Paper of the Year: Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expenditures Among Medicare Beneficiaries: 15 Randomized Trials (JAMA 2009)

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Random Assignment Study Design

- 15 programs, each defined its own intervention and target criteria
  - Most operated 2002–2008
  - Wide variety of participating organizations
- Impact analysis (randomized, intent-to-treat design)
  - Effects on Medicare service use and cost
  - Effects on quality of care
- Synthesis—what works and for whom?
  - Implementation analysis
    - Detailed description of enrollment and interventions
    - Site visits, phone calls, program MIS data

Methodology

- Data: Medicare EDB and SAF for claims through June 2006
- Study patients: 18,000 enrollees from programs' start dates in 2002 through June 2005
- Follow-up observed:
  - Maximum follow-up (for early enrollees): 46 to 51 months
  - Average: 30 months [18–38 range]
- Regression-adjusted for demographics, prior service use and cost, and presence of 10 chronic conditions

Severity of Illness Varied Across Programs

- Costs were driven by hospitalizations
  - Average monthly Medicare expenditures for control group patients during followup
  - 5 programs: $700 to $1,000
  - 5 programs: $1,000 to $2,000
  - 5 programs: $2,000 to $3,500
  - (National average was ~$570)

Isolated Effects on Hospitalizations

- **Large and statistically significant reductions in 2 programs:**
  - **Mercy -17% (p = 0.02)**
  - **Georgetown -24% (p = 0.07)**
- **Moderate but not statistically significant differences in one:**
  - **Health Quality Partners (HQP) -11% (p = 0.19)**

Two Programs Are Likely Cost Neutral

None significantly reduced Part A and B costs.

Program	# in Treatment Group	Impacts as % of Control Group Mean		
		Hospitalizations	Medicare Par t A + B Costs	Total Costs (Part A and B Savings vs. Fee Paid)
HQP	740	-11	-12	+2.8 (-$84 vs. $103)
Georgetown	115	-24*	-14	-4.4 (-$358 vs. $240)
Mercy	467	-17*	-9	+11.1* (-$112 vs. $236)

*Indicates $p < 0.10$, 2-tailed test.

Most Programs Increased Total Costs

- Pooled total costs are 11% higher
- Nine programs definitively increased costs, from 8% to 41%
- Same results when we trimmed outliers
- Savings did not emerge over time

Patients and Physicians Rated Programs Favorably

- **High Patient Ratings**
  - Across multiple domains (e.g., support, health education, help with adherence)
  - A few programs had consistently higher ratings
- **High Physician Ratings**
  - Across multiple domains (e.g., effects on patient behavior, physicians' workload, care coordination, care coordinator competence, physician-patient relationship)
  - A few programs had consistently higher ratings

Some Impacts on Process of Care Quality Measures

Patient awareness of receiving care coordination	Large impacts
Reports of receiving education	Large impacts
Preventive/chronic care (e.g., mammography, HgbA1c, lipids—from claims)	Scattered effects

No Impacts on Outcomes of Care Quality Measures

Patient satisfaction	Scattered effects
Potentially preventable hospitalizations	Scattered effects
Mortality, function, health-related quality of life, self-reported adherence, unmet needs	No effects

No Correlation Between Quality and Hospitalizations/ Costs

- No relation between impacts on quality, and on total hospitalizations and Medicare expenditures:
  - HQP, Mercy, and Georgetown not clearly superior in process and outcome quality measures among other programs
- However, HQP and Mercy did have several favorable T-C differences

Best Programs Report Varied Reasons for Success

HQP	• Focus on patient goals and preferences • Mitigate medical errors through attention to care transitions and communication • Provide targeted group and in-home interventions on weight control, balance, exercise, and self-care • Standardize training and protocols; monitor CC performance • Discover unmet needs quickly • MDs cooperate with chart review; fast response to CCs
Mercy	• Provide frequent face-to-face contact • Conduct in-home assessment • Screen to determine need for social services/support • Identify symptoms early; change Rx quickly • Patients reveal nonadherence to CC but not MD

Subsequent Work Shows the Right Intervention to the Right People Can Work

Hospice of the Valley, Health Quality Partners, Mercy Medical Center, and Washington University:

- For high-risk subset of cases—those with CAD, CHF, or COPD and 1+ hospitalizations in prior year, or 2+ hospitalizations in prior 2 years (n = 1,855 treatment, 1,856 controls)—intervention patients had:
  - Significantly fewer (-11%) hospital admissions from 2002 through 2007
  - Significantly reduced Medicare expenditures by $107 PBPM in 2004 dollars (CI = [-202, -12])
- 4 different types of organizations
- (NB: The other sites did not have favorable effects for this subgroup)

What Distinguishes Successful Care Coordination?

1. Patients at high risk of hospitalization
2. Ongoing training of and feedback to care managers
3. Small enough caseload size (e.g., 50–80)
4. Nurse care manager in a multidisciplinary team
5. Frequent face-to-face contact (home, office) with patients (~1/month)
6. Strong rapport with physicians
   - Face-to-face contact through co-location, regular hospital rounds, or accompanying patients on physician visits
   - Assign all of a physician's patients to the same care coordinator when possible
7. Effective patient education and coaching
   - Providing a strong, evidence-based patient education intervention, including how to take Rx correctly and adhere to other treatment recommendations

What Distinguishes Successful Care Coordination?

8. **Managing care setting transitions**
   - Having a timely, comprehensive response to care setting transitions (esp. from hospitals and skilled nursing facilities)
9. **Being a communications hub**
   - Care coordinators actively facilitating communications among providers and between the patient and the providers
10. **Managing medications effectively**
    - Comprehensive review of Rx changes, involving pharmacists and/or physicians
11. **Addressing psychosocial issues**
    - Staff with expertise in social supports needed by some patients
12. **Following evidence-based practices/guidelines for care management**
13. **Implementing self-management, coaching, and support with patient/family**

Policy Questions

- **Who should provide it?**
  - **Medicare FFS: Like MCCD, as wrap-around service**
  - **MA/SNP**
  - **Primary care practices (medical homes/Guided Care for larger practices)**
  - **Accountable care organizations**
- **How much should Medicare pay for it?**

Ongoing Work

- CMS extended two sites:
  - HQP, Mercy (at a reduced fee)
  - Very different models and challenges
  - Evaluation results will be released soon
- Medicare Chronic Care Practice Research Network
  - Design new demo to test best practice model
  - Goal: Use existing sites as ongoing laboratory for rapid testing

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