SGIM White Paper: The case for the redefinition and revaluation of the outpatient Evaluation and Management (E&M) service codes and the development of new documentation expectations

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Executive summary

We propose that CMS revise both the definitions and valuations of the outpatient new and established Evaluation and Management (E&M) service codes in order to correct the existing deficiencies of the Resource-based Relative Value Scale (RBRVS). We believe this will improve the nation's physician workforce balance and will be in the best interests of Medicare beneficiaries. Furthermore, we propose that new documentation stipulations be developed in concert with the code revisions that prioritize medical decision making (MDM).

Introduction

The Centers for Medicare & Medicaid Services (CMS) has the stated goal of ensuring that "our payment systems are updated to reflect changes in medical practice and the relative value of services". In this white paper, we consider how E&M work of current practice has changed significantly over the years and why existing E&M codes need to be revised or replaced to accurately reflect these changes.

Background

Why Accurate Valuation Continues to be Important

CMS has initiated a series of payment reforms designed both to support primary care practice and ensure that payment systems and models incentivize the best possible health care outcomes for Medicare beneficiaries. These innovative programs include the models being tested by the Innovation Center, including the Comprehensive Primary Care Initiative and Accountable Care Organizations (ACOs) and programs, like the value-based modifier, the Electronic Health Record Incentive Program and the Physician Quality Reporting System (PQRS). Furthermore, CMS has developed new service codes that address the previously uncompensated non-face-to-face time physicians spend on disease prevention and health promotion for Medicare beneficiaries, including the Annual Wellness Visit, the Transitional Care Management code and the Chronic Care Management code. All of these have the potential for real and substantive improvement of the nation's health and support for an appropriately balanced workforce and improved health care quality as our country moves closer toward an affordable and broadly accessible insurance-based health care system.

However, new payment models and care coordination programs neither eliminate fee-for-service reimbursement system nor completely address deficiencies for cognitive service inherent in it. Each of the new and innovative programs mentioned above either directly or indirectly depends on the service code definitions of the American Medical Association's CPT manual and on the existing valuations in Medicare's Physician Fee Schedule (PFS). Even if these new payment models begin to address

deficiencies in the existing E&M services, many Medicare beneficiaries do not receive care in these settings. The traditional fee-for-service model of care delivery will continue to coexist with new models.

Current Landscape of Physician Work

Over the last twenty-five years, the dramatic increase in the prevalence of chronic illness has caused a paradigm shift in the care of Medicare beneficiaries. Most people over the age of seventy have at least one chronic disease and many have two or more. At the same time there has been an explosion in treatment options for many chronic diseases along with the development of tests and services for the identification and prevention of many diseases. The result has been that purely cognitive physicians no longer spend the majority of their time taking care of acute illness. For example, instead of seeing patients intermittently whenever they "get sick," primary care physicians spend most of their time caring for chronic lifelong illnesses and trying to prevent patients from developing complications of those illnesses (e.g., vascular complications of diabetes). Patient care is no longer driven by episodes of illness. Rather, physicians focus on caring for chronic lifelong illnesses, preventing patients from developing complications of those illnesses, and/or exploring complicated diagnostic and therapeutic pathways. This work involves, among other things, managing patients with multiple simultaneous conditions on multiple medications, coordinating care among multiple health professionals, working in teams, and providing extensive counseling and education of patients and caregivers. As a consequence of this transformation in care, CPT codes for E&M services no longer accurately represent the intensity of effort performed by physicians and their clinical staff.

The current outpatient E&M codes are a "one size fits all" set of codes used by all the specialties of medicine. They are premised on taking an extensive history from the patient and performing a physical examination. Caring for patients with multiple chronic illnesses does not require repeated physical exams or taking a traditional history. Instead, examinations are usually brief and focused, history taking revolves around functional issues and most of the time is spent making complex decisions regarding medication, ordering diagnostic tests, changing the care plan, counseling and educating patients and caregivers, and contacting patients at home to prevent complications and to ensure compliance. Outpatient E&M codes – as currently defined – do not capture the work involved in this type of care.

CPT remains the only universally accepted directory of physician services. Medicare valuations of the CPT E&M services continue to be imprecise both because the CPT codes are neither accurately or sufficiently well defined and because code valuations have not been systematically reassessed using modern health services research techniques, existing databases, and the research based understanding of intense cognitive activities developed in the fields of neuroscience and psychology over the last 25 years.

Supporting the Redefinition & Revaluation of Codes

CMS has created agency guidelines for formally requesting a review of existing service codes (Fed Reg, 2014: 40336):

> *1. Documentation in the peer reviewed medical literature or other reliable data that there have been changes in physician work due to one or more of the following: Technique, knowledge and technology, patient population, site of service, length of hospital stay and work time.*
> *2. An anomalous relationship between the code being proposed for review and other codes.*
> *3. Evidence that technology has changed physician work.*
> *4. Analysis of any other data on time and effort measures such as operating room, logs, or national and other representative data.*

5. Evidence of that incorrect assumptions were made in the previous evaluation of the service such as a misleading vignette, survey, or flawed work assumptions in the previous evaluation.
6. Prices for certain high cost supplies or other direct PE inputs that are used to determine PERV use are inaccurate and do not reflect current working information.
7. Analysis of work time, work RVU or direct PE input using other data sources.
8. National survey of work time and intensity from professional and management societies and organization such as hospital associations.

The following sections present the key evidence to show that criteria #1, #3, #5 and #7 have been met.

Criteria #1: Documentation in the peer reviewed medical literature or other reliable data that there have been changes in physician work due to one or more of the following: Technique, knowledge and technology, patient population, site of service, length of hospital stay and work time.

Technique

Care Coordination

Primary care providers serve as the main care coordinators for patients, and this responsibility has grown vastly over the years. A study from 2009 revealed that care for Medicare patients by an average primary care physician must be coordinated with 229 other physicians working in 117 different practices in the course of a year, and that this role is expected to expand.[1] Furthermore, the average physician practice contracts with nearly a dozen health plans and must adhere to each payer's protocol for contracting, pre-authorization, billing, and reimbursement[2]; primary care physicians may be disproportionately affected by these hurdles because of their inherent role in the coordination of care.[3] Finally, there are new system-level pressures exerted on primary care physicians to evolve from the healer of all to the team leader of allied health professionals, broadening the scope significantly from the past traditional role.[4]

Post-Hospitalization Transitioning

With changes in the efficiency and quality of hospital care, there has been a growing reliance on the field of hospital medicine. In 2006, 14,000 hospitalists were practicing in the country; by 2010, this was anticipated to reach 25,000 and though the responsibilities for primary care doctors to see patients in the hospital may have decreased with this, the frequency of hospital to primary care practice transfers also increased.[5] Furthermore, a review of transitions to care showed that direction communication between hospital physicians and primary care physicians is poor: occurring only 3-20% of the time. Significant information was often missing from discharge summaries, including diagnostic test results from 33-66%, pending test results at discharge from 65%, and patient or family counseling from 90-92%.[6] These significant gaps in transition of care fall on the primary care provider to fill and are a growing responsibility as trends toward hospitalist medicine continue.

Motivational Interviewing & Counseling

Knowledge on the modifiable disease course of many conditions has placed an increasing expectation for physicians to address health behaviors. The Surgeon General's Vision for a Health and Fit Nation from 2010 now recommends counseling training for clinicians and encourages clinicians to counsel on healthy eating and increased physical activity.[7] National health organizations have also called for an increase from doctors in exercise and nutritional counseling during adolescent office visits.[8] And with 97% of adults reporting at least one of four poor health behaviors and 80% reporting two or more,[9] primary care

physicians are expected and responsible to offer such counseling and promotion of healthy behaviors more than ever before.

Given the increasing demands placed on primary care physicians, time spent on counseling has actually decreased even in the context of the increased calls for more counseling. More specifically, data from the National Ambulatory Medical Care Survey demonstrates a decrease in diabetic counseling by primary care physicians. In 1997, 51.9% of visits discussed diet/nutrition counseling by primary care providers for diabetic visits.[10] In 2005, only 40% did. In 1997, 27.9% of visits discussed exercise counseling. In 2005, only 24.9% did.[11] This trend is true for counseling for obesity in primary care visits as well. The odds of receiving counseling for diet/nutrition, exercise, or weight loss was 18% lower in 2003/2004 compared to 1995/1996 for obesity.[12] These data were not available for the 2005-6 Five Year Review.

Knowledge & Technology

Scope of Practice

The growth of medicalization of social problems has expanded the scope of primary care.[13] Primary care physicians are expected to discuss substance abuse, domestic violence, risky sexual behaviors, school problems, academic performance, and mental illness.[14] As stated by Dr. Bodenheimer: "Even snoring is no longer considered a benign annoying behavior but must be evaluated as a possible symptom of sleep apnea, with its attendant complications of arterial and pulmonary hypertension."[15]

New Scientific Developments & Standards of Care

Until recently, lax control of blood sugar was an acceptable practice because methods for home blood glucose monitoring remained inconvenient and evidence on tight glycemic control effectiveness was inconclusive.[16] No longer is this the case. Now the standard of management includes regular home monitoring, periodic testing for diabetic health consequences (annual dilated eye examinations, urine microalbumin levels, peripheral neuropathy microfilament testing), more aggressive blood glucose targets, earlier screening targets, less restrictive criteria for diagnosis, and more fixed evidence-based guidelines on simultaneous blood pressure control and lipid management.[17] This increasing complexity and responsibility is placed upon primary care providers, as the care providers who most directly manage and treat chronic disease for the population.

Table 1: Changes in Technology & Management for Diabetes over the Years*[18]

In 1970s, portable insulin pumps, such as the Mill Hill Infuser, came to market.
In 1976, the use of hemoglobin A1C for monitoring degree of glucose control was proposed.
In 1980s, the first home glucose-monitoring machines were marketed.
In the 1990s, insulin pens allowed patients to easily vary injected doses.
In 1993, the Diabetes Control and Complications Trial showed that intensive glucose control delays onset and progression of diabetic retinopathy, nephropathy, and neuropathy in type 1 diabetics.

A crude but nonetheless relevant measurement of these changes can be seen from how the "Standards of Medical Care in Diabetes" by the American Diabetes Association has changed over the last twenty years. In 2004, the publication was 21 pages.[19] In 2014, it stood at 63 pages.[20] Now there is an abridged version.

Furthermore, technological and scientific advancements have led to the development of new vaccines and screening measures. Three new vaccines – hepatitis, pneumococcus, and influenza – were introduced as standard of care for adult immunizations from 1987 through 2002. According to one study, based on the recommendations of the US Preventive Services Task Force, an average of 25 services would be due for patients who visited a family practice.[21] In all, 7.4 hours of every working day would be needed to provide all the recommended preventive services to a standard practice of 2500 patients with age and sex distributions based on the US population.[22]

A couple decades ago, cancer screening was limited to Papanicolaou testing; now, screening for breast, colon, and prostate cancer are expected in routine primary care practice.[23] With this, time must now also be given to explaining the risks and benefits of screening, including appropriate age for mammography, appropriate colon cancer screening techniques and frequency, and the pros and cons of prostate-specific antigen testing.[24] Table 2 below demonstrates the longitudinal changes for just colon/rectal screening guidelines from the American Cancer Society. It is evident that the complexity of screening guidelines has increased tremendously.

Table 2: Changes in American Cancer Society Guidelines for Colon & Rectal Cancer, 1997, 2001, Present[25]

1989 - 1997	Digital rectal exam (DRE)	40 and over	Yearly
	Fecal occult blood test (FOBT)	50 and over	Yearly
	Sigmoidoscopy (preferably flexible)	50 and over	Every 3 to 5 years, based on advice of physician
1997 - 2001	Follow 1 of these 3 schedules*:		
	Fecal occult blood test AND Flexible sigmoidoscopy	50 and over	Yearly Every 5 years
	Colonoscopy	50 and over	Every 10 years
	Double-contrast barium enema (DCBE)	50 and over	Every 5 to 10 years

March 2008 - present	Follow one of these schedules (for those at average risk of colorectal cancer)[2]:		
	Flexible sigmoidoscopy[3]	50 and over	Every 5 years
	Colonoscopy	50 and over	Every 10 years
	Double-contrast barium enema (DCBE)[3]	50 and over	Every 5 years
	CT colonography (virtual colonoscopy)[3]	50 and over	Every 5 years
	Fecal occult blood test (FOBT)**,[3]	50 and over	Yearly
	Fecal immunochemical test (FIT)[3]	50 and over	Yearly
	Stool DNA test[4]	50 and over	Interval uncertain

Patient Population

Demographic Trends

Demographic changes in the United States have significantly increased the workload on primary care physicians over the years. Between the years of 2005 and 2025, the United States population is expected to increase 18% to nearly 350 million people.[26] The population above 65 years old is expected to increase by 73% over the same time period.[27] Not only will the population grow overall and that of the elderly even more quickly, but life expectancy in the United States has increased from an average of 75.2 years in 1990 to now 78.2 years in 2010.[28]

Figure 1a below shows an increase in Medicare enrollment from 38 million in 1995 to 49 million in 2011 and also an increase in those 85+ years of age. More specifically in 1995, 65-74 year olds made up 48.7% of Medicare enrollees. Those above 85+ years old made up 10.2%. By 2010, fifteen years later, 65-74 year olds made up a smaller percentage of enrollees at 44.6% and those above 85+ years old made up a larger proportion at 11.8%.[29] This is more specifically depicted in Figure 1b, which shows the proportion of the total Medicare population accounted for over the years by each age group. Given these realities, the workloads of family physicians and general internists are expected to increase by 29% between 2005 and 2025.[30] Similarly, a 13% workload increase is expected in the care of children by pediatricians and family physicians.[31]

Furthermore, with age, multiple presenting complaints and visit diagnoses rise.[32] For example, in a recent study assessing the association of multi-morbidity and age in a county in Minnesota, it was shown that for men 60-69 years of age, 12.5% have 5 or more chronic conditions; yet this dramatically jumps to nearly 29.9% of 70-79 year old men and 50.05%, of 80+ year old men.[33]

Figure 1a: Medicare Enrollment by Age Group, 1995-2011

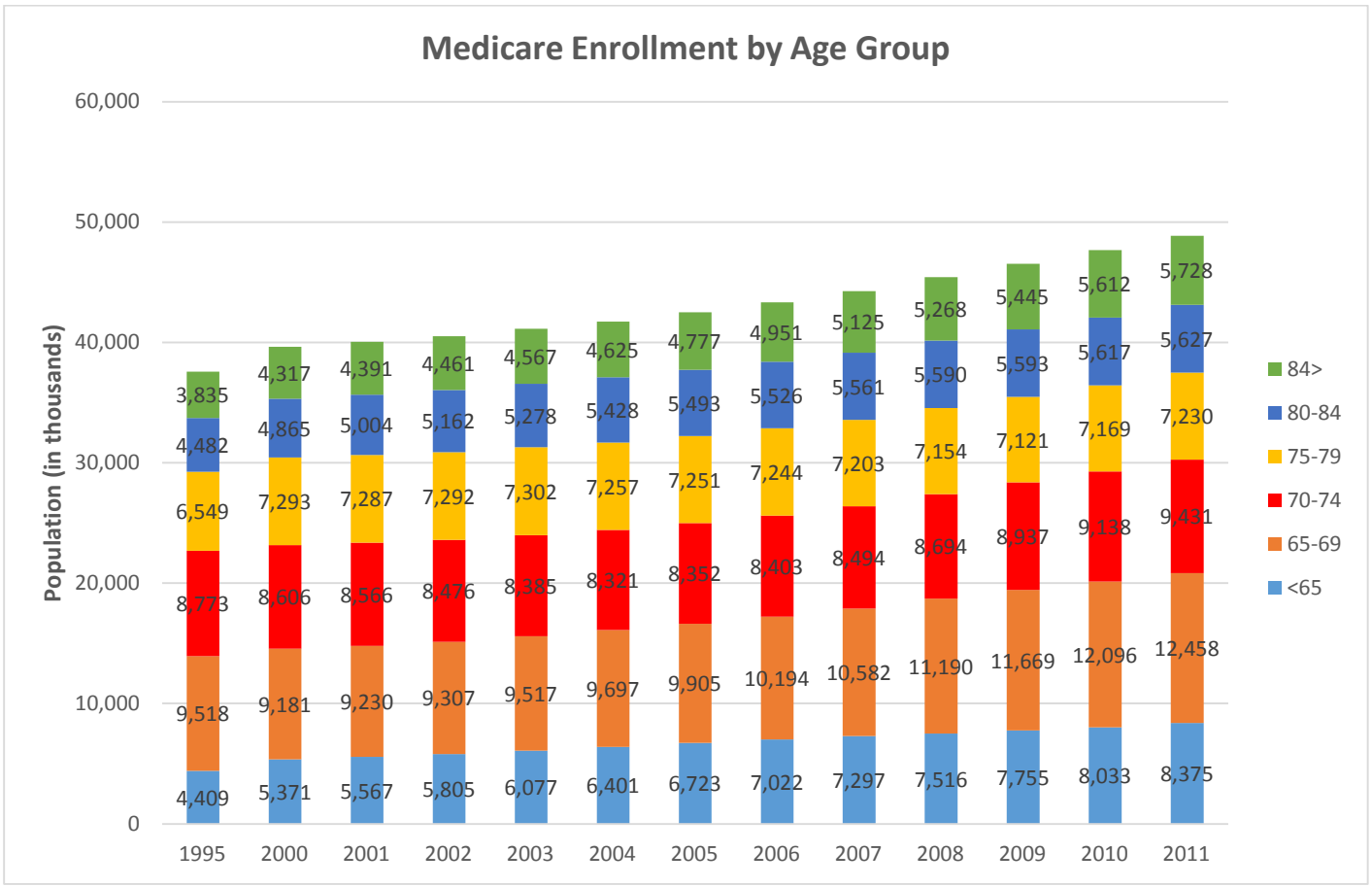
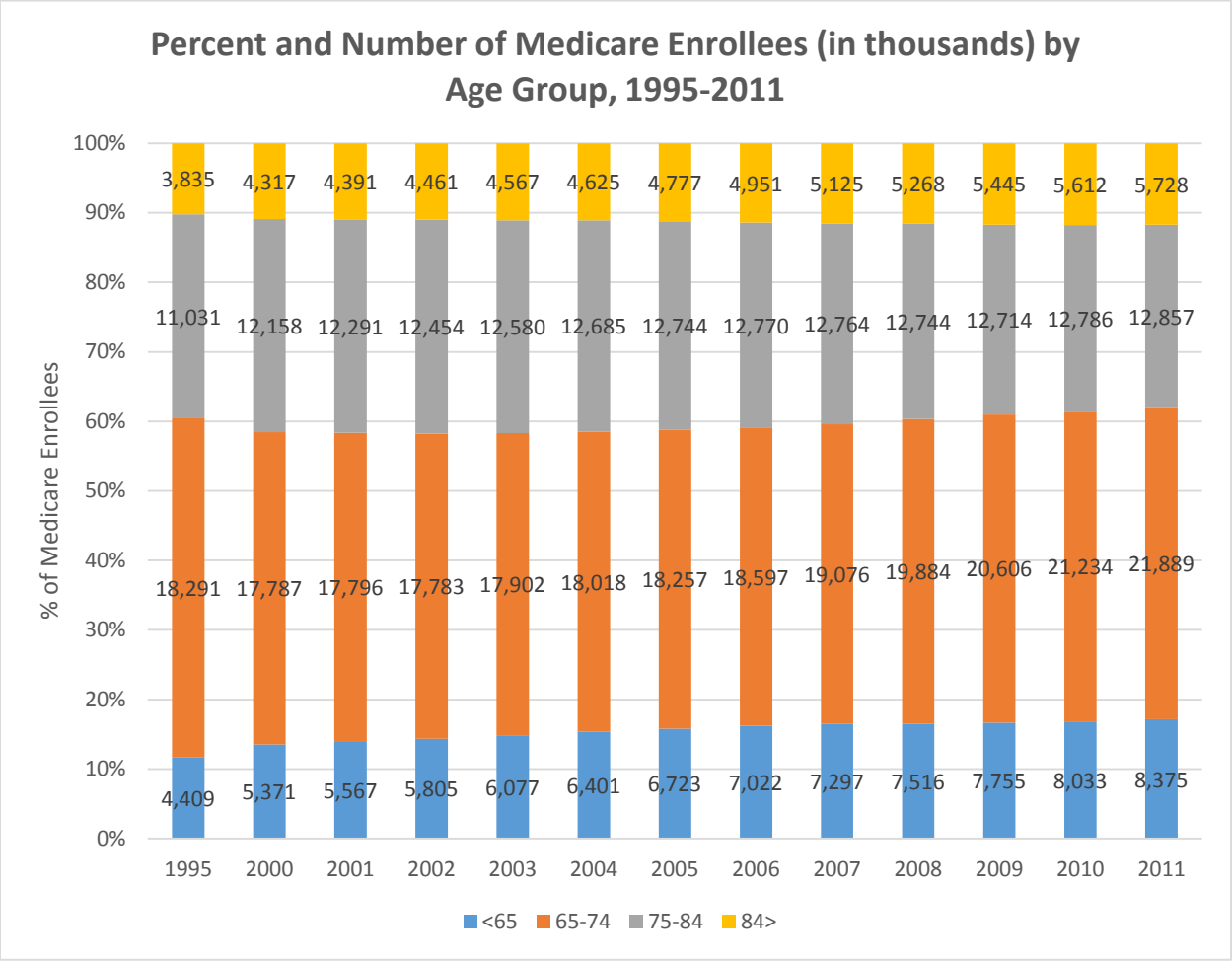


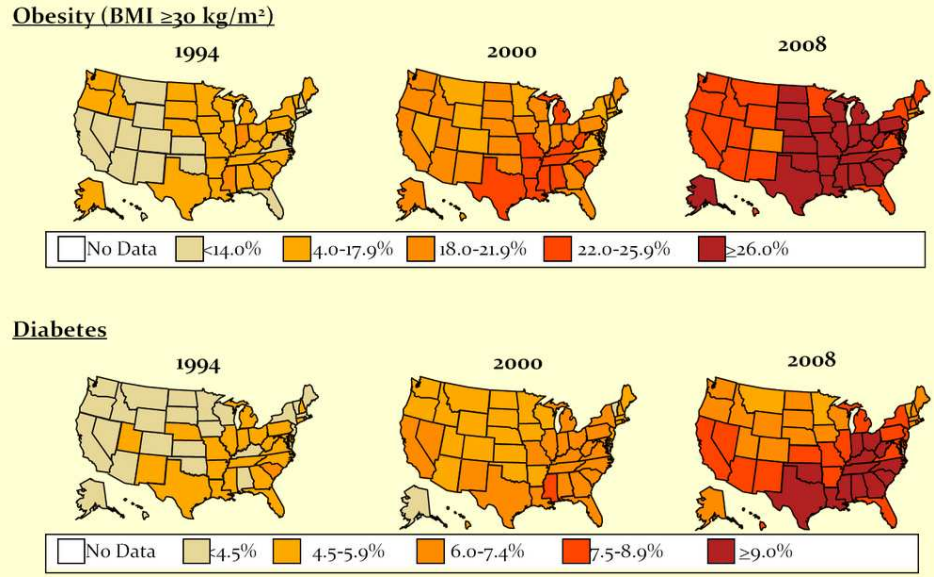
Figure 1b: Proportion of Total Medicare Enrollees by Age Group, 1995-2011



Chronic Disease

Primary care is home to chronic disease management, and much of the increased workload in evaluation and management for a typical primary care visit is due to the increased prevalence and burden of chronic disease in the United States.[34] [35] In 2005, 133 million Americans had at least one chronic disease. By 2020, this number is expected to reach 157 million.[36] The number of Americans with multiple chronic diseases is also rising: 63 million in 2005 to 81 million predicted by 2020.[37] For example, an aging and more obese US population has led to a greater prevalence of type 2 diabetes mellitus.[38] In 1995, only three states had a prevalence rate of 6% or more for diabetes; by 2010, all 50 states did.[39] Figure 2 illustrates this disease prevalence trend. Given these trends, the Centers for Disease Control and Prevention now predicts one in three, or 100 million Americans, could have diabetes by 2050.[40]

Figure 2: Changes in Obesity & Diabetes Prevalence in the United States, 1994-2008[41]



With more of the population suffering from more chronic diseases, the complexity of care during a typical office visit by a primary care provider has dramatically increased. Furthermore, unlike acute illness, chronic disease brings an inherent complexity due to their multifactorial nature, irreversible pathologic disease, persistent disease interaction, and ongoing management and treatment needs.[42] Family physicians address an average of 3 patient problems per visit; this reaches an average of 4.6 for patients with diabetes.[43] It is estimated that for an average panel of 2500 patients (mean US panel size is 2300), it would take 10.6 hours per working day to provide all the recommended care to chronic condition patients.[44] Primary care physicians are forced to practice with increased cognitive intensity given the increased patient complexity compared to any time before.

Finally, along with the increase in the average medical complexity of a patient during a typical primary care office visit, comes an increasing per capita rate of prescriptions that has also been documented, and this generates more information to process and manage within primary care practice as the principal overseers of medication management.[45] In 1992, 1.9 billion retail prescriptions were dispensed,[46] in 1999, 2.8 billion,[47] in 2009, 3.9 billion.[48]

Length of Stay

The length of stay has steadily been declining at US acute care hospitals since 1960.[49] More recently over the last two decades, average length of stay has decreased from 6.4 days in 1990 to 4.9 days in 2000 to 4.8 days in 2010. [50] One reason is that there has also been a change in the standards for requiring and maintaining hospitalization over the years. Previously, patients would remain in the hospital until most of their medical issues were fully diagnosed and treated to resolution.[51] Now, the emphasis is on stabilizing the patient, minimizing the duration of hospitalization, and completing management and treatment in the outpatient setting.[52] These recent trends have caused a shift in services to outpatient physician providers unlike years past when care resolution occurred in the hospitalized setting.

Work Time

The mean duration of primary care visits increased from 15.3 to 18.1 minutes from 1978 to 1994 ($P<.001$)

[53] More recent evidence supports this continued trend. Between 1997 and 2005, the mean visit duration increased from 18.0 to 20.8 minutes ($P < .001$).[54] More specifically, duration increased for the three most common diagnoses of diabetes (4.2 minutes, $p = .002$), essential hypertension (3.7 minutes, $p < .001$), and arthropathies (5.9 minutes, $p < .001$) and for general medical examinations by 3.4 minutes.[55] Finally, US adult primary care visits to physicians increased from 273 to 338 million annually or 10% on a per capita basis from 1997 to 2005.[56]

As duration of visit has increased in primary care, so has the total number of clinical items addressed per visit (including diagnoses, medications, tests ordered) from 5.4 in 1997 to 7.1 in 2005 ($p<0.001$).[57] More specifically, 21% of primary care visits addressed 3 diagnoses in 1997. By 2005, 35% of visits did. In 1997, 5% of visits addressed 6 or more medications. In 2005, 19% did. In 1997, 8% of visits addressed cholesterol. In 2005, 17% did. In 1997, 78% addressed blood pressure. In 2005, 94% did.[58]

In fact, the increase in the number of clinical items addressed outpaced the increase in duration of visit, resulting in a reduction in primary care physician time per clinical item from 4.4 to 3.8 ($p=0.04$).[59] These data were not available until 4 years after the 2005-6 Five Year Review.

Criteria #3: Evidence that technology has changed physician work

Patient Electronic Communications

Primary care physicians have also had to fit in increased work time for electronic communication by patients. Utilization of email for patient contact has been shown to be higher for primary care physicians than specialty care physicians.[60] In a study from 2011 that predominantly targeted primary care physicians, the number of physicians who indicated they emailed patients increased from 16.6% in 2005 to 20.4% in 2008 ($p <.001$).[61] In a recent 2013 survey, more than three-quarters (77%) of parents said they would like to communicate with their children's pediatrician via email.[62]

New models of care supported by the Affordable Care Act have also further increased the responsibilities of primary care practice unlike years past. In a recent 2014 study of 18,486 adults with diabetes, the mean quarterly number of primary care contacts increased by 28% from pre-implementation of a patient-centered medical home initiative compared to post-implementation.[63] This increase was largely driven by increased secure messaging and telephone encounters to primary care physicians.[64] In totality, given electronic modalities, patient expectations, and changing delivery models, an increased work time from primary care physicians has risen significantly over the years to fulfill new technological communication needs for a typical patient encounter.

Consumer Inquiries

Recent trends toward increased internet queries, online information gathering, and direct-to-consumer advertising to patients have contributed to increased topics of conversations for physicians.[65] [66] Patients have also become more knowledgeable, more assertive, and more insistent on explanations from physicians.[67] [68] This burden largely falls on primary care physicians as frontline patient educators and care providers.

Criteria #5: Evidence that incorrect assumptions were made in the previous evaluation of the service such as a misleading vignette, survey, or flawed work assumptions in the previous evaluation.

Misvaluations of E&M service codes date to the origins of RBRVS

In the research that preceded the 1992 implementation of RBRVS, Hsiao's team developed patient vignettes for about 400 commonly performed services with the help of 100 physicians organized into 14 technical consulting groups (TCGs). These physicians were nominated by over 30 specialty societies in a process coordinated by the AMA. Importantly, procedural and specialty physicians made up about 85% of the TCG membership. Hsiao et al. then extrapolated relative values from the nearly 400 surveyed vignettes to the 6,000 plus non-surveyed CPT-4 codes. Because of the limited number of CPT-4 E/M codes, multiple vignettes were assigned to each outpatient E/M service code, ranging from one to 27.[69] Even within a specialty, multiple vignettes matched to the same E/M code. Physicians generally agreed when they rated the cognitive work within their specialty. However, there was considerable disagreement among specialties about work and face-to-face non procedural encounter time. Braun et al reported up to a threefold variation in the time and work associated with each office-based E/M code across specialties.[70] Collapsing a wide range of cognitive services into a small number of E&M service codes did not adequately reflect the diversity of cognitive work intensity. Significantly, Hsiao et al noted "considerable ambiguity in the CPT-4 codes for evaluation and management services…this shortcoming is so severe that we have not been able to extrapolate the RBRVS for surveyed office and hospital visits to non-surveyed visits."[71]

Criteria #7: Analysis of work time, work RVU or direct PE input using other data sources.

A. Comparisons and conceptualization of intensity across specialties

In 2011, Horner et al assessed physician work intensity using instruments (NASA-TLX, SWAT, MRQ) validated in nonclinical settings in a convenience sample of fourteen providers from four specialties (family medicine, general internal medicine, neurology, and surgery).[72] The instruments were used to measure self-rated perceived work intensity for office-based E&M services for the last patient encounter and for an entire half-day clinic session.

The NASA-TLX has six items and measures mental demands, physical demands, temporal demands, effort, performance, and frustration. The SWAT has three items and measures time load, mental effort load, and stress load. The MRQ has 17 items and measures processing demands for auditory, facial, manual, memory, spatial, tactile, visual, and vocal stimuli.

It was shown that the instruments showed moderate to high correlation for the last patient encounter (Person's r ranged from 0.41 to 0.73) and entire half-day clinic (0.35 to 0.95).[73] It was also shown that the three instruments gave the following work intensity scores for an entire half-day clinic for each field:[74]

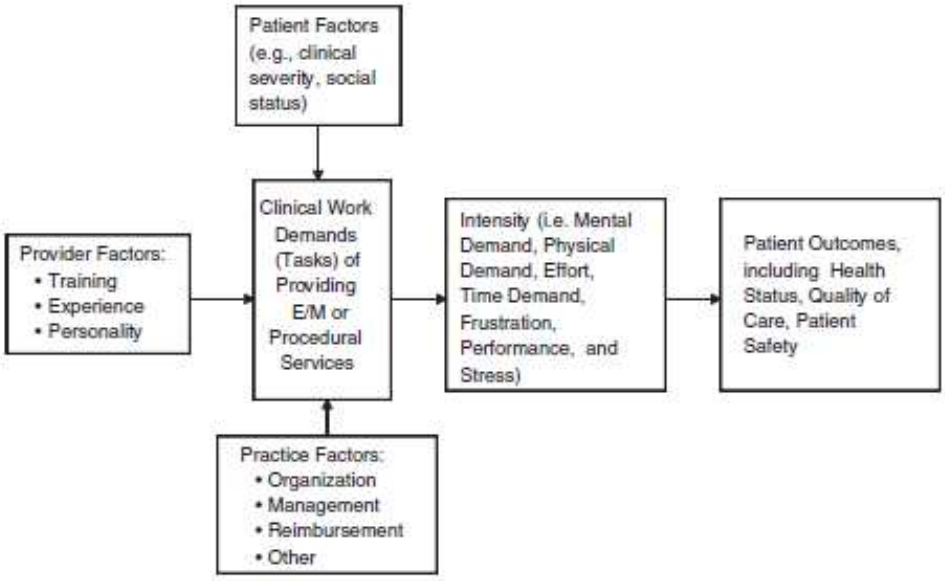
1) NASA-TLX (NASA-Task Load Index):
Family Medicine 51.7; Internal Medicine 52.8; Neurology 63.6; Surgery 35.2

2) SWAT (Subjective Workload Assessment Technique):
Family Medicine 73.3; Internal Medicine 83.3; Neurology 81.5; Surgery 50.0

3) MRQ (Multiple Resources Questionnaire):
Family Medicine 65.2; Internal Medicine 62.9; Neurology 48.7; Surgery 54.7

In 2012, Horner et al proposed a conceptual model of physician work intensity using performance science as the theoretical foundation and empirical evidence derived from the current literature to support each theoretical component.[75] Three broad categories emerged as the sources of work intensity: patient-based, provider-based, and practice-based factors. Figure 3 below depicts the conceptual model by Horner et al.

Figure 3: Conceptual Model of Clinical Work Intensity



B. Model of complexity density

In 2010, Katerndahl et al developed a model for estimating relative complexity based upon quantity, diversity, and variability of clinical encounters using the National Ambulatory Medical Care Survey database.[76] Quantification of complexity was conducted by constructing a model of relevant clinical inputs such as number of reasons for visit, diagnoses, body systems examined, and tests ordered; and relevant clinical outputs including medications prescribed, procedures performed, other therapies ordered, and patient disposition. More recent work by Katerndahl et al applied the model across 14 specialties in the ambulatory setting and found the following complexity and complexity density (complexity/time duration) values in Figure 4 and Figure 5. The research showed that family medicine and internal medicine had the highest complexity densities (complexity/duration of visit) of all specialties with scores of 202.1 and 193.2, respectively; while the fields of general surgery, urology, and ophthalmology had scores of 102.4, 116.5, and 89.7, respectively.[77]

Figure 4: Ambulatory Complexity by Specialty[78]

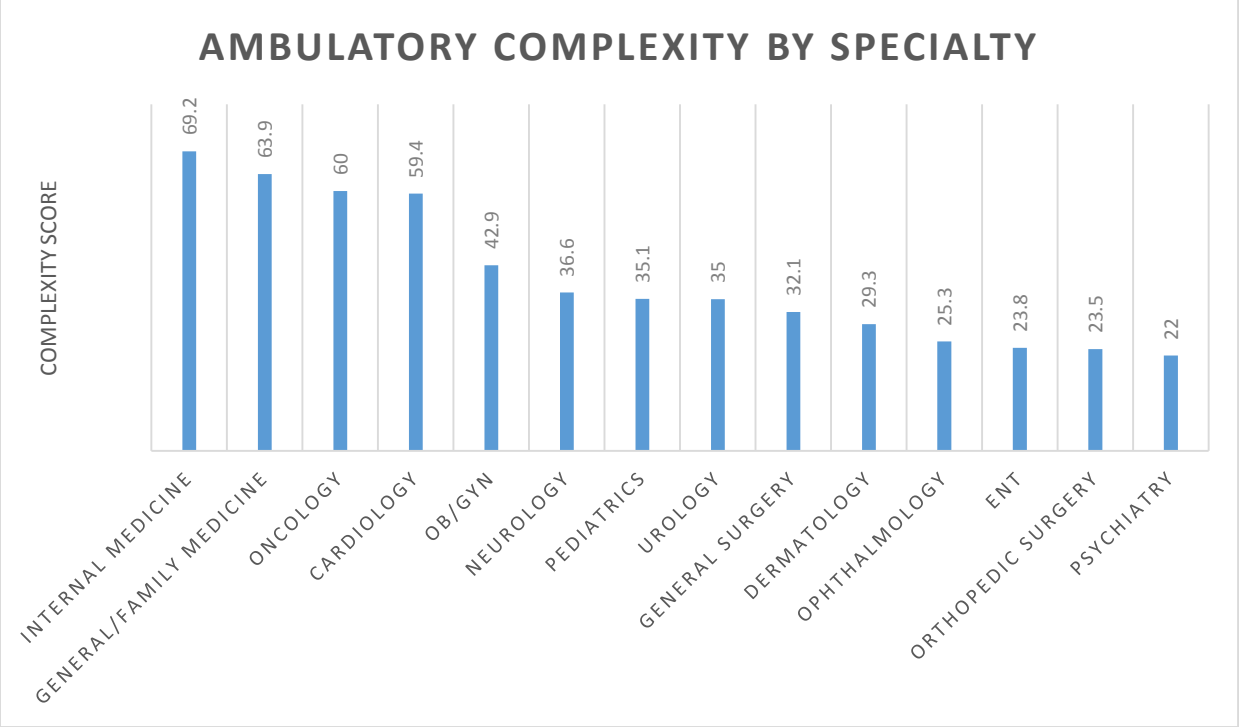
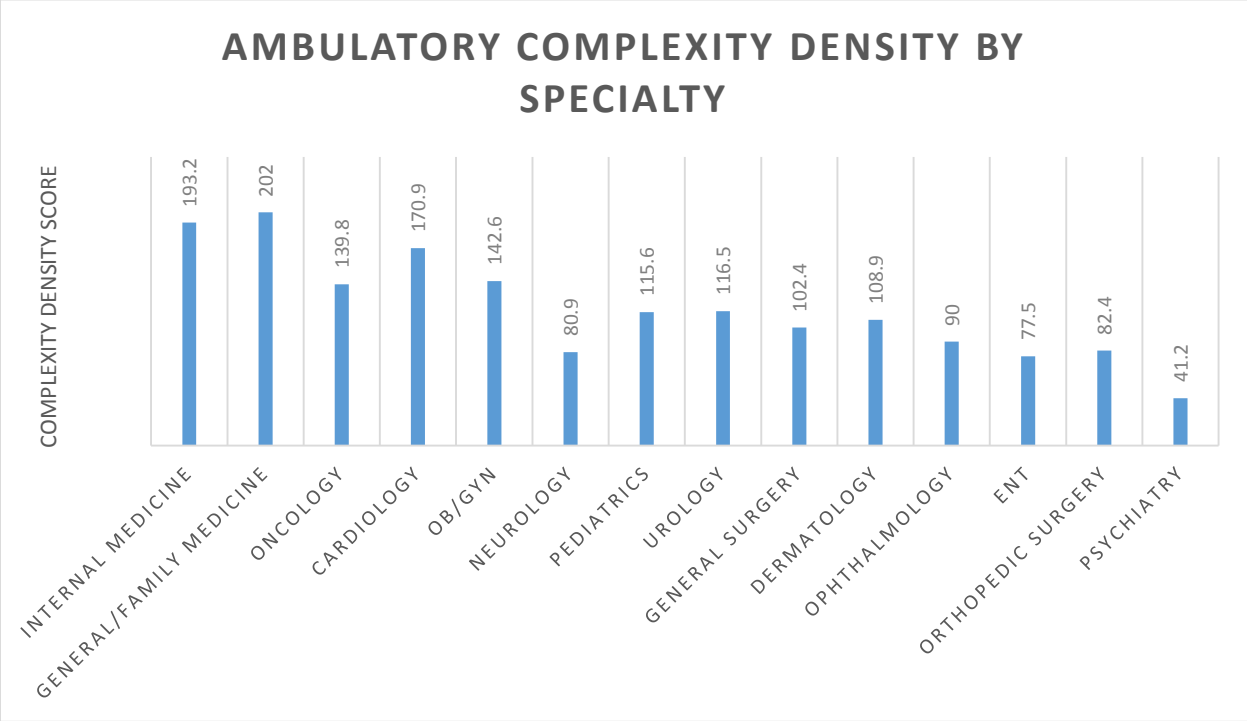


Figure 5: Ambulatory Complexity Density by Specialty[79]



Conclusions

CMS has identified guidelines for formally requesting a review of existing service codes in Federal Registry, 2014: 40336. Below we summary the key findings that support this formal request for review of the existing service codes.

1. **Criteria 1: Changes in physician work: technique, knowledge and technology, patient population, site of service, length of hospital stay and work time.**

    - **Changes in demographics**: Medicare enrollment has increased from 43 million in 2003 to 54 million in 2012.[80] Furthermore, the percentage of enrollees 85+ years old makes up a larger fraction of enrollees than before.[81] With age, multiple presenting complaints and visit diagnoses rise.[82] Given these realities, the workloads of family physicians and general internists are expected to increase by 29% between 2005 and 2025.[83]
    - **Changes in chronic disease**: In 2005, 133 million Americans had at least one chronic disease. By 2020, this number is expected to reach 157 million.[84] Furthermore, unlike acute illness, chronic diseases bring inherent complexity due to their multi-factorial nature, irreversible pathology, persistent disease interaction, and ongoing management and treatment needs.[85]
    - **Changes in work time and visits**: From 1997 to 2005, adult primary care visits increased from 273 to 338 million annually or 10% on a per capita basis.[86] In this same time, primary care visit duration increased for the three most common diagnoses of diabetes (by 4.2 minutes, $p = .002$), essential hypertension (by 3.7 minutes, $p < .001$), and arthropathies (by 5.9 minutes, $p < .001$) and for general medical examinations by 3.4 minutes.[87]
    - **Changes in work content:** The total number of clinical items addressed per visit (including diagnoses, medications, tests ordered) in primary care increased from 5.4 in 1997 to 7.1 in 2005 ($p<0.001$). The increase in the number of clinical items addressed outpaced the increase in duration of visit, resulting in a reduction in time per clinical item from 4.4 to 3.8 minutes ($p=0.04$).[88]
    - **Changes in hospital length of stay**: Average length of stay has decreased from 6.4 days in 1990 to 4.9 days in 2000 to 4.8 days in 2010. [89] Previously, patients would remain in the hospital until most of their medical issues were fully diagnosed and treated to resolution.[90] Now, the completion of management and treatment often takes place in the outpatient setting.[91]

2. **Criteria 3: Evidence that technology has changed physician work**
    - A recent study from 2010, showed that the average time to e-prescribe in the examination room using computerized order entry was 69 seconds – 25 seconds longer than handwriting (99.5 percent confidence interval [CI] 12.38).[92] Furthermore, In a study from 2011 that predominantly targeted primary care physicians, the number of physicians who indicated they emailed patients increased from 16.6% in 2005 to 20.4% in 2008 ($p <.001$).[93] Finally, a review from 2008 on time utilization from computerized order entry showed three studies (one RCT and two non-RCTs) that demonstrated increased ordering time.[94]

3. **Criteria 5: Evidence of that incorrect assumptions were made in the previous evaluation of the service such as a misleading vignette, survey, or flawed work assumptions in the previous evaluation.**
    - When developed in the late 1980s and then implemented in 1992, RBRVS reflected the immediate need to develop a Medicare fee schedule that would standardize payments for the same services across specialties and nationally. At the time there were clear deficiencies in

defining and valuating E&M services due to the failure to agree on the relative valuation of purely cognitive non procedural work with respect to procedural work and the compression of the existing outpatient and inpatient encounter service codes into the small number of existing CPT E&M codes.[95] The E&M service codes have been addressed in the Five Year Review process (most recently 2005-6) but these reviews were corrections to a set of code definitions and valuations that themselves were inadequate to reflect the diversity of E&M work intensity.

4. **Criteria 7: Analysis of work time, work RVU or direct PE input using other data sources.**
   - Recent work in physician work complexity has produced a model to quantify the complexity of ambulatory care by using relevant clinical inputs, such as number of reasons for visit, number of diagnoses, exams performed, and tests ordered; and relevant clinical outputs such as medications, other treatments delivered, and patient disposition.[96] Recent work from 2014 across 14 specialties demonstrated that family medicine and internal medicine had the highest complexity densities (complexity/duration of visit) of all specialties with scores of 202.1 and 193.2.[97] There has also been recent research directly measuring and comparing the work intensity in the ambulatory setting across specialties using the self-report NASA-TLX intensity scale, which has been validated across fields. In a study from 2011, it was shown that perceived work intensity scores were higher for the more cognitive fields of family medicine (51.7), internal medicine (52.8), and neurology (63.6) compared to the surgical specialty (35.2).[98]

Proposals

We propose that it is in the best interest of Medicare beneficiaries for CMS to address the inadequacies of the outpatient E&M service codes. We believe it necessary that CMS develop and implement new outpatient E&M code families that fully capture the full range and gradations of work intensity required for the care of patients. Existing outpatient E&M service valuations are no longer accurate. RBRVS based service code valuations continue to be relevant and utilized in both fee-for-service and innovative physician payment models. The development of new codes must be derived from a knowledge-base that reflects the current levels of E&M physician work based on nationally representative observational sampling of outpatient E&M service delivery and electronically accessible data.

We propose that CMS work with stakeholders and others to develop a comprehensive understanding of what physicians and their clinical staff do on a daily basis in modern practice based on new research. This research should determine the most effective way to (1) describe in detail the full range of intensity for outpatient E&M services, (2) define discrete gradations of service intensity, (3) develop documentation expectations for each service level that place a premium on the assessment of data and resulting medical decision making, and (4) provide efficient and meaningful guidance for documentation and auditing. This work intensity analysis would involve time and motion studies, workshops, focus groups, and other methods. The results of this newly developed knowledge-base would become the basis for developing E&M code families for new and established patients with discrete and defined incremental levels of outpatient service intensity. Documentation expectations would prioritize information analysis and medical decision making (MDM) and minimize the need to repeat or copy information in the medical note that is readily available from online data repositories.

We propose that CMS commission research to establish valid models for pricing E&M services based on accurate service code definitions in order to ensure appropriate relative valuations with respect to all other physician services. The medical community should be actively and meaningfully involved in the valuations assigned to newly created outpatient E&M service codes.

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