Analysis IN BRIEF

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Hospitalists: A Growing Part of the Primary Care Workforce

The term "hospitalist" was coined by Wachter and Goldman in the mid-1990s to identify "a new breed of physicians" who manage the care of hospitalized patients.[1] The introduction of hospitalists represented a shift from the existing care model in which primary care physicians (PCPs) treated their patients in both outpatient and inpatient settings. In the new system, the primary care physician continues to provide outpatient care and the hospitalist assumes the responsibility for coordinating all inpatient care.

The number of hospitalist physicians has grown rapidly in the ensuing years. Primarily trained in internal medicine, these physicians play a significant and increasing role in the way primary care is delivered to hospitalized patients. Between 1995 and 2006, the percentage of general internal medicine physicians estimated to serve as hospitalists rose from 5.9% to 19.0%—an average increase of 972 general internists each year. Even before entering residency, many medical students aspire to become hospitalists. According to the 2015 AAMC survey of recent medical school graduates, 49.8% of those who intend to specialize in internal medicine indicated that they plan to work as hospitalists.[3]

Hospitalists are not readily identifiable in existing physician databases. Estimating their numbers and tracking them can therefore be difficult. Most published studies use Medicare claims data to estimate hospitalist counts, although they use varying definitions and corresponding subsets of claims to define hospitalists.[2,4,5,6] In this *Analysis in Brief*, we linked Medicare physician claims data to the *American Medical Association Physician Masterfile* (AMA Masterfile) to update published estimates of the number of hospitalists trained in adult primary care specialties and the fraction of the potential PCP workforce they represent.

Table 1. Characteristics of Physician Hospitalists with Internal Medicine, Family Medicine, and Geriatric Specialties

	2012	2013	2012 to 2013
	Number (%)	Number (%)	Percentage Increase
PC-Trained Hospitalists	32,450	34,604	6.6
Sex			
Female	10673 (32.9)	11535 (33.3)	8.1
Male	19702 (60.7)	20880 (60.3)	6.0
Unavailable	2075 (6.4)	2189 (6.3)	5.5
Age			
<35	5248 (16.2)	5462 (15.8)	4.1
35–50	18409 (56.7)	19703 (56.9)	7.0
>50	6694 (20.6)	7194 (20.8)	7.5
Unavailable	2099 (6.5)	2245 (6.5)	7.0
Specialty			
Family medicine/GP	5667 (17.5)	5962 (17.2)	5.2
Geriatric medicine	218 (0.7)	238 (0.7)	9.2
Internal medicine	26565 (81.9)	28404 (82.1)	6.9
Degree Type			
U.S. and Canadian medical doctor	14559 (44.9)	15143 (43.8)	4.0
U.S. doctor of osteopathic medicine	2490 (7.7)	2725 (7.9)	9.4
International medical graduate	13399 (41.3)	14629 (42.3)	9.2
Unavailable	2002 (6.2)	2107 (6.1)	5.2
Medicare FFS Hospital Inpatient Care encounters			
Initial inpatient, subsequent inpatient, and patient discharge encounters	23,626,481	24,572,063	4.0

Sources: Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use Files (Medicare Provider PUFs) CY 2012 and CY 2013. Washington, DC: Centers for Medicare and Medicaid Services (CMS); 2012, 2013. American Medical Association Physician Masterfile (AMA Masterfile). Chicago, IL: AMA; 2012, 2013.

Note: For PC-trained hospitalists, 100% of Medicare FFS E&M claims were for inpatient care. Includes hospitalists in Puerto Rico and U.S. territories.

Methods

The data—from the *Medicare Provider Utilization and Payment Data: Physician and Other Provider Public Use Files* (Medicare Provider PUFs) for 2012 and 2013—were the evaluation and management (E&M) records for physicians who provided face-to-face care to beneficiaries of the Medicare fee-for-service (FFS) program. These PUFs, prepared by the Centers for Medicare and Medicaid Services (CMS), have been made available to the public as part of the current administration's efforts to improve the transparency and accountability of the U.S. health care system. The physician specialties in the PUFs are self-reported as part of Medicare's Provider Enrollment, Chain and Ownership System (PECOS). We merged each Medicare provider PUF with the AMA Masterfile for the corresponding year to obtain physician demographic characteristics and the year graduate medical education (GME) was completed. For each physician and service, the PUF includes the total number of services provided, as long as there were at least 11 beneficiaries. Physicians who had one or more records in the Medicare Provider PUFs were included in this study.

We only examined physicians from specialties that conventionally provide primary care services to adults (i.e., internal medicine, family/general practice, and geriatric medicine) and selected

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3. Medical school graduation questionnaire. Washington, DC: AAMC; as of February 18, 2016.
4. Lapps J, Flansbaum B, Leykum L, Boswell J, Haines L. Updating threshold-based identification of hospitalists in 2012 Medicare pay data. J Hosp Med. 2016;11(1):45-47.
5. Pete Welch W, Stearne SC, Cuellar AE, Bindman AB. Use of hospitalists by Medicare beneficiaries: a national picture. Medicare Medicaid Res Rev. 2014;4(2).
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the Healthcare Common Procedure Coding System (HCPCS) E&M codes of physician-patient encounters of interest for the years 2012 and 2013.[7] Of those physicians, we defined hospitalists as physicians for whom all face-to-face contact with Medicare FFS patients occurred in the inpatient setting.

We classified the remaining non-hospitalist PCPs into three groups according to the type of services offered: inpatient and outpatient visits, outpatient visits only, and no inpatient or outpatient services (only nursing home, assisted living, home visits, etc.). We calculated and graphed the percentage of PCPs classified by the four service groups (with hospitalist representing inpatient service only) and by primary care specialty and the percentage of PCPs who were hospitalists by GME completion cohort.

Published studies that use Medicare claims data to estimate hospitalist counts employed a variety of methods—those that include all claims, only E&M claims, all specialties, or only internal medicine. Several studies defined hospitalists as physicians who generated 90% or more of their claims from services to hospitalized patients rather than 100%, as we did in this study. To compare our methodology with other studies, we also calculated the number of hospitalists using both definitions.

Results

Between 2012 and 2013, there was an overall growth of 1.6% in the number of Medicare FFS PCPs, with a 6.6% increase in hospitalists (Table 1). There was also a 4.9% increase in PCPs who saw patients in the outpatient setting only, a 2.5% increase in PCPs who saw patients only in other settings, and an 8.2% decline in PCPs who saw patients in both inpatient and outpatient settings (data not shown).

Approximately one-third of the physician workforce is female,[8] which is identical to the proportion of females identified as hospitalists in 2013 (Table 1). U.S. and Canadian medical school graduates represented 43% of hospitalists, and international medical graduates represented 42%. Over 80% of hospitalists identified in our study had an internal medicine specialty, and this group grew at a faster rate between 2012 and 2013 than did hospitalists with a family medicine specialty.

While 19.6% of all PCPs in our study were identified as hospitalists in 2013, the rate was 30.8% for physicians with an internal medicine specialty (Figure 1). Family medicine PCPs were much more likely than internal medicine PCPs to see patients exclusively in the outpatient setting (69.8% vs. 37.5%).

The percentage of PCPs identified as hospitalists has risen consistently for each successive five-year GME completion cohort (Figure 2). Of all PCPs in our study in 2013, their corresponding AMA Masterfile records indicate that hospitalists made up 7.7% of those who completed GME between 1986 and 1990, compared with 36% of those who completed GME between 2006 and 2010.[9]

To compare our methodology with other studies, we also calculated the number of hospitalists using an alternative definition. Changing the threshold for hospitalist inclusion from 100% to 90% of E&M claims yielded 34,789 hospitalists in 2012 and 36,903 in 2013. Compared with our estimates of hospitalist physicians in Table 1, these estimates are 7% larger for both years.

Discussion

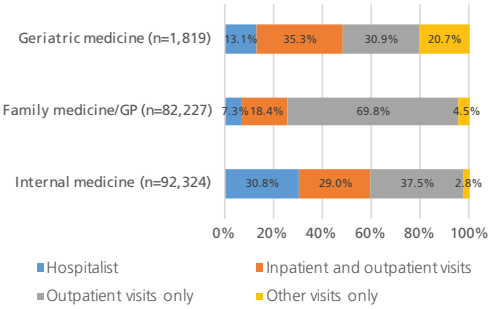
With a similar methodology and using a more conservative definition of hospitalist than in previous studies, we found that over 30% of internal medicine physicians who treat Medicare FFS patients were practicing as hospitalists in 2013, a substantial increase from the 19% identified in 2006.[2] This trend has implications for the primary care workforce supply, especially since outpatient PCPs are growing at a slower rate. Hospitalists are likely to continue to grow in number, given that they make up a consistently larger share of each successive primary care–trained GME cohort and the majority are between the ages of 35 and 50.

Questions remain regarding the point at which the growth of hospitalists is likely to subside, the degree to which hospitalists contribute to improvements in care delivery, and the number of hospitalists needed for an optimum workforce. On one hand, with an unchanging number of physicians entering primary care specialties, an increased supply of hospitalists means a reduced supply of PCPs in ambulatory settings. On the other hand, PCPs in ambulatory settings are able to see more patients when they rely extensively on hospitalists to care for their hospitalized patients.[10] Given this situation, it is essential to monitor changes in the relative numbers of hospitalists and ambulatory PCPs.

There are limitations to this study. In particular, physicians with fewer than 11 Medicare FFS encounters during 2012 or 2013 were not captured in the database. Although it is unlikely that many hospitalists would have been missed, there are probably some PCPs in our selected specialties who treat few (or no) Medicare FFS patients and are thus not included. Additionally, hospitalists in other specialties such as pediatrics were not considered in the study.

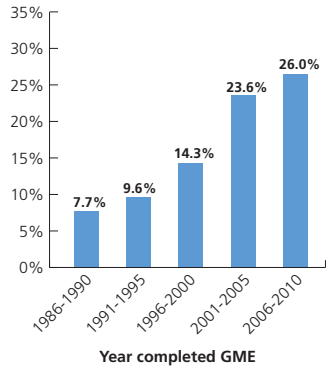
Future research is needed to determine the length of time PCPs practice as hospitalists and whether these physicians move on to additional specialty training or to PCP practice. Future research should also assess whether outpatient PCPs, whose numbers as a group are slow growing, will be able to increase their productivity as they rely more heavily on their hospitalist colleagues to care for their hospitalized patients.

Figure 1. Physician practice type for Medicare FFS PCPs, by primary care specialty, 2013.



Source: Medicare Provider PUFs CY 2013. Washington, DC: CMS; 2013.

Figure 2. Percentage of Medicare FFS PCPs serving as hospitalists in 2013, by year completed GME.



Sources: Medicare Provider PUFs CY 2013. Washington, DC: CMS; 2013. AMA Masterfile. Chicago, IL: AMA; 2012, 2013.

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