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RESEARCH LETTER

"Top 5" Lists Top \$5 Billion

The Good Stewardship Working Group presented the top 5 overused clinical activities across 3 primary care specialties (pediatrics, internal medicine, and family medicine), as chosen by physician panel consensus.¹ All activities were believed to be common in primary care but of little benefit to patients. We examined the frequency and associated costs of these activities using a national sample of ambulatory care visits.

Methods. We performed a cross-sectional analysis using data from the 2009 National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS). The NAMCS and NHAMCS survey patient visits to physicians in non-federally funded, non-hospital-based offices and non-federally funded hospital outpatient departments, respectively.²

We limited our sample to visits by patients to their primary care physicians. Visits for each "top 5" primary care activity were identified using a combination of the patient-described Reason For Visit (RFV) and the physician's diagnosis as coded by the *International Classification of Diseases, Ninth Revision, Clinical Modification* (Table). Nonrecommended care ordered during the visit included that defined by the Good Stewardship Working Group (Table), with some exceptions owing to methodological limitations (unable to identify early referral of otitis media with effusion and appropriate use of corticosteroids based on asthma severity). We excluded from the denominator those visits in which the activity could be considered appropriate.

We calculated each activity as the proportion of eligible visits during which the patient received nonrecommended care. We applied the sampling weights and sample design variables to generate national estimates and 95% confidence intervals using Stata statistical software, version 11.0 (StataCorp, College Station, Texas).

We estimated the costs of procedures using the 2011 Medicare physician fee schedule, and in the case of laboratory tests, the 2011 Medicare Clinical Laboratory Fee Schedule³ (eTable; <http://www.archinternmed.com>). We estimated the costs of drugs using common acquisition costs to consumers from drugstore.com⁴ or retail pharmacies.⁵

Results. We found a wide range of frequencies (1.4%-56.0%) of nonrecommended activities in primary care,

accounting for an approximate annual cost of \$6.76 billion (95% CI, \$5.0-\$9.1 billion) (Table). The ordering of a complete blood cell count for a general medical examination was the most prevalent activity (56.0%, 95% CI, 40.8%-70.2%) and was associated with a cost of \$32.7 million (95% CI, \$23.9-\$40.8 million).

Several practice activities occurred less commonly, such as ordering of bone density testing in women younger than 65 years (1.4%; 95% CI, 0.9%-2.2%) and Papanicolaou tests for patients younger than 21 years (2.9%; 95% CI, 1.7%-5.0%). We were unable to report the performance of dual-energy x-ray absorptiometry scans in men younger than 70 years and imaging for children with head injuries in ambulatory settings owing to their low frequency (visits <30).

Cost of unnecessary services was a function of both the frequency and the reimbursement rates for each service. The practice activity associated with the highest cost was the prescribing of brand instead of generic statins, resulting in excess expenditures of \$5.8 billion per year (95% CI, \$4.3-\$7.3 billion). Bone density testing in women younger than 65 years was the least prevalent activity but accounted for \$527 million (95% CI, \$474-\$1054 million) in costs.

Comment. Our analysis of outpatient visits demonstrates that there is considerable variability in the frequency of inappropriate care and that many of the activities identified in the Good Stewardship "Top 5" lists¹ have marginal impact on health care costs. Approximately 86% of the costs associated with the "Top 5" lists were from the use of brand name instead of generic statins. Although generic drug substitutions may appear to be a "low hanging fruit" for drug savings, numerous efforts have already been made by the US states (generic substitution laws), payers (tiered formularies), and health care providers (generic drug detailing) to achieve this goal. In this light, our data suggest that considerably more work is needed to reduce the costs associated with brand name statin use. Our results also demonstrate that highly prevalent activities with small individual costs can result in large overall costs to the health care system and thus warrant further attention.

Our analysis is limited by the available data of the NAMCS/NHAMCS data set and by our ability to accurately estimate visits with inappropriate care. We were conservative in our assessment of inappropriate care and were careful to exclude visits where care could be potentially appropriate, likely lowering our cost estimates.

The recent debate surrounding escalating health care costs and the sustainability of Medicare have focused attention on the delivery of high-quality, efficient care. The discussion certainly needs the participation of physicians who are willing to examine their own practices, such

Table. Prevalence of Good Stewardship Working Group "Top 5" Activities in US Ambulatory Care, 2009

Primary Care Activity	Inappropriate Activity Definition	Eligible Visit Definition	Exclusions	Eligible Visits, No. Weighted	Eligible Visits With Inappropriate Activity, % (95% CI) ^a	Direct Costs, \$ (95% CI)
Routine laboratory studies	CBC ordered or performed	Visits by adults older than 18 y who present for GME	None	4 186 261	56.0 (40.8-70.2)	32 679 628 (23 926 156-40 849 535)
Antibiotics for children with pharyngitis	Antibiotics prescribed	Visits by children younger than 18 y who present with pharyngitis	Strep pharyngitis, fever	10 907 680	40.9 (33.4-48.9)	116 365 312 (93 659 885-139 070 739)
Expensive brand-name statins on initiating lipid-lowering therapy	Atorvastatin or rosuvastatin prescribed	Visits by adults who are prescribed a statin as a new medication	None	13 462 214	34.6 (26.2-44.1)	5 817 251 527 (4 321 386 849-7 313 116 205)
Annual ECGs	ECG ordered or performed	Visits by adults older than 18 y who present for GME	None	4 186 261	19.1 (7.0-42.9)	16 639 550 (6 130 361-37 657 929)
Routine laboratory studies	Urinalysis ordered or performed	Visits by adults older than 18 y who present for GME	None	4 186 261	17.9 (9.4-31.6)	3 353 195 (1 676 598-5 961 236)
Imaging for back pain	Imaging (CT, MRI, radiography) ordered	Visits by adults aged 18-55 y who present with acute low back pain	Malignancy, weight loss, fever, cachexia, neurological signs	4 970 245	16.7 (11.1-24.2)	175 403 922 (82 677 541-437 169 828)
Routine laboratory studies	Basic metabolic panel ordered or performed ^b	Visits by adults older than 18 y who present for GME	None	4 246 308	16.0 (6.9-32.9)	10 129 992 (4 431 872-20 893 109)
Cough medicines for children	Visits by children <18 y, who present with URI and are prescribed cough/cold medications	Visits by children <18 y, who present with URI	None	21 472 734	11.8 (0.8-16.9)	10 306 912 (858 909-14 601 459)
Pap tests for patients younger than 21 years	Pap test ordered or performed	Visits by girls aged 10-21 y	None	22 570 460	2.9 (1.7-5.0)	47 763 607 (31 842 405-79 606 012)
DEXA scans for younger patients	Bone density scan ordered	Visits by women aged 40-64 y	Fractures, exposure to corticosteroids, anorexia, vitamin D deficiency, tobacco use	734 894 486	1.4 (0.9-2.2)	527 433 773 (474 690 395-1 054 867 545)
DEXA scans for younger patients	Bone density scan ordered	Visits by men aged 40-70 y	Fractures, exposure to corticosteroids, anorexia, vitamin D deficiency, tobacco use	151 651 500	NA ^c	NA ^c
Head injury imaging in children	Imaging ordered	Visits by children aged 2-18 y, who present with head injury	Hemotympanum, loss of consciousness, dizziness	NA ^c	NA ^c	NA ^c
Total cost						6 757 327 419 (5 041 280 970-9 143 793 597)

Abbreviations: CBC, complete blood cell count; CT, computed tomography; DEXA, dual-energy x-ray absorptiometry; ECG, electrocardiography; GME, graduate medical education; MRI, magnetic resonance imaging; NA, not applicable; Pap, Papanicolaou; Strep, streptococcal; URI, upper respiratory tract infection.

^aSurvey weighted percentages, which represent national estimates based on the population that was sampled.

^bBased on National Ambulatory Medical Care Survey/National Hospital Ambulatory Medical Care Survey 2008 because of changes in survey design.

^cEstimates were suppressed for reporting owing to very small sample size (n < 30).

as the Good Stewardship Working Group. However, most primary care activities identified by the working group are not major contributors to health care costs. Expanding the methods of physician consensus to identify "high-value" targets to specialties outside of primary care could bring us closer to achieving the goal of affordable and high-quality health care.

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