

CY 2023 Medicare PFS Update to the GPCIs and MP RVUs

FINAL REPORT

**Medicare Physician Fee Schedule (PFS):
Geographic Practice Cost Indices (GPCIs) and
Malpractice Relative Value Units (MP RVUs)**

Submitted to:

Kathleen Kersell
Kathleen.Kersell@cms.hhs.gov

Cheryl Caldwell
Cheryl.Caldwell@cms.hhs.gov

Mohammed Islam
Mohammed.Islam@cms.hhs.gov

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Submitted by:

**ACTUARIAL
RESEARCH
CORPORATION**

6928 Little River Turnpike, Suite E
Annandale, Virginia 22003
Telephone: (703) 941-7400
Fax: (703) 941-3951

FEIN: 54-0994930
DUNS: 081052516

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Final Report for the CY 2023 Medicare PFS Update to the GPCIs and MP RVUs

Medicare Physician Fee Schedule (PFS) Geographic Practice Cost Indices (GPCIs) and Malpractice Relative Value Units (MP RVUs)

1 Executive Summary

The Centers for Medicare and Medicaid Services (CMS) is responsible for developing Medicare Physician Fee Schedule (PFS) payment rates for covered Medicare Part B practitioner services. This is accomplished through relative value units (RVUs) that establish relative payment amounts across services and geographic practice cost indexes (GPCIs) that adjust these national amounts for local input price variation. There are RVUs and GPCIs for three distinct types of practitioner inputs: physician work (WORK), practice expense (PE), and malpractice expense (MP). RVUs are updated annually through a process described in detail in annual Notice of Proposed Rulemaking (NPRM) and Final Rule notices in the Federal Register. One of the RVU inputs is a specialty-specific malpractice risk index that is based on malpractice premium data to capture the difference in premiums faced by practitioners of different specialties. The GPCIs and risk indexes are updated every three years, with a new update due for CY 2023. Updating the GPCIs involves collecting data on wages, office rents, and malpractice premiums. Most of the required elements are available from federal data sources, with the exception of the malpractice premium data, which are developed from insurers' rate filings. These malpractice premium data are used for both the MP risk index and the MP GPCI. This report describes the process used to develop the 2023 MP risk index and GPCIs, from data collection through measure creation.

The methodological changes included in this update are quite modest compared to those that were implemented with the previous update. This update uses the same approach, with a few small changes:

- Refinement of approach to imputation of missing malpractice premiums;
- Use of a malpractice risk index rather than risk factor; and
- Modification of the occupations for which wage data are used, reflecting changes in both BLS definitions and CMS decisions about appropriate codes for inclusion.

The resulting updated GAFs for 2023 are quite similar to current 2022 values, with approximately 60% of RVUs in areas that have a change of less than 0.5 percent. All but 8 payment areas have updated 2023 GAF values that are within 1.5 percent of their current values; these areas account for almost 95% percent of total RVUs. The updated MP risk index also leads to relatively modest changes in MP RVUs, with all but five specialties experiencing shifts of less than 1 percent.

2 Background

Medicare bases payments for practitioner services, excluding anesthesia services, on the Medicare PFS. It establishes base national payments that are adjusted to reflect local variation in input prices. The PFS is built around three key concepts:

- **Relative value units (RVUs):** Defined at the service level, RVUs are designed to capture relative resource use across services; separate relative value scales (RVS) are developed for WORK, PE, and MP.
- **Geographic practice cost indexes (GPCIs):** Defined at the Medicare locality level, GPCIs are defined to capture regional differences in costs associated with providing services; there is a separate GPCI for each of the three RVSs. There are currently 112 PFS localities.
- **Conversion factor (CF):** The single national conversion factor is used to translate the RVUs of the PFS into dollar payment rates.

RVUs are derived from physician work recommendations, direct cost estimates, and malpractice premiums, while GPCIs are based on malpractice premiums, non-physician occupational wages, employee wages, equipment and supplies, office rents, and purchased services costs. CMS' Division of Practitioner Services is responsible for managing all aspects of the PFS except the conversion factor, which is calculated by CMS' Office of the Actuary. RVUs and GPCIs for each of the three elements—WORK, PE, and MP—are multiplied, and then these three products are summed. This geographically adjusted total RVU amount is converted to a dollar payment by multiplying it by the CF for each service on the fee schedule.

This report describes the update of the GPCIs and the MP risk index that underlies the development of Malpractice RVUs for calendar year (CY) 2023. The work and PE GPCIs are based on publicly available data, while the MP GPCI and risk index require information about malpractice insurance premium data which are collected as part of this update process.

Prior to the CY 2016 rule cycle, the calculation of MP RVUs was carried out as a task separate from the annual update of the PFS even though clinical labor RVUs (a product of the PE RVU process) and physician work values can both change annually and are inputs to MP RVUs. In CY 2016, a new law that capped the decrease in total RVUs (i.e., the sum of WORK, PE, and MP RVUs) at 20 percent in a given year for any code went into effect¹ and MP RVUs essentially became an input to the PE RVU calculation. As a result, CMS integrated the MP RVUs into the annual PFS update process. The calculation of MP RVUs themselves is only relevant to this update to the extent that the specialty risk index is one of the main inputs, so calculating MP RVUs will help validate new data and understand their implications.

Section 3 of the report describes the process of acquiring and developing the malpractice premium data that are used for the GPCIs and malpractice risk indexes. Section 4 describes the

¹ Some codes are exempted from this policy.

update of the GPCIs for the Medicare PFS for the CY 2023 rule cycle. This starts with a description of the data collection and acquisition process required for each GPCI calculation. It next describes the data development needed to transform the collected data into a format that can be used to create each GPCI and the method for creating the individual GPCIs and geographic adjustment factors (GAF). Post-measure creation adjustments are then described to specify how provisions for budget neutrality, blending, other legislative adjustments, and California localities are incorporated.

Section 5 of the report includes a discussion of the update of the malpractice risk index. A summary of the findings of the report and conclusions as a result of the CY 2023 update are described in Section 6. We have included detailed output data tables in Section 7, key reference tables in Section 8 and additional details on parameters and how we accessed publicly available data in Section 9, and conclude with a brief summary of the effect of COVID-19 on the key data elements in Section 10.

3 Developing Malpractice Premiums for the Update of the CY 2023 GPCIs and Malpractice Risk Index

A. Overview

Underlying the malpractice risk index and MP GPCI are premiums paid for medical professional liability insurance (PLI) across the nation and across practitioner specialties. These data are not readily available from an existing database of either medical practitioners or insurers, so CMS supports development of an updated premium database to calculate these measures. As described below, insurers' PLI rate filings constitute the most viable source for this information. The premium data collection process is designed to develop a data resource that includes information sufficient for describing malpractice insurance rates in every state for as many CMS specialties as feasible.

As described in this section, the process for collecting these premium data involves several steps:

1. Identify states and localities;
2. Identify sources of premium data;
3. Define criteria for selecting insurance filings;
4. Include Patient Compensation Fund (PCF) surcharges for states with mandatory coverage;
5. Select premiums for each specialty, adjusting base rates to standardized coverage; and
6. Map insurer specialties to CMS specialties.

The data collection process for this CY 2023 update generally follows that of the previous update. The process has been refined slightly with respect to the structure of specialty/service risk groups and data imputation in order to better reflect current understanding of the marketplace. Each of these changes in approach is explained in section 3.G below.

B. Identify States and Localities for Inclusion

Insurance products are regulated at the state level. Insurance filings were therefore collected for each state and the District of Columbia. Efforts were made to collect filings from Puerto Rico, but recent filings were not submitted. When new data were not available, as in the case of Puerto Rico, ARC used older filings from previous updates. Consistent with previous updates, no filings were collected for the other U.S. territories: American Samoa, Guam, Northern Mariana Islands, and U.S. Virgin Islands.²

C. Identify Sources of Premium Data

For most states, PLI filings are available online from the System for Electronic Rates and Forms Filing (SERFF) Filing Access Interface (SFA). Because this is a consistent and readily available source of filings, it was used for every state for which data are available.

As of the time data were collected for the CY 2023 update, the filings for Florida, Massachusetts, Washington, and Puerto Rico were not available for download via the SFA. The State of Florida and State of Washington each maintain state-sponsored online filing portals, and we obtained filings for these states using the same methodology used for the states with filings available via the SFA. The Commonwealth of Massachusetts permits insurance filings to be requested from the Department of Insurance via an online form; we requested all PLI rates and forms filings not withdrawn or disapproved effective from January 1, 2018 through December 1, 2020 and received these via email. We made attempts via email to obtain filings from the Commonwealth of Puerto Rico, but were unable to obtain any filings.

D. Define Criteria for Selecting Filings

The method of reporting PLI premium rates varies by company and across localities. To produce a consistent database of premiums for determining the specialty risk index and GPCIs, it is necessary to define consistent criteria for the selection of the appropriate premiums. Consistent with prior years, criteria were set for selecting the insurers that would be represented in the dataset, the filings that would be selected, and the characteristics to identify specific premiums.

1. Selection of Insurers

In order to focus the data collection on filings necessary for reflecting the market in each state, the largest insurers were identified using the National Association of Insurance Commissioners (NAIC) market share report.³ Market share is defined as the ratio of the insurer's direct

² As explained in a later section, Puerto Rico and the Virgin Islands are assigned GPCIs of 1 and the other Pacific territories are assigned Hawaii's GPCIs.

³ National Association of Insurance Commissioners (NAIC). 2020 Market Share Reports for Property/Casualty Groups and Companies By State and Countrywide. (2021). Accessed: <https://content.naic.org/sites/default/files/publication-msr-pb-property-casualty.pdf>

premiums written to the total direct premiums written for PLI in each state.⁴ The NAIC annual report provides state-level market share for entities that provide PLI in the state. We used the most recent NAIC annual report—reflecting 2020 market share—to select companies. In some states, Risk Retention Groups (RRGs) play a significant role in the PLI market, but they are not required to file rates with state insurance regulators. As a result, we were limited to including the largest *non-RRG* insurers in each state. In a state like Connecticut or Massachusetts, for example, where RRGs account for over half of the state’s PLI policies, it is impossible to know how well the rates we develop without RRG premiums reflect the state’s PLI market in the absence of RRG rate information.

Consistent with the prior update, filings were collected for the groups and companies with the largest market share in each state, collecting all available filings until either cumulative market share met or exceeded 50 percent or filings had been collected for four insurer groups. If more than one company in an insurance group had PLI filings in the state, available filings for all of the group’s companies were collected.

Because the NAIC market share report does not report premium volume for the component companies of a group, market share for the group was divided equally among all of the companies in the group that wrote PLI policies in the state. Consistent with the prior update, this allocation of market share was applied on a *specialty* level rather than a *company* level. For example, if a group contained two companies that write PLI, but only one company covered chiropractors, that one company receives the full group market share for chiropractors. If both companies write PLI for obstetricians, the market share for each premium is half of the group market share. This methodology reflects the distinct coverage options available to practitioners in each specialty in each market.

2. Selection of Filings

Five criteria were used to select filings for each of the selected insurers: subtype of insurance stated for the filing, coverage trigger, filing type, effective date of the filing, and coverage limits. Based on the criteria described below, the final premium data cover approximately 40 percent of the U.S. population, based on state market share included and state population. Table 7.A displays the market share by state of the filings we obtained; Table 7.B shows the share of the U.S. population covered by the filings, by CMS specialty and service risk group.

a) *Subtype of Insurance*

PLI is available for a variety of practitioners, and filings are specific to subtype of insurance. Consistent with the prior update, SERFF filings for all subtypes of insurance that appeared to cover CMS specialties involved in PFS PE Ratesetting were included. Subtypes that obviously

⁴ Insurance groups are made up of insurance companies that are related by ownership. The NAIC market share report presents data by group for those insurers that are members of a group in order to more accurately reflect the number of distinct entities competing against one another for business in a market.

were not relevant to PFS, such as “Hospital,” “Ambulance,” and “Assisted Living Facility,” were not selected.

b) Coverage Trigger

A coverage trigger is the event that must occur for the policy to be activated. “Claims-made” policies cover claims only when the alleged incident and resulting claim are made during the coverage period, while “occurrence” policies cover claims for incidents that occur during the coverage period regardless of when the resulting claim is filed. Consistent with prior updates, the CY 2023 update used premiums for “claims-made” policies, under the rationale that these are the most common type of policy.

Premiums for claims-made policies may vary depending on the number of years in which the coverage has been in effect. Premiums in the first year of coverage are often lowest, with rates grading upwards until the policy is considered mature—typically 5 or more years. Consistent with prior updates, the CY 2023 update used premiums that were denoted as “mature” within the filing.

c) Effective date

Filings have distinct effective dates which may apply to existing policies, new policies, or both. When an insurer submits a new filing providing the same type of coverage to the same type of practitioners as covered in a previous filing, the new premiums supersede the prior premiums as of the effective date. ARC’s investigations of the PLI marketplace suggest that the most appropriate indicator of premiums charged by an insurer is the most recent filing, regardless of effective date. Although some states require filings to be submitted even if there is no rate change, in other states premiums remain in effect until a new filing has been submitted and/or approved.

Based on this understanding of the PLI marketplace, the CY 2023 update used the most recent filing for each insurer with an effective date no later than December 31, 2020, as filed. These data represent premiums that were in effect in 2020, consistent with the timing of the most current available NAIC market share data discussed above.

d) Filing Type

Insurers may submit filings for a variety of business and procedural reasons, only one of which is to establish rates. Filings address topics such as changes to the forms that document the coverage purchased and the rules delineating how base premiums and adjustments are applied for various situations, as well as the rates that are charged for coverage. The characteristics of the changes in a particular filing are reflected in the type listed in the title. For the CY 2023 update, SERFF filings were selected if the filing type included “rates” in the description.⁵

⁵ “Consent-to-rate” filings are not considered rate filings.

State insurance regulators review PLI filings and may request that the insurer provide additional justification for rate changes and/or revise certain aspects of the filing. Ultimately, regulators may disapprove a rate change or the insurer may withdraw the filing. Consistent with prior updates, the CY 2023 update does not include filings that show indications of being disapproved or withdrawn.

e) Coverage Characteristics

PLI is issued with maximum coverage limits. In prior updates premiums were collected for coverage limits of \$1 million per occurrence and \$3 million aggregate (\$1 million/\$3 million).⁶ The same level of coverage is used for the CY 2023 update.

E. Patient Compensation Funds

In some states Patient Compensation Funds (PCFs) have been established to provide additional compensation to patients who suffer damages over and above the amount provided by the medical practitioner's PLI. Medical practitioners pay a surcharge to participate in the PCF. Although eight states have established surcharge-funded PCFs—Indiana, Kansas, Louisiana, Nebraska, New Mexico, Pennsylvania, South Carolina, and Wisconsin—participation is only mandatory in Kansas, Pennsylvania, and Wisconsin.

Consistent with prior updates, PCF surcharges were included only for states in which participation was mandatory.

For the 2023 update, rates in these three states were selected to result in total combined coverage from primary insurance and PCF coverage as close as possible to the \$1 million/\$3 million coverage limit selected as standard for all states.⁷ Primary coverage is set at the level required by the state, and the appropriate PCF coverage limits were selected as follows:

- Kansas: Primary coverage of \$200 thousand/\$600 thousand; Healthcare Stabilization Fund coverage of \$800 thousand/\$2.4 million.⁸
- Pennsylvania: Primary coverage of \$500 thousand/\$1.5 million; Medical Professional Liability Catastrophe Loss Fund (Mcare) coverage of \$500 thousand/\$1.5 million.⁹

⁶ As described in Section 3.E, several states have Patient Compensation Funds. In these states, different coverage limits may apply.

⁷ In a few instances a filing provided premiums for coverage of \$1 million/\$3 million. In these cases, no PCF surcharge was applied.

⁸ Kansas Health Care Stabilization Fund, General Information. (January 2018). <https://hcsf.kansas.gov/wp-content/uploads/2018/03/2018-19-General-Brochure.pdf>. Downloaded October, 25, 2021.

⁹ Pennsylvania Insurance Department. 2020 Mcare Assessment Manual. (January 2020). <https://www.insurance.pa.gov/SpecialFunds/MCARE/Documents/2020%20Mcare%20Assessment%20Manual.pdf>. Downloaded October, 25, 2021.

- Wisconsin: Primary coverage of \$1 million/\$3 million; no surcharge.¹⁰

For Kansas and Pennsylvania, surcharges were developed from pricing information reported on the state’s website.¹¹ For Wisconsin, the primary coverage limits match the standard limit for all states, so no surcharges were added.

F. Develop Premiums for Each Specialty in Company Filing

Each company has a distinct manner of pricing PLI. Often premiums are quoted for a base level of coverage, and factors are applied to calculate the applicable premium for a given higher level of coverage. For this exercise, factors (usually multiplicative) are usually required to bring the base level of coverage to \$1 million/\$3 million aggregate, to reflect the specialty of the practitioner, the locality (if rates are not uniform statewide), and the number of years that the policy has been in effect. Filings often reflect other factors, such as for students or practitioners not practicing full time, but these additional factors were not considered in developing premiums for calculating the GPCIs and MP RVUs. Also, as described above, in Kansas and Pennsylvania PCF surcharges were added to the premiums as a last step.

Some insurers report rates by specialty while others report rates by risk group. In this latter case, the filing also includes a table that maps specialty to risk group. Rates were crosswalked by risk group onto the company’s list of specialties to develop specialty-specific rates.

G. Develop premiums for CMS Specialties and Service Risk Groups

For calculating MP RVUs, CMS’ goal is to establish a measure of relative malpractice risk, as reflected in relative PLI costs, for the specialties used on Medicare claims. Therefore, we matched CMS specialties to the rate that a practitioner in the specialty would have been charged under each filing, even though PLI insurers use their own idiosyncratic specialty lists. Insurers that provide PLI in more than one state tend to use the same specialty list across markets. Therefore, we developed an insurer-specific list of specialties ever listed by each insurer and created company-specific crosswalks between CMS specialties¹² and the appropriate corresponding company specialty. These crosswalks were used to match CMS specialties with the most appropriate premium available in the filing. This process does *not* result in all CMS specialties being matched with a premium for all filings—many filings apply to a limited list of specialties—nor does every specialty included in each filing match a CMS specialty.¹³

¹⁰ State of Wisconsin, Office of the Commissioner of Insurance. IPFCF Coverage; Overview. (June 2019). <https://oci.wi.gov/Pages/Funds/IPFCFCoverage.aspx>. Downloaded October, 25, 2021.

¹¹ Pennsylvania: 2020 Mcare Assessment Manual.pdf; Kansas: 2020-Surcharge-Tables.pdf and 2018-19-NBC-Instructions.pdf. Downloaded October, 25, 2021.

¹² Based on CMS policy beginning in CY 2020, we did not develop premium data for CMS specialties that are excluded from the PE Ratesetting process.

¹³ For example, although Yoga Instructor is included on some filings, it has not been mapped to a CMS specialty.

It is common for insurers to base premiums not only on a practitioner’s specialty but also the mix of services within the specialty the practitioner furnishes. For example, it is very common for OB/GYNs who provide obstetric services to pay higher premiums than those who do not. However, insurers are idiosyncratic about which specialties face different premiums based on the risk represented by the services they provide. CMS’ policy has been to create separate risk measure values within specialties that typically face premiums based on service risk group, i.e., those specialties that insurers typically subdivide when setting premiums. In the OB/GYN example, not only is it common for insurers to charge different premiums based on whether or not the physician provides obstetric services, but also whether or not the physician provides major surgical services as well. Broadly, service-mix based rates are usually categorized for major vs. minor vs. no surgery, or relative to provision of OB services. When making MP RVUs, the MP risk index values are merged onto the utilization data by specialty and service risk class for specialties that face different premiums depending on their service mix. CMS categorizes services with HCPCS codes between HCPCS 59000 and HCPCS 59899 as OB services and those between HCPCS 10000 and HCPCS 69999 (excluding the OB services) as surgical.¹⁴ For many specialties, there are some insurers who price using either more or fewer categories than the majority. For these idiosyncratic insurers, it is necessary to either combine subdivided rates or split aggregated rates.

The example in Table 3.G.1 is provided to clarify this issue, and we discuss its methodological treatment below. Three insurers report the following premium rates for hypothetical Specialty X:

Table 3.G.1: Insurance Rates for Hypothetical Specialty X

INSURER	SERVICE RISK GROUP	RATE
A	Major Surgery	\$65
A	Minor Surgery	\$50
A	No Surgery	\$43
B	Surgery	\$60
B	No Surgery	\$38
C	All	\$54

¹⁴ In addition to this standard range of surgical codes, services included in CMS’s list of Invasive Cardiology Services Outside of Surgical HCPCS Code Range Considered Surgery are also considered as SURGICAL for the purpose of MP RVU development. This list is included with each PFS Notice of Proposed Rulemaking and Final Rule.

In this hypothetical example, each insurer has chosen a different strategy for setting rates for physicians in Specialty X. If all other insurers (not shown) treat Specialty X in the same manner as Insurer C, the specialty would NOT include service risk groups for the purpose of calculating MP risk index, and for consistency, single Specialty X rates need to be created from the component service risk group premiums for Insurers A and B. In the case of Insurer A, the Major Surgery rates will be used to represent the surgical rate and the Minor Surgery rate will be disregarded. For both Insurers A and B, a single rate “All” is calculated as the weighted average of the Surgery and No Surgery rates, with the specialty’s work RVU shares (shown in Table 3.G.2) used as the weight factor. Given these weights and above rates, the single rate for Specialty X implied by Insurer A’s two rates (omitting Minor Surgery) is \$55.10 and that implied by Insurer B’s two rates is \$50.10.

Table 3.G.2 Hypothetical Work RVU Shares by PLI Specialty

PLI Specialty	SHARE OF TOTAL WORK RVUS - OBSTETRICS	SHARE OF TOTAL WORK RVUS - SURGERY	SHARE OF TOTAL WORK RVUS - NO SURGERY
Specialty X	0%	55%	45%
Specialty Y	5%	30%	65%

However, if most insurers adopted Insurer B’s approach, then each insurer’s rates need to be reported for Surgery and No Surgery service risk groups. In the case of Insurer A, the Major Surgery rate will be used as the Surgery Rate. For Insurer C, however, it is necessary to break apart the single rate reported into Surgery and No Surgery rates. This is accomplished by using the market share-weighted¹⁵ average ratio of Surgery to No Surgery rates for those plans that have them (in this example, this value is $1.450088 = (.55 * (65/43) + .30 * (60/38)) / .85$) and the Specialty X service mix (55 percent Surgery/45 percent No Surgery) to calculate the two rates that have the specialty average ratio and would result in the Insurer C single rate as the solution to a system of two equations with two unknowns.¹⁶

¹⁵ For this calculation, Insurer A was assumed to have 55 percent of the market while Insurer B had 30 percent.

¹⁶ The two equations are:

(1) Insurer C’s single rate is weighted average of implicit Surgery (S) and No Surgery (NS) rates: $54 = .55 * S + .45 * NS$

(2) The ratio of Insurer C’s S/NS rates will be similar to the market-share weighted average of other insurers for the specialty: $1.450088 = S/NS$

This allows us to calculate the rates for Insurer C as: $NS = 54 / (.55 * 1.45 + .45) = 43.28$; $S = 1.45 * 43.28 = 62.77$

In this example, the result is that Insurer C’s imputed rate for the Surgery service risk group is \$62.77 and the No Surgery rate is \$43.28. We calculated specialty WORK RVU shares for OB using the same categorization used to categorize services in the MP RVU process.

To determine which specialties consistently face service-mix based premiums, it was necessary to first document how specialties are typically treated in the insurer filings. Once the rates from the filings were recorded, we examined a weighted frequency of specialty subgrouping, with the weights given by state population and the plan’s market share. Based on this process, most specialties are not subdivided into service risk groups. When a filing reports rates by class for these specialties, the rates have been combined into a single rate by specialty based on the specialty RVU shares reported in Table 8.B. Those specialties that typically face service-mix based premiums are shown in Table 3.G.3 and thus will have more than one service risk group risk index value. For those filings that report a single premium for these specialties, this single rate was split into rates for each service risk group based on the specialty RVU shares for that specialty and the market-share weighted average ratio of surgical to nonsurgical, as shown in the example above. This process of combining or splitting rates does *not* apply to those specialties for which insurers always report a single rate and the final structure requires a single rate, as in the case of Cardiac Surgery and Neurosurgery.

Table 3.G.3: CMS Specialties Subdivided into Service Risk Groups

SERVICE RISK GROUPS	CMS SPECIALTIES
Surgery/No Surgery	Otolaryngology (04), Cardiology (06), Dermatology (07), Gastroenterology (10), Neurology (13), Ophthalmology (18), Cardiac Electrophysiology (21), Urology (34), Geriatric Medicine (38), Nephrology (39), Endocrinology (46), Podiatry (48), Emergency Medicine (93), Unknown Physician Specialty (99)
Surgery/No Surgery/OB	General Practice (01), Family Practice (08), OB/GYN (16)

All CMS specialties that are not listed in Table 3.G.3 typically face a single premium regardless of service mix and so we have developed a single premium at the specialty level.

The CY 2023 update uses the same structure of specialty/service risk group as the previous update *except* that Unknown Physician Specialty (99) is now divided into surgery and non-surgery groups. We were able to collect an expanded amount of premium data for this specialty relative to the previous update, and this service risk group structure change is reflective of the patterns observed in the most current premium data.

Given the methodological approach of deciding what specialties will be treated as a whole and what specialties will be subdivided into service risk groups, the final step in creating an analytic premium file to support both risk index and GPCI calculation is developing values for

specialties/service risk groups with incomplete or no data. No CMS specialty was included in *all* available filings, although a few specialties were missing from only a couple of filings. We have imputed premiums on filings that did not include values for CMS specialties/service risk groups that appear in some, but not all, filings. This imputation was accomplished by using the premium of a related specialty and service risk group within the same filing, as shown in Table 8.C, in plans where the specialty/service risk group was missing.¹⁷

The imputation strategy is based on the notion of trying to represent the rate that the insurer would charge a practitioner in that specialty, given that the filing does not list the specialty explicitly. To accomplish this, we created a map of CMS specialties that sensibly relate to a larger, more commonly reported specialty. In general, we relied on CMS' standard regulation specialty impact table included with all PFS regulation notices—reproduced below as Table 8.A—to map CMS specialties to related specialties.¹⁸ For example, the CMS specialty of Sports Medicine is included in Family Practice in the policy impact table. As shown in Table 8.C, Family Practice/No Surgery is the source for Sports Medicine/All, meaning we have used the Family Practice/No Surgery rate as that for Sports Medicine in filings that did not explicitly report a Sports Medicine premium.

Some other CMS specialties do not exist in the same “impact specialty” but are often used synonymously on PLI filings. For example, PLI filings often do not distinguish between the CMS specialties General Practice and Family Practice. As shown in Table 8.C, General Practice is the source for Family Practice, and the reverse is also true. This means that we have used General Practice rate as Family Practice in filings that did not explicitly report a Family Practice premium, *and vice versa*.

For the CY 2020 update, this form of imputation was referred to as “partial” imputation and was followed by an additional “total” imputation step for specialties with incomplete data¹⁹ that do not share an impact specialty with a more commonly reported specialty. Specialties omitted from partial imputation were typically included in the “other” category on the impact table, so there was not a natural alternative specialty to serve as a source for these CMS specialties. Under total imputation, premiums for these specialties were set equal to those of another specialty. Most of these specialties were mapped to Allergy/Immunology (03) to be consistent with prior updates in

¹⁷ Based on input from stakeholders CMS advised us to make an exception for the CMS specialty Gynecologist/oncologist. Per this guidance, the *national* premium for 98-Gynecologist/oncologist (ALL) was set equal to the *national* premium for 91-Surgical oncology (ALL).

¹⁸ Based on input from stakeholders, CMS requested that four specialties be mapped to a source other than their impact specialty: 72-Pain Management (ALL), 98-Gynecologist/oncologists (ALL), C0-Sleep Medicine (ALL), C7-Advanced Heart Failure and Transplant Cardiology (ALL).

¹⁹ Specifically, we calculated the share of the U.S. population implicitly covered by each specialty as the sum of the product of population share times market share for each specialty across all filings. Those CMS specialties for which this population share was below 20 percent or that were not included in *any* filings were subject to ‘total’ imputation.

which specialties with no (or insufficient) data received the same risk index value as Allergy/Immunology (03). However, it is unclear whether the malpractice risk faced by practitioners in these specialties is similar to practitioners in Allergy/Immunology.

For the CY 2023 update, we further refined the imputation process for these specialties that are underrepresented in PLI filing data so that the risk index values better reflect the malpractice risk that practitioners actually experience as evidenced through PLI premiums. First, we reviewed company filings that explicitly reported rates for each underrepresented specialty and determined which more commonly reported specialty was most frequently mapped to the same risk class within the filing. For instance, filings that explicitly reported premiums for Hospice and Palliative Care typically assigned that specialty to the same risk class as Internal Medicine. Therefore, we used the Internal Medicine rate as that for Hospice and Palliative Care in filings that did not explicitly report Hospice and Palliative Care, as shown in Table 8.C.

This imputation strategy allows us to develop as complete an analysis premium file as feasible based on the original premium data without imputing values *across* filings. Further, this imputation strategy is an improvement over the prior update for 2020 values in two major ways. First, it is more consistent with the overall approach for other specialties of trying to represent the rate that the insurer would charge a practitioner in a specialty, given that the filing does not list the specialty explicitly. And second, it provides better fidelity to actual PLI filing data by augmenting existing data with additional data rather than ignoring and replacing the data collected from underrepresented specialties entirely.

Premium data were developed for each filing based on imputing values for specialties that were incomplete across filings based on Tables 8.C to produce a state/county/company/CMS specialty/service risk group-level analytic dataset of PLI rates. The inclusion of premium data for a broader mix of practitioners and reduced imputation of data results in a premium file that is a more faithful representation of PLI premiums faced across the nation and will result in MP risk index values and GPCIs that better reflect these premiums. This dataset serves as the key data input for the MP GPCIs, as described in Section 4, as well as the malpractice risk index described in Section 5. The market share captured by the premium data by state is shown in Table 7.A, while Table 7.B shows the share of the U.S. population covered by the filings in the database by CMS specialty and service risk group, based on premium data from the filings and after imputation.

4 Update of the CY 2023 GPCIs

The GPCI update process is comprised of the following components: data collection and acquisition, data development, measure creation and post-measure creation adjustments. Data collection involves acquiring the most recently available data of reasonable quality that are needed to update and calculate the CY 2023 GPCIs from various sources. Data development refers to the process of converting the data collected from CMS and public use files into county-level data that can be used to create the GPCIs. The measure creation component is the step in which the raw GPCIs are calculated at the locality level using the developed data from the prior

step. Finally, post-measure creation adjustments required by current law are made to the raw budget-neutral values to finalize the payment GPCIs. Each component is described in more detail below, in reference to the 2023 update.

A. Data Collection and/or Acquisition

Collecting the data underlying development of the GPCIs involves downloading and acquiring the data from a variety of sources. ARC updated several data elements through publicly available Department of Labor data and Census Department data as shown in Table 4.A.1, along with utilization data from CMS and malpractice premium data collected as described above.²⁰

Table 4.A.1: Summary of Elements Required for GPCI Calculation

COMPONENT	MEANING	SOURCE
Physician Work	Measures regional variation in physician wages	Bureau of Labor Statistics Occupational Employment and Wage Statistics (BLS OEWS)
Practice Expense – Employee Wages	Measures regional variation in the cost of hiring physician practice staff, excluding outsourced services	BLS OEWS
Practice Expense – Office Rents	Measures regional variation in the cost to rent physician offices	Census Bureau’s American Community Survey (ACS)
Practice Expense – Purchased Services	Measures regional variation in the cost of contracted services typically purchased by physicians	BLS OEWS, CMS labor-related classification, MEI
Practice Expense – Equipment and Supplies	Measures practice expenses associated with capital goods ranging from chemicals and rubber, to telephone and postage	No data required; 1.0 for all counties
Practice Expense – Total	Sum of employee wages, office rents, purchased services, and equipment and supplies	Component cost shares as shown in Table 4.A.2 below

²⁰ See Section 9 for a more detailed description of how to access the various public data resources referred to in this section and Section 10 for a discussion of how the COVID-19 pandemic affected some of the data and data availability.

COMPONENT	MEANING	SOURCE
Malpractice	Measures regional variation in cost of malpractice insurance	Malpractice premiums

To develop the WORK GPCI, ARC used the May 2020 Bureau of Labor Statistics (BLS) Occupational Employment and Wage Statistics (OEWS) data.

The PE GPCI comprises four distinct components and incorporates various data sources. The first component of the PE GPCI, Employee Wages (EW), was updated using the BLS OEWS data. The second component, Purchased Services, was updated using BLS OEWS data and CMS labor-related classification data. Additionally, data are provided by CMS to determine the share of contracted services that physician practices purchase from different industries. ARC used the 2019 5-year data from the American Community Survey (ACS) to update the third PE GPCI component, Office Rent, since the 2020 ACS data were not publicly released in time for use in this update. The final component of the PE GPCI, Equipment and Supplies, does not vary by geographic area and therefore does not require a review of external data sources under the current methodology. CMS assumes a national market for such items and therefore assigns a value of 1.00 for this component in each PFS locality.

The MP GPCI is calculated using the malpractice premium data described above in Section 3, weighted by total WORK RVUs in each area.

1. BLS OEWS Wage Data

The Bureau of Labor Statistics publishes OEWS data annually. The OEWS data include estimates of employment and wages for approximately 800 occupation categories at various geographic levels, including national, state, and metropolitan and nonmetropolitan areas. These data were used to update the WORK GPCI and two components of the PE GPCI: Employee Wage Index and Purchased Service Index. For the CY 2023 update, ARC downloaded the most recently available BLS OEWS data (May 2020).²¹ The May 2020 data file includes estimates from the following six semiannual panels: May 2020, November 2019, May 2019, November 2018, May 2018, and November 2017.”²²

Additional information on the scope of the survey, the survey sample and estimation methodology can be found on BLS’ website.²³ Details on BLS OEWS data acquisition can be

²¹ United States Department of Labor, Bureau of Labor Statistics. Occupational Employment and Wage Statistics. OEWS data. <https://www.bls.gov/oes/tables.htm>. Downloaded May 20, 2021.

²² United States Department of Labor, Bureau of Labor Statistics. Occupational Employment and Wage Statistics. Technical Notes for May 2020 OES Estimates. March 31, 2021. https://www.bls.gov/oes/current/oes_tec.htm. Accessed May 20, 2021.

²³ Ibid.

found in Section 9 of the report and Section 10 discusses the effects of the COVID-19 pandemic on the data.

2. ACS Data

As has been discussed in previous GPCI reports, there is not a comprehensive public data resource for office rents in every US county. As a result, the Office Rent Index of the PE GPCI has been based on geographically complete data on residential rents from the American Community Survey (ACS) data. In the past, commenters have raised concerns about the use of residential, rather than commercial, rent. CMS requested that ARC conduct a comprehensive analysis of potential alternative data sources for the Office Rent Index, including potential public sources, such as the GSA and USPS, as well as various commercial sources of commercial rent data.

We identified a variety of commercial and residential data sources, but most lacked important characteristics, such as being publicly available and geographically comprehensive, and were therefore not appropriate substitutes. For example, some commercial data sources that are publicly available lack the geographic scope and granularity required for creating the office rent index. Other sources have terms and conditions limitations that preclude public use of the data. In other cases, the cost and proprietary nature of the data was prohibitive. In addition to exploring alternative data sources, we also reviewed alternative ways of using the current data source (ACS). However, none of the alternatives directly address the longstanding concerns of using residential data in the office rent index calculation.

We conducted limited analyses of some alternatives to the ACS and concluded that the geographic variation described by commercial rent data is highly correlated with the residential rent data that have been used in the PE GPCI. The research task was oriented solely at examining the potential to update the office rent index and did not make any attempt to redefine payment areas. Since the ACS data is used to create an index, residential rents from the ACS data are not a proxy for commercial office *rents* but rather the geographic variation in residential rent is used as a proxy for the geographic *variation* in commercial office rent. If commercial rents vary across areas in a manner similar to variation in residential rates, then the ACS would be an acceptable data source for this use.

The fact that the ACS data are available in most areas and appear to be highly correlated with commercial rents has led CMS to conclude that they remain the most appropriate source for this element of the PE GPCI. This decision reflects the fact that the intention of the data is to capture geographic *variation* in rent, not the level of rent, so the correlation between commercial and residential values supports continued use of the latter.

Research on commercial rent data sources is and will continue to be important in order to understand what data is available and if data sources have been changed or improved over time, or if new commercial data sources become available for use. It is also important to use the available sources to continue to track whether the geographic variation in the ACS data is a reasonable proxy for the geographic variation in commercial office rent.

The United States Census Bureau conducts the ACS each year. This survey includes data on various topics including social, housing, economic and demographic population characteristics. From this survey, ARC collected the 2019 ACS 5-year, county-level estimates on the median gross rent for 2-bedrooms for the CY 2023 update of the Office Rent Index. Section 9 of the report includes additional details on ACS data acquisition, and Section 10 describes the effects of the COVID-19 pandemic on the timing of the survey.

3. RVU Data

The 2020 RVU data is provided by CMS. The data file is based on Medicare claims and includes Total RVUs, Total Physician Work RVUs, Total Practice Expense RVUs, and Total Malpractice RVUs at the zip code level. State and county codes are also included on the file.²⁴

4. MEI Cost Share Weights

The MEI cost share weights are also provided by CMS. As directed by CMS, we used the same MEI cost share weights that were used in the previous update. They are used to combine the four components of the PE GPCI and are shown in Table 4.A.2.

Table 4.A.2 PE GPCI: MEI SHARES

ELEMENT	MEI SHARE	SHARE OF PE
Practice Expense – Employee Wages	16.553	36.917
Practice Expense – Office Rents	10.223	22.799
Practice Expense – Purchased Services	8.095	18.054
Practice Expense – Equipment and Supplies	9.968	22.231
Practice Expense – Total	44.839	100

Source: CMS Office of the Actuary

5. CMS Labor-Related Classification

Finally, the labor-related classification data is provided by CMS for use in the Purchased Services Index of the PE GPCI. Two groups of purchased services, ‘Professional Services’ and ‘Other Services’, are defined by CMS using NAICS codes. These industry codes identify the occupations for which OEWS data will be used to capture geographic variation in costs associated with purchased services. This CY 2023 update uses the same labor-related classification data as the previous update.

B. Data Development and Measure Creation

The GPCIs are intended to capture geographic variation. The underlying data are used to create these measures based on weights that combine the information about variation in a way that can

²⁴ Preparing the RVU data for use in the GPCI measure creation entailed dropping observations where MTUS <= 0 or TRVUWRK<=0 or TRVUPE<=0 or TRVUMP<=0. This exclusion was introduced with the 2020 update.

be used to adjust PFS payments in the Medicare Fee Schedule areas. Therefore, the key elements of data development and measure creation, in addition to the data collection/acquisition process described above, are weights and geographic definitions.

ARC created a database of geographic crosswalks and potential weights, including population and Medicare PFS RVUs and payments. The key geographic measures include counties, states, Medicare payment localities, and various definitions of metropolitan area. This geographic data base is designed to facilitate the creation of the GPCIs and can be used as a resource to examine changes to the weights and to the definition of localities. Additional details on acquiring the geographic data are in Section 9 of the report. The sections below provide details on the data development and measure creation processes for each of the GPCIs, which follow previous policies except as noted.

1. Physician Work GPCI

The WORK GPCI captures the relative cost of physician and non-physician practitioner labor across Medicare payment localities. Since Medicare payments account for sizable share of practitioner revenue, use of physician and other practitioner wages to create the WORK GPCI would end up being circular in nature, with Medicare policy influencing geographic patterns in wages that are then used to establish geographic adjustment factors of Medicare payments. Instead, a set of occupation groups representing a variety of professionals are used in the calculation. This allows the GPCI to reflect differences in living and other costs faced by practitioners in different areas, since other highly educated professionals face similar costs, and avoids the endogeneity of using practitioner wages directly.

In preparation for this update, we researched three critical components related to the occupation codes and groups that comprise the WORK GPCI. First, we conducted an in-depth review of the occupation codes within each of the seven groups used in past updates and have tracked and documented the changes over time. Second, we conducted a review of the current occupation codes and groups used to capture geographic variation in professional wages and assessed other potential codes and groups that could be used in addition to the current selections used in calculating the WORK GPCI. Finally, we analyzed the occupation codes currently used in calculating the WORK GPCI and those codes suggested for further consideration to see the extent to which the data exist in the file (data existence) and how well the occupation codes are represented in the data (data sufficiency). As a result, ARC recommended some updates to the occupation codes and groups currently used in the WORK GPCI calculation. The practical effect of this is, however, minimal because of the 25 percent limit on variation in Work GPCI that is allowed by Section 1848(e)(1)(A)(iii) of the Social Security Act. This legislation states that the

WORK GPCI should reflect “¼ of the difference between the relative value of physicians’ work effort in each of the different fee schedule areas and the national average of such work effort.”²⁵

As new data are released, the availability of specific codes is subject to change, and it is possible that new codes can be added over time. For this update nine occupation groups include (1) Architecture and Engineering, (2) Computer, Mathematical, Life and Physical Science, (3) Social Science, Community and Social Service and Legal, (4) Education, Training and Library, (5) Registered Nurses, (6) Pharmacists, (7) Art, Design, Entertainment, Sports and Media, (8) Management and (9) Business and Financial Operations. Table 8.D.1-Table 8.D.6 list the occupation codes included in each of the nine occupation groups.

a) Physician Work GPCI Data Development

The source data for calculating the WORK GPCI is the BLS OEWS data, which includes counts of employment and various statistics on wages by occupation code. In order to develop the data needed to create the WORK GPCI, ARC created a national level (all U.S. as a whole and all industries combined) file with the BLS OEWS data for the list of occupations included in the WORK GPCI. Median wages from this file are used to impute missing median wages at the county level. Next, a cross-industry metropolitan statistical area (MSA)-level wage file was created for the WORK GPCI occupation codes that maps MSAs to counties, using BLS area definitions. If the median wage for an occupation is missing in a county, we use the national median wage for that code to impute. Since the occupation wage can vary by industry within a county, ARC computed county median wages for each WORK GPCI occupation code as the total employment weighted average of the median industry-occupation code level wage.

b) Physician Work GPCI Measure Creation

The calculation of the WORK GPCI starts with county-level average hourly earnings by occupation. National average hourly earnings for each occupation are then calculated by weighting the county-level average with physician work RVUs in each county. By taking the ratio of the county average to the national average, a wage index was constructed for each occupation at the county level. The occupation-specific wage index was then weighted by each occupation’s share of the total national wage bill and synthesized into a county-level wage index. When calculating the final county-level wage index, ARC used a weighted average. A weighted average was used because the occupation group national share did not add up to 100 within counties for which one or more of the occupations did not have earnings data. This method eliminates the possibility that the county index will essentially imply a wage of zero for any occupation group not present in the county.

²⁵ U.S. Social Security Administration. Compilation of the Social Security Laws. Payment for Physicians’ Services. Sec. 1848. 42 U.S.C. 1395w-4 (a) Payment Based on Fee Schedule.

https://www.ssa.gov/OP_Home/ssact/title18/1848.htm. Accessed January 10, 2022.

The next step is to calculate the Medicare locality level wage index by weighting the county-level wage index with total physician work RVUs in the county. By law, the maximum variation in the WORK GPCI incorporated in the PFS is 25 percent of the full variation, so the locality-level wage index is adjusted accordingly.

2. Practice Expense GPCI

The PE GPCI captures the relative cost of operating a physician practice by Medicare locality. It is the weighted average of four components: the cost of employee wages, purchased services, equipment and supplies, and office rent. The weights for each index are based on their shares reported in Table 4.A.2 above. These indices are described in more detail below.

a) Employee Wage Index Data Development

The data development needed to construct the EW Index follows a pattern that is similar to the data development steps for the WORK GPCI. ARC created a national level file with the BLS OEWS data for the occupations that comprise the total non-physician wages in the Offices of Physicians industry.²⁶ Next, a cross-industry MSA-level wage file was created for the EW occupation codes that maps MSAs to counties, using BLS area definitions. If the median wage is missing, then the national median wage for a given occupation code is used. Since counties can cross MSAs, ARC computed the total employment weighted average of MSA median wages as the county median wages. Occupations for which the BLS does not report a national median wage were excluded, since they were missing data in most counties and the absence of a national median implies that there were not enough data available nationwide to report a reliable estimate.

b) Employee Wage Index Measure Creation

The EW Index is created in a way that is similar to the WORK GPCI. A national average hourly wage was constructed for each occupation by weighting the county-level average hourly earnings by occupation with county-level PE RVUs. The county-level average hourly earnings by occupation were then indexed to the national average. The occupation-specific wage index was then weighted by each occupation's share of the total wage bill and synthesized into a county-level wage index. Similar to the WORK GPCI measure creation, ARC modified this calculation, using a weighted average when calculating the final county-level wage index. The final step is to calculate the Medicare locality level wage index by weighting the county-level wage index with total PE RVUs in the county.

²⁶ Specifically, we used NAIC 621100, but then excluded these occupation codes: 19-3039, 29-1011, 29-1021, 29-1022, 29-1023, 29-1029, 29-1041, 29-1211, 29-1215, 29-1216, 29-1218, 29-1221, 29-1223, 29-1248, 29-1228, 29-1071, 29-1081, 29-1122, 29-1123, 29-1125, 29-1128, 29-1129. This exclusion list has been refined for the CY 2023 update to better align with the source codes for clinical labor rates used by CMS in establishing practice expense RVUs. More specifically, six codes listed as sources for clinical labor rates that were previously excluded in the EW Index calculation are now included in the CY 2023 Employee Wage Index (29-1126, 29-1124, 19-3031, 29-1031, 29-1181, 29-1127).

c) Purchased Services Index Data Development

The data development for the Purchased Services Index is similar to the process described above for the data development for the Employee Wage Index, but the occupations include contracted services/occupations typically purchased by physicians, such as accounting, information technology, and legal services. ARC created a national level file with the BLS OEWS data for the occupations that are considered purchased services. Next, a cross-industry MSA-level wage file was created for the EW occupation codes that maps MSAs to counties, using BLS area definitions. If the median wage was missing, then the national median wage for a given occupation code was used. Since counties can cross MSAs, ARC computed the total employment weighted average of MSA median wages as the county median wages.

d) Purchased Services Index Measure Creation

The measure creation for the Purchased Services Index follows a methodology similar to the Employee Wage Index, but the calculation uses a slightly different approach for weighting.

A national average hourly wage was constructed for each occupation included in the Purchased Services Index by weighting the county-level average hourly earnings by occupation with county-level PE RVUs. The county-level average hourly earnings by occupation were then indexed to the national average. The occupation-specific wage index was then weighted by each occupation's share of the total wage bill and synthesized into a county-level wage index. The Medicare locality level wage index was calculated by weighting the county-level wage index with total PE RVUs in the county.

e) Equipment and Supplies Index Data Development

No data development is needed for the Equipment and Supplies Index. The final component of the PE GPCI, Equipment and Supplies, does not vary by geographic area and therefore does not require updating.

f) Equipment and Supplies Index Measure Creation

The Equipment and Supplies Index is set to 1.0 because CMS assumes that these inputs are purchased on a national market and that any geographic variation is negligible.

g) Office Rent Index Data Development

To develop the data needed to create the Office Rent Index, ARC used the 2019 ACS 5-year, county-level estimates on the median gross rent for 2-bedrooms. The ACS data file does not have estimates for the median gross rent for 2-bedrooms for a few counties. ARC contacted the U.S. Census Bureau to request data for these counties but did not receive additional data for any of the missing counties. Therefore, in the data development process, ARC imputed county-level rent estimates using the average value for a given county's MSA. Table 8.E includes the list of the counties that are missing estimates and their imputed values.

h) Office Rent Index Measure Creation

The Office Rent Index is calculated as the ratio of the median gross rent for 2-bedrooms in a county to the average median gross rent for 2-bedrooms nationally. The denominator was calculated as the median gross rent for 2-bedrooms across all counties, weighted by each county's total Practice Expense RVUs. The county-level rent index was then consolidated to Medicare payment locality level using Practice Expense RVUs as weights.

3. Malpractice GPCI

The MP GPCI captures differences in malpractice insurance premiums, which vary by specialty and surgical category.

a) Malpractice GPCI Data Development

As described in the previous section, ARC created a new PLI premium dataset that includes data for multiple insurers for many specialties in each county. For the purpose of GPCI creation, these data are summarized to one value per county. This was accomplished in two steps:

- 1) A state/county/specialty summary of PLI rates was created as the weighted average of filing rates in each county, where the weights are the company's share of the state's PLI market at the specialty level²⁷;
- 2) A single county-level PLI rate was created in each county as the weighted average of the specialty rates within the county, with the weight given by the specialty's share of malpractice RVUs in the state as captured in a previous year's claims data, based on data provided by CMS.

The resulting file has a single rate for each state and county, as required for calculating the MP GPCI.

b) Malpractice GPCI Measure Creation

The county-level MP premiums were weighted by the county's total malpractice RVUs to establish the national average premium. The county-level MP index was constructed as the ratio of the county-level value to the national average premium. Because PFS payments are determined by Medicare payment locality, which covers one or more counties, the county-level MP index was then aggregated to the Medicare locality level using total MP RVUs in each county as weights.

²⁷ We apportioned the known group-level market share to the company/specialty level based on how many cases for the specialty were included across the group's filings. So, for example, if a group had two companies, its market share was divided by two for any specialty included in both companies' filings but was given entirely to any specialty that was only included on one of the filings. This process ensured that the group's market share was consistent in aggregate across all specialties ever reported by a company of the group.

4. Geographic Adjustment Factor

The Geographic Adjustment Factor (GAF), as shown in Equation 4.B.4 synthesizes the WORK, PE, and MP GPCIs and illustrates the overall price differences over time and across geographic areas.

Equation 4.B.4: For each locality, L:

$$GAF_L = (GPCI_{WORK,L} \times 0.5023811063) + (GPCI_{PE,L} \times 0.4559318353) + (GPCI_{MP,L} \times 0.0416870584)$$

It is calculated as the weighted average of the three GPCIs (WORK, PE, and MP), essentially representing the net geographic adjustment of “the typical service.” Instead of the MEI shares published by CMS, which were used in previous updates, the weights used in calculating the 2023 GAF reflect the share of total RVUs that each component accounts for, based on actual Medicare utilization from CY 2020. The GAF is not used for payment under the PFS but is a useful measure to understand the overall effect of geographic adjustment across Medicare payment areas. The use of actual utilization as weights in creating the 2023 GAF more accurately reflects the actual effect of geographic adjustment on payment than the MEI weights that were set more than 15 years ago and used in previous updates. The relative share of total RVUs due to work, PE, and MP reflects the shares used by CMS when setting the RVUs and utilization under those values. Whenever CMS resets the shares of work, PE, and MP in the ratesetting processes, whether based on MEI weights or some other data source, these utilization-based weights will move toward the ratesetting shares.

C. Post-Measure Creation Adjustments

After the raw GPCIs are calculated, a number of adjustments are applied. These include an adjustment for territories, budget neutrality, a hold-harmless policy for select California localities, a two-year transition from the current and newly updated GPCIs through a 50/50 blend in the first update year, and other legislative adjustments. These are presented in the order in which they are calculated, since the results are order-dependent.

1. Adjustments for Territories

Consistent with previous updates, Puerto Rico and the Virgin Islands are assigned the GPCI value of 1.00 for each index. The Pacific Island territories are assigned the Hawaii locality values.

2. Budget Neutrality

The WORK, PE and MP GPCIs are subject to a budget neutrality adjustment. This ensures that total PFS payments do not change as the result of the updated GPCIs. Budget neutrality is achieved by creating a base pool of total RVUs adjusted by current GPCIs and a new pool of RVUs adjusted by updated GPCIs, and then multiplying the newly-calculated GPCIs by the ratio of the base to new pool. For this calculation, CMS has provided WORK, PE, and MP RVUs from CY 2020 which have been used to scale the GPCIs so that they result in the same RVU-

weighted sum as the current GPCIs for each of the three relative value scales (WORK, PE, and MP). The payment GPCIs are based on these budget-neutral GPCIs, subject to the following additional adjustments that occur outside budget neutrality.²⁸

3. California Localities

The definition of California’s payment areas was modified by Section 220 (h) of the Protecting Access to Medicare Act (PAMA) of 2014, moving to an MSA-based set of areas and increasing the total number of areas in the state from 9 to 27. The law also described a process of transitioning payments for some areas in the state over a five-year period from 2017 to 2021 to avoid large abrupt payment changes due to the redefinition. This transition policy applied to the new California localities (areas located in prior localities 03 Marin/Napa/Solano and 99 Rest of California) as indicated in Table 8.F. Since the transition period is finished, this step is not applied to the updated 2023 values.

The law also includes a hold harmless provision which remains in effect, so the value in a transition area cannot be less than the value that would have been in force absent the change in locality definition. As a result, we created budget-neutral GPCIs for the historic localities. These values for the California transition areas establish the GPCI for payment purposes, to comply with the requirements of Section 220 (h) of the PAMA of 2014.

While the intention of PAMA was to develop payment areas based on the 27 MSAs in California, CMS created 32 areas to reflect the interaction of the transition and hold harmless provisions, previous payment area boundaries, and MSAs.²⁹ Specifically, the San Francisco-Oakland-Berkeley MSA is comprised of five counties (Alameda, Contra Costa, Marin, San Francisco, and San Mateo) that spans four unique CMS payment areas prior to PAMA (prior CMS localities 03, 05, 06, and 07). As shown in Table 8.F, Marin County is a transition area while the other four counties in this MSA are not. Given the completion of PAMA’s transition provision, San Francisco, San Mateo, Alameda, and Contra Costa counties (current CMS localities 05, 06, and 07) will always have the same values, whereas Marin County (current CMS locality 52) may be assigned different GPCIs through the permanent hold harmless provision. A similar situation exists for the San Jose-Sunnyvale-Santa Clara MSA, where San Benito County (current CMS locality 65) is a transition area and Santa Clara County (current CMS locality 09) is not, so these areas may be assigned different GPCIs despite existing within the same MSA. CMS created locality areas for the seven affected counties discussed above to allow for the possibility of different GPCIs within these MSAs. CMS also created two areas from the two counties—Los Angeles and Orange—in the Los Angeles-Long Beach-Anaheim MSA, however

²⁸ For use in ratesetting, the budget-neutral GPCIs are subject to the 50/50 blend.

²⁹ While the number of localities increases from 9 to 27 under the MSA-based structure, “for the purposes of payment, the actual number of localities under the MSA-based locality structure is 32.” See <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/Locality.html> for additional details on the locality configuration. Accessed January 10, 2022.

neither of these are counties transition areas so they will always be assigned the same GPCI values.

In summary, there will be, at most, 29 unique GPCI values among the 32 CMS localities in California moving forward. As long as the hold harmless provision is in effect, there will de facto be 29 areas that may have different GPICs: the San Francisco-Oakland-Berkeley MSA except Marin County (CMS localities 05, 06, 07), Marin County (CMS locality 52) within the San Francisco-Oakland-Berkeley MSA, Santa Clara County (CMS locality 09) within the San Jose-Sunnyvale-Santa Clara MSA, San Benito County (CMS locality 65) within the San Jose-Sunnyvale-Santa Clara MSA, and each of the remaining 25 MSA-based areas (all other CMS localities).³⁰

4. 50/50 Blend

The final 2023 GPICs are calculated as two-year transition values using a 50/50 blend of the current GPICs and the GPICs based on the updated data. This two-year transition is designed to avoid large changes when data are updated, as required by Section 1848(e)(1)(C) of the Social Security Act.

5. Other Legislative Adjustments

There are three other legislatively mandated adjustments to the GPICs that are used for payment:

- Work GPCI floor for Alaska of 1.5 (SSA Section 1848(e)(1)(G));
- Work GPCI floor of 1.0 in all other areas (extended through December 31, 2023 by Section 101 of the Consolidated Appropriates Act of 2021); and
- PE GPCI floor of 1.0 in frontier states, which include Montana, Nevada, North Dakota, South Dakota and Wyoming.³¹ (SSA Section 1848(e)(1)(I)).

The updated payment CY 2023 GPICs reflect these three adjustments as required by current law.

D. Comparison of Updated CY 2023 GPCI Values by Locality to Existing Values and Expected Effect on Distribution of Payments

The transition GPICs for 2023 based on updated source data produce fairly modest changes to the 2023 GAF, as shown in Table 4.D.1. Compared to that for 2022, the 2023 GAF changes by less than half of a percent in 74 localities that collectively account for over 60 percent of total RVUs, and no locality had a GAF change of more than 4 percent. The proposed 2023 WORK GPCI in 77 areas is less than 0.5 percent different from their 2022 values. These areas account for about 85 percent of work RVUs. The presence of the 1.0 floor in all areas and 1.5 in Alaska

³⁰ In this update, Marin County GPICs equal those for the other four counties in its MSA but the two counties in the San Jose-Sunnyvale-Santa Clara MSA have different values from one another due to the hold harmless provision.

³¹ The definition of frontier state is based on 2010 Census data and remains unchanged from the current GPCI calculations. As of 2015, the states which qualified as frontier states were: Montana, Nevada, North Dakota, South Dakota, and Wyoming.

for the WORK GPCI, along with the limitation of the measure to only 25 percent of the variation in the underlying measures, limit the range of change that can occur in the GPCI with updated data. The change from 2022 PE GPICs to those proposed for 2023 has a broader distribution, with 14 payment areas, accounting for approximately 8 percent of PE RVUs, experiencing an increase of over 1.5 percent while 4 areas decline over 1.5 percent. The 2023 MP GPCI is more different from 2022, with 7 areas showing a drop of over 10 percent and 15 areas growing by 10 percent or more. Overall, the MP GPCI exhibits slightly less change in this update than in the update three years ago. For example, under the last update, 29 areas accounting for nearly 30 percent of MP RVUs had change of more than 10 percent (increase or decline), while under this update only 22 areas accounting for less than one-fifth of MP RVUs would experience a change percent of more than 10 percent. As noted above, the premium data underlying this measure are more comprehensive and complete than the previous update, and fewer specialties were assigned to a base referent specialty (Allergy/Immunology). This may affect the specialty-based risk index (discussed below), but this does not appear to have created excessive geographic volatility. Table 7.D.1 presents all of the updated 2023 GPICs and GAF by locality.

Table 4.D.1: Distribution of Change under Updated GPICs and GAF, by Count of Localities and Share of RVUs, Transition Values for 2023 compared to 2022 Values

SIZE OF CHANGE IN MEASURE	WORK GPCI: N	WORK GPCI: %WORK RVUs	PE GPCI: N	PE GPCI: % PE RVUs	MP GPCI: N	MP GPCI: % MP RVUs	GAF: N	GAF: % Total RVUs
< -10%	0	0.00%	0	0.00%	7	7.20%	0	0.00%
-10% to < -4%	0	0.00%	0	0.00%	15	16.98%	0	0.00%
-4% to < -1.5%	0	0.00%	4	2.51%	27	12.49%	1	0.37%
-1.5% to < -0.5%	26	6.62%	23	28.11%	6	5.95%	12	14.57%
-0.5% to < 0.5%	77	84.41%	37	35.07%	8	4.69%	74	62.56%
0.5% to < 1.5%	9	8.97%	34	26.22%	3	6.15%	18	17.56%
1.5% to < 4%	0	0.00%	14	8.09%	13	16.22%	7	4.95%
4% to < 10%	0	0.00%	0	0.00%	18	18.06%	0	0.00%
10% or more	0	0.00%	0	0.00%	15	12.26%	0	0.00%

Source: ARC analysis of proposed 2023 GPICs/GAFs

Another way to examine the effect of the new data on the GPICs is to consider shifts in relative rankings of localities by GPCI and GAF. This can be done fairly simply by comparing the quintile placement of localities under current values to that which they would have under the updated values. As shown in Table 4.D.2, 104 (the sum of the diagonal cells) of the 112 localities have 2023 GAFs that are in the same quintile as their 2022 value. Of the remaining 8 localities, none moved more than one quintile. The 104 localities that remain in the same quintile under the updated GAF as they had been under current values account for over 90 percent of total RVUs under the PFS.

Table 4.D.2: Distribution of Localities by Current GAF Quintiles by Updated GAF Quintiles

# OF STATE/ LOCALITIES		2023 GAF				
		1ST QUINT.	2ND QUINT.	3RD QUINT.	4TH QUINT.	5TH QUINT.
2022 GAF	1ST QUINT.	20	2	0	0	0
	2ND QUINT.	2	20	1	0	0
	3RD QUINT.	0	1	24	1	0
	4TH QUINT.	0	0	1	18	0
	5TH QUINT.	0	0	0	0	22

Source: ARC analysis of proposed 2023 GPCIs/GAFs

Note: Quintiles are defined from lowest to highest, so the lowest GAFs are in the 1st quintile.

5 Update of the Malpractice Risk Index

As described in Section 3 above, the base malpractice premium file includes rates for CMS specialties and service risk groups from multiple insurers in each county of the country. As described in Section 4, these premium data support the creation of the MP GPCI, which captures geographic variation in malpractice premiums. These same data are used to determine the relative risk associated with different services to create the MP RVUs of the PFS. Sections 5.A and 5.B below describe how each specialty’s rates by county are summarized to reflect the relative malpractice risk across CMS specialties (and service risk group, as appropriate) at the national level. These national data of specialty-specific premiums are then used as the basis for developing service-level MP RVUs.

CMS developed an analytic construct called a “risk factor” to illustrate each CMS specialty’s relative malpractice risk, calculated as a ratio of the specialty’s national average premium to the national average premium of a single “referent” specialty. Historically, the referent specialty used as the denominator to calculate risk factors was selected as the specialty/service risk group with the lowest premium, which for the CY 2017 update was Allergy/Immunology. For the CY 2020 update, ARC was able to collect PLI premium data for a wider array of specialties, some of which were non-physician practitioner specialties with much lower premiums. The use of a significantly lower referent premium would have led to substantial increases in risk factors relative to CY 2017 so CMS decided to maintain Allergy/Immunology as the referent specialty. Maintaining the same referent specialty with each update makes comparisons of RFs over time feasible, but they must be framed in reference to the referent premium, which changes over time. In other words, using the national premium of Allergy/Immunology as the denominator for each specialty’s risk factor means that changes in RFs between updates can only be understood relative to changes in premiums for Allergy/Immunology. The numerical value of a given specialty’s MP RF is only meaningful when compared with Allergy/Immunology, which for most specialties is not clinically relevant.

Perhaps more crucially, changes in premiums for Allergy/Immunology over time—which directly impact risk factors for all other specialties—may not be reflective of the broader changes in the malpractice premium landscape across all specialties. For instance, if Allergy/Immunology premiums had a large change relative to the average change across all other specialties’ premiums, the resulting change in risk factors would not necessarily be illustrative of changes in MP RVUs, and therefore PFS payments. Consider the CY 2020 update, when premiums for Allergy/Immunology increased by 5.7 percent compared to the CY 2017 update but average premiums across *all* specialties decreased slightly. This resulted in decreases in risk factors for some specialties—e.g., Family Practice, General Surgery, Pulmonary Disease—despite the premium update leading to modest increases in total MP RVUs for these specialties.

The CY 2023 update redefines the measure of relative malpractice risk across specialties using a more standard index construct with a weighted mean normed to a national value of 1. Specifically, the MP “risk index” value for each specialty is calculated as the ratio of the specialty’s national average premium to the volume-weighted national average premium across all specialties. Expressing malpractice risk in this way achieves more consistency with the calculation of MP RVUs, so changes in the MP risk index better reflect changes in payment. It also yields a number of analytic benefits versus the previous definition:

- Clearer understanding of the relative risk of each specialty compared to the national average *and* to other related specialties;
- Easier analysis and understanding of changes in relative risk of each specialty over time;
- Ability to perform more rigorous statistical analysis, such as analyzing variance across specialties and over time; and,
- Insulation from a single specialty having outside influence on MP risk values, i.e., changes in premiums for the specialty with the lowest national average premium will not necessarily result in large changes in MP risk index values across the *all* specialties (as would occur under the previous risk factor definition).

Importantly, this definitional change *does not* impact the pricing of services in the PFS since it does not change the relativity of risk across specialties and the MP RVUs are ultimately rescaled to match the size of the overall pool of RVUs. This section describes the process of creating the MP risk index with the updated premium data and examines the expected effect on MP RVUs.

A. County-level Specialty/Service Risk Group Price-adjusted Rates

The base rate data includes rates for multiple insurers in each county, so the first step in developing the risk index is to create a single county-level rate for each CMS specialty/class. For each specialty/service risk group, the weighted mean premium is calculated in each county, where the weight is the company’s market share. The resulting rates are then adjusted for geographic variation as captured by the MP GPCI. The current GPCI (i.e., CY 2022 MP GPCI) is used for this adjustment.

B. National Specialty/Service Risk Group Rates

A single set of national rates by specialty/service risk group is calculated as the weighted mean of the county-level specialty/service risk group rates, with the weights given by the county's population.

C. Calculating Specialty/Service Risk Group Risk Index

As explained above, the risk index value for each specialty is expressed as the ratio of the specialty's national premium to the volume-weighted national average premium across all specialties. Risk index values less than one correspond to specialties with relatively lower malpractice risk than average, and values greater than one correspond to specialties with relatively higher malpractice risk. The volume-weighted national average premium is calculated as the sum of the product of the national average premium and total 2020 PE and WORK RVUs for each specialty/service risk group, then dividing by total 2020 PE and WORK RVUs across all specialties.³² As shown in Table 7.C, we have also calculated a risk index using national premiums from the CY 2020 update using the same methodology to allow for comparison across updates.³³

D. Comparison of Updated CY 2023 Risk Index to Existing Values and The Expected Effect on MP RVUs

Table 7.C shows the specialty/service risk group standardized national premiums and risk index values calculated from the data collection and development processes described above. The table makes clear the minor structural change described above with regard to Unknown Physician Specialty (99). Despite having a single rate in the previous update, this specialty is now divided into surgery and non-surgery groups based on the prevalence of insurers' reported premiums in that structure. The national premiums for non-surgery and surgery are \$14,851 and \$25,246, respectively, a range which spans the previous single rate of \$19,929. The table includes two rows for the updated 2023 approach, so the current single premium and risk index are repeated in the two rows and labeled "ALL*" and therefore are not directly comparable to the new values which differ by service risk group.

Although premiums changed more for some specialties than for others, when weighted by Medicare RVUs, the national average premium across all specialties/service risk groups increased about 1 percent as a result of the 2023 update. Premiums for surgical and OB risk classes increased more than non-surgical rates. There was relatively little change in relative premiums, based on a comparison of quintiles of current and 2023 standardized national premiums by specialty/service risk group, as shown in Table 5.D.1. Ninety-two (sum of the diagonal cells) of the 100 specialty/service premiums that can be directly compared between

³² 2020 MP RVUs are not included in the calculation due to concerns about endogeneity.

³³ Total PE and Work RVUs from 2017 were used as weights for the calculation of the CY 2020 MP risk index, since national premiums in that update are based on premium data current as of 2017.

2020 and 2023³⁴ are in the same quintile both years; these specialties account for nearly 96 percent of the WORK and PE RVUs provided by the practitioners included in the table. Of the remaining eight specialties, all but two—Advanced Heart Failure and Transplant Cardiology and Hospice and Palliative Care—shifted into an adjacent quintile.

Table 5.D.1: Distribution of Specialty/Service Risk Group National Premiums by Quintiles for Current National Premiums by Those for Updated National Premium

# SPECIALTY / RISK SERVICE GROUPS		UPDATED 2023 NATIONAL PREMIUM				
		1ST QUINT.	2ND QUINT.	3RD QUINT.	4TH QUINT.	5TH QUINT.
CURRENT NATIONAL PREMIUM	1ST QUINT.	20	0	1	0	0
	2ND QUINT.	0	17	3	0	0
	3RD QUINT.	0	3	15	2	0
	4TH QUINT.	0	0	0	17	3
	5TH QUINT.	0	0	1	0	18

Note: Quintiles are defined from lowest to highest, so the lowest premiums are in the 1st quintile.

The shift in the national premium for Advanced Heart Failure and Transplant Cardiology is the result of revising the source for imputed premiums from Cardiology (Surgery) to Cardiology (No Surgery). CMS authorized this change based on recommendations from stakeholders that Cardiology (No Surgery) was a more clinically appropriate imputation source. Shifts in national premiums for three other specialties—Pain Management, Gynecologist/Oncologist, and Sleep Medicine—were also the result of revised imputation sources based on similar recommendations.

The shift in the national premium for Hospice and Palliative Care was largely a consequence of the refined imputation strategy discussed in section 3.G above. For the CY 2020 update this specialty was assigned the same premiums as Allergy/Immunology. However, additional analysis during the current update showed that filings that explicitly reported premiums for Hospice and Palliative Care typically assigned that specialty to the same risk class as Internal Medicine. The CY 2023 update, therefore, relies on actual premium data for Hospice and Palliative Care where available, and uses the premiums for Internal Medicine from filings that do not explicitly report premiums for Hospice and Palliative Care.

Similar shifts occur for other specialties that were previously assigned the same premiums as Allergy/Immunology, although the national premium for these specialties remained in the same quintile. Seven specialties—Speech Language Pathology, Mammography Screening Center, Physical Therapist, Occupational Therapist, Clinical Psychologist, Multispecialty Clinic or Group Practice, and Slide Preparation Facilities—underwent imputation to some extent, but with

³⁴ Unknown Physician Specialty (99) was omitted from this analysis because it was restructured into multiple service risk groups so the premiums are not comparable between the two data sets. Two other specialties—Medical Toxicology (C8) and Hematopoietic cell transplantation and cellular therapy (C9)—were also omitted because they were not included in PFS PE Ratesetting at the time of the previous update.

some specialty other than Allergy/Immunology as the source for imputed premiums. For seven other specialties—Independent Diagnostic Testing Facility (IDTF), Portable X-ray Supplier, Audiologist, Psychologist, Clinical Laboratory, Registered Dietitian/Nutrition Professional, and Licensed Clinical Social Worker—expanded data collection efforts lead to a sufficient amount of premium data such that imputation was not necessary. The resulting updated national premiums changed substantially relative to the prior update for these specialties, but the updated premiums are more reflective of the actual malpractice risk that practitioners in these specialties face through more extensive data collection and more appropriate assignment of specialties for imputation.

Since the national premiums affect the calculation of MP RVUs, it is also useful to also examine the expected effect of these new data on MP RVUs. For this analysis we recalculated MP RVUs using the CY 2020 and CY 2023 risk index values and all of the same input files as used to create the values for the 2022 Final Rule. The impact on MP RVUs from updated premiums is relatively modest. MP RVUs in most specialties compared with pre-update values changed by no more than 1 percent. The standard impact table CMS uses to report the effect of changes in PFS values shows impacts of 1 percent or more in MP RVUs for five specialties (table not shown):

- One impact specialty had overall MP RVU increase of 1 percent in the impact table: Neurosurgery.
- Physical/Occupational Therapy showed a 1 percent decrease. Two impact specialties—Audiologist and Clinical Psychologist—showed a 2 percent decrease. Additionally, Clinical Social Worker showed a 3 percent decrease.

The relative increase in MP RVUs for neurosurgery reflects the broader trend of PLI premiums increasing more rapidly for surgical risk classes than non-surgical rates. Decreases in MP RVUs of 1 percent or more for certain specialties were due to expanded data collection and the refined imputation strategy, as discussed above.

Another way to examine the effect of the updated risk index values on MP RVUs is to analyze shifts in relative RVUs from current values to those that were obtained with the new risk index.³⁵ Instead of comparing quintiles, as we did with the premium data, we have categorized current and updated MP RVUs into deciles, producing the distribution shown in Table 5.D.2. Overall, the MP RVUs of nearly 94 percent (the sum of diagonal cells) of services stayed in the same decile after the update of risk factors. For services with MP RVUs moving out of their pre-update decile, only 0.3 percent of services moved up or down by more one decile. Among all services with MP RVUs remaining in the same decile, their volume-weighted MP RVUs account for 99.0 percent and 99.2 percent of total MP RVUs before and after the update, respectively (data not shown). The relatively stable ranking of MP RVUs before and after the risk factor update is consistent with what is shown in the modest specialty impacts described above and

³⁵ Services with modifier of “TC” have been assigned the Allergy risk factor of 1.0 in the past. They are now assigned the Allergy risk index value of 0.43 to reflect the shift from risk factor to risk index.

suggests that the methodological changes and data updates in the calculation of risk factors for 2023 have measurable but very moderate effects on MP RVUs.

Table 5.D.2: Distribution of CY2022 MP RVUs, by Decile, by MP RVUs Based on Updated Risk Index, by Decile

DECILES OF MP RVUs from CY 2022 Final Rule	DECILES OF MP RVUs CALCULATED WITH UPDATED RISK INDEX										
	ALL	1 ST DEC.	2 ND DEC.	3 RD DEC.	4 TH DEC.	5 TH DEC.	6 TH DEC.	7 TH DEC.	8 TH DEC.	9 TH DEC.	10 TH DEC.
ALL	100	10	10	10	10	10	10	10	10	10	10
1 ST DECILE	10	9.79	0.20	0	0	0	0	0	0	0	0
2 ND DEC.	10	0.07	9.68	0.26	0	0	0	0	0	0	0
3 RD DEC.	10	0.03	0.13	9.49	0.34	0	0	0	0	0	0
4 TH DEC.	10	0.02	0	0.22	9.39	0.37	0	0	0	0	0
5 TH DEC.	10	0.01	0	0.02	0.26	9.17	0.53	0	0	0	0
6 TH DEC.	10	0	0	0	0.02	0.39	9.08	0.51	0	0	0
7 TH DEC.	10	0.01	0	0	0	0.03	0.33	9.16	0.47	0	0
8 TH DEC.	10	0.01	0	0	0	0.02	0.06	0.31	9.22	0.37	0
9 TH DEC.	10	0.04	0	0	0	0	0	0.02	0.30	9.32	0.32
10 TH DEC.	10	0	0	0	0	0	0	0	0.01	0.31	9.68

Note: Deciles are defined from lowest to highest, so the lowest MP RVUs are in the 1st decile.

6 Conclusions

This report describes the process used to collect malpractice premium data and then update the GPCIs and MP risk index 2023, as required by law. Overall, the inclusion of updated data did not lead to much change in the GAFs that would obtain under the updated 2023 GPCIs, with only 8 payment areas experiencing an increase or decrease of more than 1.5 percent. The updated MP risk index also leads to relatively modest changes in MP RVUs, with all but five specialties experiencing shifts of less than 1 percent. Methodologically, this update mimics the previous one with modest changes, such as a slight refinement to how malpractice premiums are imputed when missing, replacement of the MP risk factors with a risk index for more stability and transparency over time, and an updated mix of occupations in the wage data used in the WORK and PE GPCIs. As a result, changes in this update of the GPCIs are more directly the result of changes in the incoming data (malpractice premiums, wages, rents) than in the previous update, when a number of methodological improvements were implemented. The updated MP GPCI differs more from the current GPCI than the other two GPCIs do, with the WORK GPCI updates the most modest, reflecting the policy constraints on how much it can vary.

7 Data tables

This section reports locality-level and specialty-level measures of data characteristics and the final measures of interest.

A. Malpractice Insurance Market Share of Filings Captured, by State

The state market share data are reported at the insurance group level, so we have reported the number of groups for which we obtained filings. Many groups offer policies under more than one company within a state, and some companies file more than one filing with different combinations of specialties, for example. Therefore, we obtained many more filings per state than the number of groups.

TABLE 7.A: Number of Insurer Groups and Total Market Share of PLI Filings Captured in Updated Premium Data, by State

STATE	# OF INSURER GROUPS	MARKET SHARE CAPTURED	STATE	# OF INSURER GROUPS	MARKET SHARE CAPTURED	STATE	# OF INSURER GROUPS	MARKET SHARE CAPTURED
AL	3	51%	LA	2	56%	OK	2	55%
AK	2	53%	ME	1	71%	OR	3	52%
AZ	2	52%	MD	4	42%	PA	4	25%
AR	4	54%	MA*	4	33%	PR*	2	45%
CA	4	49%	MI	4	36%	RI	2	53%
CO	2	54%	MN	4	16%	SC	3	59%
CT	4	30%	MS	4	35%	SD	2	72%
DE	3	54%	MO	3	51%	TN	3	61%
DC	4	55%	MT	3	60%	TX	4	51%
FL*	4	51%	NE	5	47%	UT	3	55%
GA	3	58%	NV	4	52%	VT	2	66%
HI	4	54%	NH	3	52%	VA	4	44%
ID	4	54%	NJ	3	57%	WA*	3	56%
IL	3	50%	NM	3	50%	WV	2	54%
IN	3	50%	NY	3	58%	WI	3	61%
IA	2	53%	NC	4	42%	WY	2	66%
KS	3	55%	ND	2	54%			
KY	4	48%	OH	3	50%			

Note: Asterisk (*) denotes non-SERFF states.

B. Share of U.S. Population Covered by Included Malpractice Filings, by Specialty and Service Risk Group

To understand the completeness of specialty/service risk groups included in malpractice filings, we developed a measure of the share of the U.S. population included in a filing, defined as the product of the covered population as a share of the U.S. total and the company's market share. This measure is reported below at two different stages of data development: (1) the raw filings we collected; and (2) final premium values. As described in the report, some specialty/service risk groups were subject to imputation, so their final population share reflects both raw filing data and additional data imputed from a related specialty.

TABLE 7.B: Share of U.S. Population Covered by Included Malpractice Filings Underlying Updated Risk Index and MP GPCIs, by Specialty and Service Risk Group

CMS SPECIALTY	SERVICE RISK GROUP	% U.S. POP - RAW FILINGS	% U.S. POP - FINAL
01-General practice	NO SURG	37%	42%
01-General practice	OB	32%	39%
01-General practice	SURG	38%	43%
02-General surgery	ALL	45%	45%
03-Allergy/immunology	ALL	45%	45%
04-Otolaryngology	NO SURG	36%	36%
04-Otolaryngology	SURG	45%	45%
05-Anesthesiology	ALL	45%	45%
06-Cardiology	NO SURG	42%	42%
06-Cardiology	SURG	44%	44%
07-Dermatology	NO SURG	42%	42%
07-Dermatology	SURG	44%	44%
08-Family practice	NO SURG	40%	42%
08-Family practice	OB	34%	39%
08-Family practice	SURG	41%	43%
09-Interventional pain management	ALL	17%	38%

CMS SPECIALTY	SERVICE RISK GROUP	% U.S. POP - RAW FILINGS	% U.S. POP - FINAL
10-Gastroenterology	NO SURG	41%	41%
10-Gastroenterology	SURG	45%	45%
11-Internal medicine	ALL	45%	45%
12-Osteopathic manipulative medicine	ALL	1%	45%
13-Neurology	NO SURG	42%	42%
13-Neurology	SURG	45%	45%
14-Neurosurgery	ALL	45%	45%
15-Speech language pathology	ALL	18%	20%
16-Obstetrics/gynecology	NO SURG	31%	31%
16-Obstetrics/gynecology	OB	45%	45%
16-Obstetrics/gynecology	SURG	45%	45%
17-Hospice and palliative care	ALL	6%	45%
18-Ophthalmology	NO SURG	45%	45%
18-Ophthalmology	SURG	45%	45%
19-Oral surgery (dental only)	ALL	19%	28%
20-Orthopedic surgery	ALL	45%	45%
21-Cardiac electrophysiology	NO SURG	0%	42%
21-Cardiac electrophysiology	SURG	0%	44%
22-Pathology	ALL	45%	45%
23-Sports medicine	ALL	6%	42%
24-Plastic and reconstructive surgery	ALL	45%	45%
25-Physical medicine and rehabilitation	ALL	45%	45%
26-Psychiatry	ALL	45%	45%
27-Geriatric psychiatry	ALL	0%	45%
28-Colorectal surgery	ALL	45%	45%

CMS SPECIALTY	SERVICE RISK GROUP	% U.S. POP - RAW FILINGS	% U.S. POP - FINAL
29-Pulmonary disease	ALL	44%	44%
30-Diagnostic radiology	ALL	45%	45%
31-Intensive cardiac rehab	ALL	0%	42%
32-Anesthesiologist assistant	ALL	15%	37%
33-Thoracic surgery	ALL	42%	42%
34-Urology	NO SURG	20%	20%
34-Urology	SURG	45%	45%
35-Chiropractic	ALL	27%	27%
36-Nuclear medicine	ALL	39%	39%
37-Pediatric medicine	ALL	45%	45%
38-Geriatric medicine	NO SURG	30%	42%
38-Geriatric medicine	SURG	28%	42%
39-Nephrology	NO SURG	35%	35%
39-Nephrology	SURG	39%	39%
40-Hand surgery	ALL	42%	42%
41-Optometry	ALL	29%	29%
42-Certified nurse midwife	ALL	32%	32%
43-Certified registered nurse anesthetist (CRNA)	ALL	37%	37%
44-Infectious disease	ALL	38%	38%
45-Mammography screening center	ALL	0%	21%
46-Endocrinology	NO SURG	36%	36%
46-Endocrinology	SURG	35%	35%
47-Independent diagnostic testing facility	ALL	21%	21%
48-Podiatry	NO SURG	37%	37%
48-Podiatry	SURG	40%	40%

CMS SPECIALTY	SERVICE RISK GROUP	% U.S. POP - RAW FILINGS	% U.S. POP - FINAL
62-Psychologist	ALL	27%	27%
63-Portable x-ray supplier	ALL	20%	22%
64-Audiologist	ALL	20%	20%
65-Physical therapist	ALL	23%	25%
66-Rheumatology	ALL	41%	41%
67-Occupational therapist	ALL	22%	25%
68-Clinical psychologist	ALL	9%	27%
69-Clinical laboratory	ALL	21%	21%
70-Multispecialty clinic or group practice	ALL	0%	30%
71-Registered dietitian/nutrition professional	ALL	31%	31%
72-Pain management	ALL	35%	45%
75-Slide preparation facilities	ALL	0%	21%
76-Peripheral vascular disease	ALL	2%	39%
77-Vascular surgery	ALL	38%	38%
78-Cardiac surgery	ALL	43%	44%
79-Addiction medicine	ALL	7%	45%
80-Licensed clinical social worker	ALL	23%	23%
81-Critical care (intensivists)	ALL	31%	31%
82-Hematology	ALL	30%	42%
83-Hematology/oncology	ALL	22%	42%
84-Preventive medicine	ALL	34%	45%
85-Maxillofacial surgery	ALL	21%	28%
86-Neuropsychiatry	ALL	0%	45%
90-Medical oncology	ALL	24%	38%
91-Surgical oncology	ALL	8%	45%

CMS SPECIALTY	SERVICE RISK GROUP	% U.S. POP - RAW FILINGS	% U.S. POP - FINAL
92-Radiation oncology	ALL	22%	22%
93-Emergency medicine	NO SURG	39%	39%
93-Emergency medicine	SURG	44%	44%
94-Interventional radiology	ALL	25%	25%
98-Gynecologist/oncologist	ALL	0%	45%
99-Unknown physician specialty	NO SURG	30%	30%
99-Unknown physician specialty	SURG	36%	36%
C0-Sleep medicine	ALL	8%	42%
C3-Interventional cardiology	ALL	2%	44%
C6-Hospitalist	ALL	38%	45%
C7-Advanced heart failure and transplant cardiology	ALL	0%	42%
C8-Medical toxicology	ALL	0%	39%
C9-Hematopoietic cell transplantation and cellular therapy	ALL	0%	22%

C. Malpractice Premiums and Risk Index by Specialty and Service Risk group, Current and 2023

The final normalized national premium and PLI risk index by CMS specialty and service risk group are reported in Table 7.C. The TOTAL column represents the national average premium across all specialties and service risk groups, weighted by total PE and Work RVUs. Changes in the number and type of categories within a specialty are evident by either the absence of a value in the current risk index and premium columns, indicating that there is not a comparable value available for our new service risk groups, or by groups labelled “ALL*”, indicating that a single specialty-specific value is being repeated to align with multiple groups in the specialty for comparison purposes.

TABLE 7.C: National PLI Premiums and Malpractice Risk Index, by CMS Specialty and Service Risk Group, Current and 2023

CMS SPECIALTY	2023 SERVICE RISK GROUP	2023 RISK INDEX	2023 NATIONAL PREMIUM	CURRENT SERVICE RISK GROUP	CURRENT RISK INDEX	CURRENT NATIONAL PREMIUM
TOTAL		1.000	\$ 21,647		1.000	\$ 21,447
01-General practice	NO SURG	0.704	\$ 15,240	NO SURG	0.674	\$ 14,451
01-General practice	OB	1.637	\$ 35,433	OB	1.534	\$ 32,906
01-General practice	SURG	1.475	\$ 31,924	SURG	1.438	\$ 30,844
02-General surgery	ALL	2.927	\$ 63,363	ALL	2.845	\$ 61,015
03-Allergy/immunology	ALL	0.430	\$ 9,318	ALL	0.414	\$ 8,874
04-Otolaryngology	NO SURG	0.682	\$ 14,762	NO SURG	0.679	\$ 14,570
04-Otolaryngology	SURG	1.659	\$ 35,922	SURG	1.600	\$ 34,312
05-Anesthesiology	ALL	0.933	\$ 20,203	ALL	0.912	\$ 19,558
06-Cardiology	NO SURG	0.777	\$ 16,826	NO SURG	0.784	\$ 16,813
06-Cardiology	SURG	2.628	\$ 56,888	SURG	2.635	\$ 56,507
07-Dermatology	NO SURG	0.491	\$ 10,632	NO SURG	0.451	\$ 9,670
07-Dermatology	SURG	1.192	\$ 25,799	SURG	1.087	\$ 23,307
08-Family practice	NO SURG	0.715	\$ 15,469	NO SURG	0.674	\$ 14,445
08-Family practice	OB	1.636	\$ 35,409	OB	1.531	\$ 32,835

CMS SPECIALTY	2023 SERVICE RISK GROUP	2023 RISK INDEX	2023 NATIONAL PREMIUM	CURRENT SERVICE RISK GROUP	CURRENT RISK INDEX	CURRENT NATIONAL PREMIUM
08-Family practice	SURG	1.534	\$ 33,209	SURG	1.496	\$ 32,088
09-Interventional pain management	ALL	1.202	\$ 26,013	ALL	1.240	\$ 26,587
10-Gastroenterology	NO SURG	0.786	\$ 17,018	NO SURG	0.751	\$ 16,099
10-Gastroenterology	SURG	1.353	\$ 29,293	SURG	1.246	\$ 26,720
11-Internal medicine	ALL	0.757	\$ 16,387	ALL	0.738	\$ 15,819
12-Osteopathic manipulative medicine	ALL	0.434	\$ 9,388	ALL	0.414	\$ 8,874
13-Neurology	NO SURG	0.936	\$ 20,272	NO SURG	0.929	\$ 19,928
13-Neurology	SURG	4.726	\$ 102,296	SURG	4.317	\$ 92,582
14-Neurosurgery	ALL	4.726	\$ 102,296	ALL	4.317	\$ 92,582
15-Speech language pathology	ALL	0.011	\$ 230	ALL	0.414	\$ 8,874
16-Obstetrics/gynecology	NO SURG	0.669	\$ 14,485	NO SURG	0.768	\$ 16,464
16-Obstetrics/gynecology	OB	3.485	\$ 75,445	OB	3.235	\$ 69,387
16-Obstetrics/gynecology	SURG	1.925	\$ 41,677	SURG	1.843	\$ 39,528
17-Hospice and palliative care	ALL	0.747	\$ 16,167	ALL	0.414	\$ 8,874
18-Ophthalmology	NO SURG	0.493	\$ 10,678	NO SURG	0.483	\$ 10,369
18-Ophthalmology	SURG	0.894	\$ 19,358	SURG	0.868	\$ 18,620
19-Oral surgery (dental only)	ALL	1.099	\$ 23,786	ALL	0.998	\$ 21,401
20-Orthopedic surgery	ALL	2.349	\$ 50,841	ALL	2.322	\$ 49,797
21-Cardiac electrophysiology	NO SURG	0.777	\$ 16,826	NO SURG	0.784	\$ 16,813
21-Cardiac electrophysiology	SURG	2.626	\$ 56,854	SURG	2.635	\$ 56,507
22-Pathology	ALL	0.636	\$ 13,765	ALL	0.627	\$ 13,437
23-Sports medicine	ALL	0.732	\$ 15,836	ALL	0.691	\$ 14,826
24-Plastic and reconstructive surgery	ALL	2.103	\$ 45,525	ALL	2.061	\$ 44,205
25-Physical medicine and rehabilitation	ALL	0.608	\$ 13,163	ALL	0.572	\$ 12,261
26-Psychiatry	ALL	0.460	\$ 9,962	ALL	0.422	\$ 9,060
27-Geriatric psychiatry	ALL	0.460	\$ 9,962	ALL	0.422	\$ 9,060

CMS SPECIALTY	2023 SERVICE RISK GROUP	2023 RISK INDEX	2023 NATIONAL PREMIUM	CURRENT SERVICE RISK GROUP	CURRENT RISK INDEX	CURRENT NATIONAL PREMIUM
28-Colorectal surgery	ALL	1.546	\$ 33,458	ALL	1.484	\$ 31,824
29-Pulmonary disease	ALL	0.896	\$ 19,400	ALL	0.852	\$ 18,282
30-Diagnostic radiology	ALL	1.011	\$ 21,889	ALL	0.937	\$ 20,105
31-Intensive cardiac rehab	ALL	0.777	\$ 16,826	ALL	0.784	\$ 16,813
32-Anesthesiologist assistant	ALL	0.272	\$ 5,898	ALL	0.250	\$ 5,364
33-Thoracic surgery	ALL	2.809	\$ 60,804	ALL	2.670	\$ 57,260
34-Urology	NO SURG	0.817	\$ 17,684	NO SURG	0.692	\$ 14,849
34-Urology	SURG	1.388	\$ 30,041	SURG	1.341	\$ 28,767
35-Chiropractic	ALL	0.147	\$ 3,191	ALL	0.215	\$ 4,603
36-Nuclear medicine	ALL	0.570	\$ 12,348	ALL	0.511	\$ 10,966
37-Pediatric medicine	ALL	0.782	\$ 16,918	ALL	0.752	\$ 16,131
38-Geriatric medicine	NO SURG	0.656	\$ 14,208	NO SURG	0.616	\$ 13,220
38-Geriatric medicine	SURG	1.549	\$ 33,529	SURG	1.471	\$ 31,550
39-Nephrology	NO SURG	0.684	\$ 14,812	NO SURG	0.692	\$ 14,833
39-Nephrology	SURG	1.162	\$ 25,153	SURG	1.203	\$ 25,794
40-Hand surgery	ALL	1.959	\$ 42,397	ALL	1.841	\$ 39,481
41-Optometry	ALL	0.046	\$ 1,006	ALL	0.072	\$ 1,539
42-Certified nurse midwife	ALL	0.914	\$ 19,782	ALL	0.851	\$ 18,256
43-Certified registered nurse anesthetist (CRNA)	ALL	0.276	\$ 5,968	ALL	0.283	\$ 6,061
44-Infectious disease	ALL	0.870	\$ 18,823	ALL	0.873	\$ 18,713
45-Mammography screening center	ALL	0.018	\$ 379	ALL	0.414	\$ 8,874
46-Endocrinology	NO SURG	0.661	\$ 14,312	NO SURG	0.660	\$ 14,148
46-Endocrinology	SURG	1.285	\$ 27,818	SURG	1.354	\$ 29,030
47-Independent diagnostic testing facility	ALL	0.018	\$ 379	ALL	0.414	\$ 8,874
48-Podiatry	NO SURG	0.495	\$ 10,717	NO SURG	0.525	\$ 11,253
48-Podiatry	SURG	0.902	\$ 19,531	SURG	0.902	\$ 19,346

CMS SPECIALTY	2023 SERVICE RISK GROUP	2023 RISK INDEX	2023 NATIONAL PREMIUM	CURRENT SERVICE RISK GROUP	CURRENT RISK INDEX	CURRENT NATIONAL PREMIUM
62-Psychologist	ALL	0.066	\$ 1,436	ALL	0.414	\$ 8,874
63-Portable x-ray supplier	ALL	0.015	\$ 326	ALL	0.414	\$ 8,874
64-Audiologist	ALL	0.013	\$ 282	ALL	0.414	\$ 8,874
65-Physical therapist	ALL	0.034	\$ 739	ALL	0.414	\$ 8,874
66-Rheumatology	ALL	0.667	\$ 14,435	ALL	0.676	\$ 14,499
67-Occupational therapist	ALL	0.018	\$ 395	ALL	0.414	\$ 8,874
68-Clinical psychologist	ALL	0.068	\$ 1,466	ALL	0.414	\$ 8,874
69-Clinical laboratory	ALL	0.018	\$ 379	ALL	0.414	\$ 8,874
70-Multispecialty clinic or group practice	ALL	0.686	\$ 14,851	ALL	0.929	\$ 19,929
71-Registered dietitian/nutrition professional	ALL	0.264	\$ 5,720	ALL	0.414	\$ 8,874
72-Pain management	ALL	1.008	\$ 21,812	ALL	1.228	\$ 26,342
75-Slide preparation facilities	ALL	0.018	\$ 379	ALL	0.414	\$ 8,874
76-Peripheral vascular disease	ALL	2.831	\$ 61,289	ALL	2.812	\$ 60,318
77-Vascular surgery	ALL	2.830	\$ 61,259	ALL	2.812	\$ 60,318
78-Cardiac surgery	ALL	2.628	\$ 56,888	ALL	2.635	\$ 56,507
79-Addiction medicine	ALL	0.449	\$ 9,723	ALL	0.414	\$ 8,874
80-Licensed clinical social worker	ALL	0.023	\$ 500	ALL	0.414	\$ 8,874
81-Critical care (intensivists)	ALL	1.126	\$ 24,385	ALL	0.943	\$ 20,215
82-Hematology	ALL	0.725	\$ 15,687	ALL	0.740	\$ 15,870
83-Hematology/oncology	ALL	0.743	\$ 16,073	ALL	0.765	\$ 16,398
84-Preventive medicine	ALL	0.580	\$ 12,554	ALL	0.571	\$ 12,237
85-Maxillofacial surgery	ALL	1.170	\$ 25,328	ALL	1.083	\$ 23,228
86-Neuropsychiatry	ALL	0.460	\$ 9,962	ALL	0.422	\$ 9,060
90-Medical oncology	ALL	0.737	\$ 15,958	ALL	0.770	\$ 16,506
91-Surgical oncology	ALL	2.777	\$ 60,118	ALL	2.711	\$ 58,146
92-Radiation oncology	ALL	0.907	\$ 19,626	ALL	0.840	\$ 18,007

CMS SPECIALTY	2023 SERVICE RISK GROUP	2023 RISK INDEX	2023 NATIONAL PREMIUM	CURRENT SERVICE RISK GROUP	CURRENT RISK INDEX	CURRENT NATIONAL PREMIUM
93-Emergency medicine	NO SURG	1.252	\$ 27,102	NO SURG	1.240	\$ 26,592
93-Emergency medicine	SURG	2.446	\$ 52,942	SURG	2.384	\$ 51,137
94-Interventional radiology	ALL	1.407	\$ 30,457	ALL	1.144	\$ 24,532
98-Gynecologist/oncologist	ALL	2.777	\$ 60,118	ALL	1.843	\$ 39,528
99-Unknown physician specialty	NO SURG	0.686	\$ 14,851	ALL*	0.929	\$ 19,929
99-Unknown physician specialty	SURG	1.166	\$ 25,246	ALL*	0.929	\$ 19,929
C0-Sleep medicine	ALL	0.889	\$ 19,249	ALL	0.668	\$ 14,326
C3-Interventional cardiology	ALL	2.589	\$ 56,042	ALL	2.570	\$ 55,119
C6-Hospitalist	ALL	0.841	\$ 18,197	ALL	0.883	\$ 18,932
C7-Advanced heart failure and transplant cardiology	ALL	0.777	\$ 16,826	ALL	2.635	\$ 56,507
C8-Medical toxicology	ALL	1.252	\$ 27,102	ALL	-	-
C9-Hematopoietic cell transplantation and cellular therapy	ALL	0.780	\$ 16,876	ALL	-	-

D. GPCIs, GAFs, and Related Data

TABLE 7.D.1: CY 2023 GPCIs and GAF Based on Updated Data and Change from CY 2022, by Payment Locality

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
AL	00	ALABAMA	1.000	0.878	0.748	0.934	0.00%	-1.07%	-18.77%	-1.30%
AK	01	ALASKA	1.500	1.100	0.603	1.280	0.00%	-1.66%	-1.76%	-0.83%
AZ	00	ARIZONA	1.000	0.963	0.855	0.977	0.00%	1.27%	-0.20%	0.54%
AR	13	ARKANSAS	1.000	0.853	0.492	0.912	0.00%	0.76%	5.62%	0.39%
CA	05	SAN FRANCISCO-OAKLAND-BERKELEY (SAN FRANCISCO CNTY)	1.082	1.374	0.452	1.189	0.51%	3.39%	-1.43%	2.21%
CA	06	SAN FRANCISCO-OAKLAND-BERKELEY (SAN MATEO CNTY)	1.082	1.374	0.452	1.189	0.51%	3.39%	-1.43%	2.21%
CA	07	SAN FRANCISCO-OAKLAND-BERKELEY (ALAMEDA/CONTRA COSTA CNTY)	1.082	1.374	0.452	1.189	0.51%	3.39%	-1.43%	2.21%
CA	09	SAN JOSE-SUNNYVALE-SANTA CLARA (SANTA CLARA CNTY)	1.098	1.409	0.417	1.211	0.19%	1.87%	0.76%	1.34%
CA	17	OXNARD-THOUSAND OAKS-VENTURA	1.027	1.181	0.689	1.083	-0.07%	0.17%	-5.15%	0.05%
CA	18	LOS ANGELES-LONG BEACH-ANAHEIM (LOS ANGELES CNTY)	1.045	1.185	0.724	1.095	-0.28%	0.83%	-4.38%	0.27%

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
CA	26	LOS ANGELES-LONG BEACH-ANAHEIM (ORANGE CNTY)	1.045	1.185	0.724	1.095	-0.28%	0.83%	-4.38%	0.27%
CA	51	NAPA	1.051	1.265	0.513	1.126	0.68%	3.67%	1.71%	2.40%
CA	52	SAN FRANCISCO-OAKLAND-BERKELEY (MARIN CNTY)	1.082	1.374	0.487	1.190	0.51%	3.39%	-3.33%	2.17%
CA	53	VALLEJO	1.051	1.265	0.487	1.125	0.68%	3.67%	-3.33%	2.30%
CA	54	BAKERSFIELD	1.027	1.079	0.694	1.037	-0.92%	1.31%	-4.38%	0.08%
CA	55	CHICO	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	56	FRESNO	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	57	HANFORD-CORCORAN	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	58	MADERA	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	59	MERCED	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	60	MODESTO	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	61	REDDING	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	62	RIVERSIDE-SAN BERNARDINO-ONTARIO	1.021	1.079	0.924	1.044	-0.62%	1.31%	-3.31%	0.21%
CA	63	SACRAMENTO-ROSEVILLE-FOLSOM	1.036	1.119	0.579	1.055	-0.17%	3.47%	-3.08%	1.57%
CA	64	SALINAS	1.050	1.149	0.579	1.075	-1.37%	1.39%	-3.08%	0.02%
CA	65	SAN JOSE-SUNNYVALE-SANTA CLARA (SAN BENITO CNTY)	1.098	1.409	0.579	1.218	0.19%	1.87%	-3.08%	1.24%

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
CA	66	SANTA CRUZ-WATSONVILLE	1.031	1.207	0.579	1.092	-1.36%	0.18%	-3.08%	-0.47%
CA	67	SANTA ROSA-PETALUMA	1.036	1.205	0.579	1.094	-0.84%	2.31%	-3.08%	0.81%
CA	68	STOCKTON	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	69	VISALIA	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	70	YUBA CITY	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CA	71	EL CENTRO	1.021	1.079	0.595	1.030	-0.64%	1.31%	-4.02%	0.27%
CA	72	SAN DIEGO-CHULA VISTA-CARLSBAD	1.032	1.176	0.596	1.079	-0.43%	1.31%	-3.84%	0.48%
CA	73	SAN LUIS OBISPO-PASO ROBLES	1.021	1.111	0.579	1.043	-0.64%	1.96%	-3.08%	0.64%
CA	74	SANTA MARIA-SANTA BARBARA	1.031	1.175	0.579	1.078	-0.91%	-0.01%	-3.08%	-0.37%
CA	75	REST OF CALIFORNIA	1.021	1.079	0.579	1.029	-0.64%	1.31%	-3.08%	0.30%
CO	01	COLORADO	1.005	1.050	0.797	1.017	0.39%	0.27%	3.92%	0.51%
CT	00	CONNECTICUT	1.030	1.102	1.070	1.065	-0.70%	-1.00%	14.64%	-0.22%
DE	01	DELAWARE	1.007	1.007	0.938	1.004	0.21%	-1.46%	1.17%	-0.50%
DC	01	DC + MD/VA SUBURBS	1.056	1.214	1.231	1.135	0.17%	-1.80%	-4.85%	-0.94%
FL	03	FORT LAUDERDALE	1.000	0.999	1.815	1.034	0.00%	-0.16%	-2.41%	-0.35%
FL	04	MIAMI	1.000	1.025	2.564	1.076	0.00%	0.19%	-2.46%	-0.34%
FL	99	REST OF FLORIDA	1.000	0.940	1.451	0.991	0.00%	0.06%	1.13%	-0.01%
GA	01	ATLANTA	1.000	0.998	1.016	1.000	0.00%	-0.06%	12.36%	0.45%
GA	99	REST OF GEORGIA	1.000	0.881	1.015	0.946	0.00%	0.25%	12.21%	0.51%
HI	01	HAWAII	1.003	1.146	0.618	1.052	-0.73%	0.27%	-8.45%	-0.31%
ID	00	IDAHO	1.000	0.893	0.439	0.928	0.00%	1.75%	5.37%	0.84%

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
IL	12	EAST ST. LOUIS	1.000	0.930	1.723	0.998	0.00%	-1.25%	3.70%	-0.41%
IL	15	SUBURBAN CHICAGO	1.007	1.055	1.530	1.050	0.05%	-0.67%	1.71%	-0.20%
IL	16	CHICAGO	1.009	1.033	1.945	1.059	-0.19%	-1.00%	3.93%	-0.33%
IL	99	REST OF ILLINOIS	1.000	0.912	1.282	0.972	0.00%	0.00%	8.42%	0.34%
IN	00	INDIANA	1.000	0.911	0.475	0.938	0.00%	1.23%	2.15%	0.58%
IA	00	IOWA	1.000	0.910	0.441	0.936	0.00%	0.29%	3.75%	0.20%
KS	00	KANSAS	1.000	0.907	0.499	0.937	0.00%	-0.11%	9.03%	0.14%
KY	00	KENTUCKY	1.000	0.873	0.870	0.937	0.00%	0.48%	5.18%	0.31%
LA	01	NEW ORLEANS	1.000	0.931	1.342	0.983	0.00%	0.44%	-12.15%	-0.72%
LA	99	REST OF LOUISIANA	1.000	0.876	1.144	0.950	0.00%	0.52%	-12.43%	-0.63%
ME	03	SOUTHERN MAINE	1.000	1.005	0.654	0.988	0.00%	0.77%	0.30%	0.41%
ME	99	REST OF MAINE	1.000	0.905	0.651	0.942	0.00%	0.84%	-0.15%	0.33%
MD	01	BALTIMORE/SURR. CNTYS	1.024	1.087	1.311	1.065	-0.40%	-0.84%	-0.12%	-0.58%
MD	99	REST OF MARYLAND	1.011	1.027	1.022	1.019	0.04%	-1.05%	-4.57%	-0.65%
MA	01	METROPOLITAN BOSTON	1.045	1.200	0.868	1.109	-0.37%	-0.22%	3.08%	-0.06%
MA	99	REST OF MASSACHUSETTS	1.022	1.061	0.819	1.031	-0.41%	0.01%	-2.78%	-0.25%
MI	01	DETROIT	1.000	0.992	1.670	1.024	0.00%	-0.53%	2.96%	-0.12%
MI	99	REST OF MICHIGAN	1.000	0.911	1.076	0.963	0.00%	-0.02%	9.91%	0.35%
MN	00	MINNESOTA	1.000	1.019	0.326	0.980	0.00%	0.60%	-7.45%	0.27%
MS	00	MISSISSIPPI	1.000	0.847	0.720	0.919	0.00%	0.60%	7.18%	0.39%
MO	01	METROPOLITAN ST. LOUIS	1.000	0.964	0.941	0.981	0.00%	-1.25%	5.89%	-0.35%

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
MO	02	METROPOLITAN KANSAS CITY	1.000	0.952	0.941	0.975	0.00%	-0.35%	5.69%	0.04%
MO	99	REST OF MISSOURI	1.000	0.855	0.901	0.930	0.00%	0.42%	8.84%	0.41%
MT	01	MONTANA	1.000	1.000	0.978	0.999	0.00%	0.00%	0.01%	0.00%
NE	00	NEBRASKA	1.000	0.913	0.269	0.930	0.00%	0.52%	14.59%	0.41%
NV	00	NEVADA	1.000	1.000	1.098	1.004	-0.54%	0.00%	-18.76%	-1.36%
NH	40	NEW HAMPSHIRE	1.000	1.036	0.907	1.013	0.00%	-0.22%	-1.07%	-0.10%
NJ	01	NORTHERN NJ	1.056	1.186	0.996	1.113	0.69%	-1.12%	3.83%	0.03%
NJ	99	REST OF NEW JERSEY	1.039	1.124	1.014	1.077	0.24%	-1.50%	5.72%	-0.31%
NM	05	NEW MEXICO	1.000	0.902	1.169	0.962	0.00%	0.71%	0.24%	0.21%
NY	01	MANHATTAN	1.061	1.184	1.843	1.150	0.45%	-1.57%	-9.24%	-1.22%
NY	02	NYC SUBURBS/LONG ISLAND	1.056	1.212	2.307	1.179	0.92%	-0.92%	-14.63%	-1.46%
NY	03	POUGHKPSIE/N NYC SUBURBS	1.036	1.105	1.458	1.085	0.91%	0.04%	-11.43%	-0.29%
NY	04	QUEENS	1.061	1.212	2.061	1.171	0.45%	-1.38%	-22.52%	-2.58%
NY	99	REST OF NEW YORK	1.000	0.952	0.742	0.967	0.00%	-0.28%	-1.32%	-0.17%
NC	00	NORTH CAROLINA	1.000	0.927	0.742	0.956	0.00%	-0.14%	-9.38%	-0.43%
ND	01	NORTH DAKOTA	1.000	1.000	0.474	0.978	0.00%	0.00%	10.03%	0.26%
OH	00	OHIO	1.000	0.912	1.063	0.962	0.00%	-0.12%	-2.79%	-0.26%
OK	00	OKLAHOMA	1.000	0.886	0.798	0.940	0.00%	0.52%	1.97%	0.23%
OR	01	PORTLAND	1.018	1.083	0.612	1.031	-0.43%	1.89%	14.36%	1.08%
OR	99	REST OF OREGON	1.000	0.966	0.589	0.968	0.00%	2.05%	10.12%	1.18%
PA	01	METROPOLITAN PHILADELPHIA	1.023	1.068	1.188	1.050	0.09%	-1.39%	-0.91%	-0.63%

STATE	LOC. CODE	STATE/LOCALITY NAME	WORK GPCI	PE GPCI	MP GPCI	GAF	% CHANGE - WORK GPCI	% CHANGE - PE GPCI	% CHANGE - MP GPCI	% CHANGE GEOGRAPHIC ADJUSTED - TOTAL RVUS
PA	99	REST OF PENNSYLVANIA	1.000	0.933	0.906	0.965	0.00%	-0.63%	2.10%	-0.23%
RI	01	RHODE ISLAND	1.023	1.044	0.915	1.028	0.22%	-0.42%	-6.75%	-0.33%
SC	01	SOUTH CAROLINA	1.000	0.908	0.756	0.948	0.00%	0.57%	8.81%	0.48%
SD	02	SOUTH DAKOTA	1.000	1.000	0.364	0.973	0.00%	0.00%	5.00%	0.16%
TN	35	TENNESSEE	1.000	0.894	0.518	0.932	0.00%	0.19%	5.35%	0.18%
TX	09	BRAZORIA	1.023	1.014	0.673	1.004	-0.84%	-0.82%	22.17%	-0.26%
TX	11	DALLAS	1.017	1.017	0.711	1.004	-0.59%	-0.93%	30.35%	0.02%
TX	15	GALVESTON	1.023	1.013	0.703	1.005	-0.84%	-1.27%	27.69%	-0.34%
TX	18	HOUSTON	1.023	1.016	1.154	1.025	-0.84%	-1.24%	28.22%	0.05%
TX	20	BEAUMONT	1.000	0.924	0.749	0.955	0.00%	-2.14%	36.06%	-0.08%
TX	28	FORT WORTH	1.013	0.996	0.721	0.993	-0.22%	0.12%	33.60%	0.76%
TX	31	AUSTIN	1.000	1.053	0.727	1.013	-0.04%	-0.62%	34.70%	0.56%
TX	99	REST OF TEXAS	1.000	0.950	0.759	0.967	0.00%	-0.52%	29.90%	0.54%
UT	09	UTAH	1.000	0.926	0.865	0.961	0.00%	0.81%	8.16%	0.60%
VT	50	VERMONT	1.000	0.997	0.543	0.980	0.00%	-0.41%	-4.49%	-0.24%
VA	00	VIRGINIA	1.000	0.990	0.826	0.988	0.04%	-0.58%	-7.92%	-0.53%
WA	02	SEATTLE (KING CNTY)	1.039	1.207	0.815	1.106	0.36%	1.06%	4.91%	0.99%
WA	99	REST OF WASHINGTON	1.003	1.027	0.773	1.005	0.32%	1.32%	3.96%	0.94%
WV	16	WEST VIRGINIA	1.000	0.860	1.266	0.947	0.00%	0.22%	5.63%	0.25%
WI	00	WISCONSIN	1.000	0.950	0.314	0.948	0.00%	0.84%	5.78%	0.51%
WY	21	WYOMING	1.000	1.000	0.790	0.991	0.00%	0.00%	-6.02%	-0.19%
PR	20	PUERTO RICO	1.000	1.000	1.000	1.000	0.00%	0.00%	0.00%	0.00%
VI	50	VIRGIN ISLANDS	1.000	1.000	1.000	1.000	0.00%	0.00%	0.00%	0.00%

TABLE 7.D.2: Components of Updated 2023 PE GPCI, by Payment Locality

STATE	LOCALITY CODE	STATE/LOCALITY NAME	INDEX - EMPLOYEE WAGES	INDEX - OFFICE RENTS	INDEX - PURCHASED SERVICES
AL	00	ALABAMA	0.847	0.694	0.939
AK	01	ALASKA	1.124	1.084	1.048
AZ	00	ARIZONA	0.987	0.902	0.976
AR	13	ARKANSAS	0.854	0.671	0.904
CA	05	SAN FRANCISCO-OAKLAND-BERKELEY (SAN FRANCISCO CNTY)	1.478	1.959	1.191
CA	06	SAN FRANCISCO-OAKLAND-BERKELEY (SAN MATEO CNTY)	1.478	2.260	1.191
CA	07	SAN FRANCISCO-OAKLAND-BERKELEY (ALAMEDA/CONTRA COSTA CNTY)	1.478	1.618	1.191
CA	09	SAN JOSE-SUNNYVALE-SANTA CLARA (SANTA CLARA CNTY)	1.400	2.070	1.203
CA	17	OXNARD-THOUSAND OAKS-VENTURA	1.138	1.506	1.048
CA	18	LOS ANGELES-LONG BEACH-ANAHEIM (LOS ANGELES CNTY)	1.171	1.423	1.068
CA	26	LOS ANGELES-LONG BEACH-ANAHEIM (ORANGE CNTY)	1.171	1.657	1.068
CA	51	NAPA	1.213	1.525	1.086
CA	52	SAN FRANCISCO-OAKLAND-BERKELEY (MARIN CNTY)	1.478	1.969	1.191
CA	53	VALLEJO	1.420	1.269	1.071
CA	54	BAKERSFIELD	1.064	0.800	1.022
CA	55	CHICO	1.039	0.913	0.969
CA	56	FRESNO	1.072	0.847	0.984
CA	57	HANFORD-CORCORAN	1.056	0.781	1.011
CA	58	MADERA	1.031	0.812	0.998

STATE	LOCALITY CODE	STATE/LOCALITY NAME	INDEX - EMPLOYEE WAGES	INDEX - OFFICE RENTS	INDEX - PURCHASED SERVICES
CA	59	MERCED	1.034	0.773	1.014
CA	60	MODESTO	1.115	0.937	1.002
CA	61	REDDING	1.104	0.860	0.979
CA	62	RIVERSIDE-SAN BERNARDINO-ONTARIO	1.108	1.095	1.018
CA	63	SACRAMENTO-ROSEVILLE-FOLSOM	1.290	1.131	1.064
CA	64	SALINAS	1.230	1.275	1.050
CA	65	SAN JOSE-SUNNYVALE-SANTA CLARA (SAN BENITO CNTY)	1.400	1.168	1.203
CA	66	SANTA CRUZ-WATSONVILLE	1.137	1.615	1.055
CA	67	SANTA ROSA-PETALUMA	1.283	1.467	1.069
CA	68	STOCKTON	1.147	0.960	1.019
CA	69	VISALIA	1.007	0.760	0.985
CA	70	YUBA CITY	1.043	0.816	0.996
CA	71	EL CENTRO	0.999	0.698	0.988
CA	72	SAN DIEGO-CHULA VISTA-CARLSBAD	1.164	1.492	1.055
CA	73	SAN LUIS OBISPO-PASO ROBLES	1.113	1.330	1.039
CA	74	SANTA MARIA-SANTA BARBARA	1.148	1.470	1.028
CA	75	REST OF CALIFORNIA	1.072	0.914	0.981
CO	01	COLORADO	1.029	1.124	1.036
CT	00	CONNECTICUT	1.103	1.156	1.057
DE	01	DELAWARE	0.981	0.957	1.013
DC	01	DC + MD/VA SUBURBS	1.115	1.523	1.119
FL	03	FORT LAUDERDALE	0.929	1.111	0.952
FL	04	MIAMI	0.929	1.233	0.959
FL	99	REST OF FLORIDA	0.901	0.922	0.934
GA	01	ATLANTA	0.971	1.017	0.985
GA	99	REST OF GEORGIA	0.879	0.712	0.928

STATE	LOCALITY CODE	STATE/LOCALITY NAME	INDEX - EMPLOYEE WAGES	INDEX - OFFICE RENTS	INDEX - PURCHASED SERVICES
HI	01	HAWAII	1.118	1.410	1.022
ID	00	IDAHO	0.933	0.726	0.939
IL	12	EAST ST. LOUIS	0.935	0.730	0.987
IL	15	SUBURBAN CHICAGO	1.021	1.116	1.034
IL	16	CHICAGO	1.021	1.007	1.034
IL	99	REST OF ILLINOIS	0.930	0.729	0.965
IN	00	INDIANA	0.939	0.757	0.965
IA	00	IOWA	0.929	0.731	0.966
KS	00	KANSAS	0.891	0.782	0.944
KY	00	KENTUCKY	0.874	0.698	0.924
LA	01	NEW ORLEANS	0.898	0.899	0.940
LA	99	REST OF LOUISIANA	0.866	0.730	0.921
ME	03	SOUTHERN MAINE	0.988	1.058	0.981
ME	99	REST OF MAINE	0.939	0.732	0.946
MD	01	BALTIMORE/SURR. CNTYS	1.046	1.205	1.036
MD	99	REST OF MARYLAND	1.008	1.006	1.024
MA	01	METROPOLITAN BOSTON	1.153	1.502	1.100
MA	99	REST OF MASSACHUSETTS	1.098	1.036	1.051
MI	01	DETROIT	0.994	0.915	1.006
MI	99	REST OF MICHIGAN	0.934	0.721	0.959
MN	00	MINNESOTA	1.076	0.936	1.024
MS	00	MISSISSIPPI	0.831	0.686	0.891
MO	01	METROPOLITAN ST. LOUIS	0.940	0.864	0.991
MO	02	METROPOLITAN KANSAS CITY	0.958	0.816	0.994
MO	99	REST OF MISSOURI	0.856	0.649	0.922
MT	01	MONTANA	0.931	0.764	0.954
NE	00	NEBRASKA	0.930	0.760	0.951

STATE	LOCALITY CODE	STATE/LOCALITY NAME	INDEX - EMPLOYEE WAGES	INDEX - OFFICE RENTS	INDEX - PURCHASED SERVICES
NV	00	NEVADA	1.026	0.920	0.981
NH	40	NEW HAMPSHIRE	1.026	1.062	1.015
NJ	01	NORTHERN NJ	1.158	1.362	1.128
NJ	99	REST OF NEW JERSEY	1.095	1.213	1.084
NM	05	NEW MEXICO	0.932	0.732	0.935
NY	01	MANHATTAN	1.163	1.323	1.131
NY	02	NYC SUBURBS/LONG ISLAND	1.163	1.474	1.131
NY	03	POUGHKPSIE/N NYC SUBURBS	1.120	1.158	1.098
NY	04	QUEENS	1.163	1.450	1.131
NY	99	REST OF NEW YORK	0.969	0.806	0.991
NC	00	NORTH CAROLINA	0.931	0.787	0.965
ND	01	NORTH DAKOTA	0.978	0.747	0.993
OH	00	OHIO	0.928	0.723	0.967
OK	00	OKLAHOMA	0.887	0.728	0.934
OR	01	PORTLAND	1.149	1.146	1.041
OR	99	REST OF OREGON	1.051	0.852	0.967
PA	01	METROPOLITAN PHILADELPHIA	1.033	1.106	1.052
PA	99	REST OF PENNSYLVANIA	0.926	0.795	0.971
RI	01	RHODE ISLAND	1.084	0.967	1.048
SC	01	SOUTH CAROLINA	0.898	0.806	0.938
SD	02	SOUTH DAKOTA	0.895	0.715	0.959
TN	35	TENNESSEE	0.874	0.773	0.932
TX	09	BRAZORIA	1.007	0.982	1.002
TX	11	DALLAS	0.988	1.009	1.013
TX	15	GALVESTON	1.007	0.957	1.002
TX	18	HOUSTON	1.007	0.971	1.002
TX	20	BEAUMONT	0.879	0.776	0.959

STATE	LOCALITY CODE	STATE/LOCALITY NAME	INDEX - EMPLOYEE WAGES	INDEX - OFFICE RENTS	INDEX - PURCHASED SERVICES
TX	28	FORT WORTH	0.988	0.967	1.013
TX	31	AUSTIN	0.970	1.225	0.995
TX	99	REST OF TEXAS	0.922	0.891	0.958
UT	09	UTAH	0.922	0.848	0.947
VT	50	VERMONT	0.973	1.002	0.975
VA	00	VIRGINIA	0.964	0.959	0.999
WA	02	SEATTLE (KING CNTY)	1.211	1.482	1.131
WA	99	REST OF WASHINGTON	1.102	0.942	1.049
WV	16	WEST VIRGINIA	0.856	0.660	0.923
WI	00	WISCONSIN	1.002	0.789	0.990
WY	21	WYOMING	0.956	0.746	0.978
PR	20	PUERTO RICO	1.000	1.000	1.000
VI	50	VIRGIN ISLANDS	1.000	1.000	1.000

8 Reference Tables

This section includes details data and policy constructs referenced in this report.

A. CMS Specialties and Their Impact Specialty

The regulatory impact table included in all PFS Federal Register notices groups CMS specialties (present on Medicare claims) into clusters of related specialties (IMPACT specialties) when CMS examines the potential impact of CMS payment policies on the distribution of payments by providers. The relationship of CMS specialties and Impact specialties as shown in Table 8.A was used to identify sources for imputing malpractice premium data for CMS specialties that were not included in a filing.

Table 8.A CMS Specialty Map into Impact Specialty

CMS SPECIALTY	IMPACT SPECIALTY
01-General practice	General practice
02-General surgery	General surgery
03-Allergy/immunology	Allergy/immunology
04-Otolaryngology	Otolaryngology
05-Anesthesiology	Anesthesiology
06-Cardiology	Cardiology
07-Dermatology	Dermatology
08-Family practice	Family practice
09-Interventional pain management	Interventional pain management
10-Gastroenterology	Gastroenterology
11-Internal medicine	Internal medicine
12-Osteopathic manipulative medicine	Multispecialty clinic/other physician
13-Neurology	Neurology
14-Neurosurgery	Neurosurgery
15-Speech language pathology	Physical/occupational therapy
16-Obstetrics/gynecology	Obstetrics/gynecology
17-Hospice and palliative care	Multispecialty clinic/other physician
18-Ophthalmology	Ophthalmology
19-Oral surgery (dental only)	Oral/maxillofacial surgery
20-Orthopedic surgery	Orthopedic surgery
21-Cardiac electrophysiology	Cardiology
22-Pathology	Pathology
23-Sports medicine	Family practice
24-Plastic and reconstructive surgery	Plastic surgery
25-Physical medicine and rehabilitation	Physical medicine
26-Psychiatry	Psychiatry
27-Geriatric psychiatry	Psychiatry

CMS SPECIALTY	IMPACT SPECIALTY
28-Colorectal surgery	Colon and rectal surgery
29-Pulmonary disease	Pulmonary disease
30-Diagnostic radiology	Radiology
31-Intensive cardiac rehab	Other
32-Anesthesiologist assistant	Nurse anesthetist/anesthesiologist assistant
33-Thoracic surgery	Thoracic surgery
34-Urology	Urology
35-Chiropractic	Chiropractor
36-Nuclear medicine	Nuclear medicine
37-Pediatric medicine	Pediatrics
38-Geriatric medicine	Geriatrics
39-Nephrology	Nephrology
40-Hand surgery	Hand surgery
41-Optometry	Optometry
42-Certified nurse midwife	Obstetrics/gynecology
43-Certified registered nurse anesthetist (CRNA)	Nurse anesthetist/anesthesiologist assistant
44-Infectious disease	Infectious disease
45-Mammography screening center	Diagnostic testing facility
46-Endocrinology	Endocrinology
47-Independent diagnostic testing facility	Diagnostic testing facility
48-Podiatry	Podiatry
62-Psychologist	Clinical psychologist
63-Portable x-ray supplier	Portable x-ray supplier
64-Audiologist	Audiologist
65-Physical therapist	Physical/occupational therapy
66-Rheumatology	Rheumatology
67-Occupational therapist	Physical/occupational therapy
68-Clinical psychologist	Clinical psychologist
69-Clinical laboratory	Independent laboratory
70-Multispecialty clinic or group practice	Multispecialty clinic/other physician
71-Registered dietitian/nutrition professional	Other
72-Pain management	Interventional pain management
75-Slide preparation facilities	Independent laboratory
76-Peripheral vascular disease	Vascular surgery
77-Vascular surgery	Vascular surgery
78-Cardiac surgery	Cardiac surgery
79-Addiction medicine	Other
80-Licensed clinical social worker	Clinical social worker
81-Critical care (intensivists)	Critical care
82-Hematology	Hematology/oncology

CMS SPECIALTY	IMPACT SPECIALTY
83-Hematology/oncology	Hematology/oncology
84-Preventive medicine	Internal medicine
85-Maxillofacial surgery	Oral/maxillofacial surgery
86-Neuropsychiatry	Psychiatry
90-Medical oncology	Hematology/oncology
91-Surgical oncology	General Surgery
92-Radiation oncology	Radiation oncology and radiation therapy centers
93-Emergency medicine	Emergency medicine
94-Interventional radiology	Interventional radiology
98-Gynecologist/oncologist	Obstetrics/gynecology
99-Unknown physician specialty	Multispecialty clinic/other physician
C0-Sleep medicine	General practice
C3-Interventional cardiology	Cardiology
C6-Hospitalist	Internal medicine
C7-Advanced heart failure and transplant cardiology	Cardiology
C8-Medical toxicology	Emergency medicine
C9-Hematopoietic cell transplantation and cellular therapy	Hematology/oncology

B. Distribution of Physician Work RVUs by Service Risk Group by PLI Filing Specialty

As described in Section 3.G in the report, in some cases premiums as reported on filings had to be combined or split across service risk groups to match our final set of specialty/service risk groups. That process requires a measure to weight different service groups within each PLI Filing Specialty, for which we used these physician work shares by specialty based on 2020 Medicare claims.

Table 8.B Volume-weighted Distribution of 2020 Physician Work RVUs by Service Risk Type by CMS Specialty

PLI FILING SPECIALTY	ASSOCIATED CMS SPECIALTY CODES	TOTAL WORK RVUS - ALL SERVICES	SHARE OF TOTAL WORK RVUS - OBSTETRICS	SHARE OF TOTAL WORK RVUS - SURGERY	SHARE OF TOTAL WORK RVUS - NO SURGERY
General practice	01	4,126,431	0.00%	7.85%	92.15%
General surgery	02	24,650,953	0.00%	62.28%	37.72%
Allergy/immunology	03	1,526,160	0.00%	0.58%	99.42%
Otolaryngology	04	11,090,963	0.00%	45.08%	54.93%
Anesthesiology	05	8,099,908	0.00%	49.55%	50.45%
Cardiology	06, 78	58,422,435	0.00%	16.07%	83.93%
Dermatology	07	31,335,286	0.00%	60.69%	39.31%
Family practice	08	73,855,597	0.01%	3.13%	96.86%
Interventional pain management	09	4,403,325	0.00%	49.64%	50.36%
Gastroenterology	10	22,468,376	0.00%	53.67%	46.33%
Internal medicine	11	129,157,122	0.00%	1.64%	98.36%
Osteopathic manipulative medicine	12	595,356	0.04%	11.77%	88.19%
Neurology	13, 14	28,518,813	0.00%	31.64%	68.36%
Speech language pathology	15	890,632	0.00%	0.98%	99.02%
Obstetrics/gynecology	16	5,448,642	4.25%	38.48%	57.27%
Hospice and palliative care	17	1,098,153	0.00%	0.20%	99.80%
Ophthalmology	18	51,004,446	0.00%	45.24%	54.76%
Oral surgery (dental only)	19	419,862	0.00%	73.16%	26.84%

PLI FILING SPECIALTY	ASSOCIATED CMS SPECIALTY CODES	TOTAL WORK RVUS - ALL SERVICES	SHARE OF TOTAL WORK RVUS - OBSTETRICS	SHARE OF TOTAL WORK RVUS - SURGERY	SHARE OF TOTAL WORK RVUS - NO SURGERY
Orthopedic surgery	20	42,626,937	0.00%	68.93%	31.07%
Cardiac electrophysiology	21	9,236,280	0.00%	40.97%	59.03%
Pathology	22	16,142,348	0.00%	0.51%	99.49%
Sports medicine	23	1,397,061	0.00%	44.46%	55.54%
Plastic and reconstructive surgery	24	4,200,212	0.00%	77.94%	22.07%
Physical medicine and rehabilitation	25	14,790,835	0.00%	16.09%	83.91%
Psychiatry	26	16,315,975	0.00%	0.05%	99.95%
Geriatric psychiatry	27	268,848	0.00%	0.01%	100.00%
Colorectal surgery	28	2,039,525	0.00%	72.69%	27.31%
Pulmonary disease	29	23,838,820	0.00%	3.88%	96.12%
Diagnostic radiology	30	64,598,242	0.00%	7.64%	92.36%
Intensive cardiac rehab	31	11,523	0.00%	0.00%	100.00%
Anesthesiologist assistant	32	7,416	0.00%	92.88%	7.12%
Thoracic surgery	33	4,805,575	0.00%	81.52%	18.48%
Urology	34	19,701,139	0.00%	46.06%	53.94%
Chiropractic	35	11,025,076	0.00%	0.00%	100.00%
Nuclear medicine	36	702,457	0.00%	1.64%	98.36%
Pediatric medicine	37	776,908	0.01%	6.31%	93.68%
Geriatric medicine	38	2,660,877	0.00%	0.51%	99.50%
Nephrology	39	34,569,658	0.00%	2.34%	97.67%
Hand surgery	40	2,601,725	0.00%	61.61%	38.39%
Optometry	41	12,755,420	0.00%	7.98%	92.02%
Certified nurse midwife	42	61,851	22.71%	11.79%	65.51%

PLI FILING SPECIALTY	ASSOCIATED CMS SPECIALTY CODES	TOTAL WORK RVUS - ALL SERVICES	SHARE OF TOTAL WORK RVUS - OBSTETRICS	SHARE OF TOTAL WORK RVUS - SURGERY	SHARE OF TOTAL WORK RVUS - NO SURGERY
Certified registered nurse anesthetist (CRNA)	43	319,031	0.00%	81.14%	18.86%
Infectious disease	44	11,317,770	0.00%	0.49%	99.51%
Mammography screening center	45	12,329	0.00%	0.46%	99.54%
Endocrinology	46	6,294,042	0.00%	0.86%	99.14%
Independent diagnostic testing facility	47	1,634,306	0.00%	0.35%	99.65%
Podiatry	48	20,250,413	0.00%	49.62%	50.38%
Psychologist	62	292,789	0.00%	0.00%	100.00%
Portable x-ray supplier	63	363,454	0.00%	0.00%	100.00%
Audiologist	64	771,027	0.00%	0.06%	99.94%
Physical therapist	65	49,843,242	0.00%	1.83%	98.17%
Rheumatology	66	5,521,442	0.00%	6.37%	93.63%
Occupational therapist	67	4,601,179	0.00%	0.58%	99.42%
Clinical psychologist	68	15,489,507	0.00%	0.00%	100.00%
Clinical laboratory	69	4,156,950	0.00%	0.05%	99.95%
Multispecialty clinic or group practice	70	32,788	0.06%	1.90%	98.04%
Registered dietitian/nutrition professional	71	275,429	0.00%	0.00%	100.00%
Pain management	72	5,539,581	0.00%	46.73%	53.27%
Slide preparation facilities	75	13	0.00%	0.00%	100.00%
Peripheral vascular disease	76	146,888	0.00%	42.50%	57.50%
Vascular surgery	77	9,187,532	0.00%	63.28%	36.72%
Addiction medicine	79	123,292	0.00%	0.84%	99.16%
Licensed clinical social worker	80	17,580,214	0.00%	0.00%	100.00%
Critical care (intensivists)	81	6,710,027	0.00%	6.88%	93.12%

PLI FILING SPECIALTY	ASSOCIATED CMS SPECIALTY CODES	TOTAL WORK RVUS - ALL SERVICES	SHARE OF TOTAL WORK RVUS - OBSTETRICS	SHARE OF TOTAL WORK RVUS - SURGERY	SHARE OF TOTAL WORK RVUS - NO SURGERY
Hematology	82	810,992	0.00%	0.75%	99.25%
Hematology/oncology	83	13,735,232	0.00%	0.43%	99.57%
Preventive medicine	84	177,273	0.00%	12.78%	87.22%
Maxillofacial surgery	85	182,531	0.00%	67.29%	32.71%
Neuropsychiatry	86	125,282	0.00%	7.00%	93.00%
Medical oncology	90	4,328,273	0.00%	0.40%	99.61%
Surgical oncology	91	1,242,218	0.00%	70.65%	29.35%
Radiation oncology	92	13,505,353	0.00%	0.92%	99.08%
Emergency medicine	93	51,176,993	0.00%	3.00%	97.00%
Interventional radiology	94	4,238,267	0.00%	55.42%	44.58%
Gynecologist/oncologist	98	1,128,750	0.02%	56.71%	43.27%
Unknown physician specialty	99	360,914	0.07%	34.75%	65.18%
Sleep medicine	C0	618,380	0.00%	0.93%	99.07%
Interventional cardiology	C3	13,647,163	0.00%	34.92%	65.08%
Hospitalist	C6	21,420,346	0.00%	0.29%	99.72%
Advanced heart failure and transplant cardiology	C7	1,170,071	0.00%	5.58%	94.42%
Medical toxicology	C8	20,346	0.08%	2.52%	97.40%
Hematopoietic cell transplantation and cellular therapy	C9	153,930	0.00%	2.79%	97.21%

C. Source for Specialty for Imputation

Development of the analytic premium data required imputing premiums on filings that did not include CMS specialties. For CMS specialties that were reported on some filings but missing from others, we used the premium of a related specialty and service risk group within the same filing based on the source specialty/service risk groups in Table 8.C.

Table 8.C Source Specialty/Service Risk Group for Imputation for Updated PLI Premium Data

CMS SPECIALTY/SERVICE RISK GROUP	CMS SPECIALTY/SERVICE RISK GROUP USED AS SOURCE FOR IMPUTATION
01-General practice (NO SURG)	08-Family practice (NO SURG)
01-General practice (OB)	08-Family practice (OB)
01-General practice (SURG)	08-Family practice (SURG)
06-Cardiology (SURG)	78-Cardiac surgery (ALL)
08-Family practice (NO SURG)	01-General practice (NO SURG)
08-Family practice (OB)	01-General practice (OB)
08-Family practice (SURG)	01-General practice (SURG)
09-Interventional pain management (ALL)	72-Pain management (ALL)
11-Internal medicine (ALL)	08-Family practice (NO SURG)
12-Osteopathic manipulative medicine (ALL)	03-Allergy/immunology (ALL)
13-Neurology (SURG)	14-Neurosurgery (ALL)
14-Neurosurgery (ALL)	13-Neurology (SURG)
15-Speech language pathology (ALL)	64-Audiologist (ALL)
17-Hospice and palliative care (ALL)	11-Internal medicine (ALL)
19-Oral surgery (dental only) (ALL)	85-Maxillofacial surgery (ALL)
21-Cardiac electrophysiology (NO SURG)	06-Cardiology (NO SURG)
21-Cardiac electrophysiology (SURG)	06-Cardiology (SURG)
23-Sports medicine (ALL)	08-Family practice (NO SURG)
27-Geriatric psychiatry (ALL)	26-Psychiatry (ALL)
31-Intensive cardiac rehab (ALL)	06-Cardiology (NO SURG)
32-Anesthesiologist assistant (ALL)	43-Certified registered nurse anesthetist (CRNA) (ALL)
38-Geriatric medicine (NO SURG)	08-Family practice (NO SURG)
38-Geriatric medicine (SURG)	08-Family practice (SURG)
43-Certified registered nurse anesthetist (CRNA) (ALL)	32-Anesthesiologist assistant (ALL)
45-Mammography screening center (ALL)	47-Independent diagnostic testing facility (ALL)
62-Psychologist (ALL)	68-Clinical psychologist (ALL)
63-Portable x-ray supplier (ALL)	69-Clinical laboratory (ALL)
65-Physical therapist (ALL)	67-Occupational therapist (ALL)

CMS SPECIALTY/SERVICE RISK GROUP	CMS SPECIALTY/SERVICE RISK GROUP USED AS SOURCE FOR IMPUTATION
67-Occupational therapist (ALL)	65-Physical therapist (ALL)
68-Clinical psychologist (ALL)	62-Psychologist (ALL)
70-Multispecialty clinic or group practice (ALL)	99-Unknown physician specialty (NO SURG)
72-Pain management (ALL)	11-Internal medicine (ALL)
75-Slide preparation facilities (ALL)	69-Clinical laboratory (ALL)
76-Peripheral vascular disease (ALL)	77-Vascular surgery (ALL)
78-Cardiac surgery (ALL)	06-Cardiology (SURG)
79-Addiction medicine (ALL)	03-Allergy/immunology (ALL)
82-Hematology (ALL)	83-Hematology/oncology (ALL)
83-Hematology/oncology (ALL)	82-Hematology (ALL)
84-Preventive medicine (ALL)	11-Internal medicine (ALL)
85-Maxillofacial surgery (ALL)	19-Oral surgery (dental only) (ALL)
86-Neuropsychiatry (ALL)	26-Psychiatry (ALL)
90-Medical oncology (ALL)	83-Hematology/oncology (ALL)
91-Surgical oncology (ALL)	02-General surgery (ALL)
98-Gynecologist/oncologist (ALL)*	91-Surgical oncology (ALL)
C0-Sleep medicine (ALL)	13-Neurology (NO SURG)
C3-Interventional cardiology (ALL)	06-Cardiology (SURG)
C6-Hospitalist (ALL)	11-Internal medicine (ALL)
C7-Advanced heart failure and transplant cardiology (ALL)	06-Cardiology (NO SURG)
C8-Medical toxicology (ALL)	93-Emergency medicine (NO SURG)
C9-Hematopoietic cell transplantation and cellular therapy (ALL)	83-Hematology/oncology (ALL)

*Per guidance we received from CMS, the national premium for 98-Gynecologist/oncologist (ALL) was set equal to the national premium and risk index value for 91-Surgical oncology (ALL).

D. Occupations Included in the Physician Work GPCI

Tables 8.D.1-8.D.6 below shows the list of occupation codes and titles that comprise the nine occupation groups used in the WORK GPCI calculation. The source is the BLS OEWS Data. The Occupation Code is the 6-digit Standard Occupational Classification (SOC) code or OES-specific code for the occupation.

Based on changes in the May 2020 Occupation Profiles, some of the occupation codes and titles from the CY 2020 Update have been replaced in the CY 2023 Update. Additionally, four occupation codes have been added to the Computer, Mathematical, Life and Physical Science group and three occupation codes have been added to the Social Science, Community and Social Service and Legal group. Two new groups, *Management* and *Business and Financial Operations*, have been added to the seven occupation groups for this update.

Table 8.D.1: List of Occupations Included in the Updated WORK GPCI – Architecture and Engineering

OCCUPATION CODE	OCCUPATION TITLE
17-1011	Architects, Except Landscape and Naval
17-1012	Landscape Architects
17-1021	Cartographers and Photogrammetrists
17-1022	Surveyors
17-2011	Aerospace Engineers
17-2021	Agricultural Engineers
17-2031	Bioengineers and Biomedical Engineers
17-2041	Chemical Engineers
17-2051	Civil Engineers
17-2061	Computer Hardware Engineers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2081	Environmental Engineers
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors
17-2112	Industrial Engineers
17-2121	Marine Engineers and Naval Architects
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers
17-2161	Nuclear Engineers
17-2171	Petroleum Engineers
17-2199	Engineers, All Other
17-3031	Surveying and Mapping Technicians

Table 8.D.2: List of Occupations Included in the Updated WORK GPCI – Computer, Mathematical, Life and Physical Science (*code added since last update)

OCCUPATION CODE	OCCUPATION TITLE
15-1221	Computer and Information Research Scientists
15-1211	Computer Systems Analysts
15-1212	Information Security Analysts*
15-1241	Computer Network Architects*
15-1251	Computer Programmers
15-1256	Software Developers and Software Quality Assurance Analysts and Testers
15-1257	Web Developers and Digital Interface Designers*
15-1245	Database Administrators and Architects
15-1244	Network and Computer Systems Administrators
15-1232	Computer User Support Specialists
15-1231	Computer Network Support Specialists
15-1299	Computer Occupations, All Other
15-2011	Actuaries
15-2021	Mathematicians
15-2031	Operations Research Analysts
15-2041	Statisticians
15-2098	Data Scientists and Mathematical Science Occupations, All Other
19-1011	Animal Scientists
19-1012	Food Scientists and Technologists
19-1013	Soil and Plant Scientists
19-1021	Biochemists and Biophysicists
19-1022	Microbiologists
19-1023	Zoologists and Wildlife Biologists
19-1029	Biological Scientists, All Other
19-1031	Conservation Scientists
19-1032	Foresters
19-1041	Epidemiologists
19-1042	Medical Scientists, Except Epidemiologists
19-1099	Life Scientists, All Other*
19-2011	Astronomers
19-2012	Physicists
19-2021	Atmospheric and Space Scientists
19-2031	Chemists
19-2032	Materials Scientists
19-2041	Environmental Scientists and Specialists, Including Health
19-2042	Geoscientists, Except Hydrologists and Geographers
19-2043	Hydrologists

OCCUPATION CODE	OCCUPATION TITLE
19-2099	Physical Scientists, All Other

Table 8.D.3: List of Occupations Included in the Updated WORK GPCI – Social Science, Community and Social Service and Legal (*code added since last update)

OCCUPATION CODE	OCCUPATION TITLE
19-3011	Economists
19-3022	Survey Researchers
19-3031	Clinical, Counseling, and School Psychologists
19-3032	Industrial-Organizational Psychologists
19-3039	Psychologists, All Other
19-3041	Sociologists
19-3051	Urban and Regional Planners
19-3091	Anthropologists and Archeologists
19-3092	Geographers
19-3093	Historians
19-3094	Political Scientists
19-3099	Social Scientists and Related Workers, All Other
19-4010	Agricultural and Food Science Technicians
19-4021	Biological Technicians
19-4031	Chemical Technicians
19-4045	Geological and Hydrologic Technicians
19-4051	Nuclear Technicians
19-4061	Social Science Research Assistants
19-4042	Environmental Science and Protection Technicians, Including Health
19-4092	Forensic Science Technicians
19-4071	Forest and Conservation Technicians
19-4099	Life, Physical, and Social Science Technicians, All Other
19-5011	Occupational Health and Safety Specialists*
21-1012	Educational, Guidance, and Career Counselors and Advisors
21-1013	Marriage and Family Therapists
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors
21-1015	Rehabilitation Counselors
21-1019	Counselors, All Other
21-1021	Child, Family, and School Social Workers
21-1022	Healthcare Social Workers
21-1023	Mental Health and Substance Abuse Social Workers
21-1029	Social Workers, All Other
21-1091	Health Education Specialists
21-1092	Probation Officers and Correctional Treatment Specialists

OCCUPATION CODE	OCCUPATION TITLE
21-1093	Social and Human Service Assistants
21-1099	Community and Social Service Specialists, All Other*
21-2011	Clergy
21-2021	Directors, Religious Activities and Education
21-2099	Religious Workers, All Other
23-1011	Lawyers
23-1012	Judicial Law Clerks*
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers
23-1022	Arbitrators, Mediators, and Conciliators
23-1023	Judges, Magistrate Judges, and Magistrates
23-2011	Paralegals and Legal Assistants
23-2093	Title Examiners, Abstractors, and Searchers
23-2099	Legal Support Workers, All Other

Table 8.D.4: List of Occupations Included in the Updated WORK GPCI – Other Occupation Groups

OCCUPATION GROUP	OCCUPATION CODE	OCCUPATION TITLE
Educational Instruction and Library Occupations	25-0000	Educational Instruction and Library Occupations
Registered Nurses	29-1141	Registered Nurses
Pharmacists	29-1051	Pharmacists
Art, Design, Entertainment, Sports and Media	27-0000	Arts, Design, Entertainment, Sports, and Media Occupations

Table 8.D.5: List of Occupations Included in the Updated WORK GPCI – Management (new group and codes for CY 2023)

OCCUPATION CODE	OCCUPATION TITLE
11-1011	Chief Executives
11-1021	General and Operations Managers
11-2011	Advertising and Promotions Managers
11-2021	Marketing Managers
11-2022	Sales Managers
11-2030	Public Relations and Fundraising Managers
11-3010	Administrative Services and Facilities Managers
11-3021	Computer and Information Systems Managers
11-3031	Financial Managers
11-3051	Industrial Production Managers
11-3061	Purchasing Managers

OCCUPATION CODE	OCCUPATION TITLE
11-3111	Compensation and Benefits Managers
11-3121	Human Resources Managers
11-3131	Training and Development Managers
11-9021	Construction Managers
11-9031	Education and Childcare Administrators, Preschool and Daycare
11-9032	Education Administrators, Kindergarten through Secondary
11-9033	Education Administrators, Postsecondary
11-9039	Education Administrators, All Other
11-9041	Architectural and Engineering Managers
11-9111	Medical and Health Services Managers
11-9121	Natural Sciences Managers
11-9151	Social and Community Service Managers
11-9161	Emergency Management Directors
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other

Table 8.D.6: List of Occupations Included in the Updated WORK GPCI – Business and Financial Operation (new group and codes for CY 2023)

OCCUPATION CODE	OCCUPATION TITLE
13-1011	Agents and Business Managers of Artists, Performers, and Athletes
13-1020	Buyers and Purchasing Agents
13-1041	Compliance Officers
13-1051	Cost Estimators
13-1071	Human Resources Specialists
13-1075	Labor Relations Specialists
13-1081	Logisticians
13-1111	Management Analysts
13-1121	Meeting, Convention, and Event Planners
13-1131	Fundraisers
13-1141	Compensation, Benefits, and Job Analysis Specialists
13-1151	Training and Development Specialists
13-1161	Market Research Analysts and Marketing Specialists
13-1198	Project Management Specialists and Business Operations Specialists, All Other
13-2011	Accountants and Auditors
13-2020	Property Appraisers and Assessors
13-2031	Budget Analysts
13-2041	Credit Analysts
13-2052	Personal Financial Advisors
13-2053	Insurance Underwriters

OCCUPATION CODE	OCCUPATION TITLE
13-2061	Financial Examiners
13-2071	Credit Counselors
13-2072	Loan Officers
13-2081	Tax Examiners and Collectors, and Revenue Agents
13-2098	Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other

E. Counties Missing County-Level Estimates of Median Gross Rent for 2-Bedrooms

ARC used the 2019 ACS 5-year, county-level estimates on the median gross rent for 2-bedrooms to develop the data needed to create the Office Rent Index. Since the ACS data file is missing estimates for the median gross rent for 2-bedrooms for select counties and Census was unable to provide additional values, ARC imputed county-level rent estimates using the average value for a given county's MSA. Table 8.E below includes a list of the counties that are missing estimates and these imputed values.

Table 8.E: Counties Missing County-Level Estimates of Median Gross Rent for 2-Bedrooms and Imputed Amount

COUNTY NAME	IMPUTED VALUE: MEDIAN GROSS RENT FOR 2-BEDROOMS
Chugach Census, Alaska	\$1,157
Copper River Census Area, Alaska	\$1,157
Prince of Wales-Outer Ketchikan Census Area, Alaska	\$1,157
Skagway-Hoonah-Angoon Census Area, Alaska	\$1,157
Wade Hampton Census Area, Alaska	\$1,157
Wrangell-Petersburg Census Area, Alaska	\$1,157
Alpine County, California	\$1,022
Mineral County, Colorado	\$714
Petroleum County, Montana	\$644
Prairie County, Montana	\$644
Yellowstone National Park (Part), Montana	\$871
Banner County, Nebraska	\$695
Blaine County, Nebraska	\$669
Dundy County, Nebraska	\$669
Grant County, Nebraska	\$669
McPherson County, Nebraska	\$669
Eureka County, Nevada	\$851
Storey County, Nevada	\$1,052
Slope County, North Dakota	\$852
Jones County, South Dakota	\$631
Sully County, South Dakota	\$631
Moore County, Tennessee	\$644
Oak Ridge Reservation, Tennessee	\$645
Borden County, Texas	\$705
Culberson County, Texas	\$705
Edwards County, Texas	\$673

COUNTY NAME	IMPUTED VALUE: MEDIAN GROSS RENT FOR 2- BEDROOMS
Foard County, Texas	\$705
Glasscock County, Texas	\$705
Kenedy County, Texas	\$724
Kent County, Texas	\$705
King County, Texas	\$705
Loving County, Texas	\$705
McMullen County, Texas	\$724
Roberts County, Texas	\$705
Stonewall County, Texas	\$705
Terrell County, Texas	\$705
Daggett County, Utah	\$916
Bath County, Virginia	\$767
Highland County, Virginia	\$767
Bedford city, Virginia	\$753
Clifton Forge city, Virginia	\$767
Florence County, Wisconsin	\$705
Ciudad Modelo, Puerto Rico	\$376
Rio Piedras, Puerto Rico	\$376
Santurce, Puerto Rico	\$376

Source: Median Gross Rent by Bedrooms (B25031); 2019 ACS 5-year estimates (2015-2019)

F. Current California Localities with Prior Locality and Transition Area Status

GPCIs in California areas are subject to a hold-harmless provision as a result of the change from the prior 9 localities to the current set of 32 areas used by CMS. Calculation of new GPCIs for California requires calculating values for the prior localities based on the updated input data and hold-harmless values, as described in Section 4 of the report, based on the updated budget-neutral values under the new area definitions and those under the previous locality definition. Table 8.F shows the relationship between current and prior localities, along with the transition status of current areas. As described above, the counties within all but two MSAs will have the same GPCIs, but two – San Francisco and San Jose – include counties that can have values that differ from others within the MSA due to the hold harmless provision. As a result, there can be up to 29 different GPCI values across the state's 27 MSAs.

Table 8.F: Current California Localities with Prior Locality and Transition Area Status

CURRENT LOCALITY CODE	CURRENT STATE/LOCALITY NAME	PRIOR LOCALITY CODE	PRIOR STATE/LOCALITY NAME	TRANSITION AREA?
05	SAN FRANCISCO-OAKLAND-BERKELEY (SAN FRANCISCO CNTY)	05	SAN FRANCISCO	N
06	SAN FRANCISCO-OAKLAND-BERKELEY (SAN MATEO CNTY)	06	SAN MATEO	N
07	SAN FRANCISCO-OAKLAND-BERKELEY (ALAMEDA/CONTRA COSTA CNTY)	07	OAKLAND/BERKELEY	N
09	SAN JOSE-SUNNYVALE-SANTA CLARA (SANTA CLARA CNTY)	09	SANTA CLARA	N
17	OXNARD-THOUSAND OAKS-VENTURA	17	VENTURA	N
18	LOS ANGELES-LONG BEACH-ANAHEIM (LOS ANGELES CNTY)	18	LOS ANGELES	N
26	LOS ANGELES-LONG BEACH-ANAHEIM (ORANGE CNTY)	26	ANAHEIM/SANTA ANA	N
51	NAPA	03	MARIN/NAPA/SOLANO	Y

CURRENT LOCALITY CODE	CURRENT STATE/LOCALITY NAME	PRIOR LOCALITY CODE	PRIOR STATE/LOCALITY NAME	TRANSITION AREA?
52	SAN FRANCISCO-OAKLAND-BERKELEY (MARIN CNTY)	03	MARIN/NAPA/SOLANO	Y
53	VALLEJO	03	MARIN/NAPA/SOLANO	Y
54	BAKERSFIELD	99	REST OF CALIFORNIA	Y
55	CHICO	99	REST OF CALIFORNIA	Y
56	FRESNO	99	REST OF CALIFORNIA	Y
57	HANFORD-CORCORAN	99	REST OF CALIFORNIA	Y
58	MADERA	99	REST OF CALIFORNIA	Y
59	MERCED	99	REST OF CALIFORNIA	Y
60	MODESTO	99	REST OF CALIFORNIA	Y
61	REDDING	99	REST OF CALIFORNIA	Y
62	RIVERSIDE-SAN BERNARDINO-ONTARIO	99	REST OF CALIFORNIA	Y
63	SACRAMENTO-ROSEVILLE-ARDEN-ARCADE	99	REST OF CALIFORNIA	Y
64	SALINAS	99	REST OF CALIFORNIA	Y
65	SAN JOSE-SUNNYVALE-SANTA CLARA (SAN BENITO CNTY)	99	REST OF CALIFORNIA	Y
66	SANTA CRUZ-WATSONVILLE	99	REST OF CALIFORNIA	Y
67	SANTA ROSA-PETALUMA	99	REST OF CALIFORNIA	Y
68	STOCKTON	99	REST OF CALIFORNIA	Y
69	VISALIA	99	REST OF CALIFORNIA	Y
70	YUBA CITY	99	REST OF CALIFORNIA	Y
71	EL CENTRO	99	REST OF CALIFORNIA	Y
72	SAN DIEGO-CHULA VISTA-CARLSBAD	99	REST OF CALIFORNIA	Y
73	SAN LUIS OBISPO-PASO ROBLES	99	REST OF CALIFORNIA	Y
74	SANTA MARIA-SANTA BARBARA	99	REST OF CALIFORNIA	Y
75	REST OF CALIFORNIA	99	REST OF CALIFORNIA	Y

9 Acquiring Publicly Available Data for GPCI Development

This section includes additional details on acquiring the publicly available data for developing the updated GPCIs.

A. Bureau of Labor Statistics Occupational Employment and Wage Statistics

The May 2020 BLS OEWS data is available through the U.S. Department of Labor’s OEWS Data website.³⁶ The OEWS data on the website is organized by date, with the most recently available data shown at the top of the webpage. ARC downloaded the publicly available data under the headings “OEWS Data,” “May 2020 data.”³⁷ The data files are available in both HTML and XLS formats.

ARC also downloaded the May 2020 Metropolitan and Nonmetropolitan Area Definitions. This file is available as a Microsoft Excel file and can be found at https://www.bls.gov/oes/current/msa_def.htm.

B. United States Census Bureau American Community Survey

In prior updates, the American FactFinder Download Center was used to download the ACS data. However, the “American FactFinder (AFF) was decommissioned and taken offline on March 31, 2020. Data previously released on AFF are now being released on the U.S. Census Bureau’s new dissemination platform, data.census.gov.³⁸”

As a result, the following steps were used in the CY 2023 update to download the ACS rent data used in creating the Office Rent index:

- 1.) Navigate to data.census.gov
- 2.) Under “Explore Census Data” choose “Advanced Search”
- 3.) Enter “B25031” in Table Id
- 4.) Narrow Search with Filter
 - a. Geography – choose “County” – select “All Counties within the United States and Puerto Rico”
 - b. Survey – choose “American Community Survey” – select “5-Year Estimates”
 - c. Then select “Search”
- 5.) Then Select “View All Tables”
 - a. Choose “Download Table”
- 6.) Then Select “ACS 5-Year Estimates Detailed Tables”
 - a. Choose “Download”

The download includes 1 .csv file (metadata), 1 .csv file (data) and 1 .txt file (table title).

³⁶ The OEWS May 2020 data can be found here: <https://www.bls.gov/oes/#data> <https://www.bls.gov/oes/tables.htm>

³⁷ At the time of the GPCI data collection, May 2020 was the most recently available OEWS data.

³⁸ <https://www.census.gov/data/what-is-data-census-gov/guidance-for-data-users/transition-from-aff.html>

C. Geographic Crosswalks and Weights

ARC downloaded the following publicly available data to create a database of geographic crosswalks and weights that was used in developing the updated GPCIs.

Table 9.C.: List of Geographic Data Files Used in Developing Updated GPCIs

Description	Source	Link
CBSA, MSA, CSA Delineation file, March 2020	US Census Bureau	https://www2.census.gov/programs-surveys/metro-micro/geographies/reference-files/2020/delineation-files/list1_2020.xls
Total US Population by County	2019 American Community Survey 5-Year Estimates (2015-2019)	<a href="https://data.census.gov/cedsci/table<sup>39</sup">https://data.census.gov/cedsci/table³⁹
Total US Population by County Subdivision	2019 American Community Survey 5-Year Estimates (2015-2019)	<a href="https://data.census.gov/cedsci/table<sup>40</sup">https://data.census.gov/cedsci/table⁴⁰
2021 Medicare PFS Locality Configuration, filename: 21LOCCO	CMS	https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/Downloads/PFSLOCCO.zip

As previously mentioned in the report, the key geographic measures include counties, states, Medicare payment localities, and various definitions of metropolitan area. This geographic database facilitated the creation of the GPCIs and was used to cross-walk various geographic areas and create county-level population weights.

³⁹ Create table from Census Website, Advanced Search: Surveys = American Community Survey -> 5-Year Estimates -> Detailed Tables; Topic = Populations and People -> Populations and People; Geography = County -> All Counties within United States and Puerto Rico. Finally, select table B01003 – Total Population.

⁴⁰ Create table from Census Website, Advanced Search: Surveys = American Community Survey -> 5-Year Estimates -> Detailed Tables; Topic = Populations and People -> Populations and People; Geography = County Subdivision, then select the following states: CT, MA, ME, NH, RI, VT. Finally, select table B01003 – Total Population.

10 COVID-19 Impacts on Data

A. Bureau of Labor Statistics Occupational Employment and Wage Statistics

For the CY 2023 update, ARC downloaded the May 2020 BLS OEWS data, which was the most recently available data at the time of the update.⁴¹ The May 2020 data file includes estimates from the following six semiannual panels: May 2020, November 2019, May 2019, November 2018, May 2018, and November 2017.”⁴² Because only one of the six panels include data from the time of the COVID-19 pandemic, the May 2020 estimates do not reflect the pandemic’s full impact on changes in employment.

BLS noted that response rates for two of the panels, May 2020 and November 2019 were lower because of the timing of the survey and follow up period that occurred during the early pandemic months. Additional follow ups were conducted to target these nonresponses.⁴³

B. United States Census Bureau American Community Survey

Census noted that the COVID-19 pandemic impacted data collection for the 2020 American Community Survey, and the resulting challenges have the potential to affect the quality of the data. In particular, there were lower response rates, and nonresponse bias was found in the data collected for 2020.

Because the data used in updating the office rent index is based on 5-year estimates, the effect of the nonresponse bias from 2020 on the 5-year estimates is expected to be smaller. However, at the time we had to finalize the data needed for this report (Fall 2021), the 2016-2020 ACS 5-year data had not been released and information on the effects of the nonresponse bias and data quality of the 5-year products were not available. Therefore, the 2019 5-year estimates, which preceded any COVID-19 impacts, were used in the CY 2023 Update.⁴⁴

Additional information on the impact of the COVID-19 pandemic on the ACS data can be found on the Census’ website.⁴⁵

⁴¹ The OEWS May 2020 data can be found here: <https://www.bls.gov/oes/tables.htm>

⁴² United States Department of Labor, Bureau of Labor Statistics. Occupational Employment Statistics. (2008). Technical Notes for May 2017 OEWS Estimates. Accessed: https://www.bls.gov/oes/current/oes_tec.htm

⁴³ U.S. Bureau of Labor Statistics. Effects of COVID-19 Pandemic on Occupational Employment and Wage Statistics. March 31, 2021. Accessed: <https://www.bls.gov/covid19/effects-of-covid-19-pandemic-on-occupational-employment-and-wage-statistics.htm>

⁴⁴ The 2016-2020 ACS 5-year data were released on March 17, 2022. As previously noted, this data was not available in time to analyze and incorporate into this report.

⁴⁵ Impact of Pandemic on the American Community Survey. July 29, 2021. Accessed: <https://www.census.gov/newsroom/press-kits/2021/impact-pandemic-2020-ac-1-year.html>

C. RVU Data

Throughout CMS's various payment-related processes, there has been concern about the effect of the COVID-19 pandemic on data used to create and analyze payments and utilization. In order to analyze potential impacts of the COVID-19 pandemic on RVU data, ARC compared RVU distribution in 2017 through 2020 across payment areas. ARC did not find evidence that the geographic distribution in 2020 differed from prior year trends. The distribution of RVUs did not appear to shift and ARC does not believe that the pattern for the 2020 data is importantly different from the trend of the previous three years. Therefore, the 2020 RVU data was used in the CY 2023 update. This is consistent with CMS's use of 2020 utilization data in establishing the 2022 PFS.