Post-Discharge Follow-Up Visits and Hospital Utilization by Medicare Patients, 2007-2010

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MAIN OBJECTIVES

1.) Pilot test the Multi-Payer Claims Database (MPCD).

2.) Document trends in post-discharge utilization outcomes among Medicare patients with an initial admission for heart failure (HF), acute myocardial infarction (AMI), or community acquired pneumonia (CAP).

3.) Identify predictors of the first post-discharge utilization event (follow-up visit, ED visit, or readmission).

POLICY BACKGROUND

- Hospital readmissions are often used as an indicator of healthcare quality.
- In 2009, Medicare began publicly reporting hospital readmission rates for HR, AMI, & CAP.
- In FY2013, Medicare implemented the Hospital Readmission Reduction Program, which reduces reimbursement to hospitals with "excess readmission rates" for HF, AMI, & CAP.
- Readmissions can be reduced through coordination of community-based follow-up care after discharge.
- Though it has received less policy attention, post-discharge ED visits without admission may also be viewed as a poor post-discharge outcome.

## THE MULTI-PAYER CLAIMS DATABASE (MPCD)

- Developed by OptumInsight on behalf of the Office of the Assistant Secretary for Planning and Evaluation (ASPE) at the U.S. Department of Health and Human Services (DHHS).
- Purpose: Enable large-scale comparative effectiveness research and other health services research studies.
- Input databases: Chronic Conditions Warehouse; private data from UnitedHealthcare and other private insurers.
- Includes Medicare & Medicaid managed care plans and supplemental Medicare plans.
- MPCD files are longitudinally linked to track individuals over time and across coverage sources.

STUDY DESIGN

- Track cohorts of Medicare patients with index admission for HF, AMI, or CAP, 2007-2010 30 days after discharge.
- Plot cumulative incidence functions for community-based follow-up visits with ED visit & readmission as competing risks and censoring at 30 days.
  (Due to confidentiality restrictions, the data do not allow direct analysis of mortality as an outcome or competing risk.)
- Multinomial probit models: Predict first-occurring post-discharge utilization event (follow-up visit, ED visit, or readmission) based on patient demographics, prior diagnoses & procedures (12 months prior to admission through discharge), additional coverage, and region.

TIME TO POST-DISCHARGE FOLLOW-UP VISIT

Cumulative incidence function for follow-up visits among HF patients, 2007-2010
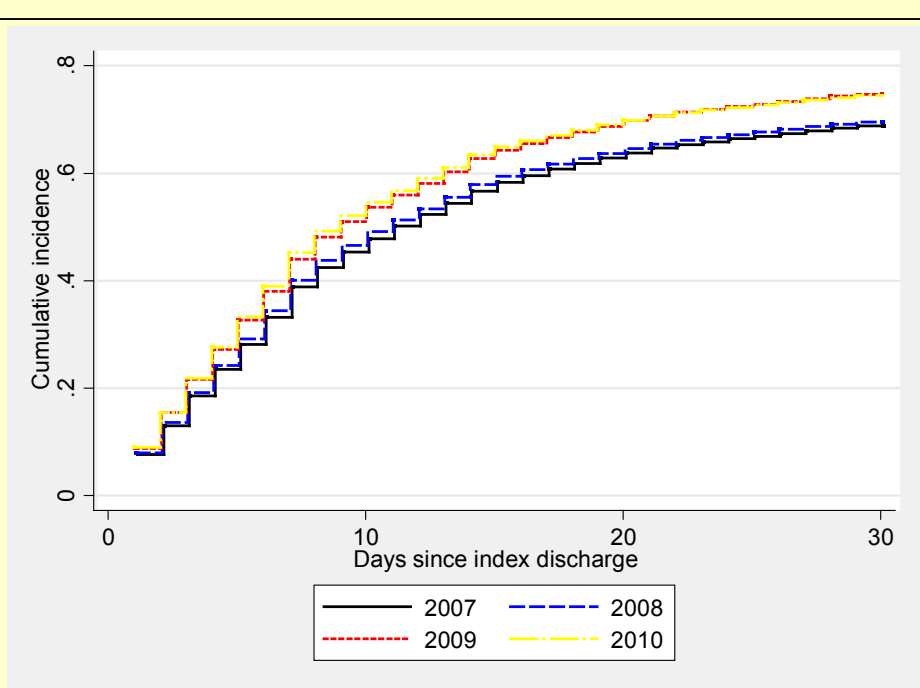
In 2010, 54.6% of HF patients had a follow-up visit within 10 days of discharge compared to 47.9% in 2007

Similar patterns were found in the AMI & CAP cohorts

POST-DISCHARGE UTILIZATION OUTCOMES

Trend in First Post-Discharge Utilization Event for HF, AMI, & CAP, 2007-2010

	First Event within 30 Days			
	Follow-up Visit	ED Visit	Readmission	No Event
HF[1]				
2007	71.1%	3.5%	10.1%	15.3%
2008	71.4%	3.4%	9.8%	15.4%
2009	75.6%	3.7%	9.6%	11.2%
2010	75.4%	3.5%	9.2%	12.0%
AMI[1]				
2007	70.6%	4.0%	11.0%	14.4%
2008	70.6%	4.0%	10.6%	14.9%
2009	73.3%	3.9%	10.9%	11.9%
2010	72.1%	4.4%	10.3%	13.2%
CAP[1]				
2007	70.9%	3.5%	10.7%	14.9%
2008	71.3%	3.6%	11.0%	14.2%
2009	73.9%	3.8%	11.2%	11.1%
2010	73.9%	3.7%	11.0%	11.4%

[1]Differences over time are statistically significant according to a Chi-square test (p<0.001).

30-Day Readmission Rates for HF, AMI, and CAP, 2007-2010
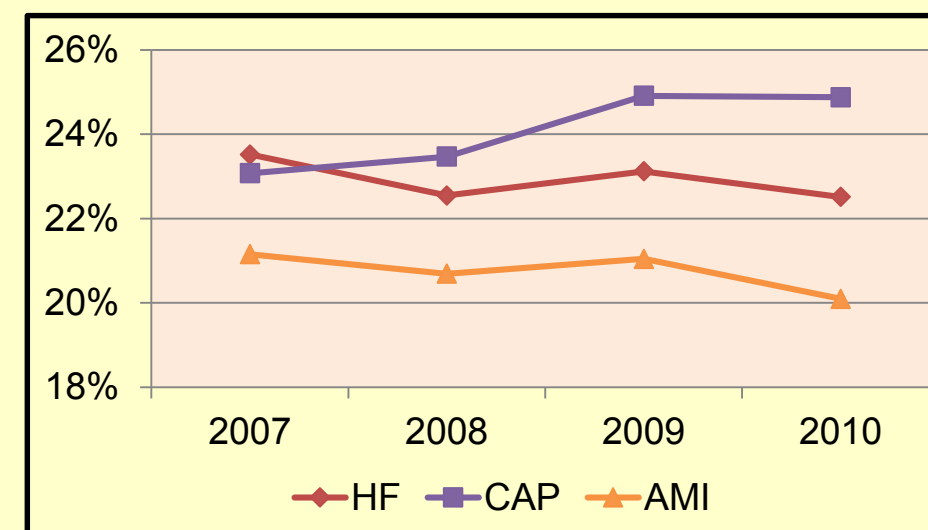
Marginal Effects from Multinomial Probit Model for HF

	First Event within 30 Days			
Variable	Follow-up Visit	ED Visit	Readmission	Censored (No Event)
Year of index admission				
Reference: 2008	-	-	-	-
2009	1.8*	0.2	-0.4	-1.6*
2010	1.7*	0.0	-0.8*	-0.9*
Number of comorbidities/prior procedures				
Reference: Bottom tercile	-	-	-	-
Middle tercile	5.6*	0.3*	0.6*	-6.5*
Top tercile	5.8*	1.2*	2.8*	-9.8*
Age				
Reference: 66-70	-	-	-	-
71-75	1.8*	-0.2	0.2	-1.8*
76-80	1.9*	-0.3	0.6	-2.3*
81-85	2.2*	-0.1	0.0	-2.1*
Sex				
Reference: Female	-	-	-	-
Male	-0.9*	-0.1	0.0	1.0*
Race				
Reference: White	-	-	-	-
Black	-5.5*	0.9*	1.4*	3.2*
Hispanic	-7.4*	0.2	2.5*	4.7*
Other/Unknown	-2.3*	-0.2	0.3	2.2*
Region				
Reference: South	-	-	-	-
Northeast	4.0*	-0.8*	-1.0*	-2.3*
Midwest	2.0*	-0.1	-1.0*	-0.9*
West	-3.7*	-0.3*	0.2	3.9*
Unknown	-10.4*	0.8	1.3	8.3*
Other insurance coverage[2]				
Medicare Advantage	-16.8*	0.5	2.7*	13.6*
Commercial/capitated	10.8*	-2.2*	-2.9*	-5.7*
Commercial/non-capitated	13.7*	-0.8*	-3.1*	-9.9*
Medicaid	-17.8*	0.4	0.3	17.0*

Marginal effect example:
Relative to HF patients discharged in 2008, those discharged in 2010 were (holding other variables fixed)
- 1.7 percentage points more likely to have a follow-up visit as the first post-discharge event
- Equally likely to have an ED visit as the first post-discharge event
- 0.8 percentage points less likely to have a readmission as the first post-discharge utilization event
- 0.9 percentage less likely to have no utilization event within 30 days of discharge.

Similar patterns were found in the AMI & CAP cohorts

[1]Marginal effects (holding other variables constant) expressed as percentage points derived from multinomial probit regression.
[2]Based on all sources of coverage during the index admission.
*Marginal effect is statistically significant at p<0.016 (derived from a multiplicity adjustment using 5% level test for 3 outcomes, 0.05/3 = 0.016).

SUMMARY OF FINDINGS

- For each cohort (HF, AMI, CAP), the cumulative incidence of follow-up visits increased in 2009 and then leveled off in 2010.
- Patients who were black, Hispanic, and enrolled in Medicaid or Medicare Advantage were substantially less likely than other patients to have a follow-up visit as their first post-discharge utilization event.
- Likelihood of a follow-up visit was much higher for patients with more diagnoses & prior procedures and those with private or supplemental Medicare coverage.
- In most cases, patients who were less likely to receive a follow-up visit were somewhat more likely to have an ED visit or readmission as the first post-discharge utilization event but much more likely to experience no utilization event within 30-days.
- There were no changes in overall 30-day readmission rates (regardless of whether another utilization event preceded the readmission).

CONCLUSIONS

- Increased follow-up visits coincided with the introduction of publicly reported readmission rates in 2009.
- This increase was not sustained in 2010, even as policymakers developed well publicized financial penalties aimed at hospitals with "excessive" readmissions.
- Despite the gains in post-discharge follow-up visits, there were no changes in overall readmission rates from 2007-2010.
- There were systematic differences across patient groups in the likelihood of receiving timely post-discharge follow-up visits even after adjusting for patient acuity at discharge.

IMPLICATIONS FOR POLICY, DELIVERY, OR PRACTICE

- Focus on first-occurring post-discharge utilization event provides a way to identify potential opportunities for improved post-discharge care coordination.
  - If first event is a readmission or ED visit, then opportunity to prevent it through a follow-up care was lost.
  - If first event is a community-based follow-up visit, then subsequent hospital use is less likely to be the result of a missed opportunity for care coordination and more likely due to unmeasured illness severity, lack of self-management skills, or socioeconomic disadvantage.
- Lack of a sustained increase in cumulative incidence of follow-up visits after 2009 may have been the result of primary care capacity constraints that placed discharged Medicare patients in competition with other patients for appointments.
- These constraints could be especially acute for historically underserved Medicaid and minority patients as well as patients in managed care plans that may have narrowly available provider networks.
- Although many patients without a follow-up visit did not return to the hospital within 30 days, lack of follow-up care might be detrimental to patients' longer term health status and could result in readmissions that occur soon after 30 days.
- As financial penalties for excess readmissions intensify under Medicare's HRRP, hospitals may find it necessary to devote more effort to arranging post-discharge follow-up visits wherever possible.
- Although treat-and-release ED visits within 30 days of discharge were fairly uncommon in 2007-2010, this may change somewhat (particularly for marginal cases) as hospitals seek to reduce their readmissions to avoid reimbursement penalties.