Family Physicians as Proceduralists for Medicare Recipients

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ABSTRACT

PURPOSE Procedures are manual technical skills clinicians perform for their patients. Family physicians (FPs) acquire these skills during residency; most are undertaken in outpatient settings. We performed a retrospective observational cohort study to describe the extent to which FPs perform the core procedures recommended by the Council of Academic Family Medicine (CAFM) and how this might have changed over time.

METHODS The CAFM recommended a list of procedures all FP residents should perform competently after graduation. We modified this list for Medicare beneficiaries to enable matching with Current Procedural Terminology codes. We probed Medicare Part B databases for modified CAFM procedure claims submitted by FPs in 2021 and how these claims changed from 2014 to 2021.

RESULTS In 2021, there were 904,278 modified CAFM procedures filed by 9,410 FPs in the outpatient setting. All procedures were clustered with respect to organ system (eg, musculoskeletal, skin, pulmonary). Beginning in 2014 and continuously through 2021, there was a 33% decrease in outpatient procedures filed and a 36% decrease in the number of FPs filing them.

CONCLUSIONS Office-based procedures are integral to a primary care physician's role, although the activity is rarely analyzed. At a time when the Medicare population is growing, the number of available FPs and the number of procedures they perform are not. This decrease might result from the changing scope of FP practice, new referral patterns, task shifting, and/or increased delegation to physician associates and nurse practitioners.

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INTRODUCTION

The US primary care medical workforce is changing, and modeling current capabilities to project what is needed for a more diversified workforce is improving.[1] Activities occurring in the outpatient setting are among these capabilities. Outpatient care occurs outside the hospital, tends to be office-based, and many procedures are performed by family physicians (FPs).[2] Outpatient procedures are integral to primary care yet are seldom reported. Among primary care physicians (PCPs), FPs require broad medical training because they address the entire range of medical issues encountered by members of all ages of a family unit. Procedures are part of that training, which led the Accreditation Council for Graduate Medical Education Review Committee for Family Medicine to call for the development of procedural training guidelines.[3] The value of outpatient procedures is that they are convenient and can save the patient an unnecessary referral, which might result in a loss of care continuity.[4] They can also be time-consuming activities that can interrupt the normal flow of daily patient encounters.

For the most part, procedures are the manual technical skills physicians learn at various stages of training. Some are performed routinely, whereas others occur in hospital settings.[5] Procedures can affect practice income.[6] Minor surgical procedures, such as excisions, suturing, and joint injections, are examples of medical activities that are typically outpatient primary care undertakings.[7] The Council of Academic Family Medicine (CAFM) recognizes that clinically active FPs perform a broad range of procedures and that there is substantial variability in how they are trained.[3]

To address this variability, the CAFM issued a consensus statement on which procedures they recommend physicians be able to perform competently on completion of a family medicine residency.[3] They included standardized criteria for measuring competency and developed tools that program directors and residency

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faculty might use. These recommendations were developed by the Society of Teachers of Family Medicine Group on Hospital Medicine and Procedural Training and informed by a survey of the American Academy of Family Physicians membership regarding the scope of procedures performed in practice.[4] The CAFM task force used this work as the foundation for their recommended procedures.

The limited literature on family medicine procedural activities suggests that this topic could be a variable in modeling future primary care needs, a priority for the Centers for Medicare & Medicaid Services in 2023.[8] Another reason for analyzing family medicine activity is the changing nature of primary care teams and the increasing use of physician associates (PAs) and nurse practitioners (NPs) in family medicine practices.[9] Task shifting of various roles and activities to PAs and NPs has become an increasingly used strategy to manage busy primary care practices.[10]

We sought to determine the extent to which FPs performed CAFM-recommended procedures for a Medicare patient cohort and to set the stage for modeling primary care. By documenting the procedural clinical activity of FPs, our goal was to better understand its effect on American primary care and society.[11,12] Specifically, we formulated the following research questions:

- To what extent do family physicians perform the core procedures recommended by the CAFM for Medicare beneficiaries in the outpatient setting?
- How have the CAFM-recommended procedures performed by FPs for Medicare beneficiaries changed?

METHODS

The Medicare fee-for-service Provider Utilization and Payment Data: Physician and Other Supplier Public Use File is a publicly available data source delineating noninstitutional Medicare Part B activities.[13] The data set contains use, payments, and submitted charges organized by National Provider Identifier (NPI), Healthcare Common Procedure Coding System, type of setting, and geography for Medicare Part B beneficiaries but excludes those enrolled in Medicare Advantage plans and those clinicians who only submit Part B institutional claims. We undertook a retrospective observational study of the Medicare Part B cohort to understand which and how often FPs report CAFM-recommended procedures in an outpatient setting. We selected 2021, the most recent year for which data were available, for the analysis and explored trends from 2014 to 2021.

The Part B Medicare database identifies 15 physician and surgical specialties, consistent with the Bureau of Labor Statistics data, and lists each clinician's NPI. To examine FP activity specifically, we included FPs and excluded all other PCPs. The starting age to receive Medicare benefits is 65 years, although 13.7% were younger and qualified for Medicare as a result of disability or end-stage renal disease.[14]

Each Medicare patient encounter generates ≥1 Healthcare Common Procedure Coding System code, the same as Current Procedural Terminology (CPT) codes, for medical,

Table 1. Core Procedures for Family Medicine Residents

CAFM Procedure Cluster	CAFM Procedure Category	Procedure
Anesthesia	A0	Topical anesthesia. Local anesthesia/field block
	A1	Digital block
	A2	Peripheral nerve block (other than digital nerve)
Cardiovascular	A0	Arterial puncture
Eyes, ears, nose, throat	A0	Removal of foreign body from ear or nose
	A0	Cerumen disimpaction
	A0	Anterior nasal packing for epistaxis
	A0	Fluorescein examination of the eye without a slit lamp
	A0	Superficial conjunctival foreign body removal
	A2	Slit-lamp examination
	A2	Removal of superficial corneal foreign body
Gastrointestinal and colorectal	A0	Nasogastric tube
	A0	Fecal disimpaction. Digital rectal examination
	A1	Anoscopy
	A2	Paracentesis
	A2	Incision and drainage of perianal abscess
	A2	Excision of thrombosed external hemorrhoid
	A2	Remove perianal skin tags
Genitourinary	A0	Bladder catheterization
Musculoskeletal	A0	Simple closed reduction of subluxed joint without sedation (eg, nursemaid elbow)
	A1	Upper- and lower-extremity splints
	A1	Upper- and lower-extremity casts
	A1	Injection/aspiration of joint, bursa, ganglion cyst, tendon sheath, or trigger point
	A2	Reduction of shoulder dislocation

continues

A0 = simple procedures that family medicine residency graduates should be able to perform independently on the basis of skills acquired in medical school or residency; A1 = all residents must be able to perform these procedures independently by graduation; A2 = procedures for which all family medicine residencies are expected to offer training; CAFM = Council of Academic Family Medicine; Pap smear = Papanicolaou test; RF = radiofrequency.

Note: Outpatient only; laboratory, neurologic (lumbar puncture), and ultrasonography clusters excluded. Pediatric and reproductive health procedures excluded.

Table 1. Core Procedures for Family Medicine Residents *(continued)*

CAFM Procedure Cluster	CAFM Procedure Category	Procedure
Pulmonary	A0	Hand-held spirometry
	A2	Thoracentesis
Skin	A0	Remove corn/callus
	A0	Drain subungual hematoma
	A0	Laceration repair with tissue glue or skin staples
	A1	Removal of skin tags
	A1	Biopsies (punch, shave), including vulvar biopsy
	A1	Excisional biopsy
	A1	Destruction of skin lesion (including warts) using cryosurgery, RF/electrocautery, chemical ablation, or intralesional injection
	A1	Remove ingrown nail or full toenail
	A1	Incision and drainage of abscess, including paronychia
	A1	Simple laceration repair with sutures
	A2	Fine-needle aspiration of cyst (including breast)
	A2	Needle biopsy of solid mass
Women's health	A0	Pap smear collection
	A1	Bartholin cyst management (Word catheter)
	A1	Remove cervical polyp
	A1	Endometrial biopsy
	A2	Cervical dilation
	A2	Colposcopy
	A2	Cervical cryotherapy
	A2	Uterine aspiration/dilation and curettage

A0 = simple procedures that family medicine residency graduates should be able to perform independently on the basis of skills acquired in medical school or residency; A1 = all residents must be able to perform these procedures independently by graduation; A2 = procedures for which all family medicine residencies are expected to offer training; CAFM = Council of Academic Family Medicine; Pap smear = Papanicolaou test; RF = radiofrequency.

Note: Outpatient only; laboratory, neurologic (lumbar puncture), and ultrasonography clusters excluded. Pediatric and reproductive health procedures excluded.

Adapted from: *CAFM Consensus Statement for Procedural Training in Family Medicine Residency*.[3]

surgical, and diagnostic services.[15] We downloaded procedural codes from 2014 to 2021 for Medicare Part B fee-for-service outpatient encounters with FPs classified as individuals and not as an organization or institution. We excluded organizational NPIs.

The CAFM defined procedures as "the mental and motor activities required to execute a manual task involving patient care."[3] In 2014, the CAFM recommended a list of 44 core procedures that FPs should be able to perform on completing their residency and 24 more for which residency programs should offer training.[3] The CAFM organized this list into 13 therapeutic categories termed procedure clusters. To ensure relevance to the Medicare cohort in outpatient settings, we merged the ocular category with the ears, nose, throat cluster (now referred to as eyes, ears, nose, throat [EENT]) and excluded the neurologic, laboratory, and ultrasonography clusters. We removed pediatric and reproductive health tasks, leaving 46 procedures in 9 CAFM-defined procedure clusters. The CAFM also organized their recommended procedures into the following 3 categories of training: A0 = simple procedures that FP residency graduates should be able to perform independently on the basis of skills acquired in medical school or via the average residency experience; A1 = procedures all residents must be able to perform independently by graduation; and A2 = procedures for which all FP residencies are expected to offer training (Table 1).

We matched the adapted CAFM list of recommended procedures with appropriate CPT codes.[15] To do this, we modified the CAFM list to remove procedures not relevant to patients aged >64 years (eg, intrauterine device insertion), procedures lacking a corresponding CPT code (eg, digital rectal examination), and those unlikely to be performed in an outpatient setting, (eg, lumbar puncture). Next, we merged CAFM-recommended procedures to better match how CPT codes are organized. For example, the CAFM listed laceration repair with tissue glue or skin staples as one procedure and simple laceration repair with sutures as another. The CPT codes related to wound repair do not describe how the wound is repaired but instead categorize these procedures by complexity, location, and size. Thus, we combined these CAFM-recommended procedures into a modified procedure termed simple, intermediate, and complex laceration repair with sutures, tissue glue, or staples. We matched the CPT codes to the modified CAFM list (mCAFM) and linked with NPIs to determine the number of outpatient procedures filed by FPs. In total, we identified 140 distinct CPT codes and matched these to the mCAFM procedures (Table 2). We then queried the 2021 Medicare Part B fee-for-service data set for those 140 CPT codes stratified by encounters with FPs in an outpatient setting.

We conducted analyses with PostgreSQL (PostgreSQL Global Development Group), Python (Python Software Foundation), RStudio (Posit, PBC), and Tableau (Tableau Software, LLC) analysis systems, and potential outliers, defined as FPs whose total procedures were >2 SDs from the mean, were removed. Because deidentified publicly available data were used, the Marshall B. Ketchum University Institutional Review Board classified this cross-sectional cohort study as exempt from further review.

RESULTS

In 2021, 80,027 FPs filed 103,449,980 Medicare Part B CPT claims for 57,306,547 patients. After excluding 74 outliers, 9,410 (12%) FPs filed 904,278 mCAFM procedure claims for 444,309 patients (some FPs filed >1 type of claim). This represented 0.87% of all CPT claims filed by FPs for 0.77% of the Medicare beneficiaries seen in 2021. The median number of mCAFM procedures per provider was 22 (range, 11-763).

We grouped the results by the number of mCAFM procedure claims by procedure cluster and by the number of

Table 2. CAFM Core Procedures for Family Medicine Adapted to Match CPT Codes

CAFM Procedure Cluster	CAFM Procedures Modified to Match CPT Categories	2019 CPT Codes
Anesthesia	Digital and peripheral nerve block	64450
Cardiovascular	Arterial puncture	96373
Eyes, ears, nose, throat	Anterior nasal packing for epistaxis	30901
	Cerumen disimpaction	69209, 69210
	Removal of foreign body from ear or nose	30300, 30310, 30320
	Superficial conjunctival foreign body removal (without slit lamp)	65205, 65210, 65220
Gastrointestinal and colorectal	Anoscopy	46600
	Placement of nasogastric or enteral feeding tube	43753
	Paracentesis	49082
	Incision and drainage of perianal abscess	46050
	Excision of thrombosed external hemorrhoid	46083
	Remove perianal skin tags	46220, 46230
Genitourinary	Bladder catheterization	51701, 51702
Musculoskeletal	Injection/aspiration of joint, bursa, ganglion cyst, tendon sheath, or trigger point	20600, 20604-20606, 20610-20615
	Simple closed reduction of subluxed joint without sedation (eg, nursemaid elbow or lateral patellar dislocation)	23650, 24640, 27560
	Upper- and lower-extremity casts	29055, 29065, 29075, 29085, 29125, 29305, 29325, 29345, 29355, 29365, 29405, 29425, 29435, 29440, 29445,
	Upper- and lower-extremity splints	29105, 29125, 29126, 29130, 29131, 29505, 29515
Pulmonary	Hand-held spirometry	94010
Skin	Destruction of skin lesion (including warts) using cryosurgery, RF/electrocautery, chemical ablation, or intralesional injection	17000, 17003, 17004, 17106-17108, 17110, 17111, 17250, 17260-17264, 17266, 17270-17274, 17276, 17280-17284, 17286
	Biopsies (punch, shave), including vulvar biopsy	11102, 11104, 56605
	Drain subungual hematoma	11740
	Excisional biopsy	11106
	Incision and drainage of abscess, including paronychia	10060, 10061, 1180
	Removal of skin tags	11200
	Remove corn/callus	11055-11057
	Simple, intermediate, and complex laceration repair with sutures, tissue glue, or staples	12001, 12002, 12004-12007, 12011, 12013-12018, 12020, 12031, 12032, 12034-12037, 12041, 12042, 12044-12047, 12051-12057, 13100, 130101, 13120, 13121, 13131, 13132, 13151, 13152
Women's health	Bartholin cyst management	56420, 56440
	Endometrial biopsy	58100, 58558
	Remove cervical polyp	57500

CAFM = Council of Academic Family Medicine; CPT = Current Procedural Terminology; PAP smear = Papanicolaou test; RF = radiofrequency.

Note: Local and topical anesthesia included with procedure. Digital rectal examination, fecal disimpaction, ocular fluoresceine examination, and PAP smear bundled under evaluation and management codes.

FPs filing claims within those clusters in 2021 (Figure 1). All (99.92%) of the mCAFM procedures reported in 2021 fell into the following 5 procedure clusters: skin (51%), musculoskeletal (36%), EENT (9%), pulmonary (2%), and anesthesia (2%). Similarly, many of the FPs who reported mCAFM procedures did so for the same categories but in a different order; 53% of FPs reported musculoskeletal procedures, 40% reported EENT procedures, 32% reported skin procedures, 6% reported pulmonary procedures, and 0.3% reported anesthesia procedures.

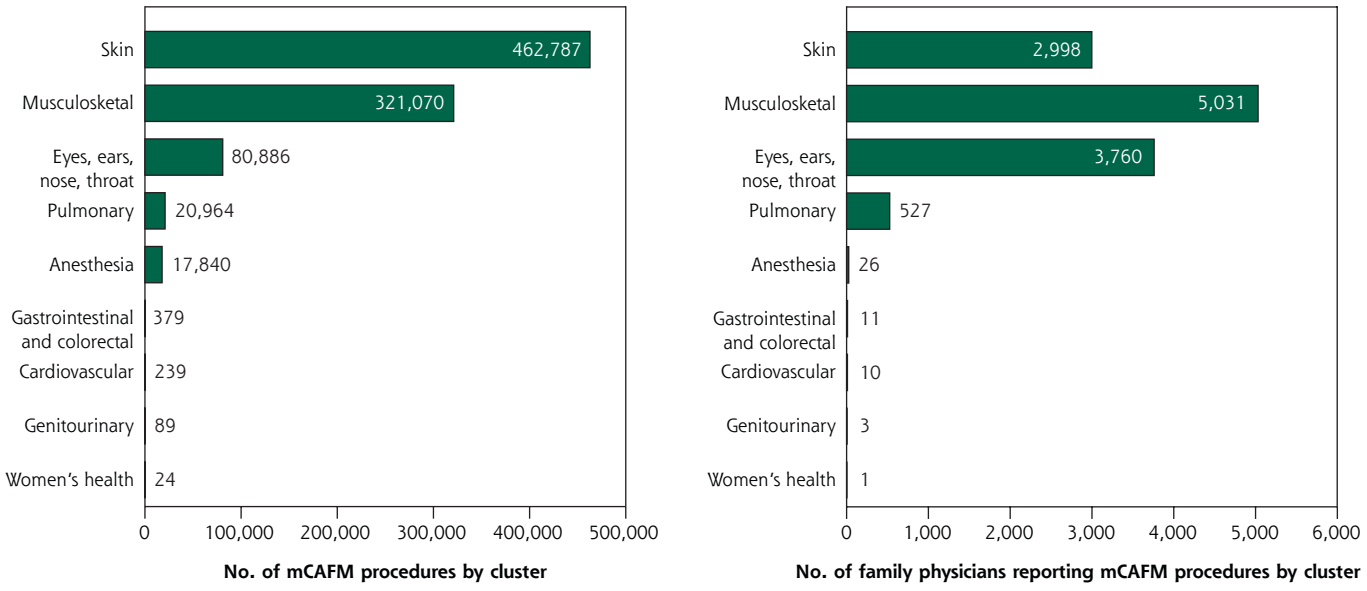
Next, we examined how the procedures changed from 2014 to 2021 (Figure 2). There was a 17% decrease in claims in every cluster of mCAFM procedures between 2014 and the coronavirus disease 2019 (COVID-19) pandemic, despite a 2%-6% increase for skin, musculoskeletal, and anesthesia procedures in 2019. The mCAFM procedures decreased 23% from 2019 to 2020 during the COVID-19 pandemic. By 2021, the number of mCAFM procedures rebounded by 5%, although not to 2019 levels. From 2014 to 2023, the linear trend forecasts a continued decrease. During this same period, the number of FPs seeing Medicare beneficiaries for any reason waned slightly by 0.08%, and the number of patients seen decreased by 5.24%. The number of procedures in the 5 clusters comprising nearly all the reported mCAFM procedures and the number of patients seen decreased by 33% from 2014 to 2021. In 2014, we identified 14,784 FPs who filed >10 mCAFM claims, which decreased by 36% to 9,410 FPs who did so in 2021.

DISCUSSION

Medicare Part B, the outpatient portion of Medicare, covers various services including diagnostic and therapeutic procedures. In 2021, the number of Medicare Part B claims by FPs for all mCAFM outpatient procedures was reported by 12% of these clinicians and represented <1% of all CPT claims submitted. Nearly all of the reported procedures were from the skin, musculoskeletal, EENT, and pulmonary clusters. Musculoskeletal and dermatologic conditions are primary care's most common presenting complaints resulting in procedures.[16] For the 8 years ending in 2021, there was a 33% decrease in the number of procedures claimed (criterion of ≥11 for inclusion in public data) and in the number of patients seen for these procedures by FPs, despite a slight increase in skin, musculoskeletal, and anesthesia procedures from 2018 to 2019. Whether that increase represents a reversal of the downward trend cut short by the COVID-19 pandemic or a random variation within an inevitable decrease will require data from additional years to confirm. In contrast, from 2014 to 2021, the number of FPs seeing Medicare beneficiaries for any reason changed by <1% (0.08%), and the number of all Medicare beneficiary claims decreased by 5.24%.

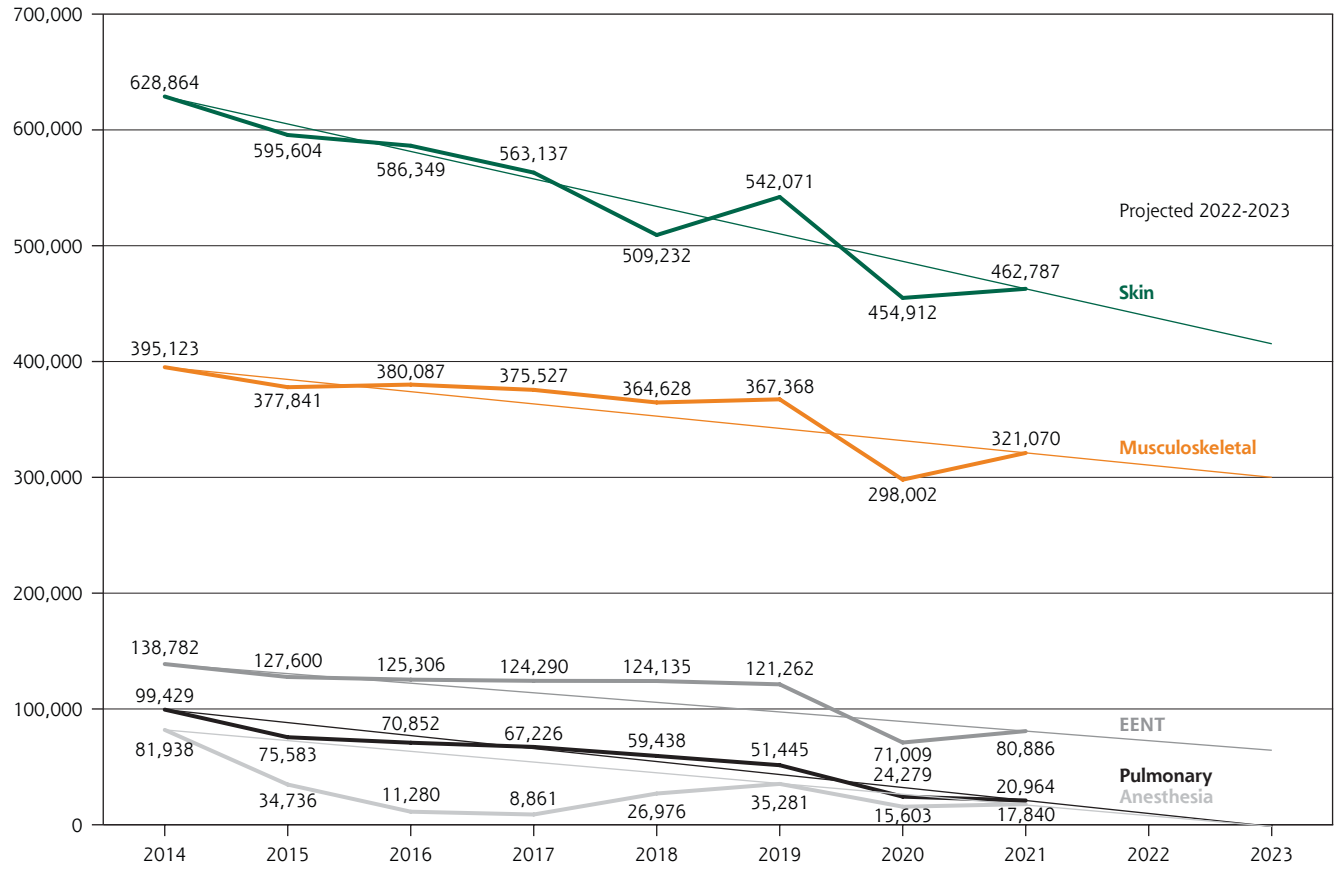
It has been estimated that 61% to 68% of PCPs provide primary care for Medicare beneficiaries, and nearly 40% of PCPs are FPs.[17] Concurrently, the US Bureau of Labor Statistics reported a 7% decrease in clinically active FPs from 2013 to 2022, with 100,940 employed clinically in 2022.[18] The Association of American Medical Colleges estimates a shortage of 17,800-48,000 primary care physicians by 2034.[19] The magnitude of the procedure decrease is greater than the decrease in the relative number of clinically active FPs and the number of FPs who treat Medicare beneficiaries, which has remained relatively stable. Others have noted that the scope of family practice may be changing, with FPs

Figure 1. Number of reported mCAFM procedures and family physicians reporting them by cluster in 2021.



CAFM = Council of Academic Family Medicine; mCAFM = modified CAFM list of recommended outpatient primary care procedures.

Figure 2. Trends in total mCAFM procedures: 2014-2021.



CAFM = Council of Academic Family Medicine; EENT = eyes, ears, nose, throat; mCAFM = modified CAFM list of recommended outpatient primary care procedures.

increasingly likely to care for patients with complex and multiple comorbidities as outpatients.[17] A recent analysis identified a decreasing scope of practice reported by new family medicine residency graduates as a concerning trend.[20] In addition, during the first decade of this century, a ≥10% decrease in the proportion of FPs providing various medical services was noted, contrary to recent graduates' expectations.[21] Meanwhile, the 17% of Americans aged ≥65 years is projected to represent 20% of the US population by 2030.[22]

Why most mCAFM procedures by FPs are decreasing requires investigation. During the 10 years spanning 2010-2020, there was a 30% and 47% increase in the employment of PAs and NPs across all specialties.[23] Many are employed in primary care settings, and 42% and 56% of family physicians reported working with PAs and NPs, respectively, from 2014 to 2018.[24] Patel and colleagues estimated that PAs and NPs accounted for 25% of all primary care encounters in 2019; whereas the proportion of visits varied across conditions, 41% had a visit with a PA or NP in 2019.[25]

Another group analyzed Medicare data and found a 76% increase in PA and NP procedure claim filings from 2014 to 2019; this finding is consistent with, but not fully explained by, the 37% growth of these professions during that period.[26] Nurse practitioners and PAs might increasingly serve as proceduralists, freeing FPs to focus on other aspects of their practice such as complex chronic disease management or annual wellness visits. Including PAs and NPs in FP settings likely involves task shifting of time-consuming procedures, most likely if there is a positive and unexplored revenue benefit and an unexplored division of labor.

Another possibility is that more Medicare-eligible Americans are being referred to various specialists such as urologists, gynecologists, and cardiologists. Referral patterns appear to vary broadly depending on several factors.[27] A referral analysis of the Medicare population is needed to understand whether Medicare beneficiaries are increasingly referred to specialists for procedures traditionally managed within primary care.[28] Because demographic trends show an increasingly older population, family medicine training programs might need to adjust to meet this change.[2,29]

Our analysis documented that the occurrence of outpatient procedures for older adults in family practice settings is changing. However, this activity represents <1% of the overall clinical activity of an FP setting. Knowing what conditions

are likely to be encountered in primary care given current practice patterns might inform postgraduate training.

Although procedures are an important aspect of family practice, for the Medicare cohort they account for only a small proportion of all family practices activities. In the context of the CAFM recommendations, we found that the number of FPs performing mCAFM procedures and the number of procedures performed have decreased. Still, it remains to be determined if this decrease will persist. Because outpatient settings are complex and vary broadly, procedures might be time consuming or not remunerative enough to make them worthwhile. Alternatively, these procedures might be increasingly performed by PAs and NPs working with FPs or by specialists after referral. Meanwhile, the primary care workload grows with an aging population as care increasingly shifts to the outpatient setting.[30]

Limitations

This analysis has several limitations, first being the use of Medicare Part B data. Conditions must be diagnosed to appear as a code, and some conditions are omitted from files if the information is inadequate or the encounter needs to be more comprehensive. These data might only partially capture all that occurred during these encounters.[31] However, Medicare consultants inform us that the quality of any data field is more likely to be reliable if it affects payment.

A second limitation is that to protect the privacy of Medicare beneficiaries, the Centers for Medicare & Medicaid Services does not publicly report the procedures performed by any provider unless they file >10 of a particular procedure. That criterion might omit procedures or physicians, leading to an undercount.

The Medicare data that are publicly available is limited to the approximately 60% of beneficiaries who are traditional Part B enrollees because encounters for those enrolled in Medicare Advantage plans were excluded.[14] Another limitation is that most Americans are not eligible for Medicare enrollment until the age of 65 years; therefore the data predominantly capture their experiences. At the same time, enrollment is nearly universal for that age group.[32] The richness of the Medicare Part B data is due to its granularity and vastness. It represents a significant segment of the American public and is helpful for health services research.

CONCLUSION

In 2021, only 11.8% of FPs reported >10 mCAFM claims, accounting for only 0.87% of all CPT codes submitted to Medicare. The number of FPs performing mCAFM procedures and the number of procedure claims decreased from 2014 to 2021 to a much greater extent than the number of FPs who treated Medicare beneficiaries and the number of those beneficiaries seen for any reason. The decrease in procedures and the number of FPs performing them exceeds the decrease in the number of FP physicians in clinical practice at a time when the population of those aged ≥65 years is increasing. The reasons might represent a changing scope of family practice, increasing referrals, shifting tasks to PAs and NPs, or some combination. Further research will determine whether this dynamic exists beyond Medicare beneficiaries and why the number of mCAFM procedures performed by FPs for Medicare beneficiaries has decreased.

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Key words: family physicians; procedure; older adults; geriatrics; Medicare

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CORRECTION

Ann Fam Med 2024;22:194. https://doi.org/10.1370/afm.3114

In **Ahern J, Pleman B, O'Connor N, Silk H. Uptake of a multilingual intervention to promote toothbrushing in a safety-net health care system. Ann Fam Med. 2024;22:173**, the term "well-child visit" was accidentally replaced with the term "well-care visit" in the original posting of the article. The correct term is "well-child visit" and the online article has been corrected to reflect this. *Annals of Family Medicine* regrets the error.