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Use of Hospitalists by Medicare Beneficiaries: A National Picture

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Objective: To describe the characteristics of hospitalists serving Medicare beneficiaries.

Data Sources: Medicare claims from 2009 and 2011 merged with the Provider Enrollment, Chain, and Ownership System file for physician characteristics.

Study Design: Our construction of the Medicare Data on Physician Practice and Specialty (MD-PPAS) enabled identification of hospitalists based on the attending physician for Medicare admissions (medical and surgical) in 2009 and 2011.

Principal Findings: In 2011, hospitalists constituted 13.3% of physicians who designated their specialty as primary care and 4.4% of all physicians serving Medicare beneficiaries. Compared to other physicians, hospitalists were more likely to be female, under forty, and in large practices. More than a quarter of Medicare

admissions had a hospitalist as the attending physician, though the rate was substantially higher for medical than surgical admissions (31.8% versus 11.3%). Between 2009 and 2011, the percentage of medical admissions with a hospitalist as the attending physician increased by roughly a quarter (from 25.7% to 31.8%).

Conclusions: This analysis provides a more current and complete estimate of the use of hospitalists by the Medicare population than is available from prior studies. The ability to identify hospitalists from claims data will facilitate research on the impact of hospitalist use on quality and cost.

Keywords: hospitals, Medicare, physicians, hospitalists, specialty

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Background

The last two decades have been characterized by changing roles and relationships between hospitals and physicians (Berenson, Ginsburg, & May, 2007). One trend of particular importance has been the increasing use of hospitalists, physicians whose primary professional focus is to oversee and coordinate inpatient care (Wachter & Goldman, 1996). The description of a physician role as a hospitalist emerged in 1996, and the number of physicians functioning as hospitalists is thought to have increased dramatically since then. An analysis of Medicare claims found that the percentage of general internists, the most common specialty pathway for hospitalists, who functioned as hospitalists increased from 5.9% in 1995 to 19.0% in 2006 (Kuo, Sharma, Freeman, & Goodwin, 2009). Factors that may have contributed to the growth in the use of hospitalists include cost pressures, time pressures, decreasing inpatient volume for primary care physicians, patient flow in hospitals combined with the increasing complexity of inpatient medicine, rising malpractice costs, and the growing recognition of problems with patient safety (Pham, Devers, Kuo, & Berenson, 2005).

Tracking the actual number of hospitalists has been challenging because hospitalists do not have specialty-specific training oversight or a certifying board. The Society of Hospital Medicine, the largest professional organization dedicated to this group of providers, reports on their Web site that the number of hospitalists exceeded 30,000 in 2010 (Society of Hospital Medicine, 2011). A national survey conducted by the Association of American Medical Colleges from the same year estimated that there were as many as 22,900 hospitalists trained in primary care specialties (internal medicine, family practice, pediatrics, and general

practice) and as many as 29,700 if one also includes physicians trained in subspecialties of medicine, pediatrics, and obstetrics-gynecology (Association of American Medical Colleges, 2012).

This Data Brief updates the estimates of hospitalist physicians serving Medicare beneficiaries through 2011 and examines changes in the role these physicians play as the attending for medical and surgical admissions between 2009 and 2011. We describe hospitalists in 2011 in terms of their gender and age as well as the size and composition of their group practices. In performing this analysis, we demonstrate a method that can be used to track the number and growth of hospitalists participating in the Medicare program through administrative data.

Methods

The analysis uses a national database of physicians serving Medicare beneficiaries to identify and characterize hospitalists. Data on physicians' specialty were merged with Medicare inpatient claims at acute-care hospitals to identify hospitalists and to determine whether a hospitalist or non-hospitalist served as the attending physician for each medical or surgical admission.

We first identified physicians serving Medicare beneficiaries using the Medicare Data on Physician Practice and Specialty (MD-PPAS). The development of this database is described elsewhere (Welch, Cuellar, Stearns, & Bindman, 2013). Briefly, the MD-PPAS was created using two Medicare administrative databases to characterize physicians and assign them to practices: (1) the Medicare Provider Enrollment, Chain, and Ownership System (PECOS) and (2) the 100% physician/supplier file of fee-for-service Part B claims. Records from these two files were linked at the individual physician level using the national provider identifier (NPI). All data were available

under agreement (No. 21990) with the Centers for Medicare & Medicaid Services.

The PECOS maintains information on a physician's self-reported age, sex, and specialty. The MD-PPAS groups physicians (allopathic and osteopathic) into one of six broad specialties based on their primary specialty as most recently reported in PECOS: primary care (general practice, family medicine, internal medicine, pediatrics, and geriatrics), medical specialty, surgical specialty, psychiatry, obstetrics/gynecology, and hospital-based specialty (radiology, anesthesiology, emergency medicine, pathology).

We identified hospitalists as physicians trained in the primary care (or what are sometimes referred to as generalist) fields of family medicine, general practice, general internal medicine, general pediatrics, or geriatrics who billed at least 90 percent of their total charges in a year for Medicare in inpatient settings. We calculated the percentage of Medicare admissions in which a hospitalist was the attending physician. Medicare inpatient claims define the attending physician as "the physician who has overall responsibility for the beneficiary's care and treatment" (Research Data Assistance Center, 2013). Admissions were subcategorized as medical or surgical based on DRG code in the Medicare claims (Centers for Medicare & Medicaid Services, 2013).

The Tax Identification Number (TIN) on the linked claims was used to identify physician group practices. Although physicians serving Medicare Advantage (MA) enrollees do not routinely submit claims to Medicare for MA enrollees, many physicians who are part of managed care organizations submit at least one fee-for-service claim to Medicare (e.g., for non-enrollees who seek emergency care). The number of physicians assigned to a TIN represented the group size. To characterize the distribution of non-hospitalists who are in group practices with hospitalists, we placed all practices with hospitalists into one of three categories based on their percentage

of hospitalists: (1) practices in which hospitalists constituted more than 70% of the physicians; (2) practices in which hospitalists accounted for 30–70% of physicians; and (3) practices in which hospitalists constituted less than 30% of physicians.

Results

Hospitalists and their Practices

Based on a combination of physician specialty and Medicare billing patterns, we identified 25,787 hospitalists serving Medicare patients in 2011 (Exhibit 1). Hospitalists constituted 13.3% of physicians who designated their specialty as primary care and 4.4% of all physicians billing Medicare (Exhibit 1). Female physicians were

more likely to be hospitalists than males (6.2% versus 3.8% of total physicians, $p<0.01$). Younger physicians were also more likely to be hospitalists ($p<0.01$). Physicians in solo or small group practices were much less likely to be hospitalists than physicians in larger practices ($p<0.01$).

The percentage of physicians who might be considered hospitalists (i.e., those for whom inpatient charges constitute 90% of total charges) varies by specialty (Exhibit 2). Among physicians who self-designated to be in primary care, 22% of general internists have at least 90% of their charges for inpatient services, but physicians in family practice and general practice have only 4 or 3%, respectively. Among pediatricians, 19% have at least 90% of their charges as inpatient, but this estimate may be inflated,

Exhibit 1. Hospitalists by Age, Sex, and Practice Size, 2011

Physicians Serving Medicare Beneficiaries					
Characteristic	Hospitalists	Primary Care (self-designated)	Total Physicians	Hospitalists as % of	
				Primary Care	Total
Total	25,787	194,566	580,638	13.3	4.4
Gender					
Male	16,059	127,601	423,060	12.6	3.8
Female	9,728	66,965	157,578	14.5	6.2
Age					
26–39	13,116	46,902	125,135	28.0	10.5
40–59	11,234	109,909	331,298	10.2	3.4
60–79	1,396	36,201	120,431	3.9	1.2
80–89	36	1,463	3,581	2.5	1.0
missing	5	91	193	5.5	2.6
Practice Size					
solo	1,141	41,264	107,856	2.8	1.1
2–10 MDs	3,213	41,295	141,286	7.8	2.3
11–50 MDs	6,871	36,240	124,573	19.0	5.5
51–100 MDs	3,991	19,530	48,867	20.4	8.2
>100 MDs	10,571	56,237	158,056	18.8	6.7

NOTES: Primary care includes hospitalists.

Age is based on birth year at the end of the calendar year.

SOURCE: Authors' analysis of Medicare administrative data.

Exhibit 2. Physicians with More Than 90% of their Charges from Inpatient Settings, by Selected Specialties, 2011

Primary specialty	# of MDs	MDs with >90% of charges inpatient	
		#	%
Primary Care	194,566	25,787	13
Internal medicine	95,170	20,849	22
Family practice	81,604	2,874	4
Pediatric medicine	8,006	1,521	19
General practice	6,527	210	3
Other	3,259	333	10
Medical Specialties	103,801	5,744	6
Cardiology	22,330	564	3
Neurology	12,947	805	6
Gastroenterology	12,183	229	2
Dermatology	10,492	12	0
Pulmonary disease	8,712	1,180	14
Hematology/oncology	7,561	238	3
Nephrology	7,387	381	5
Infectious disease	4,924	1,962	40
Other	17,265	373	2
OB-GYN	32,153	637	2

NOTE: Primary care includes hospitalists.

SOURCE: Authors' analysis of Medicare administrative data.

because the relatively small number of children enrolled in Medicare are eligible by virtue of being disabled; hence, they have a very high admission rate.

Among medical specialties, 6% of physicians have at least 90% of their charges in inpatient settings. Among two groups of medical specialists, pulmonologists and infectious disease specialists, the rate is substantially higher (14% and 40% respectively).

In 2011, slightly less than a quarter of hospitalists (23%) were in practices in which they were the numerically dominant specialty (>70% of physicians), about the same proportion (23%) were in practices in which they were a major component (30–70% of physicians), and 54% of hospitalists were in practices in which they accounted for less than 30% of the physicians in the practice.

Hospitalists were more likely to practice with primary care physicians than surgeons. Whereas the ratio of primary care physicians to surgeons was 1.7-to-1 for physicians as a whole, it was 32-to-1 in hospitalist-dominant practices, 6-to-1 in practices in which hospitalists were a major component, 2.3-to-1 in the other practices with hospitalists, and 1.5-to-1 in practices with no hospitalists.

Growth in Hospitalists as a Percentage of Physicians and of Attending Physicians

Hospitalists as a proportion of all Medicare physicians grew from 3.9% in 2009 to 4.4% in 2011 (Exhibit 3). Whereas the number of hospitalists increased 22.9% in the two-year period, the number of physicians increased only 7.1%, resulting in hospitalists as a proportion of physicians increasing by 14.7%.

Exhibit 3. Hospitalists as a Percentage of Physicians and of Attending Physicians, 2009 to 2011

Metric	2009	2011	Change	
			Absolute	%
Physicians				
Hospitalists	20,987	25,787	4,800	22.9
All	542,006	580,638	38,632	7.1
Hospitalists %	3.9%	4.4%	0.6%	14.7
Admissions				
Total				
# of admissions (000s)	12,647	12,171	-476	-3.8
% with a hospitalist as the attending	20.7%	26.1%	5.4%	26.0
Medical				
# of admissions (000s)	8,956	8,773	-183	-2.0
% with a hospitalist as the attending	25.7%	31.8%	6.1%	23.9
Surgical				
# of admissions (000s)	3,691	3,397	-294	-8.0
% with a hospitalist as the attending	8.6%	11.3%	2.7%	31.3

NOTE: Hospital admissions are for all acute-care hospitals in the 50 states and DC.

SOURCE: Authors' analysis of Medicare administrative data.

Among the 12.2 million Medicare admissions in 2011, 26.1% had a hospitalist as the attending physician on the claim. This percentage was substantially higher for medical than surgical admissions (31.8% versus 11.3%). Between 2009 and 2011, the percentage of medical admissions with a hospitalist as the attending physician increased by almost a quarter from 25.7% to 31.8%.

Discussion

This analysis provides a more current and complete estimate of the use of hospitalists by the Medicare population than is available from prior studies. The analysis reveals not only that hospitalists were the attending physician for almost a third of medical admissions in 2011, but that the rate of use of hospitalists as attending increased more than a quarter over a two-year period. If this rate of increase continues, hospitalists trained in primary care specialties

will serve as the attending physician for half of Medicare's medical admissions by 2017.

The growth in hospitalists has implications not only for hospital-based care, but also for the supply of physicians available to meet Medicare beneficiaries' needs for primary care services. The number and percentage of graduating U.S. medical students entering residency training in primary care specialties has declined over time (American College of Physicians, 2006). This trend has raised questions about whether we are facing a shortage in the number of primary care physicians, particularly as demand for care increases in association with the aging of the population and the expansion of coverage related to the Affordable Care Act (Health Resources and Services Administration, 2013). If, as our data suggest, a growing percentage of young physicians training in primary care specialties subsequently pursue careers as hospitalists rather than primary care physicians, the shortage of physicians in primary care could become more severe than anticipated.

Our estimate of the number and growth of hospitalists is based on claims from physicians trained in primary care specialties as well as on their role as attending physicians for inpatient stays. We do not capture cases in which these physicians may serve as consultants for hospital stays for which they are not the attending physicians. Thus, our estimate of the involvement of hospitalists in the care of surgical patients based on their being the attending physician is lower than that reported in studies that also counted these physicians' roles as consultants (Kuo *et al.*, 2009).

Our data suggest that some physicians trained as medical specialists serve as hospitalists. While we believe that some specialists serve as hospitalists, we also suspect that estimating the number of hospitalists using the 90% inpatient charges criterion may be less specific for medical specialists than for those trained in primary care, whose main alternatives for inpatient charges are office or outpatient based charges. Physicians in some medical specialties may achieve the 90% rate of inpatient billing not only through their role as the attending physician responsible for patients on medical or surgical wards, but also through consultative roles. In these cases, the inpatient charges observed in the claims data would not exclusively reflect these physicians' roles as hospitalists caring for patients on a medical or surgical ward. A large consultative role in combination with a small role as an attending physician on a medical or surgical unit during the year might explain the high number of hospitalists we estimate among physicians trained in infectious disease. In addition, by serving as the attending physician in specialized units, some specialists (such as pulmonary specialists in an intensive care unit) may also come to an incorrect conclusion that they are hospitalists using the 90% of Medicare charges criterion.

Another limitation is that we are only able to observe Medicare charges, so the approach underrepresents pediatricians, obstetricians, and other

physicians less likely to participate in the care of the elderly population. It is possible that our estimates on the number of hospitalists would be altered by having claims from other payers, but repeated observations in Medicare claims over time still provide insights into the growth of hospitalists over time.

Future research should attempt to better understand the reasons for the growth in the use of hospitalists as the attending physician for hospitalized Medicare beneficiaries. Research on the use of hospitalists for the care of hospitalized patients has suggested that they may contribute to the reduction in the average length of a hospital stay (Meltzer *et al.*, 2002). However, there is a paucity of information on whether hospitalists contribute to lower overall cost of care or lead to improvements in the quality of hospital-based care and, most particularly, patients' outcomes. The ability to identify hospitalists from claims data as developed within this analysis can facilitate research on these important outcomes of care that could then be factored into future workforce planning.

Disclaimer

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