Use of Advance Care Planning Billing Codes in a Retrospective Cohort of Privately Insured Patients

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INTRODUCTION

Although advance care planning (ACP) is a component of high-quality care, only one-third of patients report engaging in ACP.[1–3] On January 1, 2016, the Centers for Medicare and Medicaid Services (CMS) launched two Current and Procedural Terminology (CPT) codes that allow clinicians to bill for this service.[4] This change was intended to financially incentivize clinicians to engage in ACP, though it is uncertain whether the lack of reimbursement was a meaningful barrier previously.[5] We sought to describe ACP billing code use among privately insured patients in 2016 and to determine which patient characteristics were associated with use of the codes.

METHODS

We performed a retrospective cohort study using the Optum© Clinformatics® Data Mart, a database containing commercial and Medicare Advantage claims for 13.7 million members of a large commercial health insurer in the USA. The study sample consisted of patients with medical coverage in 2015 and 2016.

We identified patients receiving ACP based on claims containing CPT code 99497 or 99498 in 2016. We compared patients who received ACP and had complete coverage throughout 2015 to patients who had complete coverage during all of 2015 and 2016 without any ACP claims. This created an equal period of data for baseline risk adjustment in 2015, and ensured accurate outcome ascertainment.

We used dates of service to describe monthly code use. We performed multivariable logistic regression to determine

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which patient characteristics were independently associated with receipt of ACP. This study was exempt from review by the University of Pennsylvania Institutional Review Board.

RESULTS

In 2016, claims were submitted by 1,142,676 clinicians for 13,670,440 patients. Of these, 7729 clinicians (0.7%) and 60,421 patients (0.4%) were part of a billed ACP encounter. The number of patients and clinicians newly engaging in a billed ACP encounter declined by 19.7% and 31.9%, respectively, from June to December 2016 (Fig. 1a, b). In adjusted analyses, coverage by Medicare Advantage versus commercial insurance, older age, non-white race and ethnicity, and several diagnoses, including dementia, moderate or severe liver disease, and renal disease were most strongly associated with ACP code use. Prior healthcare utilization metrics were inconsistently associated with ACP code use, with the number of outpatient visits increasing the odds of a billed ACP encounter, the number of outpatient clinicians decreasing the odds, and the number of inpatient admissions not being independently associated with receiving ACP (Table 1).

DISCUSSION

In this first study of ACP billing code use, we found that uptake of the codes is limited and waning. Even among Medicare Advantage beneficiaries, only 1.6% had a billed ACP encounter. First-time use of the codes among clinicians peaked within 6 months of their introduction and has declined thereafter. This trajectory suggests limits to the impact of these codes on promoting ACP. This result suggests that because clinicians often lack the time, skill, or comfort required to engage in ACP, financial incentives may not be an effective way to increase ACP.[5]

ACP code use was more common among older, non-white Medicare beneficiaries with dementia, liver disease, or renal

a Monthly use of ACP billing codes among patients
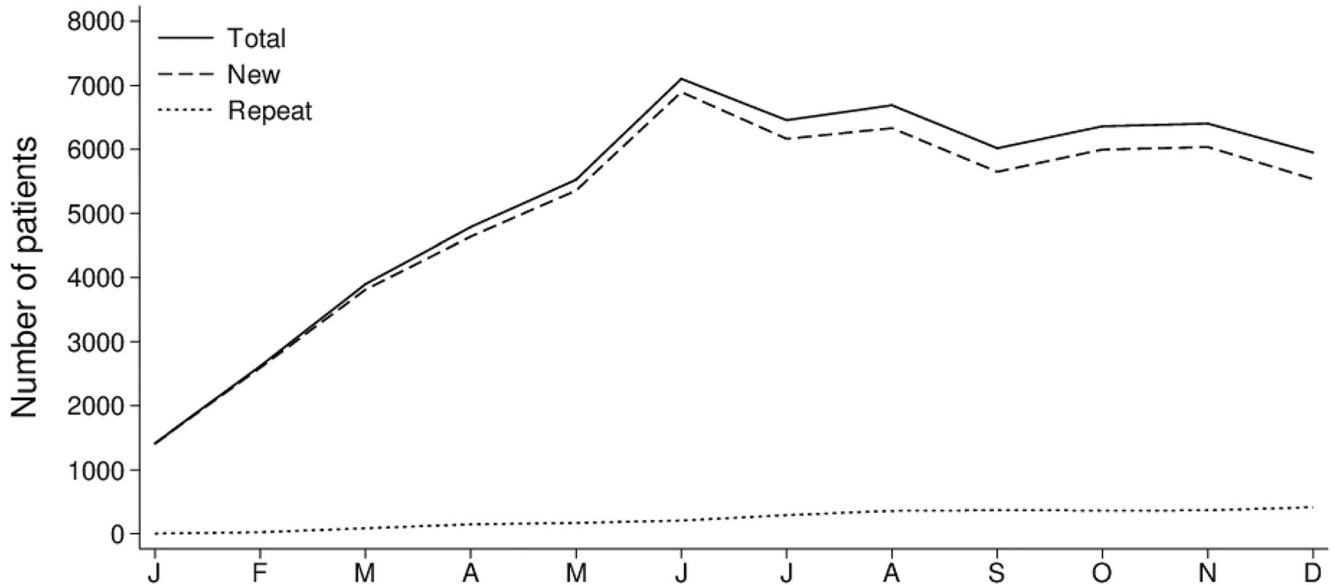
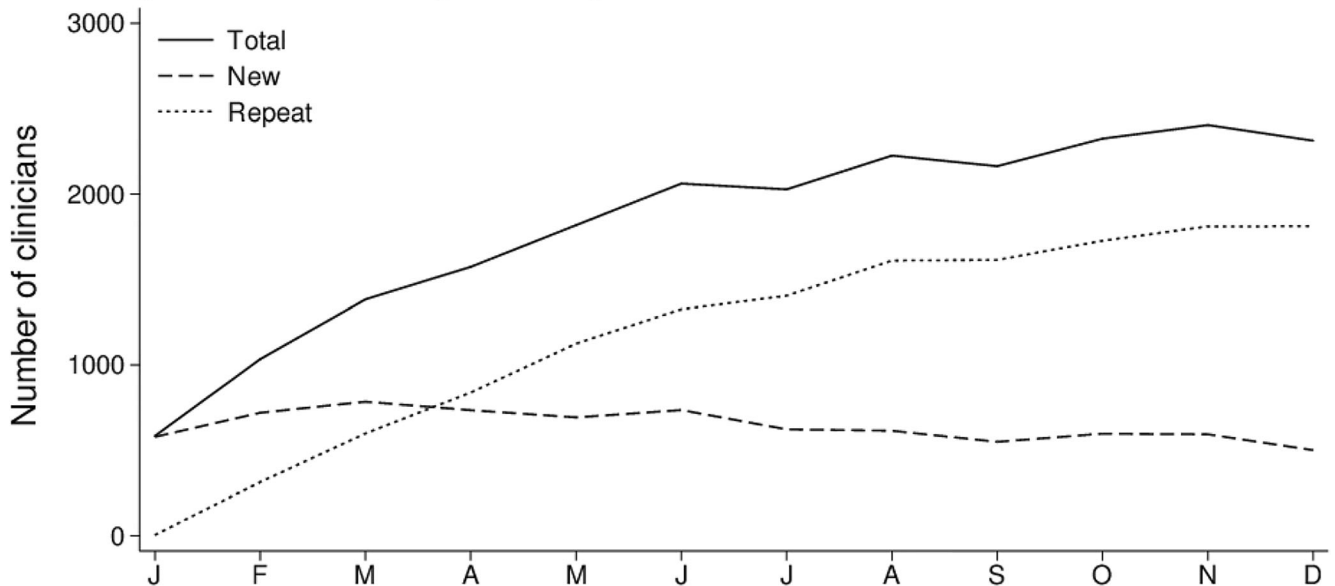## b Monthly use of ACP billing codes by clinicians

Figure 1. Monthly patterns of ACP code use. **a** The number of patients with a billed ACP encounter in each month of 2016. "New" patients have not had a prior billed ACP encounter. "Repeat" patients have had a prior billed ACP encounter. **b** The number of clinicians billing for an ACP encounter in each month of 2016. "New" clinicians have not previously billed for an ACP encounter. "Repeat" clinicians have previously billed for an ACP encounter.

disease. That Medicare Advantage patients had more ACP claims than the commercially insured patients may reflect clinician uncertainty about reimbursement for these codes by commercial insurers. In contrast to prior evidence that blacks less frequently engage in ACP, black patients were more likely to have a billed encounter for ACP, although the absolute difference was small.[6] This may be due to incomplete risk adjustment, or more robust adoption of these codes among clinicians who care for a greater proportion of black patients. Finally, the odds of having a billed ACP encounter were lower if a patient was seen by an additional outpatient clinician, possibly due to

discontinuity of care or diffusion of responsibility for ACP. Reasons for these findings merit future investigation.

This study has important limitations. First, we did not examine ACP code use among Medicare fee-for-service beneficiaries; however, this is currently being explored separately (R01 NR017034). Second, ACP code use may not accurately reflect ACP itself. Thus, future studies should assess the quality of ACP delivered during billed visits. Finally, we did not identify barriers and facilitators to clinicians' use of the codes. Future qualitative work will be needed to address this important knowledge gap.

Table 1 Patient Characteristics Associated with Having a Billed Advance Care Planning Encounter

	Patient characteristics		Multivariable, logistic regression analysis[#]	
	Patients receiving ACP	Other patients	OR[†]	95% CI
Patients, no.	40,727	7,016,672	–	
Age, mean (SD)[‡]	73.9 (9.4)	48.2 (24.2)	–	
Age categories, %[‡]				
<66	0.1	99.9	1 (Reference)	
66–75	1.5	98.5	2.96	2.81 to 3.11
76–85	1.8	98.2	3.04	2.88 to 3.20
>85	2.1	97.9	3.51	3.31 to 3.72
Gender, %[§]				
Male	0.5	99.5	1 (Reference)	
Female	0.6	99.4	1.03	1.01 to 1.05
Race/ethnicity, %[‖]				
Non-Hispanic white	0.5	99.5	1 (Reference)	
Asian	1.0	99.0	2.54	2.45 to 2.64
Non-Hispanic black	0.7	99.3	1.22	1.18 to 1.26
Hispanic	0.5	99.5	1.12	1.08 to 1.16
Insurance type, %				
Commercial	0.1	99.9	1 (Reference)	
Medicare Advantage	1.6	98.4	7.85	7.40 to 8.31
Charlson comorbidities, %[¶]				
Dementia	2.7	97.3	1.43	1.36 to 1.50
Moderate or severe liver disease	2.0	98.0	1.31	1.12 to 1.53
Renal disease	2.2	97.8	1.28	1.25 to 1.32
Hemi- or paraplegia	1.9	98.1	1.22	1.10 to 1.35
Peripheral vascular disease	2.2	97.8	1.20	1.16 to 1.24
Mild liver disease	1.4	98.6	1.18	1.10 to 1.27
Cerebrovascular disease	2.0	98.0	1.18	1.15 to 1.22
Diabetes	1.4	98.6	1.18	1.15 to 1.22
Peptic ulcer disease	1.7	98.3	1.14	1.05 to 1.24
Metastatic cancer	2.0	98.0	1.13	1.04 to 1.22
COPD	1.1	98.9	1.13	1.10 to 1.16
Cancer	1.5	98.5	1.08	1.05 to 1.12
Number of inpatient admissions, mean (SD)	0.2 (0.7)	0.1 (0.4)	1.00	0.98 to 1.02
Number of outpatient visits, mean (SD)	8.5 (7.1)	4.4 (5.0)	1.05	1.04 to 1.05
Number of outpatient clinicians, mean (SD)	3.6 (2.6)	2.4 (2.2)	0.97	0.97 to 0.98

ACP, advance care planning; OR, odds ratio; CI, confidence interval; COPD, chronic obstructive pulmonary disease; CHF, congestive heart failure; AIDS, acquired immunodeficiency syndrome; MI, myocardial infarction
[†]*Complete-case analysis was used to account for missing data; thus, the regression included 6,501,390 of 7,057,399 (92.1%) cases*
[‡]*Age was missing for 5 patients*
[§]*Gender was missing for 710 patients*
[‖]*Race/ethnicity was missing for 555,445 patients (7.9% of total)*
[¶]*Charlson diagnostic categories were missing for 549 patients*
[#]*Variables included in the regression were age, gender, race or ethnicity, insurance type, Charlson comorbidities, number of inpatient admissions in 2015, number of outpatient visits in 2015, and number of outpatient clinicians in 2015. Non-significant Charlson comorbidities (rheumatologic disease, diabetes without complications, congestive heart failure, acquired immunodeficiency syndrome, myocardial infarction) were not shown.*

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Data Availability *The datasets analyzed during the current study are available from the corresponding author on reasonable request.*

Compliance with Ethical Standards:

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

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