) ESSENTIAL FOR RELIABILITY
  – Also includes Advanced Analytics, Policy Management, Staff Training and Patient Education Curriculum Management and Distribution
  – Available to others in late 2013
Use of Technology: Advanced Analytics are KEY

- Separating the Signal from the Noise
  - Prioritize individuals with dynamically changing risk profiles
  - Identify variation in service delivery performance to direct root cause analysis, organizational learning, and management corrective actions
## Outcomes

<table>
<thead>
<tr>
<th>Population</th>
<th>N</th>
<th>Control PPPM</th>
<th>Deaths</th>
<th>Hospital admissions</th>
<th>ER visits</th>
<th>Part A &amp; B expenditures; excl prgm fees</th>
<th>Part A &amp; B expenditures; incl prgm fees</th>
<th>SNF cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medicare Coordinated Care Demonstration</strong> (randomized, controlled trial versus usual care)</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>All risk levels (low, mod &amp; high)</td>
<td>1,464</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1,721</td>
<td>$731</td>
<td>-25% **</td>
<td>-14%</td>
<td>-14% *</td>
<td>Neutral</td>
<td></td>
<td></td>
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<tr>
<td>Higher-risk 1</td>
<td>502</td>
<td>$900</td>
<td>-30% **</td>
<td>-29% **</td>
<td>-20% *</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Higher-risk 2</td>
<td>248</td>
<td>$1,441</td>
<td>-18%</td>
<td>-39% **</td>
<td>-36% **</td>
<td>-28% **</td>
<td>-64% **</td>
<td></td>
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<tr>
<td>Higher-risk 3</td>
<td>695</td>
<td>$1,108</td>
<td>-25% **</td>
<td>-20% **</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Higher-risk 4</td>
<td>273</td>
<td>$1,363</td>
<td>-33% **</td>
<td>-30% **</td>
<td>-22%</td>
<td></td>
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<td>Aetna (difference-in-differences analysis trended over time against a like comparison group)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Higher-risk 5</td>
<td>942</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

* P < 0.05, ** P ≤ 0.1

* statistics not reported

- Fourth Report to Congress, Jennifer Schore, et al., March 2011, MPR
- MPR report shared with HQP with CMS permission, 2011 (unpublished)
- Health Affairs, Randall Brown, et al., June 2012, 31, no.6:1156-1166
- Aetna Medical Economics Team Report 2011 (unpublished)

Higher-risk 1; based on geriatric HRA
Higher-risk 2; (HF, CAD, or COPD) AND ≥1 hospitalization in prior year
Higher-risk 3; HF, CAD, or COPD
Higher-risk 4; [(HF, CAD, or COPD) AND ≥1 hospitalization in prior year]
OR [(diabetes, cancer (not skin), stroke, depression, dementia, atrial fibrillation, osteoporosis, rheumatoid arthritis/osteoarthritis, or chronic kidney disease) AND ≥2 hospitalizations in the prior 2 years]
Higher-risk 5; (HF, CAD, COPD, Asthma, or diabetes) AND ≥ minimum cut-point on Aetna proprietary risk score

**Abbreviations:** PPPM= per person per month, ER= emergency room, SNF= skilled nursing facility, HRA= health risk assessment, HF= heart failure, CAD=coronary artery disease, COPD=chronic obstructive pulmonary disease

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“... HQP, also showed promise, ... for this subgroup [highest severity cases] both differences were large (-29% for hospitalizations and -20% for expenditures) and statistically significant (P=.009 and P=.07, respectively).”

“... Health Quality Partners, reduced hospitalizations by 30 per 100 beneficiaries (33 percent; p=0.02)”

“... The demonstration program with the largest effects, at Health Quality Partners, was very data-driven, tracking care coordinators’ performance and continually assessing the effectiveness of newly introduced interventions component and refinements to existing ones ...”

“... Overall, a 25% lower relative risk of death (hazard ratio [HR] 0.75 ... the adjusted HR was 0.73 (95% CI 0.55-0.98, p=0.033).”
Essential Elements

• DEFINE, DESIGN, DEPLOY, REFINE
• In Define Phase – select a good target population
• In Design Phase
  – Challenge prevailing assumptions & mental models
  – Seek profound knowledge of root cause health determinants
  – Ensure that overall intervention is STRONG; engage participants
• In Deployment – Reliability is a must
• Technology
  – Unlock the signal from the noise in data through advanced analytics
  – Bring the program resources and decision support to the fingertips of the field staff via secure mobile devices
**Mrs. Z, Enrolled 9/2005; Age: 67**

Sutter Level 4 High Risk with Geriatric Frailty
- Type 2 Diabetes with insulin therapy
- Peripheral neuropathy, Retinopathy
- Cardiomyopathy/Heart Failure w/biventricular pacemaker
- CAD
- Asthma (continuous oxygen therapy)
- Depression
- GERD
- Hypertension

**Problem Areas:**
- Multiple co-morbidities requiring complex self-management
- Complex medication regimen with frequent changes
- Depression; Domestic Violence/Marital Issues
- Difficulty with Activities of Daily Living (ADLs)
- Safety/Fall Risk
- Numerous specialist s and other health care providers , communication breakdowns (patient-physician and physician-physician)
- Serious Financial issues, difficulty affording food, medicines, heat

**Case Study**

- Asthma (continuous oxygen therapy)
- Depression
- GERD
- Hypertension

**2005-2011:**

- 3 hospitalizations in the 6 months prior to enrollment
- Enrolled 9/2005
- 3/06 Adm Discharged X 4; MI
- 1/06 Admission HF
- 1/06 & 4/06: Upper Respiratory Infections; treated w/ antibiotics steroids
- 11/07 Adm Dehydration, Shingles
- 1/08 Adm V-Fib, ICD
- 2/08 Adm UTI
- 6/08 Adm ICD
- 10/08 Adm Chole.

**HQP Contacts**

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<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>10</td>
<td>15</td>
<td>11</td>
<td>14</td>
<td>9</td>
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<td>Telphone Calls</td>
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<td>25</td>
<td>50</td>
<td>73</td>
<td>37</td>
<td>37</td>
<td>10</td>
<td>240</td>
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<tr>
<td>PCP Office Visits</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>HQP Office Visits</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Hospital Visits</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Group Sessions</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>40</td>
<td>88</td>
<td>94</td>
<td>50</td>
<td>52</td>
<td>27</td>
<td>364</td>
</tr>
</tbody>
</table>

**2005-2006:**

- Intensive management of HF, Diabetes and Asthma; 1:1 Patient education
- Recommended Pulmonary Rehabilitation
- Post hospital care transition support
- Collaboration with PCP to increase anti-depressant; referred-counseling
- Resources for DV and safety plan
- Referral to Area Office on Aging for heating and PACE (medications)

**2007-2008:**

- LEARN Weight Management Program 16 wk.
- Weight maintenance program
- Transition support and close follow up; collaboration with cardiology, endocrinology, VN
- Advanced Directives/Living Will
- Serious financial needs; referred for assist w/food stamps; heating, Lifeline

**2010-2011:**

- Referred for subsidized housing
- Medication management
- Attending monthly weight maintenance group
- Referred again for counseling – depression/ DV with pastor
- Referred for physical therapy – fall risk
- Food bank referral
- AAA – for subsidized housing
- Tried chair exercise

Intensive management /action plans: - diabetes, heart failure and asthma; Patient education - diet, identifying early warning signs & symptoms of hypoglycemia, URI, heart failure; medication management – how to use medications long-term v. quick relief; skills training and monitoring: blood glucose and peak flow meter; collaboration with endocrinologist, cardiologist, pulmonologist and PCP to report abnormal findings and for frequent medication and treatment adjustments.
Unsolved Challenges

• Only those we haven’t had a chance to work on yet

• Replicating the program in other regions with other lead organizations serving as the local hub / anchor
  – Consultative engagement
  – “Franchise”
  – A la carte support service; e.g. Advanced Preventive Service Platform

• Using the Advanced Preventive Service approach to adapt and implement the model among other vulnerable populations
  – Medicaid
  – Dual-eligibles
  – Other groups with health disparities; e.g., Native Americans
Contact Us

• HQP is interested in large projects related to scaling, replicating, adapting, or adopting our model and tools
  • coburn@hqp.org
  • http://hqp.org