Research Report

Practice Expense Methodology and Data Collection Research and Analysis

Interim Phase II Report

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Preface

Medicare bases its payment rates under the Medicare Physician Fee Schedule (MPFS) in part on estimates of the resources used in furnishing each service to a typical Medicare patient. For each service in the MPFS, the magnitude of resources is quantified (or "valued") in terms of a number of relative value units (RVUs) determined annually by the Centers for Medicare and Medicaid Services (CMS). There are separate valuations for physician work, practice expense (PE), and malpractice liability RVUs. This project focuses on the PE component, which is composed of the direct and indirect practice resources involved in furnishing medical services. The sums of RVUs are converted into Medicare payment rates through the application of a dollar-to-RVU conversion factor, geographic adjustments, and other adjustments, as applicable.

In response to concerns that aspects of the PE valuation methodology are contributing to misvalued payment rates, CMS asked the RAND Corporation to review the methodology used to establish the PE RVUs to identify refinements. Specifically, RAND was asked to develop and assess potential improvements in the current methodology used to allocate indirect practice costs in determining PE RVUs for a service, develop and model alternative methodologies for determining PE RVUs, and identify and assess alternative data sources that could be used to regularly update indirect practice cost estimates.

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Summary

Payments made under the Medicare Physician Fee Schedule (MPFS) reflect physician work, professional liability insurance, and practice expense (PE) components. PE accounts for approximately 45 percent of the total payments made under the MPFS (American Medical Association, undated). The current Centers for Medicare and Medicaid Services (CMS) system for setting PE payment rates relies in part on data collected in the Physician Practice Information (PPI) Survey, which generally reflects information on the costs of operating physician practices from calendar year 2006. Because of changes in the U.S. economy and health care system since that time, there are concerns that continued reliance on measures that use PPI Survey data might result in PE payments that do not accurately capture the relative resources that are typically required to provide services.

In the current system, PE is broken into *direct* and *indirect* components. Direct PE includes nonphysician clinical labor, disposable medical supplies, and medical equipment that are typically used to provide a service. Indirect PE relates to such expenses as administration, rent, and other forms of overhead that cannot be attributed to any specific service. This report primarily (but not exclusively) focuses on issues related to indirect PE.

Broadly, this report, part of the second phase of a study about PE methodology, addresses the topic of how CMS might improve the methodology that is used in PE rate setting, update data that inform PE rates, or do both. The research in this report can be divided into three broad topics. First, we consider how updated PE data could be collected through a new survey effort. In the previous phase of this line of research, Phase I, reported in Burgette et al., 2018, we found that no existing data sources would be acceptable replacements for the PPI Survey data. CMS asked us to evaluate how a survey-based collection effort could be designed and administered to replace the PPI as a source of data inputs. Consequently, much of this line of research focuses on the issues and considerations that would be involved if this mode of data collection were undertaken. Second, we consider a new framework for allocating PE, which we developed with the goal of better capturing variation in PE resources that are required to provide services covered in the MPFS. Finally, we continue the work begun in Phase I of investigating the potential to make use of data collected to set rates in the Outpatient Prospective Payment System (OPPS). We also convened a panel of leading experts on topics related to PE, who provided feedback on all three of these lines of research. Summaries of each of these components of the report follow.

Updating Practice Expense Data Through Survey-Based Data Collection

Successfully surveying physicians and physician practices is likely to be difficult and resource-intensive under any circumstances, so it will be important when administering a new survey to make use of approaches used successfully in previous survey efforts. To begin thinking about how to replace the inputs derived from the PPI Survey, we performed an environmental scan to compile information on previous physician surveys and survey efforts relevant to measuring PE. This process included a review of the academic and grey literature, consultations with RAND Corporation experts, and consultations with employees of CMS and the U.S. Census Bureau. We used this information to discuss the challenges and related considerations for conducting survey-based data collection. These considerations related to defining the sampling frame and appropriate respondents; complexity and length of a survey; updating data over time; the complexities of measuring PE when expenses are shared across organizations; and issues involving inconsistencies in expense terminology, accounting, and record-keeping.

To help develop a PE data-collection effort that is accurate, complete, and compatible with the current MPFS algorithm, we compiled a list of practice characteristics and PE components that we categorized into groups. This list was developed using articles and prior surveys (public, governmental, and proprietary) relevant to PE that were identified in the environmental scan and through consultation with subject experts.

With this categorized list of PE components, we developed a survey instrument model that can be used by policymakers and researchers to better identify potential issues that might arise in developing future field-ready PE surveys. We used questions from prior surveys as reference material for question language and structure in the model, and we developed additional questions regarding PE components that prior survey questions did not cover. In light of considerations uncovered through the environmental scan, we sought to develop questions that could be widely applied to physician practices with a variety of accounting systems and shared expense structures. We anticipate that development of a field-ready survey would include optimizing language and expense definitions through pilot testing to ensure improvements in data quality and to mitigate response burden.

Feedback from a Technical Expert Panel

In January 2020, RAND convened a technical expert panel (TEP) of leading experts on issues related to PE to provide input on topics related to setting PE rates in the MPFS; topics included issues with the current system, changes in medicine that might have affected the type and amount of PE that practices incur, how best to aggregate PE categories in a survey, ways to maximize response rates in potential new surveys, and the feasibility of using cost data from the OPPS to inform MPFS PE rates.

Several themes stood out from the TEP conversation. Although there seemed to be consensus that fielding a large-scale PE survey would be a difficult undertaking, some TEP members

argued that it could be successful with a sufficient investment in pilot testing to optimize the survey for different types of physician practices, such as different specialties or practices that tend to "lump" versus "split" their expenses in their accounting systems. There was also some support for recruiting a smaller panel of practices or health care organizations that could build out data-reporting systems that align with CMS needs for rate setting. Although some members voiced concerns with this approach, others felt that the ability of such a system to produce high-quality data on an ongoing basis would outweigh potential concerns about potentially lower overall sample sizes and concerns about whether practice anonymity could be maintained. Finally, because total Medicare payments under the MPFS are constrained each year, changes that increase the PE rates of some services (and therefore benefit practices disproportionally furnishing these services) will result in lower PE rates for other services (and likewise decrease payments to the practices disproportionately furnishing these other services, all else being equal). To gain support for future rate-setting payment updates, panel members recommended seeking feedback from organized medicine and other stakeholders in the early stages to achieve consensus on process, even if consensus on outcomes might not be possible.

An Alternative Framework for Allocating Indirect Practice Expense

As we have explained, there are concerns that out-of-date inputs in the current PE rate-setting system might result in payments that do not accurately reflect relative resources required to provide specific services. If new data are collected, it might be possible to improve the PE allocation algorithm itself so that it better captures variation in PE required to provide MPFS services. We present a conceptual discussion of an approach for breaking apart the current indirect PE pool into finer categories of PE.

There are several potential benefits to this approach. The current system generally assumes that PE scales as a function of physician work and direct costs. However, some components of PE might be better allocated on the basis of, for example, physician and nonphysician clinical time per visit or other characteristics of the service. Reducing the reliance on specialty-level measures could also lower overall survey burden for expense categories that do not require highly stratified survey results. In addition, this type of system might allow existing external data to be used to set rates for some components of the current indirect pool. We discuss several such data sources.

Using Outpatient Prospective Payment System Costs to Determine Practice Expense Values

In the previous phase of the study, we considered the use of hospital cost data used in the OPPS for MPFS PE rate setting. In the current phase, we built on that work by updating the analyses and adding methodological refinements. As part of the update to 2019 MPFS payment

rules, we updated the set of codes identified as having adequate OPPS cost information to value PE. We also modified the categories of service in our impact assessment to align with the OPPS ambulatory payment classification that groups services with similar clinical content and resource use. We then incorporated three refinements to cost estimates of services outside the intra-service period in nonfacility settings, for which there are not comparable OPPS costs for the same procedure code. First, in our estimate of postoperative visits comparable to outpatient clinic visits, we reduced the number of postoperative visits for services with global periods using estimates of the actual number of visits typically provided rather than a number of expected visits. Then, in our estimate of pre-service and facility intra-service costs comparable with outpatient care management services, we grouped pre-services and facility intra-services for nonphysician clinical staff time by type of clinical labor activity and similar costs. To account for medical supplies that are packaged with a primary procedure under the MPFS, we expanded our OPPS-based supply cost estimates to include medical supplies incident to radiology, diagnostic services, and intravenous therapy. Further methodological refinements to these OPPS-based analyses will be presented in a future report.

Conclusion

Improving the MPFS is an extraordinarily important policy challenge. Medicare payments made under the fee schedule exceed $90 billion per year. Many other government and commercial insurers rely on MPFS valuations, Medicare payment rates, or both as starting points for payment. In this context, relatively small policy changes can translate into large real-world impacts for physicians, patients, and other stakeholders. Although it will never be possible to achieve a system that exactly captures the resources that are typically required to provide a service in every type of practice, the current system presents ample room for improvement toward this goal. To the extent that future payment systems, such as alternative payment models, use MPFS rates as a starting point, misvalued PE rates might be problematic even into the future if they are not updated soon. Incorporating recent data—whether from collecting new data, using information from OPPS, or using other sources—and putting in place a mechanism for making periodic updates will be an important step toward ensuring that MPFS payments reflect how medicine is being practiced now and in the future.

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Abbreviations

ACO	Accountable Care Organization
ACS	American Community Survey
AHRQ	Agency for Healthcare Research and Quality
AMA	American Medical Association
AMI	American Medical Information
APC	ambulatory payment classification
APCD	All-Payer Claims Database
APM	alternative payment model
ASC	ambulatory surgical center
BETOS	Berenson-Eggers Type of Service
BLS	U.S. Bureau of Labor Statistics
CF	conversion factor
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare and Medicaid Services
CPEP	Clinical Practice Expert Panel
CPT	Current Procedural Terminology
CY	calendar year
DPEI	Direct Practice Expense Input
E&M	evaluation and management
ED	emergency department
EHR	electronic health record
EIN	employer identification number
EMR	electronic medical record
ENT	ear, nose, and throat
FFS	fee-for-service
FTE	full-time equivalent
GAO	U.S. Government Accountability Office
GI	gastrointestinal
HCPCS	Healthcare Common Procedure Coding System
HOPD	hospital outpatient department
HTPS	Health Tracking Physician Survey
ICD	International Classification of Diseases
IPA	independent practice association
IPCI	indirect practice cost index
IRS	Internal Revenue Service

IT	information technology
MCO	managed care organization
MD-PPAS	Medicare Data on Provider Practice and Specialty database
MEPS	Medical Expenditure Panel Survey
MEPS MPC MOS	Medical Expenditure Panel Survey Medical Provider Component—Medical Organizations Survey
MGMA	Medical Group Management Association
MIPS	Merit-Based Incentive Payment System
MPFS	Medicare Physician Fee Schedule
MSO	management services organization
NAICS	North American Industry Classification System
NAMCS	National Ambulatory Medical Care Survey
NITOS	Neiman Imaging Types of Service
NPI	National Provider Identifier
OB	observation
OES	Occupational Employment Statistics
OPPS	Outpatient Prospective Payment System
PACCI	Pennsylvania Chronic Care Initiative
PC	professional component
PE	practice expense
PECOS	Provider Enrollment, Chain, and Ownership System
PE/HR	practice expense per hour
PFS	physician fee schedule
PPI	Physician Practice Information
PPFQ	Physician Practice Financial Questionnaire
PPRC	Physician Payment Review Commission
RB-RVS	Resource-Based Relative Value Scale
ResDAC	Research Data Assistance Center
RUC	Relative Value Scale Update Committee (formally the American Medical Association/Specialty Society Relative Value Scale Update Committee)
RVU	relative value unit
SAS	Service Annual Survey
SOC	Standard Occupational Classification
SPE	"Supplemental" Practice Expense
TC	technical component
TEP	technical expert panel
TIN	Taxpayer Identification Number

1. Introduction

Overview

This chapter summarizes the purpose of this study, provides an overview of the Medicare Physician Fee Schedule (MPFS), and describes how rates are set for the practice expense (PE) component of payments for services in the MPFS. The study has been divided into phases, with Phase I already having been completed, as described in Burgette et al., 2018. This report provides interim results of Phase II of the study and describes next steps for some analyses that will be included in the Phase II final report. This chapter includes background information and findings from the Phase I report, describes the Phase II study objectives and how the results might be used, and explains the organization of the remainder of the report.

Purpose

Medicare-allowed charges under the MPFS exceeded $93 billion based on 2018 claims volumes and 2019 payment rates (see Centers for Medicare and Medicaid Services [CMS], 2019b, p. 63153, Table 119). The MPFS uses a set of relative value units (RVUs) that reflect the relative amounts of resources that are required to furnish a service to a typical Medicare beneficiary. The total RVUs assigned to each service on the MPFS are composed of three separate components: physician work, PE, and malpractice expense. Each component contributes a certain number of RVUs that are then adjusted for geographic cost variation. Payment for services is then determined by summing the geographically adjusted RVUs across the three components and multiplying by a dollar-per-RVU conversion factor, which in 2020 is $36.09/RVU. The MPFS RVUs and conversation factor are updated annually through a federal rulemaking process (CMS, 2019b).

This study focuses on the PE component of the MPFS, which accounts for approximately 45 percent of total MPFS payments (American Medical Association, undated). Out of concern that aspects of the PE rate-setting methodology are contributing to misvalued services, CMS asked the RAND Corporation to review the methodology used to establish the PE RVUs to identify refinements.

Since the establishment of resource-based PE valuation methods in the 1990s, CMS has followed the principle that PE RVUs should be *incentive neutral*: a practitioner does not have an incentive to choose one service over another or one practice setting over another (Physician Payment Review Commission [PPRC], 1992b). To be incentive neutral, payment rates should be proportional to the resources needed to provide each service—i.e., practitioner profitability should be roughly constant across services. Because payment rates are determined through RVUs, the focus is on *relative* payments between services and the amount of resources needed to

provide a service relative to other services. *Absolute* payment rates depend on the conversion factor that translates RVUs to dollars, which is determined by budget neutrality calculations that ensure that changes to service-level RVU valuations do not affect overall Medicare spending, with annual updates determined through formulas established in statute (CMS, 2019b).

MPFS payment rates are an important determinant of access to medically appropriate services and prudent use of resources (Ginsburg and Grossman, 2005). When profitability varies between services, health care practitioners might expand their capacity to provide more-profitable services while decreasing capacity for less profitable services (Ginsburg and Grossman, 2005). Thus, if a procedure is overvalued (i.e., its payment rate is out of proportion to the resources required to furnish the service to a typical Medicare beneficiary), Medicare could be wasting resources by paying more than it should and inadvertently creating an incentive to increase the provision of potentially unnecessary services. Conversely, if a procedure is undervalued, it could become harder to obtain if practitioners shift their efforts to provide it less frequently than more-profitable services.

Systematic overvaluation or undervaluation of services furnished by particular specialties can affect physicians' willingness to furnish services to Medicare beneficiaries, the income levels of specialists, and, by extension, the choices of specialty made by new physicians. Because MPFS payments are budget neutral in aggregate, higher payment rates for services disproportionately provided by one specialty result in lower payment rates for services provided by other specialties. Since the establishment of the Resource-Based Relative Value Scale (RB-RVS) for the MPFS, which first established payment rates for services in proportion to the estimated resources required to provide them, there has been concern that the overvaluation of services provided by procedural specialties results in the undervaluation of services provided by primary care practitioners.

In practice, the resources used to provide services vary across patients and practitioners. CMS uses the concept of a "typical" patient in establishing the MPFS rates for a service.[1] Thus, although the payment rate for a service might be incentive-neutral for practitioners providing typical care, it might have a different effect for practitioners with atypical patients or practice characteristics. For PE, the recommendations submitted by the specialty societies to the PE subcommittee of the American Medical Association (AMA)'s RUC for direct costs (described in the next section) represent the "typical" scenario for services performed in nonfacility settings.

CMS's strategic goals to encourage high-value health care include replacing, to a large extent, such fee-for-service (FFS) payment as the MPFS with alternative payment models (CMS, 2019c). However, even if Medicare were to adopt alternative payment models that no longer include separate payments for each service, misvalued services provided under the MPFS would

[1] For example, the Relative Value Scale Update Committee (RUC) survey uses a vignette to describe the typical patient or service to value physician work and defines *typical* as more than 50 percent of the time spent in obtaining information on a practitioner's typical experience with a global service code.

remain important because fee-for-service payments often form the foundation for constructing those payment models and determining appropriate payment rates for new units of payment (Ginsburg, 2012). Finally, the relative values in the MPFS are widely used by private and other payers, so its validity is important beyond the Medicare program.

Current System for Valuing Practice Expense

The current PE rate-setting methodology encompasses two categories of PE: direct and indirect. **Direct practice expenses** include the clinical labor, disposable medical supplies, and medical equipment that are typically used to provide a service. The initial direct cost inputs were based on Clinical Practice Expert Panels (CPEPs) that the Health Care Financing Administration (the predecessor agency to CMS) convened in 1995. Since then, the CPEP values have been refined, and values for new or revised Healthcare Common Procedure Coding System (HCPCS) codes have been established based on CMS review of recommendations from various committees of the AMA, including the Practice Expense Advisory Committee (1998–2004), the Practice Expense Review Committee (2004–2007), and the RUC (2007–present).

Under the current process for assigning direct cost inputs for new or revised codes, the RUC makes recommendations to CMS based on advice from its Practice Expense Subcommittee, which reviews information concerning the direct PE inputs submitted by the specialty societies several times per year. This information typically is generated by specialty society consensus panels of practitioners performing the service, and it takes into account the PE inputs for similar reference procedures. CMS considers the RUC recommendations and decides to accept or revise suggested changes to direct PE inputs. CMS then calculates prices for each input based on cost data (e.g., average wages for registered nurses) and formulas for each type of input. At this point, the direct cost data used in the rate-setting process reflect values from these various historical sources. Although the misvalued services process leads to careful review of scores of codes by the RUC and CMS each year, there are many codes that retain direct inputs from the earliest efforts at establishing service-level direct costs.

Indirect practice expense includes such costs as administration, rent, and other forms of overhead. The primary source for this information is the Physician Practice Information (PPI) Survey, most recently conducted in 2007 and 2008 and reflecting 2006 data, which collects responses from self-employed physicians and selected nonphysician practitioners. Supplemental surveys have been conducted for selected specialties and nonphysician practitioners who were not included in the PPI Survey. The survey data are expressed as direct and indirect PE dollars per hour by specialty.

See Appendix F for a detailed description of the methodology used to generate the PE RVUs. In brief, CMS uses the current methodology to calculate the PE RVUs:

- Calculate the total amount ("pools") of indirect and direct RVUs using the ratio of the previous year's total PE RVUs to total work RVUs, the current pool of total work RVUs, and survey data on specialty-specific direct and indirect costs per hour.[2]
- Calculate direct PE for each procedure using refined direct PE inputs (clinical staff, equipment, and supplies) typically required to furnish a service based on CMS review of recommendations from the RUC. These inputs are scaled so that aggregate direct PE RVUs equal the direct PE RVU pool while ensuring that the relationship between the direct PE RVUs for any two services reflects the relative relationship between their direct PE costs.
- Allocate indirect PE to services using work RVUs (or clinical labor costs, when they are greater, for certain services with limited or no work RVUs, such as technical components), direct PE costs, and survey data on specialty-specific indirect costs.

Stakeholders and researchers have identified various potential shortcomings of the current PE allocation system, many of which are documented in public comments made during the annual MPFS rulemaking process. These include

- reliance on increasingly out-of-date data sources, such as the PPI Survey, with few mechanisms to update empirical inputs
- potentially inappropriate payment differentials across ambulatory places of service (e.g., hospital outpatient department [HOPD] versus physician office)
- a method of indirect PE allocation that might be unable to accurately reflect variation in PE across different types of services.

For a more in-depth discussion of these and other potential issues with the current PE allocation system, see the introduction to the Phase I report (Burgette et al., 2018).

Phase I Findings

The first phase of this study sought to evaluate potential data sources and alternative methodologies that could improve the rate setting of PE in the MPFS, assess the implications of potential refinements via modeling and simulation, and describe the mechanisms that would be needed to operationalize any improvements in the annual RVU updates.

RAND researchers focused on the following issues:

- updating and/or improving the input data used in the indirect cost-allocation process
- refining the current indirect cost–allocation process
- using hospital outpatient costs to inform or replace the PE rate-setting process.

We considered a number of concrete policy changes that imply different allocations of PE RVUs across services in the MPFS. For each option, we were interested in understanding how

[2] The current year's total PE pool is calculated as the product of this year's total work RVU pool and the ratio of last year's total PE RVUs to total work RVUs. This PE pool is divided into direct and indirect pools based on the weighted sum of specialty-specific direct and indirect costs per hour, in which the weight is the product of service volume and physician time.

the policy change would affect payments to different types of practitioners, primarily at the specialty level.

We reviewed data from the PPI Survey that are currently used for indirect PE allocation and considered alternative data sources that might be used to update the current process. We compared PPI Survey data, which were collected in 2007 and 2008, with data that are collected by Medical Group Management Association (MGMA) on an ongoing basis from a variety of specialties. Although some specialties, such as family medicine, are well represented in the MGMA data, others are not well represented, and sample sizes across specialties are not consistent. Therefore, we concluded that MGMA data alone could not be an adequate replacement for the PPI Survey data under the current PE system.

The MGMA data did allow us to examine associations between practice-level characteristics and expenses. Though we did not find that indirect PE costs vary significantly based on practice size, we did find that hospital-owned practices reported substantially less indirect PE, which might reflect efficiencies due to practice consolidation. This finding underscores the need to establish payment mechanisms that can be adapted more easily to changes in the health care system, such as shifts in practice ownership, that may, in turn, affect the structure of practice costs that the PE values aim to reflect.

We also used MGMA data to look for patterns among subcategories of indirect PE and examine whether allocation could be accomplished more accurately using different methods. We found that many indirect PE components have low—or even negative—correlations with direct PE and physician work RVUs at the practice level. This suggests that a different allocator or using a different process, such as moving some indirect costs out of the current indirect pool, might allow more-equitable indirect PE allocation. We looked specifically at the ratio of indirect PE to work RVUs for cognitive services (mostly counseling services), which have low levels of direct PE and therefore are allocated low indirect PE. We found that aligning indirect PE for these services to indirect PE for the most common evaluation and management (E&M) service would substantially increase payment for cognitive services specialists, with only a modest decrease in payment for other specialists. CMS has begun to phase in PE payment increases for cognitive services (42 C.F.R. Parts 405, 410, 414, 424, and 425).

The current system for setting indirect PE payments relies heavily on specialty-level inputs. In looking for opportunities to simplify the data inputs, we examined the impact of grouping specialties into broader groups using statistical clustering methods. We found that the number of distinct specialty groupings could be reduced substantially while creating modest specialty-level payment changes. However, the specialty groupings that resulted from our clustering were not sufficiently clinically coherent. Future work that accounts for the services that each specialty provides could improve this approach to simplifying PE data.

Considering changes in the health care system in recent years, we sought to understand the extent to which physicians perform work in a facility setting, as opposed to in a nonfacility (e.g., physician office) setting. We used Medicare claims data and interviews with facility-based

physicians to better understand where services are performed and the types of financial arrangements that physicians have with facilities. Our analysis revealed that many physicians bill Medicare almost entirely for services in facility settings. We also identified a number of services that are typically performed by physicians who are exclusively or almost exclusively based in a facility setting. Current policy makes PE payments for services in facility settings partially to offset expenses that are incurred to maintain a nonfacility physician office. Although these analyses suggest that some facility-based physicians might be paid too much PE, additional data collection might be necessary to design PE payments for services in facility settings.

Lastly, we used data generated as part of the 2017 rulemaking for the hospital Outpatient Prospective Payment System (OPPS) to examine the feasibility of using hospital outpatient data in the PE rate-setting process. The rationale for using OPPS cost data for PE rate setting is that many services can be provided in multiple settings, and the relative cost of providing these services might be similar across settings. Such an approach could align the rate-setting processes between nonfacility and outpatient settings and could reduce complexities, such as having separate direct- and indirect-cost RVU pools. There is no gold standard by which to determine whether relative values using the MPFS or an OPPS-based approach are more reflective of actual resource use, but using a consistent data source and methodology for both payment systems could help minimize payment differentials by site of service. To take this approach, several methodological refinements would be needed, such as determining which services have PE that can be valued using OPPS data, aligning OPPS and MPFS cost data and classifications, estimating HCPCS-level costs or ambulatory payment classification (APC)–level costs to reflect physician-service mix, and scaling the OPPS cost data into relative values that can be used in MPFS.

Current Study (Phase II)

This report describes the interim results of the second phase of the study, which builds on the results from Phase I. The themes from Phase I—updating the data inputs, refining the current rate-setting process, and examining ways to replace the current PE rate-setting process—remained constant, with Phase II building on that prior work. Following this Interim Phase II report, additional results and policy recommendations will be compiled in a Final Phase II report, to be written in 2021.

Updating Inputs

Current inputs that inform indirect PE rates reflect 2006 data and should be updated to ensure that the indirect component of MPFS rates reflect recent data. In Phase I of the study, we considered whether alternative data sources could be used as a replacement for current indirect inputs. We identified MGMA data as the most-complete PE data that are collected on an ongoing basis. However, we found that they are an unsuitable replacement for the PPI Survey because,

among other issues, some specialties are overrepresented and others are not included. Additionally, MGMA uses a nonprobability sample, and it is impossible to determine how well the included practices reflect national averages. Moreover, the data are proprietary and might not be suitable for rate-setting purposes. Our review of MGMA and other current data suggests that new data collection would be necessary to update inputs to the current system. Several approaches could be taken to collect new data, such as fielding a new survey, using cost data from existing cost-reporting systems (e.g., OPPS), or conducting new direct data collection efforts, such as a system of cost reporting akin to that which exists in institutional and other settings.

In Chapter 2 of this report, we explore the issues and considerations involved in the first of these approaches: fielding a survey replacement of the PPI Survey. To this end, we performed an environmental scan to identify available literature and previous surveys of physicians and physician practices that focused on topics related to PE. We also consulted with experts who have run similar data-collection efforts in the past. In Chapter 3, we use the products of the environmental scan to develop an extensive list of PE components that would need to be considered for comprehensive data collection and categorize them into groups that might be amenable to collecting new data.

Building on the environmental scan, we developed a survey instrument model to form a basis for discussion on developing a survey instrument to replace the PPI Survey values. The purposes of developing this survey model are to better understand the requirements and feasibility of data collection for replacing PPI data inputs and to provide concrete examples of the difficulties involved in developing a comprehensive survey that can be used by practices with a wide variety of business arrangements. Discussion of the survey model is in Chapter 4, and the survey instrument model itself is in Appendix D.

We convened a technical expert panel (TEP) to review the survey model and provide guidance on fine-tuning the instrument and deeper understanding of the survey burden among individual practices to complete the instrument. The survey model was used to focus a broader discussion on the system for assigning PE in the MPFS and how it might be improved. The TEP included physicians, health system leadership, experts on PE policy and data, and health policy researchers. A summary of the TEP discussion is included in Chapter 5. Because of the timing of the TEP panel relative to the writing of this report, not all of its recommendations have been addressed in this report, but they will be considered in our future work.

An Alternative Practice Expense Rate-Setting System and Existing Data to Support It

Chapter 6 presents a conceptual outline for a potential new framework for valuing PE. Rather than relying on a single pool of indirect costs, this new approach would break that pool into multiple smaller categories of PE, such as, for example, information technology (IT) expenses or costs of physician office space. We believe that this approach could yield multiple benefits. For example, by considering smaller, more-homogeneous expense types, we believe it would be

possible to specify allocators that better capture variation in PE across services than is possible in the current system. Some expense categories could be allocated without relying on specialty-specific measures, which could reduce overall survey burden. It also might be easier to account accurately for variation in PE across various practice types, such as by geographic location for facility versus nonfacility settings (e.g., patterns of variation in costs associated with renting physician office space might be different from differences in nonphysician labor costs). Moreover, it might be possible to use existing data sources to value some categories of PE. Chapter 6 includes a discussion of several such potential data sources. Because this system would introduce new data requirements, we discuss considerations for collecting such information.

Using Outpatient Prospective Payment System Data to Value Practice Expense

In Phase I, we considered the use of hospital cost data used in the OPPS for MPFS PE rate setting. In Phase II, we have built on this work by updating the analyses and adding methodological refinements. As part of the update to 2019 MPFS payment rules, we updated the set of codes identified as having adequate OPPS cost information to value PE. We also modified the categories of service in our impact assessment to align with the OPPS APC that groups services with similar clinical content and resource use. We then incorporated three refinements to cost estimates of services outside the intra-service period in nonfacility settings, for which there are not comparable OPPS costs for the same procedure code. First, in our estimate of postoperative visits comparable to outpatient clinic visits, we reduced the number of postoperative visits for services with global periods by estimating the actual number of visits rather than the expected number of visits. Then, in our estimate of pre-service and facility intra-service costs comparable to outpatient care management services, we grouped pre-services and facility intra-services for (nonphysician) clinical staff time by type of clinical labor activity and similar costs. Finally, in our reconciling of packaging differences between the two systems, we derived cost estimates of medical supplies incident to radiology, diagnostic services, and intravenous therapy that are packaged with primary procedures under the MPFS.

Following this Interim Phase II report, we will focus on approaches for more-limited use of OPPS information and for phasing in the use of the OPPS-based PE values. We will explore the use of budget neutrality constraints for categories of services that could be implemented to phase in the impact of moving from the current methodology to an OPPS-based methodology. In addition, we will assess not only the average impact but also the distributional impact on different practices. We also will explore the use of modified groupings of services based on APCs to assess the impact of valuing PE for groups of services rather than individual services. Clinical input on the set of services for which OPPS relative costs are comparable with nonfacility PE could be incorporated into a phase-in strategy.

Report Organization

The remainder of this report is organized as follows:

- Chapter 2: Considerations for Survey-Based Collection of Practice Expense
- Chapter 3: Practice Expense Components and Practice Characteristics
- Chapter 4: Survey Instrument Model
- Chapter 5: Technical Expert Panel Summary
- Chapter 6: An Alternative Framework for Allocating Indirect Practice Expense
- Chapter 7: Using Outpatient Prospective Payment System Relative Values to Determine Practice Expense
- Chapter 8: Conclusion
- Appendix A: Environmental Scan Detailed Methods and Additional Results
- Appendix B: Practice Expense Types
- Appendix C: Content of Previously Administered Practice Expense Surveys
- Appendix D: Survey Instrument Model
- Appendix E: Supplemental Information for the Outpatient Prospective Payment System Analyses
- Appendix F: Steps of the Current Algorithm Used in the Practice Expense Rate Setting.

2. Considerations for Survey-Based Collection of Practice Expense

Input data informing the indirect portion of PE in current MPFS rates was last collected through the PPI Survey in 2007 and 2008, reflecting 2006 data. The practice of health care has changed significantly since then, with many implications for PE (Berk, 2016). For example, common practice ownership structures have changed, with a trend toward integration with hospitals or corporate entities. The AMA's 2018 Physician Benchmark Survey found that, for the first time, there are fewer physician owners than employees (Kane, 2019). Since 2006, the rate of integration has varied significantly across specialties and practice types, with more-rapid integration occurring among medical and surgical specialty practices than within primary care practices (Nikpay, Richards, and Penson, 2018). Practices within larger health care organizations likely have cost structures that are different from small or single-physician practices because of centralized cost management, resource pooling, and enhanced purchasing power. Technological and regulatory changes also might have significantly affected PE in recent years, both adding and reducing expenses. For example, the Health Information Technology for Economic and Clinical Health (HITECH) Act, signed into law in 2009, substantially expanded use of electronic health records (EHRs) by encouraging their adoption (Slight et al., 2015). The increased use and development of EHR and other IT systems have added some operational expenses but might have substantially improved efficiency in communication among staff and in scheduling, billing, and other administrative functions (Manca, 2015). Therefore, the PPI Survey data used as inputs in PE rate setting likely no longer reflect the distribution of physician practice cost structures across specialties or other practice characteristics.

In the Phase I report, RAND evaluated whether other sources of PE collected more recently, such as the MGMA industry survey, could be used to update or replace the PPI Survey, but these sources were found to be insufficient (Burgette et al., 2018). Therefore, a new data collection effort likely will be necessary if PE inputs are to be comprehensively updated. Conducting a large-scale national survey of practices to replace the PPI Survey is one of several options for such an effort. As part of its consideration of these options, CMS asked RAND to investigate the issues involved and provide recommendations for how a voluntary survey of physician practices (administrable either directly by CMS or through a third party) would be developed and administered. (Other approaches to how some PE data could be updated are described and considered in Chapters 5 through 7.) In this chapter, we describe challenges and related considerations for conducting survey-based data collection to replace the inputs derived from the PPI Survey, assuming that the PE rate-setting methodology is otherwise maintained. In Chapter 3, we review prior surveys to investigate which practice characteristics and PE should be collected in survey-based data collection. In addition, we have created an illustrative survey

instrument model to show how a new survey might be approached; we describe this model and provide reference material for future survey efforts in Chapter 4.

Methods

The content of this chapter and the following chapter was informed by an environmental scan to compile available information on previously conducted surveys of physicians and physician practices on topics relevant to PE. Gathering information for the environmental scan consisted of two approaches: (1) a search of the academic literature, grey literature, and prior surveys; and (2) consultation with RAND experts on survey administration in general and physician surveys in particular.

Academic and grey literature that discussed PE or survey administration to physicians or physician practices was compiled using a PubMed electronic database search and a citation snowball method (details in Appendix A). Additional literature and resources were identified through general web search and consultation with employees of CMS and the U.S. Census Bureau. Each publication was reviewed by one of three researchers who extracted relevant information related to measuring PE and surveying physician practices or physician populations.

We supplemented our database search with additional relevant publications and surveys recommended during interviews with four RAND experts in designing and administering physician practice surveys. These experts also provided their input on guidance and recommendations from the literature.

Because the identified articles included both studies that were using a physician survey to obtain data and studies that were specifically testing and comparing different methodologies for physician survey administration, we abstracted both methods and considerations described therein. We abstracted description and discussion related to survey administration mode, communication and recruitment techniques, respondents, sampling, length, timing, response rates and any other administration characteristics related to response rates, respondent burden, data accuracy, or administration feasibility. We identified common themes from these article abstractions and outlined considerations with particular relevance to measuring PE in the report. We excluded considerations that were not related to a PE survey of physician practices directed by CMS (for example, sampling by characteristics that affect practice revenues rather than PE).

Findings

Fewer people have been responding to surveys in general over time, which has made it more costly to achieve desired quality and sample sizes (Czajka and Beyler, 2016). Federal surveys, which historically have achieved a better response rate than most surveys, have not been immune to declining response rates and related difficulties (Czajka and Beyler, 2016). These trends likely also will affect any new survey efforts to collect PE and will be compounded by the complexity of the topic and the need to construct a sample from a population whose members have many

demands on their time. For instance, the RUC surveys that inform valuation of work RVUs and direct costs often have very low response rates; the U.S. Government Accountability Office (GAO) reported in 2015 that the median response rate was 2.2 percent (GAO, 2015). Uncommon efforts or expense might be necessary to collect survey data of a quality that can support changes in MPFS rates. The Medicare Access and CHIP [Children's Health Insurance Program] Reauthorization Act granted CMS the authority to suspend a portion of payments as a means of compelling providers to fulfill reporting duties for a specific rate-setting data collection effort; however, CMS declined to use this authority in favor of voluntary participation (Pub. L. 114–10).

In this context, we used the environmental scan to compile guidance and considerations of particular relevance to a survey of PE and to highlight challenges that lack clear guidance. We also constructed some general guidelines for improving response rates and data quality in surveys of physicians, which we report in Appendix A. Additional comments from members of the TEP on means of improving response rates are reported in the section titled "Possibilities to Maximize Response Rates," in Chapter 5. It is important to note that the scope and complexity of the subject matter in PE make this effort distinct from typical surveys of physicians, and general recommendations might not apply.

Sampling Frame

The PPI Survey, which provides data for current PE inputs, relied on a sampling frame of physicians. (A sampling frame is the source from which a sample to collect data on a target population is drawn.) To update indirect PE inputs for the MPFS, the precise population to target is an open question. Because large practices see more patients and have more physicians, a sample designed to estimate quantities related to the average *practice* would favor smaller practices than a sample designed to estimate analogous measures for the average *physician*. A physician-based sampling frame would be expected to yield estimates that relate to the average physician rather than the average practice. Samples drawn from a sampling frame of physicians might yield PE rates that reflect different relative resource costs among services rendered than those of a sample relying on a sampling frame of practices.

No comprehensive databases dedicated to physician practices in the United States emerged in our environmental scan. To sample physician practices directly, a database potentially could be constructed and evaluated for representativeness using administrative records, such as a Taxpayer Identification Number (TIN). Practices could be sampled indirectly by using a sampling frame of actively practicing physicians and then weighting to match desired practice characteristics. These physicians could be identified through several methods. For CMS, all physicians enrolled in Medicare and submitting FFS claims can be identified through the provider-level Medicare Data on Provider Practice and Specialty (MD-PPAS) database, which includes both National Provider Identifiers (NPIs) and the TINs for each (Research Data Assistance Center [ResDAC], 2019). Using NPIs and TINs, it might be possible for CMS to

approximate practice and parent organization structures, such as identifying a hospital that has an ownership stake in a practice. Furthermore, these data contain specialty information according to Provider Enrollment, Chain, and Ownership System (PECOS) designations that also could be helpful to achieve the desired sample (ResDAC, 2019). Medicare Administrative Contractors (MACs) that process claims also might be able to provide other practice information useful to selecting and contacting a desired sample.[3] Several proprietary databases of physicians also exist, with varying qualities and features. We list, describe, and evaluate these data sources in Appendix A. Under a physician-based sampling frame, if estimates relating to PE of the average practice are desired (as opposed to the average physician), physicians in small practices might need to be targeted to achieve adequate sample sizes because larger practices have more physicians. In this case, the availability of auxiliary data on practice size (from claims or other sources) might be an important consideration in selection of sample frame.

Respondent Type

Several respondents within a practice could fill out a survey of PE. In fact, given the breadth of information a PE survey would likely collect, multiple respondents at each practice might need to work together to complete the survey (Birnberg et al., 2011; Daniel et al., 2013). For this reason, experts suggest that it is important to clearly identify a point of contact for the survey, especially for multisite practices. Experts also advise specifying the roles of those who fill out the survey within a practice because different practices might be more likely to rely on some respondents than others, and adjustments to results based upon type of respondent might be necessary to mitigate bias (Berk, Mueller, and Thran, 1996). Physicians might lack familiarity with administrative details of their practice that affect PE; therefore, practice managers or other administrative staff with appropriate knowledge of necessary records might need to be involved (Halley et al., 2017; see also Chapter 5). In addition, practice managers or other administrative staff often serve as gatekeepers to the physician; therefore, their cooperation might be useful if physician input on the survey is desired (Klabunde, Willis, and Casalino, 2013).

Complexity and Length

As length and complexity of a survey increase, response rates and survey completion tend to decrease and administrative costs tend to increase. This might be especially true for such an inherently complex and potentially time-consuming survey topic as PE. Survey administration on this topic will require balancing the need for detail with the need for data reliability and accuracy. Some experts have suggested identifying and prioritizing a limited set of core PE

[3] MACs are private health care insurers that process Medicare Part A and Part B medical claims, or durable medical equipment claims for Medicare FFS beneficiaries. There are 16 MACs in the United States that have been awarded geographic jurisdictions and process FFS claims for nearly 68 percent of the total Medicare beneficiary population (see CMS, 2019d).

components most consequential to rate setting as a means of managing survey length and achieving higher response (Berk, 2016). RAND experts advised that another approach to addressing this issue is to administer surveys of different complexities in waves. For example, the first wave could field the full survey to the entire sample, and the second wave could include a follow-up with nonresponders with a shorter version of the survey, which would contain only the most critical, underrepresented, or underreported information. (Members of the TEP discussed some of the challenges with this option; see the section titled "Appropriate Level of Aggregation of Practice Expense Categories," in Chapter 5.) Experts also recommended including an explicit statement of survey length and a means of progress tracking to help respondents with time management.

Experts also noted that complex or lengthy surveys of practices can require a high degree of assistance and clarification from survey administrators. Moreover, detailed questions about a practice's characteristics and finances might prompt questions from respondents about confidentiality and how their data will be used. These factors can add to the expense of administering lengthy and complex surveys of practices.

Updating Data Inputs Over Time

As of the writing of this report, almost 15 years have elapsed since inputs on PE have been updated, which in part reflects the significant challenge and expense that would confront administrators to carry out a new, large-scale survey. Although the short-term benefits of accurate data might be significant, over time they will once again become inaccurate if continued efforts are not made to update them. To do this using a large-scale survey with data of adequate quality would be expensive to collect and burdensome for sampled practices.

A TEP, summarized in detail in Chapter 5, discussed the merits of collecting data on a more regular basis through a moderately sized, rotating panel of practices. In addition to providing more-frequently updated data, a small panel could enable the concentration of resources into helping practices accurately report and validate the PE data they provide. TEP members suggested that the panel could be purposely selected to achieve a mix of practices representative of characteristics tied to distinctive cost structures, such as specialty and size. Administrators could further set weights to account for demographic differences between the panel and the target population of practices. Questions to consider, however, include whether such a design would provide adequate representation of small specialties or rare practice types and whether wider efforts might be necessary periodically to provide such coverage. Regardless of whether such a panel is used to repeatedly gather information from certain practices, survey designers might want to invest in a system that is able to update key measures periodically so that changes in PE are incorporated into PE rate setting more quickly in the future.

Additional Considerations for Measuring Practice Expense in a Survey

We identified several significant challenges in measuring PE that lacked clear guidelines. These include (1) how to account for complex and varying distribution of costs and resources among medical organizations and (2) how to collect accurate data given inconsistencies across practices in expense terminology, accounting, and record-keeping. In this subsection, we describe each of these challenges in more detail and give suggestions for how a future survey might approach them. Note that we use the term *PE components* to refer to discrete units of expense that constitute total PE.

Complex and Varying Distribution of Costs and Resources

Complete and accurate recording of PE has become more difficult as practices have consolidated into larger organizations and the financial relationships among providers have become more complex (Kane, 2019). Accurately accounting for PE will require identifying the relationships in which resources and expenses can be shared and in what amounts, such as through ownership relationships or other arrangements through which expenses are shared. Variations in how these expenses are allocated among practices within an organization (e.g., per physician, per service) add another layer of complexity. We describe each of these issues in more detail in this section.

Identifying the existence of a relevant relationship between a practice and another medical organization can be complicated by a lack of universally understood terms by which to describe these relationships. Survey designers will need to limit ambiguity in questions as much as possible, as lack of clarity can suppress response rates and degrade the accuracy of reported information. At a minimum, ownership relationships should be identified. As mentioned, it is possible to determine ownership relationships among Medicare-enrolled providers through MD-PPAS, which contains the provider's NPI and TIN. CMS survey administrators might use this data to reduce survey burden and inaccuracies. Other financial arrangements, such as shared incentives through accountable care organizations (ACOs), also might be important to measure, and ways to appropriately identify them should be carefully considered. Additionally, it might be useful to identify the type of medical organization with which a relationships exists (e.g., hospital, health insurance company) to provide insight on the nature of the arrangement and a means of improving data imputations when responses are missing. For instance, independent practice associations (IPAs) are networks of practices that are often formed for purposes of sharing overhead expenses or negotiating health plan contracts. In short, although ownership information might be available through existing CMS administrative data, financial arrangements between practices and parent organizations would need to be gathered to have a complete understanding of PE.

If a respondent practice has a parent organization, the survey might need to determine which PE components are shared between these entities and the value of shared expenses. Figure 2.1 illustrates the logic structure of a survey question designed to capture this information. These

entities can share a variety of PE components—building costs, medical supplies and equipment, billing and record-keeping systems—and the particular expense components that are shared will vary from practice to practice. Asking for this level of information would improve completeness of expenses pertaining to operating the practice, but it is also important to avoid adding significantly to survey complexity, burden, and length so as not to compromise response rate or survey completion. To reduce respondent burden and improve accuracy, some interviewed experts suggested allowing respondents to provide shared expenses in a form that aligns with their accounting practices. This example question structure shows how survey administrators might determine whether the practice or a related entity is responsible for the cost of a specific expense item, the cost of that expense, and various options to record how the expense category is paid and how often.

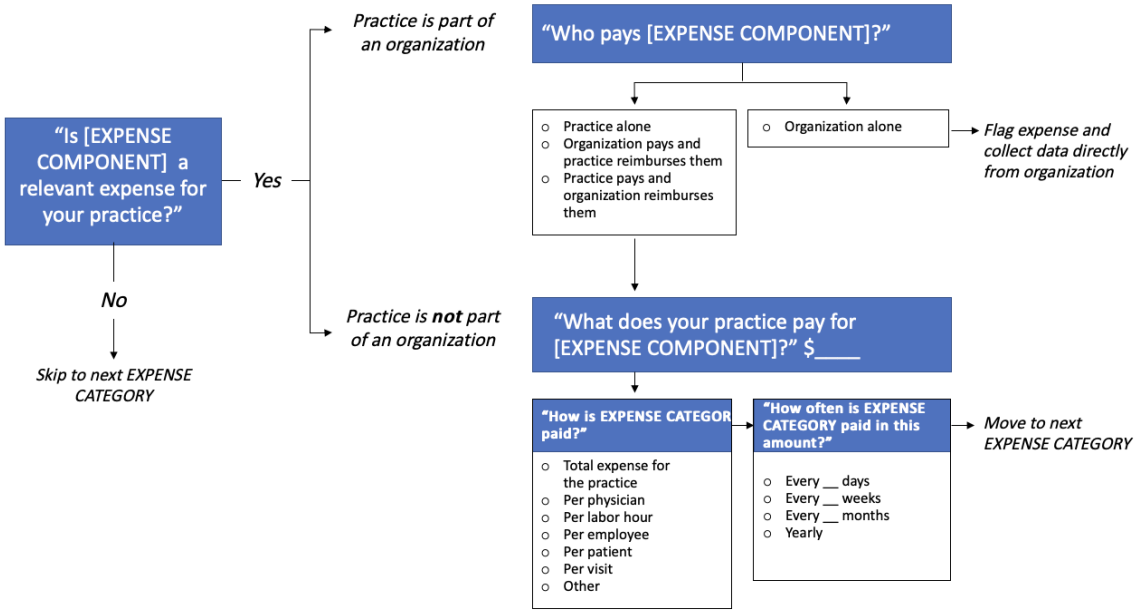
There are a few key challenges to obtaining accurate information about PE when a practice belongs to a larger organization: (1) respondent practices might not be able to report a PE amount that they do not pay; and (2) the amount paid might not reflect the true cost of providing services depending on how the parent organization attributes PE to a practice.

Regarding the first issue, the parent organization alone might pay for an expense component (and thus the practice might be unaware of the dollar figure for the cost of that expense). In this case, the survey question should indicate when a follow-up survey of the parent organization might be needed to determine the PE amount. We discuss the considerations for such a follow-up organization-level survey later.

Regarding the second issue, allocation methods can vary significantly between medical organizations with multiple practices. For example, a parent organization that pays for billing directly might apportion shares of this expense based on the physician-hours worked in each subsidiary practice (Friedberg et al., 2018), whereas others might allocate the same expense component by the number of patient visits in each practice. Moreover, the forms of potential expense allocation among practices depend on the type of expense component (Mulcahy, Becker, et al., 2019). For example, expense components regarding facilities might be allocated by square foot of office space, and costs related to a shared scheduling answering service might be allocated by the relative number of patient visits.

When a parent organization is allocating costs for PE, expense-allocation methods could be developed to adjust reported expenses for a given practice to be consistent with Medicare's cost reporting policies for institutional providers (CMS, 2020). Medicare policies for institutional providers limit payment for services provided by a related organization to the lower of the related organization's cost in providing the services or the market value of the services. However, experience from institutional cost reporting suggests that the allocation methods can be complex and might not be feasible for survey respondents without a follow-up survey of the parent organization.

Figure 2.1. Decision Tree for Identifying and Reporting Shared Practice Expenses



In light of the issues we have described, a follow-up organization-level survey might be needed to determine PE information, which might have a substantial impact on the percentage of complete responses and the cost of survey administration. Thus, surveyors will need to consider how best to balance the higher accuracy of PE data collected at this level of detail against the missing or incomplete data that could result from increased nonresponse. In recommendations to CMS for the development of a data collection plan among entities furnishing ground ambulance services in Medicare, researchers recommended that ambulance organizations be required to specify how expenses are allocated between the reporting entity and parent (Mulcahy, Becker, et al., 2019). One option to reduce survey burden would be to have respondents identify shared PE components without reporting the amount shared. Survey administrators could then impute the value of those shared PE components using response data from other practices with similar characteristics that reported paying the entire expense amount (Berk, Mueller, and Thran, 1996). Although this approach would simplify reporting, imputed data could be biased to the extent that cost structures of practices without shared expenses differ systematically from those in practices with shared expenses. A more feasible approach than a parent organization survey might be for the respondent practice to identify the relevant expense component and the survey administrator to obtain an estimate of the market value of the services either by asking the respondent or through market research. The reasonableness of the estimate could be evaluated against survey responses from practices that obtain comparable services on the open market.

Inconsistencies in Expense Terminology, Accounting, and Record-Keeping

To avoid inconsistent reporting of PE components across respondents, the survey should describe those components in terms that will be most widely understood. A sufficiently common term might not exist for some components, however, and further explanation or examples will need to be provided to establish consistent interpretations. Interviewed experts indicated, for example, that such terms as *medical equipment* could be interpreted differently across practices, and additional information on what to include and exclude in reporting that expense should be provided.

It is also likely that practices differ in the ways they aggregate PE components in their accounting practices, which might present a challenge in setting an appropriate level of expense aggregation for PE surveys. RAND experts indicated that practices might struggle to provide precise information on aggregations of PE components that differ from those that appear in their own accounting systems. Disaggregating or reaggregating expenses to respond to questions on a survey can be burdensome and time-consuming. Differentiating between direct and indirect expenses might further complicate and constrain data collection. For example, expenses associated with IT are composed of a variety of interrelated components, including hardware, software, maintenance, and service, that span both direct (e.g., equipment, software, and analysis-related clinical equipment) and indirect (e.g., human resources and billing software) expenses.

To the extent possible, RAND experts recommended that term use and expense categorization in a survey should be guided by terminology and concepts commonly encountered by all businesses, such as with tax reporting to the Internal Revenue Service (IRS) or other common accounting standards. Reporting accuracy could be internally verified by survey administrators if respondents are asked to report top-line expenses, such as total payroll, which could be compared with the sum of reported PE components in that category.

Summary

Trends in survey response rates, the complexity of measuring PE in a survey, and characteristics of the target population likely will make any new effort to replace the PPI Survey that relies on voluntary participation of respondents both costly and challenging. As an alternative to voluntary participation, survey responses could be compelled through directives and associated penalties, although this option would likely meet strong resistance by some stakeholders. A few guidelines and considerations that might improve response and accuracy in a voluntary survey emerged from the environmental scan, and CMS might want to consider these when defining scope of work from survey vendors. These guidelines and considerations include the following:

1. Elicit the participation and cooperation of office managers or administrators, in addition to physicians, as survey respondents.

2. Consider a multi-wave approach with a short-form survey delivered on follow-up to initial nonresponders to help boost response among practices turned away by the complexity of a detailed PE survey.
3. Allocate part of the budget for trained and knowledgeable administrators to give assistance and answer detailed questions about the survey via phone.

There are also challenges for a PE survey for which the available literature offers limited guidance. Important financial relationships, such as ownership and the kinds and amounts of shared expenses, will need to be clearly identified to produce accurate estimates of PE. To avoid the complications and expense of collecting data at both ends of such relationships, survey administrators should investigate ways that missing expense data can be imputed. Another challenge will be how to collect accurate data given inconsistencies across practices in expense terminology, accounting, and record-keeping. It is particularly important, in this case, to align wording with common terms where possible so that language will be consistently understood across practices, as occurs in tax accounting.

We anticipate that successfully updating the inputs currently provided by the PPI Survey will require a substantial up-front investment to gain buy-in from stakeholders and to optimize the survey instrument through pilot studies. Much of the discussion in this chapter is aimed at reducing survey burden for CMS, practices, and other stakeholders, while still collecting high-quality data to support PE rate setting. The success of fielding a new PE survey will hinge on achieving a response rate that can credibly support changes in payment rates.

3. Practice Expense Components and Practice Characteristics

A new data-collection effort to update indirect PE inputs into the MPFS will require determining total PE, along with having the ability to disaggregate it into groupings compatible with the allocation methodology. Practice characteristics also will have to be collected to enable weighting of estimates for sample representativeness and other adjustments, as needed. To assist in developing a PE data-collection effort that is accurate, complete, and compatible with the current PE algorithm, we compiled a comprehensive list of practice characteristics and PE components and categorized these characteristics and PE components into groups that might be useful. We used these categorized components to form the basis of a survey instrument model, which we describe in Chapter 4.

Methods

To identify relevant practice characteristics and PE components, we reviewed public, government, and proprietary physician surveys relevant to PE identified by our environmental scan, described in the previous chapter and in Appendix A. We created an initial list of surveys with respondents who are physicians or employees of physician practices in the United States. We then excluded surveys that were solely focused on physicians' perspectives (for example, on clinical care, how physicians are compensated, or practice patterns) or did not contain questions on PE or organization. From these surveys, we extracted all questions pertaining to a practice's characteristics, expenses, and labor force. In addition, we collected metadata from each survey, including administrator, sampling frame, respondent type, mode, response rates, time to complete the survey, and the number of items relevant to PE.

We then created a list of PE components to provide a resource for determining whether all aspects of PE have been considered when constructing a survey. We used prior survey questions, articles from the literature review, and feedback from experts at RAND and CMS to assemble a comprehensive list of PE components. Note that we anticipated differences in how expenses are incurred and defined across practices, so this list of PE components was not intended to be mutually exclusive.

We sorted these PE components and characteristics into categories to form a conceptual basis for how PE might be organized in a survey to update inputs to the MPFS. Items were grouped based on several considerations, including common practice observed in prior surveys; common systems of accounting, such as the MGMA Chart of Accounts; compatibility of data output with the current MPFS algorithm; and recommendations from topic experts.

Prior Surveys Relevant to Practice Expense

Using the environmental scan, we sought to identify all prior surveys relevant to PE to elucidate how PE has been measured, from sampling frames and types of respondents targeted to modes, response rates, and level of burden on the respondent. We identified 39 original surveys or questionnaires of physicians or physician practices that met the search criteria outlined in our methods. Of these, we identified 14 surveys relevant to PE; we call these the *prior surveys*. Table 3.1 summarizes the key characteristics of these 14 surveys.

Prior surveys had a mean response rate of 31.8 percent (a range of 6 to 78 percent). Time-to-complete could only be determined for a minority of surveys; the more extensive data-collection efforts generally do not report completion times. There was an inverse trend between response rate and number of survey questions overall. The number of items relevant to PE—which we considered to include questions related to practice characteristics, specific costs, or number of staff—ranged from ten to 77. Among the surveys where sampling frame could be determined, the AMA Physician Masterfile was the most common (four surveys). Surveys most commonly targeted physicians, administrators, or both to participate and used multiple survey modes.

We compiled PE-relevant questions from these surveys into a catalog, which we referenced to determine common question structures and language while creating questions in our survey model (described in Chapter 4). Appendix C shows the types of questions that appeared in a selection of relevant prior surveys for which complete survey instruments were available. Five surveys—the PPI Survey, the MGMA Cost and Revenue Survey, the Physician Practice Financial Questionnaire (PPFQ), the Workers' Compensation Practice Expense Survey, and the Service Annual Survey (SAS)—contained a comprehensive set of questions measuring PE. The other surveys with available survey instruments included some questions related to PE, but they are generally focused on other topics.

Table 3.1. Characteristics of Surveys Relevant to Practice Expense Identified in Environmental Scan

Survey	Administrator	Sampling Frame	Respondent Type	Response Rate	Number of Items Relevant to Practice Expense	Mode	Time (Minutes)
Continuing Survey	*Medical Economics* (journal)	Unknown	Unclear[c]	Unknown	Unknown	Unknown	Unknown
Cost and Revenue Survey	MGMA	Opt-in	Unclear[c]	N/A	67–77 (specialty-dependent)	Unknown	Unknown
Cost of reporting quality measures	Casalino et al., 2016	MGMA database	Unclear ("leader" in each practice)	54.3%	19	Web	Unknown
MEPS Medical Provider Component—Medical Organizations Survey (MEPS MOS)	Research Triangle Institute (for AHRQ)	Eligible providers were the "usual place of care" of participants in the National Health Interview Survey (U.S. household sample)	Health provider[c]	76%	10	Phone; fax; mail; email	5–10
National Ambulatory Medical Care Survey (NAMCS)[f]	Centers for Disease Control and Prevention	AMA and AOA Masterfiles	Physician; administrator	29.5%[b]	33	Paper (pre-2012); electronic (post-2012)	30
Pennsylvania Chronic Care Initiative (PACCI) Practice Survey	Martsolf et al., 2015	Practices participating in PACCI (medical home pilot)	Unclear ("leader" in each practice)	78%	15	Mail	Unknown

Survey	Administrator	Sampling Frame	Respondent Type	Response Rate	Number of Items Relevant to Practice Expense	Mode	Time (Minutes)
Physician Compensation and Productivity Survey	SullivanCotter	Unknown	Unclear[c]	Unknown	Unknown	Unknown	Unknown
PPFQ	Friedberg et al., 2015	Practices in six geographic markets included in the CTS and HTPS	Physician; administrator	Unknown	40–45 (specialty-dependent)	Mail; fax	Unknown
PPI Survey	Doane Marketing Research and Gallup Organization (for AMA)	AMA's Physician Masterfile	Health care providers with input from managers and accountants	12%	53	Phone; fax, mail; web	35
SAS	U.S. Census Bureau	Business Register	Unclear	68.6%[d]	12	Web	Unknown
"Supplemental" Practice Expense (SPE) Surveys	Lewin Group (for ACC, ACR, ASTRO)	AMA Masterfile (cardiology, radiation oncology); Radiology Business Managers Association (radiology)	Physicians; managers	13%–23%[a]	Unknown	Phone interview	12–15
Statistics Report on Medical and Dental Income and Expense Averages	National Society of Certified Healthcare Business Consultants	Unknown	Unclear[c]	Unknown	Unknown	Unknown	Unknown

Survey	Administrator	Sampling Frame	Respondent Type	Response Rate	Number of Items Relevant to Practice Expense	Mode	Time (Minutes)
Survey on physician costs to interact with health plans	Casalino et al., 2016	AMA Masterfile; MGMA database	Physician; administrator	51.5%	Unknown	Mail	Unknown
Workers' Compensation Practice Expense Survey	Lewin Group (for Industrial Medical Council of the California Department of Industrial Relations)	(1) Qualified Medical Examiners; (2) providers who billed various workers' compensation insurance carriers; (3) State of California Insurance Fund (SCIF) Preferred Provider Network	Office administrators most knowledgeable about practice costs	5.83%	22	Phone	Unknown

NOTES*:* ACC = American College of Cardiology; ACR = American College of Radiology; AHRQ = Agency for Healthcare Research and Quality; ASTRO = American Society for Radiation Oncology; AOA = American Osteopathic Association; CTS = Community Tracking Study; HTPS = Health Tracking Physician Survey; MEPS = Medical Expenditure Panel Survey; N/A = not applicable; PACCI = Pennsylvania Chronic Care Initiative.

[a] Survey response reported by specialty: 13% (cardiology), 21% (radiology), 23% (radiation oncology).

[b] Sample that provided at least one visit record. Core sample response of 46%.

[c] Survey appears to be for physicians, but office staff likely needed to complete the information required.

[d] Unit response rate for the "Health Care and Social Assistance" sector as a whole, not for physician offices.

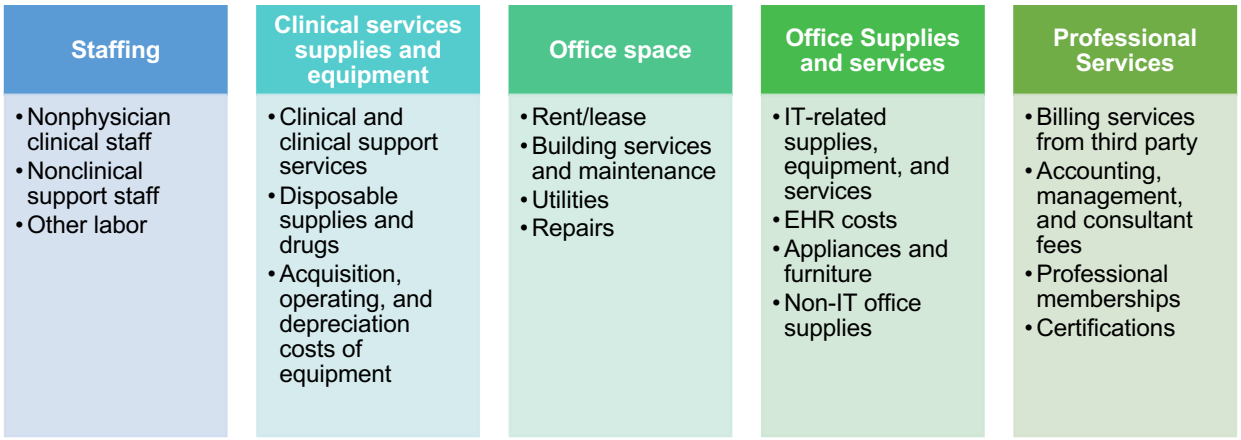
[e] Subquestions are counted as individual items.

[f] NAMCS includes the physician induction interview, the community health center administrator/provider interview, and the EHRs supplement.

Practice Expense Components and Categories

We created a list of PE components that tend to make up total PE and organized them into five conceptual categories: (1) staffing; (2) clinical services, supplies, and equipment; (3) office space; (4) office supplies and services; and (5) professional services. Figure 3.1 shows the categories and examples of types of PE components contained in each. Appendix B includes the comprehensive list of PE components that we constructed from the environmental scan. Detail on the content and rationale of each category is described in the following subsections. Note that we do not strictly organize the categories based on the current system's direct and indirect classifications, although resulting survey results would be compatible with the current definitions. We believe that the categories defined in these subsections might be more easily understood by all, including respondents who do not have expertise with Medicare's current PE payment policies.

Figure 3.1. Practice Expense Categories



Staffing

All staff and labor expenses are grouped in their own category, regardless of whether they relate to direct clinical care. In accounting practice, labor is generally considered to be distinct within operating expenses, and associated expenses tend to be reported on their own. Our approach is also consistent with other surveys that collect labor data separately from other expenses.[4] Types of expenses in this category include salary and benefits and time for nonphysician clinical staff and support staff. Physician pay and benefits are covered by work RVUs rather than PE RVUs.

[4] Examples include the PPI Survey, the U.S. Census Bureau's SAS, and MGMA's Cost and Revenue Survey.

Clinical Services, Supplies, and Equipment

Under the current rate-setting algorithm, PEs must be distinguishable by whether they are directly associated with providing clinical services or are only indirectly related. The expenses in this category are nonlabor costs associated with the direct observation, diagnosis, or treatment of patients, and they largely correspond to expenses related to direct PE. Direct cost estimates enter the PE algorithm via two entirely separate measures. First, at the HCPCS level, these expenses currently are measured through the Direct Practice Expense Input (DPEI) database; this report does not focus on updating these data. Second, at the specialty level, the indirect allocator depends on the ratio of indirect PE to direct PE as measured in the PPI Survey. These ratios could be updated if a new PE survey were to be administered. (See Appendix E for full details.) Comparing reported clinical expenses with analogous expenses in the DPEI, in some cases, could be used as a validity check of the accuracy of newly reported practice-level PE data.

Office Space

Expenses associated with office space include periodic expenses, such as rent or lease payments, as well as intermittent repair and maintenance costs. Office space constitutes a significant category of indirect PE and is a top three indirect expense, according to MGMA data (Burgette et al., 2018). The nature of expenses associated with occupancy can vary significantly by such practice characteristics as size and whether a practice owns or rents. Other features of the office space, such as the proportion of space that is used for clinical versus nonclinical purposes, might be relevant for understanding variation in PE across practices or developing alternative methods of allocating indirect PE in the MPFS (see Chapter 6 for discussion of alternative approaches to allocating PE).

Office Supplies and Services

These expenses generally encompass supplies and services used in the day-to-day administrative functions of the office and are not tied to the direct observation, diagnosis, and treatment of patients. Included in this category are costs associated with IT systems, including electronic medical records (EMRs), which have grown significantly as a source of expense since the PPI Survey was fielded. The MGMA estimated that between 2009 and 2015, costs related to health care IT grew 40 percent per physician (Japsen, 2016). Given this rapidly changing landscape, accounting for the various components of IT-related costs (i.e., new IT itself, staff, maintenance, and other related costs) might be important to overall PE. Moreover, accurately capturing these expenses in MPFS payments is important because health technology and related implementation of EMRs ranks among the top ten practice and career concerns of physicians (Japsen, 2016).

Professional Services

These expenses relate to third-party professional services, memberships, and expenses associated with the maintenance of professional competence.

Practice Characteristics

Beyond PE components, we identified various practice characteristics that could be useful or relevant to updating PE inputs. The type and detail of practice characteristics collected in prior surveys vary significantly. The MGMA Cost and Revenue Survey and the NAMCS include the most-comprehensive questions on PE-relevant characteristics; the SAS is the most limited in this regard. (See Appendix C for the types of practice characteristics included in the prior surveys.) Practice characteristics that we identified as particularly important to PE include practice size, organizational structure and ownership, specialty, payer and patient mix, participation in value-based programs, and setting where services are performed (i.e., a facility or a nonfacility).

Practice characteristics might be important to measure for a variety of reasons. For instance, some characteristics might be necessary to produce data in a compatible form for the MPFS methodology. Under the current methodology, the amount of PE that is paid with a particular service charge is informed by the specialties that tend to charge for that service and the PE structures of each specialty. Therefore, it is important to know the specialty mix of a practice to produce those inputs. Practice characteristics also might be necessary for survey weighting to achieve a representative sample. Interviewed experts raised concerns that past survey efforts to measure PE have tended to favor some practice types (such as small versus large practices) over others.

Measuring practice characteristics also provides a means of analyzing factors that influence how PE varies, which will provide useful information in discussions of MPFS reform among the public, regulators, and policymakers. For instance, understanding how PE varies by practice size could provide insight into the economies of scale that result from higher volume.

Chapter Summary

In this chapter, we reviewed prior surveys of physicians and physician practices with content relevant to PE to identify practice characteristics and PE components that might be important to measure to update indirect PE inputs to the MPFS. Among prior identified surveys that included questions relevant to PE, there was a wide variety of sampling frames, modes, lengths, and response rates, so no common template exists for how PE should be measured or how a PE survey should be approached. As survey length increased, response rates tended to decline; therefore, future administrators of a survey of PE should limit survey length when possible.

We compiled a list of PE components and then categorized these components into conceptual groups with distinctive qualities as the basis for the structure and organization of a survey

instrument model, described in the following chapter. These groups included staffing; clinical services, supplies, and equipment; office space; office supplies and services; and professional services. We also identified potentially important practice characteristics to include in future data collection, including practice size, organizational structure and ownership, specialty, payer and patient mix, participation in value-based programs, and the setting where services are performed (i.e., a facility or a nonfacility).

4. Survey Instrument Model

In the previous two chapters, we described the results of our environmental scan, which included a review of prior surveys with relevance to measuring PE. The results provided a framework for constructing a survey instrument model to demonstrate possible approaches for updating PE data. In this chapter, we describe our approach to developing this instrument model and outline its content; the instrument model itself is provided in Appendix D.

Note that the model is for illustrative purposes; it should be used only as a basis for discussion and reference material in future efforts to update PE inputs through a survey. PE varies widely across specialties or practice types and might have changed substantially in recent years. Further input from experts and pilot testing will be necessary to refine the content, language, and structure of any new PE survey.

Methods

Through an iterative process, we constructed a PE survey instrument model to demonstrate how a survey to update PE inputs in the MPFS could be structured and the challenges involved. As described in Chapter 3, we created a list of PE components to confirm that we considered all aspects of PE when constructing the survey model. We sorted these PE components into categories to form a conceptual basis for how PE might be organized in a survey. These categories formed the basis for how we structured the survey instrument model.

Survey item construction was approached in the following way. First, we gathered survey items from prior surveys (including the PPI Survey) and organized them into survey sections that corresponded to our conceptual categories of PE. We used the questions as source material for question language and structure in the model, and we developed additional questions regarding PE components that prior survey questions did not cover (e.g., reflecting new PE and PE structures since these surveys were conducted). Successive drafts were discussed until we reached consensus with consideration of feedback from RAND internal experts not on the project team. We tended to base decisions on how to structure questions, such as whether PE components should be measured separately or combined with other components, on the relative size of the expense component (based on current rates and what is known from other sources), variation of the resources associated with the PE component among practices, and the extent to which the expense might have changed since it was last measured. (For more information on these criteria, see the Chapter 2 sections titled “Complexity and Length,” “Updating Data Inputs Over Time,” and “Complex and Varying Distribution of Costs and Resources.”) For instance, we placed a higher priority on independently measuring components that were large (e.g., medical supplies), varied significantly across specialty or other important practice characteristics (e.g.,

medical equipment), or had changed significantly over time (e.g., IT). To encourage higher completion rates of high-priority items, we ordered survey sections so that they were in general alignment with the relative sizes of the expense category, such that categories of PE that account for larger portions of total PE tend to appear earlier in the survey.

We also considered ease of data collection in our drafting decisions, including the anticipated ability of practices to accurately report an item, anticipated burden to the respondent (i.e., time to complete), and anticipated burden to the survey administrator (i.e., cost of survey administration). We expect the burden of determining and reporting expense items to vary by practice, based on results of the environmental scan. In several instances, we sought to give participants more than one option for reporting a PE component, including options where precise accounting is not required (see the Chapter 2 section titled "Inconsistencies in Expense Terminology, Accounting, and Record-Keeping"). We used prior surveys as a guide for overall length by limiting the length of the survey model so that the number of questions and pages would not exceed that of prior surveys.

We also expect the burden of reporting expense items to vary by expense type. For example, the way that a practice may track and can report staffing expenses likely differs from the way it does so for office supplies. Therefore, we considered multiple hypothetical question archetypes to capture PE items, including general goods and services, staffing, and "big-ticket" items that might have a down payment or upfront costs and marginal additional costs, over a longer time horizon (i.e., more than one year). We designed these archetypes to reflect instances in which expenses might be shared by a parent organization or other entity and then used the archetypes to guide question development for relevant types of PE.

We provide further detail and justification for specific content decisions in the following sections describing the survey model.

Survey Instrument Model

We designed this survey model both to maintain input compatibility with the current rate-setting algorithm (Appendix F) and to gather additional information to support consideration of limited changes to the current algorithm. For instance, to maintain input compatibility, expenses that are currently reported directly to CMS, such as clinical supplies and equipment, must still be collected in the survey to determine direct-to-indirect expense ratios. Similarly, expenses need to be adjusted on a per-physician-hour basis to account for differences between practices (i.e., practices will have differing expenses given how many hours they are open and how many physicians practice there). The survey model also includes elements that are not necessary to update current inputs but that would be useful for other purposes, such as to capture changes in the structure of health care delivery.

Given the substantial differences that exist among types of practices and specialties, several versions of a survey instrument likely will be necessary to accommodate practices' reporting

abilities. In this model, we identify the *medical office* as the unit of analysis and assume the respondent's ability to report expenses at a single practice location. For some large, multispecialty practices, this might not be feasible, and a different survey version could be used.

This model is structured and organized as a mail-based paper survey, although we note a strong recommendation in the literature to allow respondents to have the option to fill out an electronic version of the survey. (See the Appendix A section on survey mode for further discussion.)

Survey Model Content

In this subsection, we provide an outline of the survey model sections and subsections, which follow the survey categories described in Chapter 3, and a description and discussion of the content included in each. The full survey model is provided in Appendix D.

1. Introduction and Instructions
2. Practice Characteristics
    a. Organization, Ownership, and Affiliation
    b. Medical Specialties in the Office
    c. Facility Versus Nonfacility
    d. ACO Status
    e. Mix of Patients and Revenues by Payer
3. Expenses
    a. Staffing
    b. Clinical Services, Supplies, and Equipment
    c. Office Space
    d. Office Supplies and Services (Nonclinical)
    e. Professional Services and Other Expenses

When prior survey questions were available in the PPI Survey for a given PE concept, the question was adapted from this source. But because there were limited nonlabor PE questions in this survey, we often adapted language from the MGMA survey to capture other concepts. We also considered survey questions and language from the AMA Practice Benchmark Survey and the SAS, given their focuses on PE and practice characteristics.

Section 1: Introduction and Instructions

In the survey instrument model, we provide example language and placeholders for information that future surveys might want to include in their instruments. However, what is ultimately included will depend on the specific needs and goals of the administrator. In the case of measuring PE, instructions and other introductory material might need to be adjusted to cater to a particular specialty, practice type, survey mode, or a number of other factors. Such modifications should be considered during a pilot phase of survey instrument development.

Adapting this survey instrument model for use in the field would involve adding specific introductory information, including sponsorship by CMS, endorsements of professional organizations (if applicable), how the data will be used and the benefit they will provide to physicians, the length of time required to complete the survey, and any steps taken to maintain confidentiality of the responses and limit use of the data. Introductory information would also identify incentives, compensation, or obligations for completing the survey, if applicable. To manage the length of this section, some material, such as an explanation of the benefit or social good of participation, could instead be included in an invitation letter. (See the Appendix A sections titled "Outreach and Follow-Up" and "Response Incentives" for further discussion on these topics.)

In accordance with the findings from previously published studies, we have structured this section to encourage the recipient to allow the survey to be completed by someone with detailed knowledge of PEs, such as a practice administrator, office manager, or medical director. (See the Chapter 2 section titled "Respondent Type.") We also note that the instructions should list all documents that might help the respondent complete the survey accurately (Friedberg et al., 2010; Halley et al., 2017). The impact of these instructions on response rates is unknown, however, and should be examined during pilot testing.

The survey instructions that practices receive also should include contact information for respondent comments, questions, and assistance, although that is not included here.

Section 2: Practice Characteristics

Subsection 2a: Organization, Ownership, and Affiliation

The survey instrument model asks respondents to indicate the practice type (solo, single-specialty, multispecialty) and size (number of clinical offices) so that responses can be evaluated and adjusted for representativeness. Prior surveys of physician practices have tended to overrepresent or underrepresent practices along these dimensions (Burgette et al., 2018).

Respondents also are asked to identify whether a separate medical organization owns a part of the practice affiliated with their medical office or whether the practice has any formal relationships with other medical organizations where expenses or resources are shared. (See the Chapter 2 section titled "Complex and Varying Distribution of Costs and Resources" for more details.) In electronic versions of the survey, these questions may be used to activate supplementary questions in some expense categories to identify shared items. If instrument testing determines that more information is needed, the owner organization may be surveyed separately to fully capture variation in these financial relationships. Descriptive information on the extent and nature of these relationships would also provide an opportunity to learn valuable information about the structure of physician practices, how practices have changed, and how these features relate to PE.

Subsection 2b: Medical Specialties in the Office

Respondents are instructed to pick from a list of CMS medical specialties corresponding to the physicians who work in the medical office. This enables estimates of PE by specialty or specialty mix. Knowing which specialties are in the practice is also necessary to identify whether adequate representation of specialties in the sample exists. Alternatively, respondents could report NPI numbers of all providers associated with the practice to the CMS surveyors, which would allow CMS to determine this information from PECOS or MD-PPAS. To reduce survey burden on the respondent, on some versions of the survey, the number of medical specialties providing care at a particular practice potentially could be estimated using CMS claims data.

Subsection 2c: Facility Versus Nonfacility

Respondents are asked to select the most commonly billed place-of-service code for the office, or, if they are unsure, to identify whether the office bills Medicare as a facility or a nonfacility. To reduce survey burden, CMS surveyors could send surveys with a prepopulated NPI(s) and have respondents confirm membership in the practice. Place-of-service codes could then be identified through the NPI. Current PE payment policies differ between facility and nonfacility settings. Other differences might exist that reflect recent changes by place of service in health care provision, such as through telehealth or at walk-in retail health clinics.

Subsection 2d: Participation in Alternative Payment Models

Respondents are asked to identify whether physicians in the office participate in any alternative payment models (APMs), such as ACOs. Depending on the desired level of detail, more questions identifying APM type and characteristics could be added. APMs have increased dramatically since the PPI Survey was fielded, and the extent to which these new payment models might be associated with changes in PEs is not known.

Subsection 2e: Mix of Patients and Revenues by Payer

Respondents are asked to fill out the percentage of total patients and the percentage of revenue that come from various payer types. This allows for an evaluation of representativeness of the practice by the degree of reliance on Medicare FFS.

Section 3: Expenses

We designed survey questions in this model to determine the expenses in a given year for single- or multi-office practices with the ability to break down their accounting by practice location. Feedback from participants in the TEP (Chapter 5) indicated that this level of reporting would be difficult for some larger practices. Therefore, other versions of the survey could be developed to accommodate multi-office practices reporting across all offices. To ensure comprehensive and mutually exclusive reporting of large, infrequent expenses, we designed questions referring to these expenses to be consistent with the way depreciated expenses are

reported to the IRS. CMS surveyors could access the TIN associated with each provider if using the MD-PPAS for sampling or other provider information (ResDAC, 2019). These expenses include those claimed in a single tax year and those that are capitalized and deducted over the course of many years to reflect an asset's depreciation over time.

We designed our survey to include more types of expenses that are independently measured than the PPI Survey, for a more granular level of detail. This choice aims to improve the accuracy of the indirect allocation methods, reduce the reliance on such methods, or accomplish both.

Subsection 3a: Staffing

This section asks respondents to submit data on the number and cost of payroll staff by job description, which permits the division of expenses into direct and indirect expenses. Note that contracted labor would be reported in the professional services section. As described in the Phase I report, staff costs tend to be the largest expense for offices of physicians, making this expense an important PE to collect—and collect accurately.

In the example survey questions here, respondents are asked to provide the number of days a week that the office is typically open, which is needed to estimate staff expenses per hour. Then, for reporting convenience (see Chapter 2, "Inconsistencies in Expense Terminology, Accounting, and Record-Keeping" for more details), respondents are given the option to report the number of staff who work in the office by head count and average hours worked, or by full-time equivalents (FTEs), in each of a variety of common job descriptions. Respondents also may give the average salary and benefits for each of those job descriptions. Here, we assume that asking for compensation data by staff type would be useful to the surveyor to estimate typical PE, impute missing data if needed, and allow the surveyor to compare salary data with alternative sources. That said, to further reduce survey burden, salary reporting could be eliminated and replaced by using average regional salary information. Surveyors could determine the impact of such a change on accuracy through piloting. A few potential sources of regional salary data are discussed in Chapter 6.

An approach that would be more accurate would be to collect actual labor expenses for each staff category. However, this approach is likely to be more burdensome. We do not take this approach in the instrument model, but the trade-offs between burden and accuracy could be assessed in a survey piloting process.

Subsection 3b: Clinical Services, Supplies, and Equipment

In this section, respondents are asked to report expense data that correspond with nonlabor expenses that occur during clinical encounters. We divided these expenses among services, supplies and materials, and equipment.

Supplies, materials, and equipment generally correspond to current definitions of *direct* PE. Data from the MGMA survey and the SAS indicate that these costs constitute a major portion of

total PE and thus are important to measure accurately (Burgette et al., 2018; U.S. Census Bureau, 2019b). We measure other clinical expenses, such as secure medical waste disposal and laboratory and imaging services, under clinical services. To limit potential over- or undercounting of yearly equipment expenses across practices caused by the irregularity of equipment purchases, respondents are asked to report equipment expenses in the manner they were reported on their tax returns. Respondents that do not have their return information available can instead list all large medical equipment in the office by type, quantity, and year brought into service. Yearly associated expenses can then be estimated through available cost and depreciation tables.

Respondents are asked to identify instances in which a parent organization or third party pays for clinical services, supplies, or equipment without charging the practice or being reimbursed. These expenses can then be either imputed based on prior survey responses or collected through a follow-up survey to the parent organization or other entity.

Subsection 3c: Office Space

Costs related to office space can come in a variety of forms and depend on such conditions as ownership of the space, terms of lease or rental agreements, service and maintenance needs, renovation costs, and relationships with parent or partner organizations. Related questions in the model instrument are therefore constructed to differentiate respondents by these characteristics.

Respondents are asked to provide information on the following general categories of office space expenses:

- periodic costs associated with occupation of the space (rent or lease)
- periodic costs associated with operation or maintenance of the space
- depreciated costs of the physical building, renovations, or improvements.

Where relevant, respondents are asked to identify instances in which a parent organization or third party pays for office costs without charging the practice or being reimbursed.

In addition to these expenses, respondents are asked to estimate the gross square footage of the office; the percentage of that space devoted to nonclinical uses; and a count of exam rooms, practitioner offices, procedure rooms, and storage rooms. Square footage of the office would provide survey administrators with a means of imputing office costs from market data in cases in which information is omitted. Information on how the space is used could provide a means of aligning payments for some categories of services with specific office space needs.

Depending on the availability of accurate market data on the cost of occupying and maintaining clinical office space, square footage and space usage could be used to estimate PE and allow for a shorter survey instrument.

For additional rationale and considerations for measuring PE associated with office space, see the summary of TEP discussions in Chapter 5, “Types of Expenses to Measure and How to Measure Them.”

Subsection 3d: Office Supplies and Services (Nonclinical)

In this section, respondents are asked about

- all nonclinical IT (including EHR systems)[5]
- nonclinical office supplies and services
- depreciation costs of capitalized nonclinical tangible goods.

In a departure from the PPI Survey, respondents in the survey instrument model are asked to estimate IT expenses independently of other office supplies and services because of the increasing importance of IT to practice operating expenses. The importance of independently measuring IT was affirmed by the TEP (see Chapter 5, "Types of Expenses to Measure and How to Measure Them"). Respondents are also asked to independently report expenses for EHRs, including the original acquisition cost and ongoing annual operating costs. Variation in EHR costs by practice characteristics could inform components of rate setting. However, it is unclear whether practices can easily disaggregate EHR costs from related IT systems; therefore, EHR costs are asked about as a subset of overall IT costs.

As in other sections, respondents are asked to identify whether any expenses related to office supplies and services are provided without need for reimbursement by a parent organization.

Subsection 3e: Professional Services and Other Expenses

Respondents are asked to report expenses related to maintaining professional competence (e.g., memberships, continuing education), professional services (e.g., billing, legal, consultant fees), professional liability insurance, and any other operating expenses not covered by previous questions. Other surveys of PE have shown that categories of unidentified expenses can be significant (U.S. Census Bureau, 2019b). Therefore, as a means of estimating the proportion of unidentified expenses that should be classified as direct or indirect under the current MPFS methodology, respondents are asked to estimate the proportion of this final amount that is for the direct observation, diagnosis, or treatment of patients.

Chapter Summary

The survey instrument model we developed reflects prior efforts to measure PE and has been adapted to address considerations for a new survey effort, discussed in Chapter 2. It is intended to generate discussion and serve as a possible reference material in future survey efforts. The survey model outlines data regarding practice characteristics that would be useful to manipulate into necessary formats for weighting purposes and for analytic capabilities. The survey model also asks respondents comprehensive and detailed questions on PE, divided into sections on

[5] We group EHR with nonclinical IT—given that both currently are considered indirect expenses—because of the difficulty of assigning EHR costs on a service-level basis. Clinical IT expenses, such as software and computers required to operate medical equipment, are incorporated into payments via direct PE.

staff; clinical supplies, services, and equipment; office space; office supplies and equipment; and professional services. Given the rising importance of measuring expenses that are shared with another medical organization, the survey model asks respondents to identify instances in which PE components might be partially or fully paid for by a parent or other organization of ownership.

We designed the survey instrument model to inform data needs of the indirect portion of PE in current MPFS rates. This included organizing the survey into sections that accurately distinguish between direct and indirect PE, collecting information on the medical specialties represented in a practice, and collecting data that enable calculating expenses on a per-physician-hour basis. However, a new survey also could present an opportunity to learn valuable information—if the data are collected—about the structure of physician practices, how practices have changed, and how these features relate to PE. To this end, we included questions that disaggregate PE data on some expenses, such as EHR costs, that have been of particular concern to physicians. As a result, this survey instrument model can help encourage conversation around potential new data inputs to update the current MPFS and might provide some information needed to consider limited changes to the MPFS model.

5. Technical Expert Panel Summary

We convened a TEP to review the survey model, provide guidance on fine-tuning the instrument, and offer insight of the survey burden among individual practices to complete the instrument. The survey model was used to focus a broader discussion on the system for assigning PE in the MPFS and how the system might be improved. We convened the panel on January 10, 2020, with leading professionals and experts on the topic of updating the allocation of PE in the MPFS. The TEP consisted of Dr. Robert Berenson (Urban Institute), David Gans (MGMA), Dr. John Goodson (Harvard Medical School), Dr. Mark Holmes (University of North Carolina at Chapel Hill), Dr. Scott Manaker (University of Pennsylvania), Jill Martin (Cedars-Sinai Medical Network), and Sherry Smith (AMA). TEP members were encouraged to share their candid views on the current PE data, the process by which PE data are collected, the process by which data inputs are converted into payment rates, and how each of these components might be improved.

This chapter provides a summary, based on contemporaneous notes and a transcript of the conversation, of the themes that were addressed. In keeping with the TEP charter, themes and comments have been combined so that the identities of the commenters are not disclosed. We aimed to provide a thorough account of the day's conversation. TEP member comments were summarized and grouped into the following topic categories:

- issues with the current system
- changes in medicine affecting PE
- general views on the approach to updating the system
- types of expenses to measure and how to measure them
- the appropriate level of aggregation of PE categories
- PE data collection in large and interconnected organizations
- rethinking direct and indirect expense groupings and relationships
- facility versus nonfacility PE payments
- additional approaches to updating PE inputs beyond a new PPI Survey
- using OPPS information to inform PE RVUs
- possibilities to maximize response rates
- other issues.

At various points in this summary, a qualitative assessment is provided of the level of TEP members' agreement with particular views expressed. However, during the day's discussions, members might not have had an opportunity to voice concern or assent in response to proposals endorsed by others before the conversation moved on. No recommendations or conclusions in this summary should be considered to be unanimously endorsed by the TEP, even if no opposition is noted here.

Issues with the Current System

The TEP raised several broad issues with the system used to allocate PE, which relies on a methodology developed by CMS. The system relies on data provided by (1) the AMA RUC process and other data resources, to measure direct expenses associated with services (e.g., medical supplies, equipment, and labor), and (2) the PPI Survey, to allocate indirect expenses to those services (e.g., office expenses and rent). The broad issues are as follows:

- **Arbitrary distinctions.** Some TEP members mentioned aspects of the system that stem from early decisions on how to build PE payments on an FFS chassis and should be revisited when CMS considers system updates. Specific aspects mentioned were the division of expenses into direct and indirect components, using specialties as a means of operationalizing how measured inputs determine the indirect portion of PE, and how to handle physician payments depending on whether a service is performed in a facility or a nonfacility setting. Some members felt that some of these paradigms were arbitrary, might not be conducive to successfully measuring costs, or could create imbalances or inequities across physicians.
- **Unintended practice and market effects.** Members expressed concern about how some aspects of PE allocation create incentives that influence the way medicine is practiced and organized. For example, some TEP members were concerned that practices servicing populations with access issues were not receiving PE commensurate with their true expenses (and insufficiently adjusted by such mechanisms as the geographic practice cost index).
- **Issues with payment universality.** Some members did not agree with the principle that PE allocation should be fixed for a service across or even within specialties because of the systematic variation that exists in the expenses associated with the same service across different specialties and practice types. Some members said that facility and nonfacility adjustments were not adequate, and it was noted that PE burden both within and across specialties that deliver services in a facility can be very different depending on the needs of the portion of their practice that occurs in a nonfacility physician office. A universal payment under these circumstances could lead to systematic under- or overpayment of some physicians and specialties.
- **Poor transparency.** Some members described the process that converts PE inputs into payment rates as a "black box," and they said that a lack of clarity on how inputs are used to determine rates complicates any discussion on how to improve inputs.
- **Outdated components.** At various points, the TEP discussed ways that changes in the practice and organization of medicine have made components of the MPFS outdated, such as the PPI Survey that was conducted in 2007 and 2008. (For more information, see the next section.) Additionally, many members agreed that the scaling factors determined from the PPI Survey cannot change over time and that this is a major flaw, leaving the system unable to adapt to changes likely to happen in practice cost structures. This inability to adapt creates imbalances when PE changes disproportionately among specialties.

Changes in Medicine Affecting Practice Expense

One of the circumstances motivating reform discussions is the rapid pace of change in the practice and organization of medicine, such as market consolidation, practice integration into large health systems, and the declining number of physicians in solo and independent practices. Physician practice cost structures likely have changed over the past decade in ways that are not reflected in current inputs (see Chapter 2, "Updating Data Inputs Over Time"). At various points in the discussion, members referred to additional changes occurring in medicine that should be considered, including the following:

- **Pay-for-performance and quality monitoring.** Members noted that quality reporting has become a task that can involve significant amounts of clinical labor, including from physicians. Any development of a new infrastructure of measuring expenses should account for a growing set of tasks that are required for payment but not associated with a specific patient encounter or billing code. Labor for these tasks is sometimes spread across a variety of occupations.
- **Empanelment.** Members noted that the creation and management of patient panels has created costs—e.g., IT, task delegation—that are not tied to face-to-face encounters and not captured in the payment system. This was cited as an issue in both primary care and specialty care.
- **Care management.** Members noted that codes relating to care management are not connected to a specific patient encounter but do relate to the expenses of the specific encounters they support. For this reason, it was argued that the costs associated with care management should be measured in some way. As it is, the system ignores these costs, which largely were not present at the time of the PPI Survey. Some members argued that not accounting for care management exacerbates the distortions between specialties.
- **Retail clinics.** The growing presence of retail clinics in such places as drug stores and shopping centers has introduced a new model for delivering care, likely with different cost structures and accounting than traditional practices.
- **Higher-efficiency independent practices.** Members referred to data that indicate that private (independent) physician practices that remain in the market have become more efficient and more profitable than in the past. This is believed to be because of business failure in an increasingly competitive market landscape, or absorption of less profitable practices into larger organizations.
- **Telemedicine.** New technologies, such as telemedicine, could change the cost structures of practices, potentially reducing some aspects of PE (e.g., space costs) while increasing others (e.g., labor, internet, and other IT costs).
- **Demographic change.** The aging population has put pressures on ambulatory settings as hospitals try to contain costs and move more care into community-based settings.

General Views on the Approach to Updating the System

TEP members had a variety of perspectives on how CMS should generally approach updating PE payment determination. They identified several goals and issues that should be considered during the process, including the following:

- **Conducting a new survey.** Members said that conducting a new survey of adequate quality and coverage of specialties would be very difficult. As a reference point, members noted that the design and administration of the PPI Survey relied on multiple survey contractors and had a response rate of 10 to 15 percent despite significant efforts over two years; members also noted that identifying independent private practices would be more difficult now because of the large shift from private practice to employed models for physicians. In addition, members noted that the PPI Survey was initiated after a previously failed survey effort to replace the Socioeconomic Monitoring Survey.
- **Prioritizing methods over data collection.** Some members said that upcoming decisions regarding how to update data inputs will be dependent on whether the methodology used to determine payments is changed. Members said that decisions regarding the updating of data inputs should be tied to how those inputs are used to determine payments. For example, it was suggested that respondent burden in a survey could be minimized by collecting direct and indirect PE in two precisely defined questions, but data in this format would require that CMS change the methodology used to calculate rates. It was suggested that staging reform so that methods were changed before data collection might be a preferred approach, given the cost of new data collection and anticipated political difficulties of updating both at once.
- **Limiting harmful incentives.** Members stated that updates or reforms should not create incentives that lead to fewer medical resources going toward taking care of the sickest and most-vulnerable people. This is a risk if payments are blind to sociodemographic and community characteristics that are associated with vulnerable populations of greater medical complexity.
- **Adjusting PE for patient characteristics.** In reference to harmful incentives and other issues, one member advocated reforms to the system that would make it more patient based. The same service for different patients across different specialties can incur different amounts of PE. A precedent for this kind of approach was cited in the recent CMS initiative to add E&M add-on codes for some specialties to account for patient complexity. It was argued that patient-based modifiers for services, based on patient characteristics, could help address distributional issues in PE payments across specialties and types of practices.
- **Limiting "upcoding."** Concern was expressed that any system of determining PE allocation must account for the issue of inappropriate service code billing. Some specialties might be billing higher-intensity codes than necessary and therefore receiving higher PE than merited.
- **Targeting respondents.** Members generally agreed that, in many cases, physicians are not the right people to provide PE data because their knowledge of PE is increasingly limited. It was suggested that data come from qualified professionals, such as certified public accountants, who abide by standards of professional accountability in this area. However, relying on nonclinical respondents to gather PE data, which determine payment rates, might be viewed negatively for a couple of reasons: (1) Smaller practices could view these data as being biased toward large practices with accounting staff, and (2) some physicians might question the fairness or accuracy of inputs provided by people without clinical backgrounds. However, some members said that the number of physicians that do not rely on some degree of professional help to fill out expenses is decreasing and that the importance of accuracy should take precedence. One suggestion

for a possible way forward was to allow physicians to fill out the survey in practices below a certain size.

- **Stratifying on specialty.** There was disagreement among the TEP members about whether a new survey or other data collection effort needs to be stratified on as many specialties as the PPI Survey, or whether fewer groupings of specialties or some other characteristics of the practice might be more effective in gathering representative PE data. One member raised the issue that cost structures can be quite different among subspecialties of the same specialty. Another member noted that accounting for every specialty and subspecialty in a survey would be intractable. As an alternative means of grouping specialties, one member suggested that specialties with similar cost structures might be identified by cross-referencing a specialty with the distribution of service codes it bills, but others cautioned that this method would still need to be sensitive to differences in how different specialties bill the same code. Members suggested several criteria beyond specialty that could be used to identify practices with similar cost structures, such as the following:
  - practice size and type (e.g., large, multispecialty, hospital-owned)
  - proceduralist versus nonproceduralist
  - location (rural versus nonrural)
  - Current Procedural Terminology (CPT) code-based grouping of practices
  - characteristics of the patient base.

Types of Expenses to Measure and How to Measure Them

We presented the TEP with a list of PE types and an illustrative survey prior to the meeting and asked for members' input on which PE types are important to measure, how to measure them, and whether expense types or categories that should be collected had been excluded. The following is a summary of PE types mentioned by at least one TEP member for inclusion in future data collection:

- **Occupations of growing importance.** Members suggested that any new survey or data-collection effort should try to include new occupation types that have become important in recent years (e.g., scribes, care-management roles, patient educators).
- **Costs associated with office space.** The TEP discussed issues in achieving accurate measurement of office occupancy costs and possible solutions, such as the following:
  - **Ownership versus leasing.** Whether a practice owns or leases space was cited as an important distinction for PE. For example, occupancy and other expenses vary depending on whether a space is owned or leased, and these expenses are treated differently in the tax code. These tax considerations can influence a practice's cost structure. Large practices that own their space can reduce tax expenses by writing off building costs, which encourages a higher level of spending on the building and office.
  - **Parent organization relationship.** For leased space, it is necessary to understand whether that space is owned by the practice physicians (directly or indirectly) or a

parent organization, in which case the lease might be provided at a cost different from the market rate.

  - **Square footage.** To avoid these issues, members were receptive to using square footage to estimate space-related PE. Square feet would be measured and then multiplied by a standardized rate that is either newly collected or informed by existing data (and that can be adapted depending on what is considered to be fair market value). In taking this approach, some members said that data on different categories of square footage would be important to collect (e.g., waiting rooms, procedure rooms, exam rooms). For this approach, members said that data collectors should be mindful of such potentially revenue-generating spaces as parking lots and space rented out to other practices or businesses. Survey questions should be clear regarding what to include or exclude in square footage measurements, depending on use of that space.
  - **Subleasing and shared space.** Similar to revenue-generating space, the TEP discussed the notion that some practices might share space with other practices. Hence, it is necessary to measure the extent to which rental costs are offset by subleasing or sharing.
  - **Room types.** Counting room types (e.g., the number of exam rooms) was another approach discussed that could ease the burden of reporting. Members did not agree that this would be as reasonable an approach as reporting square footage, because of the differences that exist in room size by description and specialty.

- **Additional expenses.** Members discussed the following expenses worthy of consideration for inclusion:

  - **Managed care service.** Members discussed how health plan processing costs related to risk-bearing should be included.
  - **Quality reporting.** The costs of data curation and submission for payment adjustments under such programs as the CMS Merit-Based Incentive Payment System (MIPS) might vary across specialties.
  - **Refrigeration.** The costs and importance of refrigeration differ among specialties. For example, pediatricians often keep vaccines in the office, in part because they get direct expense for immunization administration.
  - **Taxes.** One member pointed out that that all types of taxes should be measured, such as building, income, and business license taxes.
  - **Other insurance.** One TEP member said personal liability insurance expenses beyond malpractice have been increasing. Furthermore, some organizations might incur expenses for actuarial services.
  - **IT.** Members discussed the increased importance of IT expenses and the need to measure differing IT needs to inform rates. Members mentioned that IT needs—such as internet access, data, data storage, cybersecurity (including consulting fees), software, technical support, and software upgrades—can vary significantly by specialty or by the types of services that are provided by a particular practice. This variation also might be driven by different preferences in terms of EMR or billing functionality.

- **Separately billable expenses.** It was noted by a member that PE data collection will need to differentiate supplies, equipment, and staff that are separately billable to Medicare.

Appropriate Level of Aggregation of Practice Expense Categories

PE data inputs could be collected at a wide variety of levels of aggregation, from precise measures of individual items (e.g., office supplies, office furniture) to expansive groupings (e.g., all office expenses). The decision to collect data at higher or lower degrees of aggregation involves trade-offs among sometimes competing goals, such as data detail, accuracy, consistency, and respondent burden. We sought TEP members' views regarding the appropriate level of aggregation for PE data collection and whether groupings of expenses already exist that a typical practice could easily report (see Chapter 2, "Additional Considerations for Measuring Practice Expense in a Survey," for additional discussion on these topics). TEP members provided input on the following:

- **Different accounting practices.** Members discussed how practices could be loosely categorized into accounting *lumpers* (i.e., practices that tend to rely on higher aggregations of expenses) and *splitters* (i.e., those that divide expenses into component pieces). This distinction is correlated with practice size; smaller practices tend to be lumpers, and larger practices tend to be splitters. However, specific accounting practices within each of these categorizations can vary widely.
  - **Lumpers.** Lumped accounting systems, more common among small practices, might have greater difficulties reporting accurate data. Panelists noted that aggregated accounting presents particular challenges within payroll. Nonwage compensation, for example, can be lumped together across all staff types, including physicians. Accurately apportioning these payroll costs for the purposes of PE payment might be difficult because the benefit value can vary considerably by staff type.
  - **Splitters.** Larger practices are more likely to use a detailed, standardized accounting system, such as the MGMA chart of accounts, because they can afford complex accounting systems and can more effectively realize the benefit of collecting detailed expense data to help inform managerial decisions.
- **Different survey instruments.** Panelists discussed the feasibility of using two different surveys or two different survey forms to accommodate lumper and splitter accounting styles, allowing organizations to report at the level of detail at which they feel most comfortable (first discussed in Chapter 2, "Complexity and Length"). Some members said that multiple survey instruments might compound issues of response bias. Moreover, members asserted that multiple instruments would not address the major challenge of collecting accurate data from disorganized practices. With these practices, neither a detailed nor an aggregated format of a questionnaire will solve data accuracy issues, because some of the information on individual expenses necessary to report at either level does not exist. It was suggested that less organized practices (which might be less likely to respond to a survey) could have different PE cost structures than practices with better-

developed accounting systems. Some members argued that, if data collection were to use highly aggregated PE inputs, questions would need to be very specific and well-defined, outlining exactly which items should be included when reporting that aggregated figure.

- **Commonalities.** Some members did not view differences in accounting among practices to be so great so as to require individualized instruments from practice to practice, but some degree of flexibility in the instrument was seen to be required in order to match with different practice accounting systems.
  - Some members agreed that a pilot data-collection effort could identify a list of accounting modalities that could be matched to appropriate respondents.
  - Members agreed that, in the case of variation by specialty, having a different set of instructions to help clarify how questions should be answered for certain specialties or delineating some survey sections that would only be filled out by certain classes of practitioners (e.g., proceduralists versus nonproceduralists, time spent in a facility) might be workable instead of having separate survey instruments by specialty.

Practice Expense Data Collection in Large and Interconnected Organizations

The TEP provided input on approaches to collecting updated PE in an environment in which medical practices are increasingly large and interconnected. We sought input on two topics in particular: first, whether it would be reasonable to measure PEs for such organizations at a single location (office, building) or for a single medical specialty, and second, whether certain types of financial relationships between practices and other medical organizations are particularly useful for identifying instances in which resources and expenses might be shared. (See Chapter 2, "Additional Considerations for Measuring Practice Expense in a Survey," for additional discussion on these topics.) Approaches that were discussed included the following:

- **Collecting data at a single location.** Some members did not think that PE could be accurately collected at the office level in some larger practices both because of variability in costs from one location to another within the same practice, and because of other issues, such as flow of funds and programmatic support from other parts of the practice or a larger entity that owns the practice. Some members said that even though many large, multispecialty practices tend to be able to break out expenses by specialty or location, internal allocations among parts of the practice or programmatic support given to a practice for hospital services could lead to inaccuracies when reporting on the PE of only a portion of the practice. Instead, some members said that respondents to any data-collection effort should be allowed to report expenses at the level that is most convenient. In some cases, for very large organizations, this would mean filling out several surveys at different levels of the organization that have their own accounting systems. A survey instrument should therefore be flexible enough to fit a variety of reporting levels.
- **Accounting for shared resources and expenses.** Several members acknowledged the importance of accounting for interorganizational transfers and relationships that involve expense-sharing. We asked members whether these relationships could be accurately

accounted for by identifying ownership arrangements. The TEP discussed that, in addition to ownership relationships, reporting of financial relationships needs to include incentives and bonuses shared across organizations, such as ACOs and pay-for-performance arrangements.
- **Screening for data quality.** We asked members for their thoughts on potentially ignoring responses from practices whose expenses are extensively distributed across entities or other characteristics that raise questions on data validity. One panelist was concerned that this approach would systematically exclude certain types of practices and create bias in the data. Another panelist said that this might be necessary in some cases, but some practices would not have an issue collecting needed expenses data from a parent organization.

Rethinking Direct and Indirect Expense Groupings and Relationships

Under current policy, indirect PE for most services is determined, in part, by CMS valuations of direct PE and physician work for that service. This method might not be reasonable for all types of indirect expenses, and alternative bases for scaling could yield more-accurate results. TEP members expressed their views on possible adjustments to the use of direct and indirect expense categorizations in the MPFS:

- **Alternative basis for scaling.** Members were asked whether they thought some indirect expenses could be accounted for more accurately by using different indirect allocation bases. Some members saw appeal in alternative scaling bases, such as on a per-encounter or per-unit time basis, for some expense types.
- **Scheduling.** We suggested scheduling as an indirect expense that might be allocated directly to CPT codes, perhaps being allowed to vary by characteristics of those codes. One member of the TEP raised the issue that scheduling expenses can vary significantly for different specialties. For example, a surgeon needs a registered nurse to schedule some types of procedures, but other patient visits or specialties might not need clinical expertise for scheduling.
- **Billing.** The TEP suggested billing as an example of an indirect expense that might be more directly allocated based on features of service codes. One TEP member suggested that billing might be predictably complicated or simple depending on the process of documentation for the clinical activities, providing an opening for an alternative basis for assigning billing PE to particular codes.
- **EHRs.** Members suggested EHRs as a PE element for which physician and clinical staff time could be a conceptual basis for expense calculation. Members mentioned that newer IT-related costs have generated debate about whether expenses are direct or indirect; e.g., there are some EHR/EMR or IT functions that directly support certain types of procedures.

Recording Facility Versus Nonfacility

The differences in PE that occur when services are performed in a facility versus a nonfacility are an aspect of PE that might have changed since the PPI Survey was last conducted.

This being the case, the TEP discussed the following issues with this distinction and how fees ought to reflect it:

- **Inadequate differentiation.** Some members said that the ways in which facilities and nonfacilities are distinguished and accounted for in PE RVUs do not necessarily reflect true differences in PE. For example, when a hospital system purchases a private practice, services then might be billable under the facility fee schedule, even though the practice and its PE have not changed. A mix of financial incentives and preferences will then affect how a particular system chooses to shift costs from off-campus locations to on-campus ones, with different consequences for PE.
- **Differential impact on specialties.** Members of the TEP raised concerns about applying a universal method to distinguish PE in facility settings versus nonfacility ones because some specialties maintain much larger presences outside the facility than others and therefore have different costs (e.g., need for and use of an office for many surgeons).
- **Fixed cost of nonfacility offices.** The TEP discussed how, although physicians need to make a facility or nonfacility distinction in the split of their time (or patient-visit volume) for billing, some physicians need to maintain an office that has at least some fixed costs, regardless of how many patients or procedures or how much physician time is associated with that office. This is likely to vary by specialty (e.g., hospitalists versus radiologists). Some TEP members stated that the unit of measurement for nonfacility use should attempt to capture these costs even if the office is idle.

Additional Approaches to Updating Practice Expense Inputs Beyond a New Physician Practice Information Survey

TEP members discussed several alternative or supplementary approaches to a new, large national survey to update PE inputs, including the following:

- **Using a small cohort design.** Some members expressed support, in principle, for adopting a cohort approach to measuring PE with a relatively small, purposeful sample for which intensive efforts are made to collect valid data. This could either augment or replace such a survey sample as the PPI Survey, which sampled more than 40 specialty strata and gathered supplemental data from specific specialties. The group discussed balancing the political tractability of this approach against the high-quality data it would produce.
  - **PE nuances.** Several members agreed that a cohort approach would allow for collecting PE at a level of detail necessary to tease out many of the issues and nuances that had been described as necessary to accurately and fairly measure PE. This level of detail would not be possible on a survey like the PPI without overly burdening respondents.
  - **Sample strata.** Concerns were raised that the wide degree of variation in PE between and within specialties could create large distortions if the small number of practices selected to represent a particular specialty were not typical. Moreover, some members were worried that this approach might be affected by large variations in expenses that occur from year to year for the practices that

happen to be sampled—e.g., a smaller practice that happened to purchase a very expensive item that year. That said, not all on the TEP agreed that stratified sampling was an insoluble problem; some research suggests that alternative practice groupings—such as by practice size—could be created, in which relatively few strata (eight to ten) could cover a large portion of total Medicare charges. Members disagreed over the extent to which data collection should reflect specialties or practice types that account for a very small portion of overall medical services and costs but that might have highly unusual cost structures.

  - **Adjustment for practice demographics.** Members discussed whether adjustment using a limited set of demographic or practice features would be enough to account for wide variation in practice cost structures, with some arguing that existing data show that these adjustments work reasonably well.
  - **Rotating panel.** To collect data that capture changes in PE across specialties, a rotating panel could be implemented, with participating practices cycling in and out of the survey sample over time.

- **Repurposing ongoing surveys to collect PE on an individual encounter basis.**
  - **NAMCS.** One member said that a possible alternative would be to collect PE data within the NAMCS, which was mentioned as having a very high response rate (more than 60 percent). The NAMCS recently has begun including CPT codes and associated diagnoses. Data could be collected to complement and validate NAMCS data-collection efforts to be representative of all patient encounters.
  - **Medical Expenditure Panel Survey (MEPS).** Another suggestion was to look at the MEPS model as a way to update the PPI Survey method of collecting PE data. MEPS is administered by the AHRQ, is household based, and uses in-person interviews to collect detailed data on medical expenditures. MEPS employs a rotating panel design, which could be useful for PE data collection, both in reducing the administrative burden of recruiting new practices for periodic updates for PE survey data and in better understanding PE changes within practices over time.

- **Using alternative data sources.**
  - **Public data.** We sought feedback from the TEP on a variety of publicly available data sources—such as the SAS, the Economic Census, the U.S. Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES), the Current Population Survey, and the American Community Survey—that could be used in an effort to update PE inputs.
    - Members voiced general agreement that extant data on PE, such as the SAS or the Economic Census, could be used as validation for any new data collected in the survey process.
    - Members discussed whether external salary data, such as from the OES, might be used to inform PE calculations for nonphysician clinical and nonclinical staff. Members discussed the possibility of collecting data from practices on full-time equivalent labor for different occupations and applying a standardized rate based on external data sources. Data drawn from the BLS for direct labor costs were viewed by panelists as being relatively accurate.

Some members cautioned that usability would depend on the level of job description detail. In the context of this conversation, a separate issue was raised about applying standardized clinical labor rates in PE, given differences in clinical pay for the same occupations across specialties.

- **Proprietary data.** Members discussed the limitations to using proprietary data sources, such as the MGMA survey, as sources for PE inputs. Members identified legal and statutory prohibitions on the use of such data in rate setting; the reluctance on the part of proprietary data owners of using their data in this way for confidentiality or other reasons; the lack of representativeness of these surveys, particularly their applicability to small practices; some stakeholders' inability to access data used in rate setting; and inadequate coverage of all specialties currently required for calculating rates.
- **Government data.** One panelist proposed that there is a possibility for cross-agency collaboration and data-sharing among the Center for Medicare and Medicaid Innovation, the Office of the National Coordinator for Health Information Technology, AHRQ (which administers the MEPS), the Centers for Disease Control and Prevention (which administers the NAMCS), and CMS. The panelist suggested that data-collection efforts can be structured so that data gathered can be used by multiple agencies and provide internal methods of assessing the effects of payment policy changes over time.
- **Vendor data.** One panelist suggested that deidentified vendor data might be used to determine the unit cost of some PE items, such as EHR systems.

Using Outpatient Prospective Payment System Information to Inform Practice Expense Relative Value Units

A possible alternative data source for establishing PE RVUs is to use data from the OPPS, which could better align the two payment systems and reduce site-of-service payment differentials. The rationale for using OPPS information is that many health care services can be provided in multiple settings, and the relative costs for providing a service might be similar regardless of the setting. However, there also could be differences in underlying costs between office and outpatient settings. OPPS information could be applied in different ways, such as helping to identify misvalued codes, grouping codes at a higher level than procedures (such as using the APC), and deriving estimates to value PE RVUs or components of PE RVUs. (See Chapter 7 for an in-depth discussion of this topic.) TEP members discussed the following issues with regards to using outpatient data to inform PE RVUs:

- **Understanding differences in the OPPS and MPFS.** Some TEP members pointed out that nonfacility settings and outpatient departments are very different systems with different underlying cost structures. OPPS uses distinct APC payment amounts, unlike MPFS, which has PE RVUs for individual CPT codes. A member reported that the 3,140 CPT codes that are billed in nonfacility settings map to only 162 distinct APC-based payment rates. One TEP member said that the mix of services furnished in physician offices is different from that of outpatient departments—and that, after removing exempt

office visits, nearly 40 percent of services by allowed charges are never performed in a hospital setting. TEP members also mentioned that sometimes payment and cost are higher in physician offices, and sometimes they are higher in outpatient departments. Another member explained that differences can sometimes result from different equipment utilization rates and patient selection (sicker patients going to facilities); in addition, site differences are complicated by incentives when physicians own facilities. As an example of an instance where payment is much higher when furnished in an outpatient setting than in a physician office, a TEP member brought up HCPCS code 55700 for prostate biopsy and reported that the service receives a PE payment of $156 in the office but an OPPS payment of $1,807.

- **Similarities and known differentials.** When asked whether there are services furnished in both settings that have similar clinical content, TEP members mentioned ancillary services, such as X-rays, electrocardiograms, and cardiological imaging. However, other TEP members pointed out that even these services can have different costs, and costs can go in either direction; some services have higher costs in offices while others have higher costs in outpatient departments. TEP members mentioned different reasons for cost differences in both directions. For example, hospitals have more purchasing power than physician offices, so some items might be less expensive when performed there. In addition, fixed costs for equipment are lower in hospitals, where utilization rates tend to be higher. On the other hand, wages for nurses and technicians are higher in hospitals.
- **Using outpatient data.** Some TEP members said that it would be overly simplistic to pay the same rates in both settings. Furthermore, it would be difficult to implement payment differentials for cost differences unless many factors could be measured. Even if measurement were possible, it would be difficult to know whether the relative values are valid. However, one TEP member said that the RUC acknowledges value in using OPPS data to screen for procedure codes that are misvalued in the MPFS, particularly for procedures that are paid more in nonfacility settings than outpatient settings. For example, PE RVUs for imaging codes are already capped at OPPS payment levels.
- **Grouping procedure codes for payment.** A TEP member said that, in general, there are pressures against grouping procedure codes for payment. The RUC receives many proposals for distinct codes because physicians want services priced in a granular way, which could reflect nuances between services provided by different specialties, new technology, or other differences. Another TEP member said that some CPT codes are written in different ways for different specialties, vendors, or technology while other CPT codes are written in a neutral way. The RUC has recommended against bundling high-cost disposable supplies with procedures and has said that these things should be priced separately and tracked annually, partly so that indirect costs are allocated more appropriately than under the current system. On the other hand, the RUC has worked with CMS to standardize and define clinical staff time by similar tasks to ensure uniformity and ease of updating.

Possibilities to Maximize Response Rates

The TEP members discussed the challenges of getting responses to physician surveys and possible approaches to improving response rates in future data collection.

- **CMS involvement.** Members discussed the difficulty of getting potential respondents to cooperate in an intensive investigation of their costs. TEP members with experience doing similar work reported that mustering participation is not easy for an independent contractor, but that if CMS were to commit to a major initiative that provides added value to participating practices (both through compensation and helping to understand their own operations), response rates would be better. Additionally, members agreed that mutual goodwill and support between CMS and physicians will be important for data collection and other work of the government.
- **Emphasis on data usefulness.** Some members asked whether practices could be encouraged to participate in data collection if they could be convinced that organizing and providing those data would result in improved practice management decisions. Other members said that it would be hard to motivate people with an undefined benefit at some undefined time in the future.
- **Alleviation of participation fears.** Other members voiced the concern that practices would fear being ostracized from their peers if participation led to reimbursement redistributions. Some said that identities of respondents could be shielded and that responsibility for changes would be diffused by the fact that multiple practices would respond to the surveys and that CMS would bear ultimate responsibility for data-collection requirements and rate setting.

Other Issues Discussed

TEP members also touched on several other themes that do not fall neatly into the preceding categories. These topics included the following:

- **Increasing transparency and avoiding political barriers.** Some members acknowledged that making substantial changes to the MPFS is, in part, a political process. It was argued that any changes to MPFS should be developed and adopted in a transparent, accountable, and representative fashion. Many members acknowledged that input and buy-in from stakeholders are important, as is the central role that CMS plays. One suggestion for achieving this buy-in was to involve stakeholders early in the process by holding one or more "town hall" meetings, where proposals and ideas could be introduced and discussed. Members suggested that it might be possible to achieve broad consensus among stakeholders on the **process** of updating the PE rate-setting methodology and data. Whatever changes come from an agreed-on process would be much more easily accepted (even if some practices experience lower payment rates) than would be the case if the process were less open to stakeholder input in its early stages.
- **Involvement of the AMA.** There was spirited debate on the degree to which professional organizations, such as the AMA, should be involved in new data collection. Mentioned among the benefits of involving organized medicine was the convening power of such groups as the AMA (i.e., ability to boost response rates). It was also argued that accurate PE rate setting requires input from a variety of clinical specialties, and without the support of an organization with the broad footprint of the AMA, it could be very difficult to secure broad participation. CMS has faced difficulty in successfully convening a replacement survey to the PPI without the involvement of organized medicine. It was also argued that the AMA has felt a need to step in when CMS has not produced necessary

data or analyses—e.g., with the PPI Survey. On the other hand, concerns were expressed regarding professional organizations exerting too much control over physician payment policy, fair representation of physician interests among specialties that might be less powerful than others, the financial stake that the AMA has through CPT codebook licensing, and the need for transparency and accountability. One member argued that the AMA has a "special privilege" when it comes to providing input into CMS rate-setting decisions and that this should not be the case.

- **Low volume in rural practices.** The TEP discussed that the allocation of PE is problematic for low-volume practices, such as those in rural areas. These practices incur higher equipment and building costs per service because the fixed and labor costs associated with them is distributed over fewer units (i.e., limited economies of scale). Similarly, new reporting requirements could be more onerous in low-volume practices because there might not be staff dedicated to handling these responsibilities who can process them efficiently. It was pointed out that these issues would not be solved by the geographic adjustments that occur in setting fees because those only deal with differences in prices. Future updates, therefore, might take these utilization-based differences in expense into account. These changes also need to be harmonized and not redundant with policy levers already in place intended to improve access in underserved areas.
- **Other rural differences.** Other issues that are unique to rural practices were mentioned, such as differences in expenses associated with greater commute distances for practice staff and time to get between the practice location and a hospital.
- **PE measure denominators.** Members discussed views on tracking PE by various units (i.e., per hour or per work RVU). Another issue was that there is a significant number of smaller practices that do not track their RVUs; they are more likely to track expenses by encounter or visit. Members also mentioned that RVU data from large organizations have been found to be more accurate. More broadly, the TEP discussed the accuracy of currently used time variables and whether RVUs might be more accurate. Although there were concerns about the accuracy of CMS's time estimates, there was no consensus that work RVU–denominated PE measures would be expected to result in greater accuracy. One member cited literature suggesting that the current system of determining work RVUs is very inaccurate. It was argued that if work RVUs were to be used in CMS data collection, there would need to be a parallel effort to improve their accuracy.
- **Using only states with All-Payer Claims Databases (APCDs) for national estimates.** The TEP discussed whether full geographic representation will be necessary for new data collection or whether it would be efficient to focus on states with APCDs. Focusing only on states with APCDs was discouraged by another member because of known, large variations between states in care delivery and cost (per the Dartmouth Atlas of Health Care). That said, it was suggested that perhaps responses could be adjusted by procedure volumes to get at national figures, but participants disagreed on whether higher volumes result in lower costs to provide services. Another member proposed that using APCDs for rate-setting might work if CMS had 20 states with APCDs (this would be 40 to 50 percent of total claims nationally) and data from Medicare and Medicaid for the rest of the states; together, those might provide enough data for this approach. Whether this would be representative (e.g., of practice mix) was not resolved.

6. An Alternative Framework for Allocating Indirect Practice Expense

In this chapter, we outline a preliminary framework for a potential alternative methodology for valuing and updating indirect PE in the MPFS. At a high level, the idea is to break the indirect pool into a modest number of cost categories (say, ten or fewer), specify appropriate allocators for each category, and collect data to estimate any unknown quantities in each allocator. Some allocators might rely on inputs measured at the specialty (or even subspecialty) level, whereas others might depend only on characteristics of the service (e.g., physician time or space costs for services that require large medical equipment). This discussion is conceptual, because developing an alternative methodology would require empirical inputs that we do not have, and we believe that the specification of the form of each allocator would be best achieved with clinical input. Although the primary goal of this type of change would be to build a system that more accurately accounts for variation in PE across services, this framework also introduces the potential benefit of allocating PE for some categories using existing data. We discuss a variety of existing data sources that could be used in this way.

Updating Practice Expense Relative Value Unit Indirect Cost Allocation

The current method of allocating indirect costs to create PE RVUs is based on research and recommendations made by the PPRC when the MPFS was first implemented. Under the approach that the PPRC recommended and that was adopted by Congress, total PEs were divided into direct and indirect costs. Although service-level data were required to capture service-level direct costs, indirect costs—by definition *not* attributable to individual services—were allocated to services following standard accounting practices. The PPRC recommended that the indirect cost allocation basis should be incentive neutral, so that providers do not face a financial incentive to recommend specific services or care settings. The sum of physician work and scaled direct costs was the preferred basis, on the theory that providers would recover indirect costs per unit work and that direct costs were associated with increased indirect expenses, such as space and personnel management (PPRC, 1992a, pp. 109–121; PPRC, 1992b; PPRC, 1993, pp. 147–164).

As implemented, the indirect allocation also includes a specialty-specific indirect practice cost index (IPCI), so that services provided by specialties with relatively high indirect costs have higher indirect RVUs than services with the same physician work and direct costs (see Appendix F).

There have been various concerns raised about the current approach, typically with regard to the inclusion of specialty-specific PPI Survey data (which are now over ten years old) and the

likelihood that there are sources of indirect cost variation across providers that are caused by factors other than specialty, such as space costs associated with large equipment and complicated scheduling and billing burdens of certain types of services. The approach described here refines the current framework to create sub-pools of indirect costs, each with different allocation bases that are expected to capture cost variation fairly without introducing perverse care incentives. The method requires information to subdivide the total indirect pool and information for allocating each pool across services. This method only addresses allocation of the indirect pool; adjusting the relative sizes of the direct versus indirect pools would require additional data collection.

Steps to Implement the Proposed System

The primary goal of the proposed approach is to provide a framework for valuing indirect PE in a way that better reflects variation in indirect PE across practices that provide different mixes of services. The following set of steps could be used to identify and value components of indirect PE in a way that results in PE RVUs that better capture resource utilization.

Step 1: Propose a division of indirect PE into categories that will be allocated separately. Decisions on which categories of indirect PE should be valued separately would need to balance several considerations. It is important to specify categories that can be clearly carved out from all others, so that certain expense types are not ignored or double-counted. The overall size of each potential category is also important; categories that are a small fraction of total expense for all practices will not affect payment rates sufficiently to justify investing in data collection for them. It might be necessary to include a catch-all "other expenses" category that accounts for expenses that are not part of a better-defined category, which ideally will be fairly small relative to other categories. Dividing the total indirect pool into smaller pools for different types of indirect costs will require data from practices on the distribution of costs by type.

Step 2: Elicit or use data to specify the form of the allocator for each cost category. By the *form* of the allocator, we mean identifying the characteristics of the service that will be used to allocate PE for that category. For example, in the current system, for most services the indirect PE allocation depends on scaled direct costs plus physician work, adjusted by the indirect share of total costs of the specialties that provide them. There are countless options for allocating indirect pools of PE, however. A few examples are physician time, work RVUs alone, the sum of physician and nonphysician clinical time, the number of visits, the amount of physician office space that a large piece of medical equipment requires, or the amount of square footage required for clinical and administrative functions. In many cases, we believe it will be possible to reasonably specify the form of the allocator based on feedback from practice or health system managers and physicians. For example, if EMR costs typically are negotiated on the basis of the number of clinical staff who use the system, this suggests that a time-based allocator would reflect cost structures that practices typically experience, such as

EMR PE allocator = (*typical total clinical time in minutes*) × (*EMR cost per minute*).

If elements of a proposed cost category logically would be allocated differently, it might be appropriate to split the category further. The variation in that aspect of PE across practices based on service mix should be well captured by the allocator. Conversely, if two proposed categories have allocators of the same form, they could be merged without losing accuracy. For example, all cost categories that are valued as being proportional to the estimated amount of physician time required to provide the service could be merged together into a single category. Ultimately, the number of indirect cost categories should reflect the number of allocation bases that have been identified as salient to different cost types. Step 2 does not determine the **amount** of PE allocated, but it addresses the question of how to allocate an established pool of indirect costs of a certain type.

Step 3: As described, the process of attempting to specify the form of the allocator might make it clear that costs within a proposed category are too heterogeneous to be accurately described by a single allocator. In such cases, the category should be considered for splitting. Hence, we recommend iterating between Steps 1 and 2 until the following characteristics are achieved as well as possible:

- The categories are mutually exclusive.
- The categories cover all expenses included in the indirect pool.
- Each category's share of total costs reasonably can be measured in existing data or future data collection.
- Each category's proposed allocator is likely to capture variation in PE required to perform service.
- Each category accounts for a substantial share of total indirect PE for at least some practices.

It could be possible to inform the decisions made in Steps 1 and 2 using proprietary data sources, such as MGMA. For example, it might be possible to see that variation in EMR expenses across providers is well explained by the number of clinical staff and physicians in the practice, which suggests a time-based allocator (rather than, for example, one that depends in part on the intensity of the work performed or the amount of direct costs). Or, for example, analysis of such data could show that the number of clinical staff only predict EMR expenses accurately when practices are grouped by procedural versus nonprocedural specialties.

Step 4: Collect data to estimate unknown quantities in each allocator. After the form of the allocator has been settled on, the data necessary to implement the chosen allocator might be available from existing public data sources or could be the subject of future data collection. If, for example, a time-based allocator for EMR expenses were adopted, survey information on total EMR costs and total clinical hours worked would be necessary to derive EMR PE per clinical hour, which could then be translated into a share of indirect PE. If the allocator does not depend on specialty or some other variable that results in a high degree of stratification, note that the

sample size required for a survey would be much smaller than under the current specialty-based system.

Existing Data Sources

A variety of existing data sources might be useful for setting rates of components of the current PE pool in Step 4. We do not anticipate that rates could be set using existing data for all or even most categories of PE under a system like this, but where it is possible, using existing data could reduce the overall survey burden for future data collection efforts. Data appropriateness will depend on such factors as representativeness, the size and quality of the data, the PE content collected, and the degree to which the data can be stratified on dimensions relevant to expense variation.

Table 6.1 provides information on several sources of national economic and labor data that hold promise for determining indirect PE relative shares. To identify potential data products, we reviewed available datasets from federal government sources and consulted with staff at Federal Statistical Research Data Centers on products that might contain information useful for the measurement of PE. We focused on data sources from the federal government because of their high quality, transparent methods, and representativeness. Other sources, such as proprietary data, administrative data, or vendor data, also could be used as long as they meet standards of representativeness, quality, and the criteria listed in Step 3.

Table 6.1. Existing Public Data Sources That Might Be Useful in Practice Expense Rate Setting

Data Source	Population	Approximate Sample Size	Approximate Response Rate	Practice Expense Content	Units of Analysis
SAS	Firms with an employer identification number (EIN), within NAICS code designation, e.g., "Offices of Physicians"	17,000 in "Health Care and Social Assistance" and likely 1,000–2,000 in "Offices of Physicians"	50%	Total PE; expensed equipment (medical and nonmedical) depreciation; medical supplies; EHRs	Per patient encounter; per operating revenue by payer; per claim (average over all services, if linked to Medicare claims)
Economic Census	Business establishments	Includes all large- and medium-sized firms, all multi-establishment firms, and a sample of small firms	75%	Administrative payroll; nonphysician clinical payroll	Per operating revenue by payer
OES	Business establishments	180,000 to 200,000 establishments sampled semiannually	70% check-in rate	Administrative wages; nonphysician clinical wages	Per detailed job category of the Standard Occupational Classification (SOC) system; per five-digit NAICS industry code
American Community Survey (ACS)	Households	Approximately 300,000 addresses sampled monthly; estimates are updated annually (3.5 million addresses)	90%	Administrative wages; nonphysician clinical wages	Per detailed occupation of Census Occupation and Titles codes (generally corresponding to SOC's broad occupation); per five-digit NAICS industry code
Current Population Survey	Households	Approximately 74,000 households sampled monthly; 62,000 eligible to participate	85%	Administrative wages; nonphysician clinical wages; employer's health insurance contribution	Per detailed job category of Census Occupation and Titles code; per five-digit NAICS industry code

NOTE: NAICS = North American Industry Classification System; SOC = Standard Occupational Classification.

Economic Data

The U.S. Census Bureau produces general economic data on U.S. businesses through a variety of sources, many of which can be linked through unique business identifiers. Together, these might provide useful information on some categories of PE. In the following subsections, we focus on the SAS and the Economic Census.

Service Annual Survey

The SAS provides yearly estimates of revenue and operating expenses at firms with paid employees. Sample size adequacy and representativeness are established within the NAICS code, a standard established by U.S. federal agencies to categorize businesses by their primary business activity and determined through information provided by the businesses, census data, and administrative records. SAS data are available at the "Office of Physicians (except Mental Health Specialists)" and "Office of Physicians (Mental Health Specialists)" levels. Firms in these codes consist of private or group practices that operate either in their own offices or in the facilities of others. (Examples of other potentially relevant NAICS codes include "Outpatient Care Centers," "Freestanding Ambulatory Surgical and Emergency Centers," and "Hospitals"). Response to the SAS is mandatory and response rates typically are greater than 50 percent.

Up through 2017, the SAS collected data on several discrete indirect PE items that could be used to measure PE components, including EHRs, repairs and maintenance to buildings, office supplies, and rental and lease payments. Recent years' data have been collected in less detail in an effort to decrease respondent burden, although necessary details conceivably could be reintroduced in future surveys (U.S. Census Bureau, 2019a). These units of PE are estimable on a per–patient visit or per-revenue basis, but other bases might be possible through data linkages (see the "Economic Census" subsection). If linked with Medicare claims (linkable by EIN), PE components could be measured per claim or on the basis of firm characteristics, such as specialty mix or place-of-service codes.

Economic Census

The Economic Census is fielded every five years and collects a wide variety of data at the level of *business establishment* (a single physical location where business is conducted, which, for multi-establishment firms, can be aggregated up to the level of the firm) for U.S. businesses with paid employees. Like the SAS, the Economic Census identifies businesses by NAICS code, such as "Office of Physicians." Over 75 percent of reporting units mail back their questionnaires (known as the *check-in rate*).

The Economic Census for "Office of Physicians" collects data on business structure, type of patient care, revenue by source and International Classification of Diseases (ICD-10) major category, workforce by occupation, and total payroll. Using external sources of average salary by occupation (see the "Labor Data" subsection), the Economic Census plausibly could be used to produce estimates for nonclinical (indirect) labor costs of physician practices.

Most of the utility of the Economic Census is in the expanded units of measurement it could provide to PE estimates from other establishment- or firm-level data, such as the SAS. Data from the Economic Census on number of employees by occupation could be used to measure components of indirect PE (e.g., EHRs) at the level of employees of occupation-specific work (e.g., physicians, physical therapists, registered nurses). Additional possible units of analysis conferred by the Economic Census include by ICD-10 code-specific revenue and by proportion of patient care type (e.g., visits and consolations, surgical interventions, diagnostic imaging).

Labor Data

Administrative labor is among the largest components of indirect expense for physician practices (see Phase I report). Several large data sources collect wage data on detailed occupation categories at the national and subnational level on an ongoing basis, including the OES, ACS, and Current Population Survey.

Data quality for each is high, with sample sizes in the tens to hundreds of thousands and response rates above 70 percent. Data from the OES can be aggregated by NAICS code, allowing for the estimation of occupation wage rates within industry sector, including Offices of Physicians.

These data sources could be used to estimate wages per minute for a variety of nonclinical roles not currently accounted for in direct inputs. Within "Office of Physicians," some of the largest of such occupations include "Receptionists and Information Clerks," "Medical Secretaries," "Billing and Posting Clerks," and "First-Line Supervisors of Office and Administrative Support Workers."

Potential Benefits of an Alternative Indirect Allocation System

We see several benefits to taking this approach to allocating indirect PE compared with the status quo. First, this approach could reduce—and perhaps eliminate—reliance on specialty-specific measures, such as the current system's practice expense per hour (PE/HR) measures. As a starting point, expert input and data analysis might find that expense categories, such as billing, scheduling, and cost of physician office space (per square foot), reasonably can be allocated without reference to specialty. Under the current system, a practice that uses large medical equipment would report higher indirect PE/HR to account for the extra space costs to accommodate that equipment. A more in-depth version of this new approach could tie such excess space costs to the services that require the large equipment rather than allocating excess space costs through the specialty designation. To the extent that allocators can be made to depend on quantities that need not be stratified by specialty, smaller overall sample sizes can yield better statistical precision than is possible under the current system, where individual PE/HR estimates are produced for many specialties.

Such reduction in specialty-level measures also would reflect the intent of the original legislation that created the MPFS, which is to eliminate specialty as an explicit source of payment differences within Medicare. To the extent that services provided by different specialties incur different mixes of the various indirect cost categories recognized in the new system, the specialties' resulting Medicare payments will reflect these differences, which are presumably the source of measured specialty-specific cost differences in the current system. Said another way, this approach could account for differences across specialties in PE, with little or no reliance on specialty-specific inputs to the PE algorithm.

This approach allows CMS to make greater use of existing PE data sources that currently are available, such as those discussed previously. If the current direct- or indirect-based PE allocation system is maintained, it is not clear how to incorporate available information on subsets of what is considered to be indirect PE.

This approach also makes it easier to standardize cost reporting when accounting practices might differ across practices. For example, in the case of the cost of renting or owning physician office space, practices might report amounts that differ substantially from fair-market rates depending on whether the practice or a parent organization owns the office space or the practice rents from a third party. Disaggregating this expense type would make it easier to collect stand-alone data that are more consistently measured, such as collecting information on square footage of the office and using external data to convert square footage to typical fair-market rent. This is consistent with what is done in direct cost categories, such as nonphysician clinical labor, in which service-level expense is estimated by multiplying labor time (determined through the RUC process) by a cost rate determined by external data sources.

Although the proposed approach might appear to introduce some complexity relative to the current system, it also would streamline the system in other ways. Currently, it is very difficult to predict how a change to inputs for one set of services will affect payment rates for another set without performing a simulation based on the rate-setting code. This complexity is primarily driven by sharing of services across specialties and therefore the averaging at the service level of the specialty-level IPCI (see Step 15 in Appendix F). As a result, there can be effects on PE RVUs by apparently unrelated changes, such as the decline in RVUs for a specific service that constitutes a large share of a particular specialty's service mix, because over time, a larger share of the service's utilization is provided by a different specialty with a relatively low IPCI.

This system also would allow for partial updates in the sense that if, for example, stakeholders find that a certain cost category experienced rapid changes, it would be possible simply to adjust the relative shares of the different indirect categories. If there is reason to believe that, for a specific category, there have been important changes in the relationship between specific cost drivers and the allocation basis, it could be possible to collect data to update that category alone, without the expense of recollecting all data that are needed for rate setting. If the cost category that needs to be updated is not a specialty-specific quantity, it might

be possible to accurately update the algorithm by collecting information from a relatively modest number of practices.

Finally, having independent estimates of PE for individual categories of expense could move PE rates closer to the RB-RVS goal of reflecting resource utilization across geography and place of service. For example, when setting facility PE RVUs, it would be much easier to consider what adjustments should be made on a category-by-category basis. PE related to scheduling, billing, and continuing medical education requirements might be identical regardless of whether the service is performed in a facility or nonfacility setting. Underutilization of physician office space because of time spent in a facility setting could be measured through a separate survey and applied directly to a nonfacility space PE category. Relatedly, appropriate variation in costs by geographic location could be measured and incorporated at the level of individual cost categories, instead of a single adjustment being made for the entire PE payment.

Potential Difficulties

Although there are several anticipated benefits to this sort of system, there are also some downsides that would need to be considered.

First, although the current system is somewhat complex when considered in its entirety, it is conceptually simple, with a focus on direct and indirect expenses. The process of deciding how to split the current pool of indirect PE could be difficult, and decisions might have to be made with incomplete data. One potential approach would be to develop a draft proposal with proposed categories and allocators (i.e., Steps 1 and 2) and then solicit input from organized medicine and other stakeholders. If certain specialties or other groups of physicians believe that their costs are substantially different from those that could be captured by the proposed allocator for a particular category, the categories could be redefined either to account for the concern or to include an allocator that depends (in part) on a specialty or grouping of specialties. We believe that stakeholder consensus should be established at Step 3 rather than after data collection has taken place and RVUs have been published. Also, as mentioned earlier, it might be feasible to develop analyses with MGMA or other data to help examine the adequacy of proposed categories of indirect PE and potential allocators.

Next, if data from multiple sources are used, it is likely that some categories will have less precise or lower-quality data available. To the extent that certain types of practices draw a greater portion of their revenue from one category versus another, there might be uneven satisfaction with the changed process. Where existing data are available, it would be necessary to give careful scrutiny to their quality and representativeness when deciding whether they can be used. Relatedly, relative to an update based entirely on data collected for the purpose of PE rate setting, this approach might give CMS and other stakeholders limited visibility into the variation of certain expense categories by practices of various types. For example, if an expense, such as EMR costs, were based on clinical time (without reference to specialty), data sources that would

provide sufficient information for rate setting would not necessarily provide enough information to confirm that the form of the allocator is appropriate, as would be possible for a survey stratified by specialty.

The current PE allocation system relies heavily on the concept of "pools" that ensure that the amount of direct versus indirect PE stays nearly constant from year to year. A potential strength of this alternative approach would be that it could better account for new expense categories or categories that become less important in inflation-adjusted terms. However, to gain this benefit, all categories of cost information would have to be collected in a comparable scale (e.g., 2020 dollars). Although it might be possible to use data from different years or populations of practices, it would be important to carefully adjust such measures to maintain relativity between the new categories of indirect PE.

Finally, even more than the current system, this proposal would rely on practices being able to precisely report PE data. Imprecision in the PE data—or inability to report expenses that align with the defined cost categories—could result in not counting, double-counting, or simply miscounting certain expenses. A potential way forward for this issue would be for CMS to establish ongoing relationships with a moderate number of health care organizations to develop data-collection and accounting systems that support CMS rate-setting requirements. As described in the TEP summary (Chapter 5), this proposal was supported by some TEP members as a method for improving the accuracy of any new data collection effort. If investments were made to develop this data infrastructure, participating organizations could report data annually for a number of years before rotating out of the panel and being replaced by a new organization. This type of targeted recruitment also could allow CMS to measure "efficient" rather than typical practices, as suggested in Medicare Payment Advisory Commission, 2012.

Chapter Summary

Under the current system, indirect costs are typically a function of physician work and the direct costs of the service (see Appendix F). For some components of the current indirect PE pool, however, other allocators might better reflect variation in PE across practices that provide different mixes of services. A system that purposefully divides indirect PE into categories whose variation can be explained by measurable quantities would be expected to improve the accuracy of PE RVUs.

This more nuanced approach to measuring and valuing PE might facilitate a break from the specialty-based system that is currently in place. Tying payment rates to the services provided rather than the specialty of the physician performing the service could yield several benefits, including simplifying the rate-setting algorithm; allowing for use of existing, external data sources, such as those described in this chapter; allowing for targeted updates of quickly changing expense categories; and aligning the MPFS with one of the original core goals that motivated Medicare physician payment reform more than 30 years ago.

We anticipate that developing such a new system as this one would require substantial input from organized medicine and other stakeholders to specify the cost categories and the forms of the allocators. Such a system also would require relatively detailed data collection, with precisely defined expense categories. Collecting such data could be made feasible by investing in building out data collection and reporting systems from a moderate number of health care organizations.

7. Using Outpatient Prospective Payment System Relative Values to Determine Practice Expense

The MPFS and the OPPS use different methodologies to calculate the resources typically required to provide services, which can contribute to inappropriate payment differences by site of service. There is no gold standard for determining which methodology results in more-accurate reflections of resource use. However, using the same data source for both the MPFS and OPPS would allow for more-consistent payment differentials between the two systems and potentially identify differentials that are appropriate. OPPS information could inform the MPFS in different ways, such as helping identify misvalued codes, group codes at a higher level than procedures, and derive estimates to value PE RVUs or components of PE RVUs. Unlike the MPFS, the OPPS uses data that are regularly collected through claims and cost reports, independent of surveys and committee recommendations. However, there are challenges with using OPPS data to establish PE RVUs that would need to be addressed. These include differences in the underlying costs and services mix between office and outpatient settings, the use of different procedure codes for similar services, packaging rules defining the items and services that are included in the payment, and grouping of services to determine the payment rates.

The goal of the analyses presented in this chapter is to continue refining the approaches developed in our Phase I analyses exploring the use of hospital outpatient cost data to determine values for PE RVUs in the MPFS. Our analyses use OPPS data to value PE in the MPFS by establishing relative values between services to better align the MPFS with the OPPS. The analyses do not set the same payment rates in the two systems. The following sections describe the prior work we have done to develop OPPS-based PE RVUs, which we build on for the current analysis. We then describe our analytic updates, methodological refinements, and simulation results from alternative approaches. Our refinement work is ongoing, and we conclude by describing additional refinements that we will undertake for the final Phase II report.

Background and Prior Work Exploring the Use of Outpatient Prospective Payment System Data

Medicare pays different rates for ambulatory services provided in nonfacility and facility settings using different fee schedules and payment systems. Payments for PEs and facility fees cover nonphysician costs of providing services, i.e., the direct costs, such as clinical staff, equipment, and supplies; and the indirect costs, such as administrative staff, billing, and physical space. When a service is provided in a nonfacility setting, the physician receives the MPFS nonfacility PE rate. When a service is provided in a facility setting, the physician receives the

MPFS facility PE rate, and the facility receives a separate fee for services comparable with the intra-service portion of nonfacility PE. Facility fees for HOPDs are based on the OPPS.

Outpatient Prospective Payment System

OPPS payment rates are established from claims and cost report data (CMS, 2019a). The claims accounting methodology uses charges from outpatient claims data and converts them to costs using departmental cost-to-charge ratios from hospital cost reports. Unlike the MPFS, which establishes PE rates for individual services, the OPPS groups services into APCs that have similar clinical content and require similar resources. APC-level geometric mean costs are used to establish relative weights that determine payment rates. Payment for services within an APC reflects an average cost across those services; each receives the same payment rate, but higher-cost services are paid less and lower-cost services are paid more than if they had been priced individually. Ancillary services are included in the APC rates based on OPPS packaging rules, which tend to be more extensive than MPFS packaging rules.

Prior RAND studies have explored approaches for using OPPS-based relative values to establish PE RVUs (Burgette et al., 2018; Wynn, Hussey, and Ruder, 2011). The rationale for using OPPS data to estimate relative values for PE is that many health care services can be provided in multiple settings. Although the absolute resource use might differ between the two settings (for example, hospitals have higher infrastructure costs), the relative resources needed to provide different services might be similar. For instance, if service A costs twice as much to perform as service B in one setting, then it would also cost twice as much in another setting. The ambulatory surgical center (ASC) payment system already uses OPPS data for its rate setting. It uses OPPS relative weights and an ASC conversion factor to set rates.

CMS has proposed such policies as using OPPS rates to limit payments for certain surgical or radiology services; however, public comments have raised technical and policy concerns about using APC rates (42 C.F.R. Parts 405, 410, 411, et al.). Concerns included whether the OPPS methodology could accurately measure resource use in nonfacility settings and whether APC-level relative weights would be appropriate to cap procedure-level PE RVUs.

Phase I Analyses

Our prior work in Phase I suggests that it is feasible to use OPPS data to establish relative values of PE, but further methodological refinements would be needed. We simulated the effect of integrating OPPS-based relative values in different ways across multiple scenarios. In these simulations, we used 2015 utilization data and 2017 MPFS rules. The OPPS-based relative values were derived from procedure-level cost data from an intermediate step of the OPPS claims-accounting process, prior to packaging of ancillary services and grouping of procedures for payment. We identified several key methodological issues, including

1. determining which services could be valued using OPPS-based relative values

2. adjusting OPPS-based estimates to account for differences in cost definitions in the MPFS and OPPS, costs outside the intra-service period, and differences in MPFS and OPPS packaging rules
3. establishing relative values for individual services or groups of services, such as APCs
4. integrating OPPS-based relative values into the MPFS.

Issue 1: Services to Be Valued

To address issue 1, we first identified services paid under the MPFS that have hospital outpatient cost data and adequate volumes of services paid. We mapped codes for services with different codes under the MPFS and OPPS and used reference pricing for selected services with low outpatient volumes but similar costs to other related services. We then used OPPS data to derive "OPPS-based" PE relative values for all of the identified services.

To further determine whether the OPPS-based approach would be appropriate for certain services, medical input could also be used to inform whether the clinical content of services and their relative resource usage are comparable or might be different in the two settings.

Issue 2: Adjustments to Account for Differences Between Definitions of Medicare Physician Fee Schedule and Outpatient Prospective Payment System

OPPS costs are comparable with nonfacility intra-service PE; however, several adjustments are needed to account for differences in cost definitions, non-intra-service costs, and packaging differences. We conducted simulations replacing direct PE costs (and retaining the indirect allocation in the MPFS algorithm) and replacing total PE costs (direct plus indirect PE costs). In the Phase I report, we recommended replacing total PE rather than direct PE. We prefer this approach because of challenges in generating OPPS-based direct PE analogous to MPFS direct PE due to differences in how the costs are defined and reported.

To account for resource use outside the intra-service period,[6] we separately estimated PE for pre-service, facility intra-service (for clinical staff costs for services furnished in facility settings), and post-service periods. These PE categories outside the nonfacility intra-service period were derived using relative MPFS direct PE values to estimate "equivalent visits" to service codes with OPPS data. For pre-services and facility intra-services, we estimated the number of care-management visits (HCPCS 99490) that is equivalent to the pre-services and facility intra-services value and applied the OPPS relative value for 99490. For postoperative visits in the post-service period, we estimated the number of E&M visits that is equivalent to the postoperative visits value and applied the OPPS relative value for an E&M visit (HCPCS G0463).

For supplies that are packaged under the MPFS, we derived an estimate of packaged supply costs using outpatient charges to supply revenue centers and included it in the OPPS-based PE estimates. Although we included this supply adjustment, the simulation results showed large PE

[6] We included "immediate pre-service" and "immediate post-service" periods as part of the intra-service period.

losses for types of service that tend to have high supply use, such as pathology and cardiovascular surgery. This suggests that our approach might underestimate packaged supply costs because of underreporting of outpatient charges or supply charges billed to patient-care cost centers rather than supply cost centers. More-accurate accounting of packaging differences might reduce the large changes in PE RVUs.

Issue 3: Establishing Relative Values for Individual Services or Groups of Services

To explore options for establishing PE for individual services or groups of services, we conducted simulations establishing OPPS-based PE estimates in two ways. First, we established OPPS-based PE values for individual HCPCS codes. Second, we established OPPS-based PE values for groups of procedures defined by APCs while accounting for nonfacility service volumes. We did not use published APC-level OPPS relative weights because these values reflect HOPD service volumes. Instead, we took the geometric mean of the HCPCS-level measures for services assigned to a given APC weighted by utilization in nonfacility settings. With this method, our APC-level resource measures reflect service mix in nonfacility settings rather than HOPDs. From these two approaches, the resulting average PE impacts were similar between the APC-level and the HCPCS-level OPPS-based simulations. However, the impact of establishing relative values for groups of services, such as APCs, on individual practices could be substantially different from the average impact; there could be over- or underpayment for individual physicians or practices.

Issue 4: Integration with Medicare Physician Fee Schedule

The OPPS-based relative values that we estimated are for a subset of services that need PE in the MPFS and exclude such components of PE as indirect costs associated with work. Thus, we needed to integrate the OPPS-based PE estimates into the MPFS and maintain the relative values between services. To do this, we scaled the OPPS-based PE estimates into relative values, so that budget neutrality was maintained in the MPFS. We established separate RVU pools for services with PE components that remained unchanged (including total PE for services without OPPS data and indirect costs associated with work) and those with PE components that were replaced with the OPPS-based PE estimates. We also explored the impact of including budget-neutrality constraints broadly or within certain types of service. In the Phase I report, we suggested the possibility of establishing new relative values within certain types of services and keeping the overall PE budget neutral as a way to transition toward an OPPS-based methodology.

Analytic Updates

To build on the Phase I work, we updated the analyses to reflect 2019 MPFS payment rules and 2017 claims data crosswalked into equivalent 2019 HCPCS codes. The change in PE RVUs observed in this analysis is relative to a calendar year (CY) 2019 MPFS baseline that includes a full transition to the market-based supply and equipment pricing update (42 C.F.R. Parts 405,

410, 411, 414, 415, 425, and 495) and to the adjustment to indirect PE allocated for some office-based services with very low direct PE expenses, such as cognitive services (42 C.F.R., Parts 405, 410, 414, 424, and 425).[7] We also updated the set of procedure codes included in the OPPS-based valuation and expanded the impact assessment to include categories of procedure codes that align with APCs.

Identifying Procedures to Value Using Outpatient Prospective Payment System Data

Like each year's rate-setting process, our analysis relies on historical utilization data. We used 2017 utilization data in the simulation analyses of 2019 payment changes. This required aligning the HCPCS codes in the 2017 utilization data with the HCPCS codes in the 2019 MPFS final rule. To do this, we took an intermediate step of crosswalking the 2017 MPFS codes to the 2018 MPFS using the CMS-generated analytic crosswalk (CMS, 2017). This was done to identify the 2018 new and revised HCPCS codes. Then, the 2018 codes were crosswalked to the 2019 MPFS using an analogous CMS-generated analytic crosswalk (CMS, 2018a). The 2018 and 2019 new and revised sets of codes, and their associated cost information, were included in the universe of codes that fit our criteria for OPPS cost estimation.

As discussed in Chapter 5, TEP members that convened as part of this study expressed concerns about using APC payment rates rather than rates for individual service codes because a high percentage of nonfacility services are never performed in HOPD settings. Our analyses address this concern by using HCPCS-level measures of relative resources.

To identify HCPCS codes that could be valued using OPPS-based estimates, we started with HCPCS-modifier records in the CY 2019 MPFS final rule (CMS, 2018b). We then applied a series of exclusion criteria (see Appendix E). In brief, we excluded HCPCS codes that are not separately paid under the MPFS, do not have direct PE in nonfacility settings, and are provided in low volumes in outpatient settings. For most services, we derive the HCPCS-level measures only if the service is performed at least 30 times in a hospital outpatient setting. For certain E&M services and other select services, we use reference pricing to establish an OPPS-based resource measure. We included an additional exclusion (not included in Phase I) for HCPCS code Q0092 (setting up portable X-ray equipment), which we determined to have dissimilar clinical content when provided in nonfacility and outpatient settings.[8]

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[7] The market-based supply and equipment-pricing update is being phased in over a four-year period, starting in CY 2019 (42 C.F.R., Parts 405, 410, 411, 414, 415, 425, and 495). The adjustment to indirect PE allocated for some office-based services with very low direct PE expenses is being phased in over a four-year period, starting in CY 2018 (42 C.F.R., Parts 405, 410, 414, 424, and 425).

[8] In nonfacility settings, the direct PE associated with Q0092 is similar to the typical direct PE for X-ray procedures; however, in the outpatient data, the cost associated with Q0092 was nearly ten times lower than the typical cost of X-ray procedures. Further clinical input would be useful to identify service codes that have dissimilar clinical content in nonfacility and outpatient settings. This could be incorporated into our next steps to identify groups of services suitable for OPPS-based valuation and to explore phase-in strategies.

Of 3,146 HCPCS codes identified as needing nonfacility intra-service PE values, we determined that we had OPPS information to establish OPPS-based relative values for 79 percent.[9] Thus, our simulations replace MPFS nonfacility PE RVUs with OPPS-based relative values for 2,485 HCPCS codes. The 681 codes for which we do not have OPPS-based relative resource measures account for 21 percent of the codes with nonfacility intra-service PE, representing approximately 12 percent of charges for nonfacility services. The PE relative values for these services in our analyses are based on their current MPFS PE RVUs.

We also established OPPS-based relative values for MPFS facility PE for 7,291 HCPCS codes that are performed in a facility settings.[10] (See the section titled "Accounting for Practice Expense Outside the Intra-Service Period," in this chapter.)

Assessing the Effect of Applying Outpatient Prospective Payment System–Based Relative Values

In the Phase I analysis, we assessed the effect of applying OPPS-based relative values on PE RVUs by specialty and by "type-of-service" categories of similar HCPCS codes. We established the type-of-service categorization based on the Berenson-Eggers Type of Service (BETOS) coding system and CPT codebook headings. The type-of-service categories are shown in Appendix E.

In the Phase II analysis, we modified our impact assessment to include categories consistent with APCs to better align with the OPPS. Rather than using APCs that contain multiple levels for a given category of service, we grouped the APC levels (e.g., Levels 1 through 5) into "base APC" categories. For HCPCS codes without an APC assignment in the OPPS,[11] we assigned base APCs based on CPT codebook headings. We also established additional base APCs for the following groups of related procedures without an assigned APC: ophthalmology, otorhinolaryngology, sleep medicine testing, neurology and neuromuscular procedures, moderate sedation, and allergy tests. We reassigned HCPCS codes from the APCs for Minor Procedures and Diagnostic Test and Related Services to other base APCs with related services. The base APC categories are shown in Appendix E.

Methodological Refinements

For the current analysis, we refined our methodologies to reduce reliance on the MPFS direct PE inputs and make the PE RVUs more-accurate reflections of resource use. These changes

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[9] Of the 3,146 HCPCS codes, 554 (18 percent) were low-volume codes with fewer than 1,000 occurrences in nonfacility settings in 2019.

[10] The OPPS-based PE RVUs are for PE costs incurred in a nonfacility setting when the service is performed in a facility.

[11] Some HCPCS codes are not assigned to an APC because the assignment occurs after packaging and bundling of services in OPPS claims processing.

helped improve our estimates of PE outside the intra-service period and for supplies packaged in the MPFS.

Accounting for Practice Expense Outside the Intra-Service Period

The OPPS costs are comparable with nonfacility PEs in the intra-service period. The service components outside the nonfacility intra-service period include those in pre-service, facility intra-service, and post-service periods.[12] The approaches we use reduce, but do not fully eliminate, the reliance on MPFS direct PE inputs.

Updating Postoperative Visit Counts in Global Periods

To derive OPPS-based PE estimates for postoperative visits, we applied the OPPS cost for an E&M visit (G0463) to an estimated number of postoperative visits that typically occur after each procedure. In the Phase I analysis, we estimated the number of postoperative visits as the equivalent number of E&M visits based on MPFS direct PE inputs. This approach preserved the relative values from the current MPFS methodology that estimates postoperative visits based on expected visits reported in the Physician Time File. However, recent work by Mulcahy, Liu, et al., 2019, analyzing postoperative visits reported to CMS using no-pay HCPCS code 99024,[13] showed that only 4 percent of procedures with ten-day global periods had any postoperative visits (despite CMS valuations for nearly all of these procedures reflecting a bundled postoperative visit). For procedures with 90-day global periods, only 39 percent of expected postoperative visits were reported.

To account for actual visits rather than expected visits, we refined our approach to use the number of postoperative visits reported to CMS as described in Mulcahy, Liu, et al., 2019. We imputed actual visits for each procedure with a ten- or 90-day global period using data on postoperative visits reported via HCPCS code 99024. We estimated the ratio of the median number of reported nonfacility 99024 visits over the expected number of nonfacility visits at the procedure code level. See Appendix E for more details on the regression model used to estimate the ratio of reported to expected visits.

Grouping Pre-Service and Facility Intra-Service Costs

In our prior analysis in Phase I, we valued pre-service and facility intra-service PE not associated with physician work by estimating an equivalent number of care management services

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[12] "Immediate pre-service" and "immediate post-service" periods are included with the intra-service period.

[13] HCPCS code 99024 is a no-pay code for postoperative visits for 296 procedures that CMS required select practitioners in nine randomly selected states to report. Reporting of postoperative visits was required for practitioners in groups with ten or more in Florida, Kentucky, Louisiana, Nevada, New Jersey, North Dakota, Ohio, Oregon, and Rhode Island. Reporting was required on procedure codes that had a ten- or 90-day global period, were performed by more than 100 practitioners, and either (a) were performed more than 10,000 times or (b) had allowed charges greater than $10 million.

based on HCPCS code 99490 for chronic care management and applied the corresponding OPPS cost for 99490. A care management code without physician time was selected because pre-service and facility intra-service costs entail nonphysician clinical staff time. We converted these services to an equivalent number of 99490 visits by computing the ratio of MPFS direct PE inputs for pre-services and facility intra-services for a given code to the MPFS direct PE inputs for 99490. In this updated analysis, we retained a similar approach, with the exception of grouping services based on the MPFS clinical labor activity codes and similar costs and using volume-weighted average direct costs for each group. The rationale for grouping these costs by clinical labor activity is that there might be little variation for similar types of activity. For example, pre-service diagnostic and referral forms typically take clinical staff about one to five minutes to complete, at a labor rate of $0.37 to $0.79 per minute; thus, the PE for services involving these similar activities could be reflected by an average PE that reduces the potentially false precision of valuing the activity separately for individual codes.

For the codes identified for OPPS-based estimates and that have nonfacility pre-services, facility pre-services, and facility intra-services, we separately isolated codes with associated labor costs and calculated their labor costs by multiplying the time taken for each service and the labor costs associated with the service. Codes were grouped into categories based on direct PE, with cutoffs at $5, $10, and $15. Using volumes from the 2017 carrier claims, we calculated the volume-weighted mean direct PE for each HCPCS code by group, assigning the volume-weighted costs per group for codes with costs between $0 and $15 and maintaining the HCPCS-level direct PE for all codes valued at $15 or more.

To get an estimated number of equivalent care-management services for each group, we took the volume-weighted direct PE for each group and divided by the direct PE costs for HCPCS 99490. We then multiplied the equivalent number of care-management services by the OPPS geometric mean cost of HCPCS 99490 to derive OPPS-based pre-service and facility-intra-service costs for each code.

Accounting for Packaged Costs

In the Phase I analysis, we accounted for MPFS packaging rules by applying an add-on factor to pre-packaging OPPS-based PE estimates. The add-on factor was derived from average supply charges in outpatient claims and national cost-to-charge ratios. The included charges were those billed to revenue centers for medical and surgical supplies, such as general medical supplies, implantable devices, and surgical dressings. We previously excluded supplies incident to radiology and other diagnostic services to avoid packaging services that were separately paid under the MPFS and did not include supplies related to drug delivery. Although this methodology might have partially accounted for packaged medical supplies and implantable devices under the MPFS, our prior simulations showed large losses in PE for services that tend to use a high proportion of supplies and devices, such as radiology, pathology, and some types of surgeries.

In this analysis, we refined our approach to better capture supplies used for radiological imaging; other diagnostic services, including cardiac imaging; and drug delivery. In our add-on factor, derived from outpatient charges, we included the following additional categories of supplies: radiological and other diagnostic supplies from revenue centers 0621 and 0622 and supplies for intravenous therapy from revenue centers 0261, 0263, and 0264. To avoid packaging supplies that are separately payable under the MPFS, we identified and excluded imaging contrast and drugs that are explicitly separately paid under the MPFS, such as radiopharmaceuticals in the ranges A4641–A4648, A9500–A9700, and Q9945–Q9989; and such drugs as J1245 that are paid according to the Medicare Part B Drug Average Sales Price.

Using Outpatient Prospective Payment System–Based Estimates to Establish Practice Expense Relative Value Units

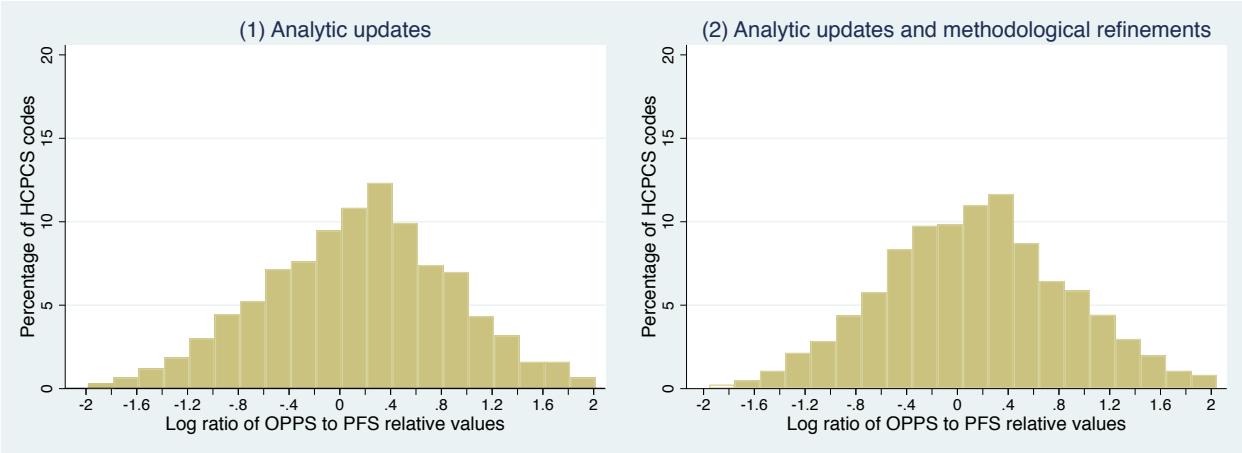
We assessed the impact of using OPPS-based relative values at the HCPCS-level to establish total PE RVUs in two scenarios:

1. with the analytic updates reflecting 2019 MPFS payment rules and fully transitioned supply and equipment prices and increases to cognitive services
2. with the analytic updates and methodological refinements to group pre-services by clinical labor activity type and costs, to account for estimated actual postoperative visits rather than expected visits, and to include MPFS packaged supplies incident to radiology and diagnostic services.

Figure 7.1 shows comparisons of the relative values in the MPFS and those derived using the OPPS data for the two scenarios. The comparison metric is the log of the ratio of OPPS-based relative values and MPFS PE relative values, which is positive when the OPPS-based relative value is greater than the MPFS PE relative value and negative vice versa.[14] A log ratio of 0 represents a procedure code that has an OPPS-based relative value equal to the MPFS PE relative value. Log ratios between –0.095 and 0.095 have OPPS-based relative values that are no more than 10 percent higher than the MPFS PE relative value, or vice versa (the MPFS PE relative value is no more than 10 percent higher than the OPPS-based relative value). The relative values from the OPPS-based approach are substantially different from MPFS PE relative values for many services, with more services having a larger OPPS-based relative value. Log ratios between –0.405 and 0.405 have OPPS-based relative values that are no more than 50 percent higher than the MPFS PE relative value or vice versa (the MPFS PE relative values are no more than 50 percent higher than the OPPS-based relative value). About 61 percent of the codes fall outside this range in scenario 1 (with the analytic updates), and 59 percent of codes fall outside this range in scenario 2 (with analytic updates and methodological refinements).

[14] The OPPS-based and MPFS PE relative values each were standardized to their mean to enable this comparison. The log ratio is symmetric, e.g., log(a/b) = –log(b/a), unlike a percentage difference that could be larger if the choice of the denominator is small, e.g., (a – b)/a versus (a – b)/b.

Figure 7.1. Comparison of the Nonfacility Medicare Physician Fee Schedule Total Practice Expense and Outpatient Prospective Payment System–Based Relative Values at the HCPCS Level



SOURCE: Authors' analysis using MPFS and OPPS data.
NOTE: The x-axes are the log ratio of OPPS-based relative values to MPFS PE relative values for 2,451 HCPCS codes in nonfacility settings. Of the 2,485 codes with OPPS-based relative values in the analyses, 34 are crosswalked to take the same PE value as other codes and are not included in the figure. Log ratios below –2 or above 2 are excluded; this accounts for 69 codes (2.8 percent) in scenario 1, and it accounts for 68 codes (2.7 percent) in scenario 2.

Table 7.1 shows the impact on PE RVUs by types of service when OPPS-based relative values are used to establish total PE RVUs. With the analytic updates (scenario 1), the results are similar to those found in the Phase I analyses: There are large increases in PE RVUs for some types of services, such as Surgery—Spine and Spinal Cord, Surgery—Eye, Surgery—Musculoskeletal, and Evaluation and Management—Other; and large decreases for other types of services, including Surgery—Cardiovascular, Pathology and Laboratory, Nuclear Medicine, Radiology—Radiation Oncology, Radiology—Advanced Diagnostic Imaging, Radiology—Diagnostic Ultrasound, and Medicine—Neurology. With the additional methodological refinements (scenario 2), most of these aggregate trends remain. Accounting for actual rather than expected postoperative visits led to a reduction in PE for Surgery—Eye and Surgery—Other. Including packaged supplies incident to radiology and diagnostic imaging led to an increase in PE RVUs for Surgery—Cardiovascular.

Table 7.1. Impact of Using Outpatient Prospective Payment System–Based Relative Values for Total Practice Expense Relative Value Units, by Type of Service

Type of Service	Allowed Charges (Millions)	Scenario 1 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)	Scenario 2 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)
Anesthesia	$2,632	0	0
Evaluation and Management—Inpatient/ED/OB	$17,336	<1	<1
Evaluation and Management—Office Visits	$23,429	8	9
Evaluation and Management—Other	$2,696	25	25
Medicine—Cardiovascular	$2,654	–6	–5
Medicine—Manipulative Treatment	$773	11	12
Medicine—Neurology	$698	–24	–24
Medicine—Other	$9,117	–1	–1
Medicine—Physical Medicine	$4,101	–1	–<1
Nuclear Medicine	$637	–26	–25
Pathology and Laboratory	$1,985	–28	–27
Radiology—Advanced Diagnostic Imaging	$3,518	–24	–23
Radiology—Diagnostic Ultrasound	$666	–14	–14
Radiology—Other	$350	8	9
Radiology—Radiation Oncology	$1,470	–20	–20
Radiology—Standard Diagnostic Imaging	$1,395	–2	–1
Surgery—Cardiovascular	$2,822	–32	–27
Surgery—Digestive System	$1,976	1	<1
Surgery—Eye	$2,368	14	10
Surgery—Musculoskeletal	$3,693	17	17
Surgery—Other	$6,927	1	–3
Surgery—Spine and Spinal Cord	$1,407	17	17
Total	$92,650	0	0

SOURCE: Authors' analysis of MPFS, OPPS, outpatient claims, and carrier claims data.
NOTES: ED = emergency department; OB = observation. The change in PE RVUs is relative to a CY 2019 MPFS baseline including fully transitioned market-based supply and equipment prices and adjustment to indirect PE for office-based services with very low direct PE expenses, and without imposing the OPPS caps on imaging services. Although the OPPS caps on imaging services could apply to a large number of services, only about 7 percent of those services have MPFS values that exceed the cap. Applying these caps reduces the baseline PE RVUs by approximately 1 percent for diagnostic testing facilities and physicians specializing in radiology, nuclear medicine, and vascular surgery.

Table 7.2 shows the impact on PE RVUs by base APC categories. The decrease in postoperative visits from using estimates of actual visits rather than expected visits resulted in losses for categories related to eye procedures (Extraocular, Repair, and Plastic Eye Procedures; Laser Eye Procedures; Intraocular Procedures) and other surgical procedures related to Musculoskeletal, Skin, Excision/Biopsy/Incision and Drainage, Breast/Lymphatic Surgery, Nerve, Laparoscopy, and ENT [ear, nose, and throat]. Because of budget neutrality that maintains the overall PE RVUs, the shifts in PE RVUs from the reduced postoperative services led to small increases in PE RVUs for such categories as Allergy Tests and Cardiac Rehabilitation. The inclusion of packaged supplies incident to radiology and diagnostic services resulted in gains for Endovascular Procedures, Strapping and Cast Application, ENT Procedures, and Upper GI [gastrointestinal] Procedures. The shifts in PE RVUs from the changes in packaged supplies led to decreases for Drug Administration Levels 1–2, Intraocular Procedures,

and Neurostimulator and Related Procedures. From grouping of pre-services, the largest decreases were for Resuscitation and Cardioversion and Drug Administration Levels 3–4, and PE RVUs increased for Allergy Tests.

Table 7.2. Impact of Using Outpatient Prospective Payment System–Based Relative Values for Total Practice Expense Relative Value Units, by Base Ambulatory Payment Classification

		Scenario 1	Scenario 2
		Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)	
Base Ambulatory Payment Classification	Allowed Charges (Millions)		
Clinic Visits and Related Services	$23,996	10	11
Critical Care	$1,312	<1	<1
Skin Procedures	$3,930	–4	–10
Hyperbaric Oxygen	$13	–80	–79
Excision/Biopsy/Incision and Drainage	$495	27	19
Breast/Lymphatic Surgery and Related Procedures	$25	–17	–25
Strapping and Cast Application	$62	18	25
Musculoskeletal Procedures	$355	–11	–22
Airway Endoscopy	$354	–18	–18
ENT Procedures	$201	11	10
Otorhinolaryngology	$118	40	42
Vascular Procedures	$764	–1	–<1
Endovascular Procedures	$1,464	–45	–36
Electrophysiologic Procedures	$306	23	24
Blood Product Exchange and Related Services	$6	–16	–14
Upper GI Procedures	$364	–12	–10
Lower GI Procedures	$703	2	<1
Abdominal/Peritoneal/Biliary and Related Procedures	$10	5	6
Laparoscopy and Related Services	$5	–4	–8
Urology and Related Services	$602	12	12
Gynecologic Procedures	$79	3	1
Nerve Procedures	$213	6	2
Nerve Injections	$1,369	62	65
Neurostimulator and Related Procedures	$76	6	–<1
Neurology and Neuromuscular Procedures	$393	–25	–26
Implantation of Drug Infusion Device	$4	15	17
Laser Eye Procedures	$344	20	5
Intraocular Procedures	$7	117	101
Ophthalmology	$3,402	–4	–3
Extraocular, Repair, and Plastic Eye Procedures	$242	–3	–11
Imaging Without Contrast	$5,095	–18	–17
Imaging with Contrast	$1,480	–30	–30
Nuclear Medicine and Related Services	$575	–27	–26
Therapeutic Radiation Treatment Preparation	$493	–24	–24
Radiation Therapy	$742	–19	–19
Pathology	$1,957	–28	–27
Drug Administration Levels 1–2	$509	9	–4
Drug Administration Levels 3–4	$708	13	11
Electronic Analysis of Devices	$393	–55	–56
Cardiac Rehabilitation	$3	135	139
Resuscitation and Cardioversion	$34	14	9
Pulmonary Treatment	$202	2	–<1
Manipulation Therapy	$773	11	12
Health and Behavior Services	$2,148	79	81
Sleep Medicine Testing	$226	–28	–27
Moderate Sedation	$38	–38	–38

Base Ambulatory Payment Classification	Allowed Charges (Millions)	Scenario 1 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)	Scenario 2 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)
Allergy Tests	$70	138	155
No base APC assigned	$35,988	–1	–1
Total	$92,650	0	0

SOURCE: Authors' analysis of MPFS, OPPS, outpatient claims, and carrier claims data.
NOTES: The change in PE RVUs is relative to a CY 2019 MPFS baseline including fully transitioned market-based supply and equipment prices and adjustment to indirect PE for office-based services with very low direct PE expenses, and without imposing the OPPS caps on imaging services. Although the OPPS caps on imaging services could apply to a large number of services, only about 7 percent of those services have MPFS values that exceed the cap. Applying these caps reduces the baseline PE RVUs by approximately 1 percent for diagnostic testing facilities and physicians specializing in radiology, nuclear medicine, and vascular surgery.

Table 7.3 shows the impact on PE RVUs by specialty. As with the Phase I analysis, the largest impacts in scenario 1 were gains for Clinical Social Worker, Clinical Psychologist, and Audiologist. The largest losses were for Diagnostic Testing Facility, Independent Laboratory, International Radiology, and Vascular Surgery.[15] Although specialties have substantial changes in PE RVUs in scenario 1, the methodological refinements resulted in small changes for most specialties when comparing scenarios 1 and 2. The reduction in postoperative visits decreased PE RVUs for Dermatology, Plastic Surgery, Oral/Maxillofacial Surgery, Colon and Rectal Surgery, and Hand Surgery. The inclusion of packaged supplies incident to radiology and diagnostic services increased PE RVUs for Interventional Radiology, Oral/Maxillofacial Surgery, Nephrology, and Vascular Surgery. The grouping of pre-services increased PE RVUs for Allergy/Immunology and caused small decreases across other specialties.

Table 7.3. Impact of Using Outpatient Prospective Payment System–Based Relative Values for Total Practice Expense Relative Value Units, by Specialty

Specialty	Allowed Charges (Millions)	Scenario 1 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)	Scenario 2 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)
Allergy/Immunology	$239	18	21
Anesthesiology	$1,983	6	6
Audiologist	$69	56	59
Cardiac Surgery	$291	–4	–4
Cardiology	$6,534	–5	–4
Chiropractor	$748	12	12
Clinical Psychologist	$840	74	76
Clinical Social Worker	$792	93	96
Colon and Rectal Surgery	$168	2	–2
Critical Care	$340	–1	–<1
Dermatology	$3,610	–2	–7

[15] The PE loss for Portable X-Ray Supplier was large in Phase I; however, the exclusion of HCPCS Q0092 from the OPPS-based estimation because of dissimilar clinical content largely eliminated that loss.

Specialty	Allowed Charges (Millions)	Scenario 1 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)	Scenario 2 Impact of Practice Expense Relative Value Unit Changes (Percentage Difference)
Diagnostic Testing Facility	$632	–46	–46
Emergency Medicine	$3,120	1	1
Endocrinology	$483	2	3
Family Practice	$6,227	8	9
Gastroenterology	$1,738	–1	–<1
General Practice	$431	5	5
General Surgery	$2,075	–1	–2
Geriatrics	$194	4	4
Hand Surgery	$215	3	2
Hematology/Oncology	$1,686	–7	–11
Independent Laboratory	$626	–36	–35
Infectious Disease	$646	–1	–1
Internal Medicine	$10,768	5	5
Interventional Pain Management	$884	12	13
Interventional Radiology	$374	–30	–23
Multispecialty Clinic/Other Physician Specialty	$148	3	3
Nephrology	$2,191	–7	–2
Neurology	$1,520	–4	–4
Neurosurgery	$803	–2	–2
Nuclear Medicine	$49	–15	–15
Nurse Anesthetist/Anesthesiologist Assistant	$1,246	<1	<1
Nurse Practitioner	$4,055	8	8
Obstetrics/Gynecology	$648	3	3
Ophthalmology	$5,381	5	4
Optometry	$1,288	–2	–2
Oral/Maxillofacial Surgery	$70	–10	–9
Orthopedic Surgery	$3,774	7	7
Otolaryngology	$1,209	–<1	–<1
Pathology	$1,145	–19	–18
Pediatrics	$61	5	5
Physical Medicine	$1,110	8	9
Physical/Occupational Therapy	$3,894	–<1	–<1
Physician Assistant	$2,454	9	8
Plastic Surgery	$376	4	<1
Podiatry	$2,082	8	6
Portable X-Ray Supplier	$102	–2	–1
Psychiatry	$1,208	19	20
Pulmonary Disease	$1,708	–<1	<1
Radiation Oncology and Radiation Therapy Centers	$1,723	–19	–19
Radiology	$4,871	–15	–15
Rheumatology	$537	5	4
Thoracic Surgery	$355	–3	–3
Urology	$1,808	8	8
Vascular Surgery	$1,086	–29	–27
Other	$33	1	3
Total	$92,650	0	0

SOURCE: Authors' analysis of MPFS, OPPS, outpatient claims, and carrier claims data.

NOTES: The change in PE RVUs is relative to a CY 2019 MPFS baseline including fully transitioned market-based supply and equipment prices and adjustment to indirect PE for office-based services with very low direct PE expenses, and without imposing the OPPS caps on imaging services. Although the OPPS caps on imaging services could apply to a large number of services, only about 7 percent of those services have MPFS values that exceed the cap. Applying these caps reduces the baseline PE RVUs by approximately 1 percent for diagnostic testing facilities and physicians specializing in radiology, nuclear medicine, and vascular surgery.

Next Steps

In the next stage of this Phase II study, we plan to continue exploring alternative methodologies for establishing PE RVUs. The forthcoming analyses will consider impacts across practices, classes of services that are suitable for an OPPS-based approach to establish PE RVUs, ways to establish PE for groups of procedures, and strategies to gradually incorporate the use of new methodologies.

In addition to average impacts, we will assess the impact across the distribution of physician practices defined by TINs to better understand how the OPPS-based PE valuation could affect different practices. This allows for consideration of how the proposed changes affect not only average practices but also physicians and practices that might provide a very different mix of services from the average. For example, smaller practices typically provide a narrower range of services and could be disproportionately affected by the changes.

A key concern brought up by TEP members, and a potential driver of the large positive and negative impacts in the interim Phase II results using OPPS data, is that different underlying cost structures in nonfacility and outpatient settings could result in cost differences in both directions. For clinically similar services, it is difficult to determine whether HCPCS-level inconsistencies in relative resource use across the two settings are appropriate or whether they are attributable to underlying differences in the payment methodologies. Structural differences in individual cost components could affect measures of relative resource use for individual services. To the extent that differences in individual cost components offset each other (e.g., higher equipment costs and lower staffing costs in nonfacility settings), the total resource use for one service relative to another in the nonfacility setting should be comparable with the relative resource usage for the same services in the outpatient setting. However, cost differences that are not offsetting each other could introduce HCPCS-level inconsistencies if OPPS-based relative values do not reflect nonfacility relative resource use. The inconsistencies raise a policy issue regarding whether differences in relative resource usage for clinically similar services should be accounted for at the service level or at a more aggregate level. In the next stage of our Phase II analyses, we intend to explore how to address this issue in two ways. First, input from clinicians could help identify classes of services that have similar clinical content and relative resource use in nonfacility and outpatient settings and, thus, which services could be suitable for an OPPS-based approach to establish PE RVUs. Second, establishing relative values for groups of services rather than individual services could avoid some of the HCPCS-level inconsistencies.

Exploring approaches to establish PE for groups of services continues some of our analyses from Phase I. We plan to continue assessing the use of APCs and modified groupings of procedures rather than individual procedures as the unit of valuation. In the Phase I analyses, we derived APC-level PE relative values by calculating OPPS-based geometric mean costs of procedures that were weighted by nonfacility volume to account for service mix. In future work, we plan to first explore applying the APC grouping to PE RVUs without the OPPS-based

valuation to assess the impact of applying OPPS-based grouping without using OPPS costs. Then, we plan to assess the impact that modified versions of APCs would have on payments, both with and without the OPPS-based PE valuation. Modified versions of APCs could split up APCs into groupings that are reflective of similar clinical content and resource use among physician practices.

We also plan to lay out options to transition toward alignment of the MPFS and the OPPS. These approaches would use the OPPS data to establish PE RVUs for some parts of the MPFS, but would still rely on the MPFS or external data sources (or new data collection) for some parts for which the OPPS data are not comparable. First, we will consider whether certain types of procedures have similar underlying costs between nonfacility and outpatient settings and apply the OPPS-based methodology to only those services. For example, ancillary services, such as X-rays or electrocardiograms, might be comparable in both settings, or certain surgical procedures might be similar across settings. These selections of services would benefit from clinical input. Next, we plan to assess the impact of blended rates using additional budget-neutrality constraints to minimize the impact on types of services and phasing the blend over time toward a fully OPPS-based approach. In the Phase I analysis, we applied budget-neutrality constraints in two ways. First, we preserved overall budget neutrality for the set of procedures that had PE replaced with OPPS-based estimates; i.e., PE RVUs were reallocated based on OPPS-based estimates, but the aggregate total PE RVUs remained the same for the procedures with PE valued with OPPS-based estimates. In a second approach, we applied budget-neutrality constraints by type of service so that the aggregate total PE RVUs for each type of service remained the same (and PE RVUs for each procedure within each type of service were reallocated). Imposing budget neutrality for subgroups of service could be one way to phase in a transition to using OPPS-based PE estimates. To better align with the APC-level OPPS-based estimates, a revised methodology could apply budget neutrality to the intra-service components by the "base APC" groupings of services. The base APC budget-neutrality constraint would keep PE RVUs for similar procedures constant and could be phased out over time.

Chapter Summary

In this chapter, we described updates and refinements to methodologies using OPPS data to establish PE RVUs in the MPFS. We updated to 2019 MPFS payment rules using 2017 utilization data and updated the set of procedure codes identified for OPPS-based PE valuation. We also derived alternative "base APC" categories of services to assess the impact of the OPPS-based relative values on groups of similar services. The methodological refinements included reducing postoperative visits based on actual visits rather than expected visits; grouping pre-services by similar clinical labor activity and direct PE; and packaging supplies incident to radiology, diagnostic tests, and intravenous therapy.

With the analytic updates to using the OPPS-based relative values in the MPFS, we found that the impact is similar to our prior analyses, which showed large PE gains for some types of services and large losses for others. With the full transition of the adjustment to indirect PE allocated for some office-based services with very low direct PE expenses established in the CY 2018 MPFS final rule, the impacts are lower for specialties, such as clinical social worker and clinical psychologist; however, they are still large generally. The impact on portable X-ray suppliers was reduced because of the exclusion of a portable X-ray equipment setup code from the OPPS-based valuation, because the clinical content could be different in outpatient settings versus nonfacility settings.

The reduction of postoperative visits lowered PE for surgical procedures, including eye surgery, musculoskeletal surgery, and skin procedures. However, the change in PE RVUs from reduced postoperative visits was relatively small when PE shifted to other services because of budget neutrality. Similarly, the inclusion of packaged supplies incident to radiology, diagnostic tests, and intravenous therapy increased PE somewhat for service categories, such as cardiovascular procedures and interventional radiology, but overall changes were relatively small.

As we continue to refine the methodologies, we will focus on implementing budget neutrality for categories of services that can help phase in the changes in PE from using OPPS-based relative values. In addition, we will assess the impact of the PE changes across practices to see how the distribution of impact differs from the average impacts. We will also explore modified groupings of APCs and assess the impact of valuing PE for groups of services rather than individual services. If possible, the methodologies would benefit from clinical input on the set of services for which services in nonfacility and outpatient settings have similar clinical content and relative resource use such that OPPS data are appropriate for PE rate setting.

8. Conclusion

In Phase I of this project, we found that there were no existing data sources that would be acceptable replacements for the PPI Survey inputs to the current PE algorithm. None of the experts in the Phase II TEP expressed disagreement with this conclusion. Because there have been large changes in the practice and organization of health care since the 2006 PE data that the PPI Survey collected, there is concern that the status quo inaccurately captures current PE structures.

The original PPI Survey encountered substantial difficulties, including a mid-study change of survey contractors. We believe that successfully collecting data to produce specialty-level direct and indirect practice expense per hour (PE/HR) measures likely will be even more difficult now than was the case in 2007 and 2008, when the PPI Survey was in the field. Larger practices and health care systems are more common now than they were a decade ago. Although these larger organizations might have better-developed financial data reporting abilities, sharing of resources between practices and parent organizations likely will complicate accurate data collection.

Although collecting new data for rate setting is likely to be difficult, relying on the current PE data indefinitely is untenable. Accurately setting prices in the MPFS is very important for access to care among Medicare beneficiaries; systematic differences in the amounts that different types of physician practices are paid relative to the PE they incur could have long-term implications for the composition of the practitioner workforce and the care beneficiaries can access as a result. Similarly, for beneficiaries who are responsible for coinsurance payments, misvaluations in the MPFS can result in unequal financial burdens relative to the resources that are required to provide the services that they receive. Even a relatively large investment in survey costs and respondent burden can be justified by the importance of MPFS rates.

In this report, we devoted considerable attention to updating inputs through a new voluntary survey of physician practices, though it is important to note that several alternative approaches could be taken to collect new data, some of which—such as using cost data from existing cost-reporting systems (e.g., OPPS)—we considered in this report while others, such as implementing a system of cost reporting akin to that which exists in institutional and other settings, we did not. Each of these options (or combinations thereof) bring their own advantages and drawbacks that ultimately will need to be considered within the mission and priorities of CMS.

Against this background, we performed an extensive environmental scan to identify previous surveys of physicians and physician practices to identify best practices for fielding a survey of this type, the types of questions that physician practices have been able to respond to, and the response rates that have been achieved previously. This review was supplemented by interviews with RAND experts who have overseen surveys of physician practices. We identified several recommendations for future PE surveys, including possible sampling frames, approaches for

establishing a contact at a physician practice, approaches to encourage nonresponding practices, and considerations for reducing survey burden.

We also developed a survey instrument model to better understand issues that will be encountered in writing a PE survey. To produce this survey model, we compiled a comprehensive list of PE components and developed questions to cover those topics. One goal of the survey model was to develop questions that could be applied widely to practices with a variety of accounting systems and that share expenses with a parent organization or another business entity. We anticipate that a field-ready survey would need to optimize language and expense definitions through pilot testing to improve data quality and reduce response burden.

Another key portion of the Phase II research was to convene a panel of experts on improving the methods and data that underlie PE rates in the MPFS. Although there was disagreement on a variety of topics, several points that panel members made are worth highlighting. Although there seemed to be consensus that fielding a large-scale PE survey would be a difficult undertaking, multiple TEP members argued that it could be successful with a sufficient investment in pilot testing to optimize the survey for different types of physician practices, such as different specialties or practices that tend to "lump" versus "split" their expenses in their accounting systems. There was also some support for recruiting a smaller panel of practices or health care organizations that could build out data-reporting systems that align with CMS needs for rate setting. Although some members voiced concerns with this approach, others felt that the ability of such a system to produce high-quality data on an ongoing basis would outweigh concerns about potentially lower overall sample sizes and concerns about whether practice anonymity could be maintained. Finally, in the budget-neutral world of MPFS rate setting, changes that financially benefit one group of physician practices will reduce payment rates for others. To gain support for future rate-setting updates, panel members recommended seeking feedback from organized medicine and other stakeholders in the early stages to achieve consensus on **process**, even if consensus on **outcomes** might not be possible.

A substantial effort to collect new data to measure PE would also present a rare opportunity to rethink the PE rate-setting methodology. In this report, we present a preliminary framework for splitting the current indirect pool into several subcategories of indirect PE. These categories should be defined so that an allocator can be specified that can explain as much observed variation in the PE category as possible. It is possible that this approach could reduce the importance of physician **specialty** in MPFS rate setting and increase reliance on the indirect PE that is required to perform particular **services**. This approach also might facilitate more-standard measurement of certain cost categories than is currently possible. For instance, two practices might report substantially different occupancy costs if they rent versus own their office space, all else being equal. Breaking out occupancy costs as a separate category would allow such costs to be measured more consistently via square footage and cost per square foot, much as direct costs for nonphysician clinical labor are estimated in the direct cost pool. This alternative approach to PE rate setting would place greater demands on collecting data that conform to precise category

definitions. Collecting such data might require CMS to establish ongoing relationships with practices and health care systems to develop accounting systems to provide such detailed information. Forming such relationships could allow for periodic data updates from a panel of practices, which would be beneficial for maintaining the system over time.

As an alternative to collecting new PE rate-setting data from scratch, it would also be possible to use hospital cost information that is used for rate setting in the OPPS. Although the **absolute** costs in an HOPD might be quite different from those in a physician office, there might be many services for which the **relative** costs are similar. OPPS information could be used to inform MPFS PE rate setting in various ways, including flagging services that could be scrutinized as potentially misvalued procedures, or to set PE RVUs for some classes of services. In this report, we built on work done in Phase I by incorporating several methodological refinements, including use of new data on the number of postoperative visits that typically occur in a ten- or 90-day global surgical period; modifications to packaging supplies incident to radiology, diagnostic tests, and intravenous therapy; and grouping of pre-services. Although several members of the TEP raised concerns related to the use of OPPS information in PE rate setting, we believe that clinical input, additional data collection, or a combination thereof could identify classes of procedures that could be included in an OPPS-informed MPFS rate-setting approach and identify appropriate adjustments for different cost structures (e.g., differences in equipment utilization rates) between nonfacility and outpatient settings.

To conclude, improving Medicare's physician payment rules is an extraordinarily important policy challenge. Payments made under the MPFS exceed $90 billion per year, to say nothing of other payment systems that are based on Medicare's relative values. This means that relatively small policy changes can translate into large real-world impacts for physicians, patients, and other stakeholders. Although it will never be possible to achieve a perfect system that exactly captures the resources that are typically required to provide a service in every type of practice, the current system leaves ample room for improvement. Incorporating new data—whether from collecting new data, using information from OPPS, or using other sources—and putting in place a mechanism for periodic updates of future data will be important to make sure that MPFS payments reflect how medicine is being practiced now and in the future.

Appendix A. Detailed Methods and Additional Results of Environmental Scan

This appendix provides more detail on the methods used to carry out the environmental scan referenced in Chapters 2 and 3 and includes additional results. These include electronic searches of the available literature and previous PE surveys and the criteria we used for inclusion. We also review our process of data abstraction for the survey questions. The environmental scan produced findings applicable to survey-based data collection to update PE in the MPFS and more-general findings on the design and administration of physician surveys. We present these more general findings here.

Identification Strategy of Literature and Surveys

We identified publications that discussed PE or survey administration to physicians or physician practices. Publications were identified using PubMed electronic database search and by surveying RAND experts. Additional references were identified through a snowball approach. Search criteria were restricted to publications that included the following terms in the title or abstract: *cost* or *expense*, *physician*, *physician practice*, and *survey* or *questionnaire*. The search terms used in PubMed are as follows.

(((((Cost[Title/Abstract] OR Expense[Title/Abstract])) AND (physician[Title/Abstract] OR MD[Title/Abstract] OR DO[Title/Abstract] OR "medical doctor"[Title/Abstract])) AND (survey[Title/Abstract] OR questionnaire[Title/Abstract])) AND physician practice*[Title/Abstract]) AND English[Language]

Inclusion Criteria

We gathered and reviewed full text of articles that met the following eligibility criteria:

1. Content:
    a. The articles discussed a survey that, in addition to measuring practice characteristics, measured at least one type of PE.
    b. Surveys that focused on characterizing individual physicians' opinions or practice patterns were excluded.
2. Design: The articles described or contained an original survey or questionnaire.
3. Respondent: The respondent was a physician or a representative of the physician practice.
4. Setting: The survey targeted physicians or practices in the United States.
5. Time period: There were no limitations.

Articles and reports were also deemed relevant if they offered information about the challenges and best practices associated with conducting one or more of these surveys.

Abstraction of Survey Questions, Metrics, and Considerations

We extracted 288 questions from the surveys identified in the environmental scan, including questions pertaining to a practice's characteristics, expenses, and labor force. Furthermore, we abstracted descriptive information about each survey, including sponsor, administrator, respondent type, sampling frame, response rates, time burden or length, incentives offered, and whether the survey was conducted as a panel or repeated cross-section.

From the included publications, we also abstracted considerations and recommendations related to measuring PE and surveying physician practices or physician populations. Each publication was reviewed by one of three researchers who extracted the relevant information from these publications. We then compiled and synthesized this information with material from RAND expert interviews.

General Recommendations for Administering Physician Surveys

Reports and articles about the administration of physician practice surveys generally focused on ways to increase response rates, ensure representativeness, decrease respondent burden, and manage administration costs. It is important to note, however, that the scope and complexity of the subject matter in PE make the effort under consideration distinct from typical surveys of physicians, and these general recommendations might not apply. We report findings and recommendations from the literature and from expert interviews, organized by sampling frame, administration modes, complexity and length, response incentives, and outreach and follow-up.

Sampling Frame

Choosing a *sampling frame*—the database or other sources from which the sample is drawn—requires consideration of several factors. Here, we focus on four. First, coverage of the target population should ideally be comprehensive (and if not comprehensive, then representative) and minimize invalid sampling units. A sample of physicians could be biased if, for instance, not all active physicians are included, or if inactive physicians are included (DiGaetano, 2013). Second, accurate and up-to-date contact information for potential respondents is important for achieving high response rates and low administrative burden. Inaccuracies in contact information sometimes can be corrected, but doing so can be time-intensive and costly. Thus, sampling frames that frequently update contact information and other data are preferred and might be cost effective, even if acquisition costs are higher than sampling frames that update less frequently. Third, the availability and accuracy of auxiliary information, such as practice characteristics, certification, or membership status, should be considered. In the case of a survey to measure PE, for instance, achieving adequate sample size across desired strata, such as specialty, might be feasible only if small or hard-to-reach specialties are over-sampled and perhaps subjected to targeted recruitment efforts, such as coordinating with professional membership organizations to encourage responses. Accurate auxiliary data might

also enable validity checks for responses collected in the survey, reduce item nonresponse, and reduce the number of needed questions on the survey instrument. Finally, the cost of acquiring and preparing the data-frame source data can vary significantly.

In the following list, we briefly describe several possible sampling frames in terms of coverage, accuracy, and auxiliary data and discuss their potential trade-offs. (Note that information on data frames from the literature gathered in the environmental scan might be outdated. Information in this list that could be independently verified by websites was updated.)

1. AMA Physician Masterfile: This data frame includes near-complete coverage of doctors of medicine and osteopathic medicine in the United States. The Masterfile has relatively high coverage because individuals are included on entry to U.S. medical schools. It is among the most commonly used data frames, and efforts are made to verify that contact data are up to date (periodicity unknown). Concerns have been raised about the recentness of physician preferred contact information relative to contact information in other surveys (DiGaetano, 2013; DesRoches et al., 2015; Klabunde et al., 2012), though the comparison might not be appropriate or apply to primary office location (Henderson, 2015). Auxiliary information is available on type of practice, specialty, and hospital and medical group affiliation. Data are available for purchase (Klabunde et al., 2012; DiGaetano, 2013; DesRoches et al., 2015).
2. American Medical Information (AMI) Mailing List: These data are, for the most part, constructed from the yellow pages and business white pages directories from phone companies and supplemented by information from other public sources. The AMI database is updated monthly (InfoUSA, undated b), and all of the records are verified annually by telephone (DiGaetano, 2013). Coverage of active physicians is incomplete because it does not include physicians working in settings that do not have a phone number available in these directories (e.g., Health Maintenance Organizations, outpatient clinics) (DiGaetano, 2013). Auxiliary variables include specialty and office size, as well as other physician characteristics (DiGaetano, 2013). AMI data are available for purchase (InfoUSA, undated a).
3. NPI Registry: This database includes all individual health care providers who have an NPI number. It includes most physicians practicing in the United States and is comparable in coverage with the AMA Masterfile. Studies found data accuracy to be high relative to other physician databases; however, data quality might degrade over time because no data verification efforts are made for individual NPI numbers and updates are only initiated by providers (DiGaetano, 2013; DesRoches et al., 2015). Auxiliary information is more limited than on other databases but includes provider specialty and practice address (DiGaetano, 2013; DesRoches et al., 2015). NPI data are available for free.
4. OneKey: This database of health care providers contains data from a variety of public and proprietary sources on approximately 1.1 million physicians. The database was formed through the integration of data from IMS Health, the SK&A Group, and Healthcare Data Solutions. OneKey claims a high rate of deliverability, and data are verified through an annual audit of a sample of records. OneKey contains several auxiliary variables, including specialty, medical group, patient volume, number of exam rooms, and hospital affiliation. OneKey also offers a data frame of medical office managers. OneKey data are available for purchase.

5. Business Register: This database is maintained by the U.S. Census Bureau and lists all known and legal businesses (Business Register, undated). A NAICS industry code identifies "Offices of Physicians." However, NAICS codes do not distinguish between different types of practices and specialties (apart from mental health and non–mental health specialties), and no specialty data are available. Other auxiliary information is included on data, such as whether the practice is a subsidiary or a parent organization. Updates vary depending on the data item, but addresses and new business births are updated annually. Data are not available for purchase. Data can be analyzed for statistical and research purposes though Federal Statistical Research Data Centers.

All sampling frames of physicians we evaluated cover large or near-complete portions of the U.S. physician population. Past evaluations of the coverage of the NPI and AMA files have found both to have near-complete coverage of active physicians in the United States (DiGaetano, 2013; DesRoches et al., 2015). The AMI file has been found to have somewhat narrower coverage of active physicians because physicians not working in office-based settings or not listed in public directories might be excluded (DiGaetano, 2013; Klabunde et al., 2012), though coverage might have increased since these evaluations. Based on record volume, OneKey coverage also appears to be high, though we did not find independent assessment in the literature. Thus, coverage of the physician population across sources seems to be high, though it is important to note that nonresponse bias still might arise based on participation decisions, such as those related to practice operations or infrastructure (Berk, Mueller, and Thran, 1996; Berk, 2016).

In terms of accuracy of contact information, several studies found that contact information in the AMA file had lower accuracy compared with the AMI and NPI databases (DesRoches et al., 2015; DiGaetano, 2013), which researchers attributed, in part, to less frequent or less effective verification (DiGaetano, 2013; Klabunde et al., 2012) and, in part, to AMA allowing physicians to list preferred addresses (which could be home addresses or nonpractice addresses) (DesRoches et al., 2015; Henderson, 2015). However, the AMA disputes these findings (Henderson, 2015). Researchers have found that the accuracy of contact information in several databases varies by specialty (DesRoches et al., 2015; DiGaetano, 2013), an important consideration if specialty is used for sample stratification. Because of data recency, we were unable to find independent comparisons of OneKey data accuracy with other physician databases.

Finally, the availability and accuracy of auxiliary information is variable across databases. Compared with other databases, the NPI file contains the most-limited practice-level auxiliary variables (DesRoches et al., 2015; DiGaetano, 2013; Klabunde et al., 2012). Furthermore, the accuracy of specialty in the NPI file is uncertain (DiGaetano, 2013). The AMI file potentially has more up-to-date information on office-based classification than other databases (DiGaetano, 2013). OneKey has the most auxiliary variables, although its accuracy is uncertain (DesRoches et al., 2015).

Administration Modes

In general, survey administration modes (i.e., paper, electronic, phone) present various trade-offs. Paper-based surveys tend to achieve higher response rates than those that are email or web-based (Cho, Johnson, and VanGeest, 2013; Dykema et al., 2013; Klabunde, Willis, and Casalino, 2013; McLeod et al., 2013; VanGeest, Johnson, and Welch, 2007). Paper-based surveys that use priority mail, certified mail, and registered mail have been found to achieve higher response rates than those that use standard mail (Klabunde, Willis, and Casalino, 2013; McLeod et al., 2013; Thorpe et al., 2009; VanGeest, Johnson, and Welch, 2007). However, paper-based surveys tend to be costlier than electronic administration and outreach because of paper and postage costs. In addition to having lower administration costs than paper-based surveys, electronic surveys can be programmed to be dynamic (avoiding the error-prone skip patterns of paper surveys), and they allow for more-rapid data receipt and analysis. However, electronic administration is challenged by email spam filters and competing attention by the large volume of surveys and questionnaires that practices tend to receive electronically (Dykema et al., 2013; Weaver, Beebe, and Rockwood, 2019). Electronic surveys generally have higher levels of missing and invalid data (Dykema et al., 2013). Interviewed experts noted success in using phone-based interviews to collect complex data on practices and address questions from respondents. However, response rates to phone-based interviews have generally been declining faster than other modes over time (Czajka and Beyler, 2016). Because of these overlapping trade-offs, multiple modes of administration generally result in the highest response rates. In particular, sequential deploying of modes (e.g., first paper, then electronic) appears to lead to better response rates than providing a choice among simultaneously presented modes (McLeod et al., 2013).

Response Incentives

Surveys of health care professionals can offer incentives (such as cash, gift cards, nonmonetary gifts, and written encouragements) to recipients to boost the likelihood of response (Cho, Johnson, and VanGeest, 2013). The optimal financial incentive amount is unclear and likely varies by type of respondent, though even nominal incentives have been found to boost response rates (Cho, Johnson, and VanGeest, 2013; VanGeest, Johnson, and Welch, 2007; Ziegenfuss et al., 2012). However, a systematic review found that large health care providers responded better to incentives of greater than $30 (McLeod et al., 2013). It is unclear how guidelines on incentives from the literature would apply to a survey on PE, which could involve significant time and input from several respondents per survey. Experts at RAND viewed the amount of incentive necessary to effectively boost participation of physicians or physician practices to be much higher than what is found in the literature, reaching hundreds of dollars per respondent or more, depending on survey complexity.

Evidence in the literature is mixed on whether differences in response rate exist between types of incentives for completing physician surveys. Some studies have found financial

incentives to be more effective than nonfinancial incentives (Cho, Johnson, and VanGeest, 2013; Dykema et al., 2013; VanGeest, Johnson, and Welch, 2007), while others have found no difference (Cook et al., 2016). Most studies have found prepaid incentives to be more effective than those contingent on participation (Cho, Johnson, and VanGeest, 2013; Dykema et al., 2013; Klabunde, Willis, and Casalino, 2013; McLeod et al., 2013; Thorpe et al., 2009).

Both the literature and internal experts emphasize that communicating the importance and personal relevance of a survey to prospective respondents is critical for response (Cook et al., 2016).

Outreach and Follow-Up

Survey response rates will be affected by the outreach and follow-up efforts both before and after a survey is initially received by a respondent. Studies have found improved response when future recipients of a survey are contacted in advance, with communication delivered through postal mail found to be more effective than email or phone (Dykema et al., 2013; Klabunde et al., 2012; McLeod et al., 2013). Initial contact also gives administrators an opportunity to identify the best point of contact and preferred method of communication before a survey is sent. As with survey-administration methods, research suggests that varied modes of follow-up might help to improve response rates relative to a single mode (Beebe et al., 2018; Cho, Johnson, and VanGeest, 2013). For example, one interviewed expert found success with the use of phone calls to directly remind staff that the paper survey had been sent and to ask them to place it where the survey point of contact will see it. The optimal amount of follow-up is unclear and likely varies by circumstance. One study found two follow-up reminders to be effective for increasing response (Beebe et al., 2018), though follow-up effectiveness is generally found to diminish as amount of follow-up increases (Cho, Johnson, and VanGeest, 2013). Interviewed experts suggested that adequate time, e.g., two weeks, is necessary between follow-up attempts. Finally, although high response rates are desirable, some evidence suggests that additional follow-ups to boost response rates might not change survey data quality significantly, and it might be more cost effective to devote resources to a larger initial sample and identify and address nonresponse bias statistically (Cull et al., 2005; Willis, Smith, and Lee, 2013).

The content of outreach and follow-up might also be important. Response rates have been found to increase substantially when the survey is endorsed by a professional society, government agency, or other organization (Klabunde, Willis, and Casalino, 2013; VanGeest, Johnson, and Welch, 2007). In cases in which invitations and other outreach come from nongovernmental partners, such as consultants or researchers, experts recommend that a survey on PE be accompanied by a letter of support from CMS. Interviewed experts said that soliciting the engagement of professional groups is an effective form of outreach because they can encourage their members to respond.

Appendix B. Practice Expense Types

To ensure that a new draft survey would capture a comprehensive list of PE components, we consulted previously conducted surveys of physicians and physician practices that included PE and other information relevant for a PE-focused survey. Additional PE components were identified through peer-reviewed and grey literature and expert interviews. We categorized these components as shown in Table B.1.

Table B.1. Practice Expense Types

Practice Expense Category	Practice Expense Components
Staffing	• Salaries and benefits of nonphysician staff, excluding independent contractors
Clinical and clinical-support services	• Secure waste disposal • Laboratory services • Radiology and imaging • Dietary services • Laundry services
Clinical supplies and materials[a]	• X-ray films • Personal protective equipment • Disposable medical products • Drugs
Clinical equipment	• Component costs associated with acquisition of items (cost of item, shipping and freight, tax, installation and assembly, insurance) • Specialized IT equipment and software dedicated for exclusive use in clinical laboratory, radiology, imaging, or other ancillary services • Repairs, improvements, additions • Recurring expenses, such as insurance, maintenance contracts • Leases or rent of equipment • Depreciation and amortization, if applicable
Office space	• Cost to rent or lease[b] • Interest on mortgage or real estate loan • Office security • Building maintenance and groundskeeping • Cleaning or janitorial service • Utilities (e.g., electricity, gas, water, internet) • Property taxes • Facility license fees • Storage • Repairs to buildings or grounds • Depreciation taken against building space (including previous renovations and improvements)
Office supplies and services	• Non-IT office supplies and services • Office supplies (e.g., pens, paper, ink) • Equipment, appliances, and furniture[c] (e.g., chairs, refrigerators) • Maintenance of equipment

Practice Expense Category	Practice Expense Components
	• Office services and maintenance contracts (e.g., transcription services, copy-machine maintenance)[d] • Lease and rental payments for equipment and other tangibles[e] • Depreciation taken against fixed assets (e.g., furniture, appliances, IT software)[f] • Amortization • IT-related equipment, devices, materials, parts, peripherals, software, services[g] • Computer hardware and other equipment (e.g., copiers, fax machines, telephones, monitors) • Materials and supplies used in providing services • Cost of data-processing supplies and minor software and equipment not subject to capitalization • Purchases of prepackaged, custom-coded, or vendor-customized software • Web-design services and purchases • Licensing agreements • Upgrades of software, and maintenance fees related to software upgrades and alterations • Cost of IT purchased services, including maintaining of EHRs and patient portals • Cost of local and long-distance telephone services, radio-paging services, and answering services • Rental cost of major data processing; computer and telecommunications furniture, equipment, hardware, and software • Hardware and software repair and maintenance contract cost • Cost of data-processing services purchased from an outside service bureau • Cost of data-processing supplies and minor software and equipment not subject to capitalization • Contractor and consultant costs • IT-related depreciation and amortization • EHR or EMR acquisition cost • Hardware purchased for purposes of EHR implementation, e.g., database servers, desktop computers, tablets and laptops, printers, scanners • Software, such as EHR applications, interface modules (e.g., lab-interface module), and upgrades to EHR application • Implementation costs • Training of physicians, nurses, and office staff before implementation • EHR or EMR ongoing operating cost • Ongoing network fees and services, technical support, telecommunications fees, software license maintenance agreements • Additional hardware and software • Contractor and consultant costs • Ongoing training of physicians, nurses, and office staff
Professional services	• Association membership • Maintenance of certification or licensure • Journal subscriptions • Continuing education fees • Other expenses related to maintaining professional competence • Legal fees • Billing services from third party • Marketing and promotion • Accounting and tax services • Office-management fees • Consultant fees • Professional liability insurance

[a] Materials and supplies sold to patients primarily for use outside the practice and not in the provision of medical services (e.g., hearing aids, orthopedic supplies) are excluded.
[b] Payments for buildings, structures, storage spaces, and offices are included. In the draft survey, we separately ask for square footage of office space and the allocation of the space to clinical versus nonclinical use.

Practice Expense Category	Practice Expense Components

[c] Includes both expenses that are fully expensed and those that are capitalized.
[d] Professional fees, such as legal, accounting, consulting, and office management, are excluded.
[e] Capital and financing lease agreements and licensing or leasing of software are excluded.
[f] Depreciation taken against medical equipment is excluded.
[g] Specialized IT equipment and software dedicated for exclusive use in clinical laboratory, radiology, imaging, or other ancillary services are excluded. Large expenses that were capitalized and depreciated over time also are excluded.

Appendix C. Content of Previously Administered Practice Expense Surveys

Table C.1. Content of Previously Administered Practice Expense Surveys

Content	PPI Survey	Workers' Compensation Practice Expense Survey	MEPS MPC MOS	NAMCS	Cost of Reporting Quality Measures	SAS	PACCI	PPFQ	Cost and Revenue Survey
Practice characteristics									
Organizational structure, ownership, affiliation	X	X	X	X	X			X	X
Specialty	X	X	X	X	X				X
Facility/nonfacility split		X		X					X
Quality improvement/performance participation	X			X			X	X	X
Patient and payer mix	X			X			X	X	X
Other	X	X	X	X		X	X	X	X
PEs									
Clinical labor	X	X			X		X	X	X
Clinical support labor	X	X					X	X	X
Other labor	X	X					X	X	X
Clinical supplies and equipment	X	X				X		X	X
Clinical services		X				X		X	X
Office space	X	X				X		X	X
Office supplies and equipment	X	X				X		X	X
Professional services and other expenses	X	X				X		X	X

NOTE: MEPS MPC MOS = Medical Expenditure Panel Survey Medical Provider Component—Medical Organizations Survey. NAMCS includes the physician induction interview, the community health center administrator/provider interview, and the EHRs supplement. The Workers' Compensation Practice Expense Survey includes the PE component and the direct input component. Some surveys identified in the environmental scan are excluded from this table because of missing or unavailable instruments: Continuing Survey (*Medical Economics*);

Content	PPI Survey	Workers' Compensation Practice Expense Survey	MEPS MPC MOS	NAMCS	Cost of Reporting Quality Measures	SAS	PACCI	PPFQ	Cost and Revenue Survey
Statistics Report on Medical and Dental Income and Expense Averages (National Society of Certified Healthcare Business Consultants); Physician Compensation and Productivity Survey (SullivanCotter); and Casalino et al., 2009, survey on physician costs to interact with health plans.									

Appendix D. Survey Instrument Model

The Survey Instrument Model that follows was prepared as reference material and to generate discussion on collecting new data on practice characteristics and PE.

Question language from the survey was developed by gathering and adapting similar questions from other sources, including the MGMA survey, the PPI Survey, academic sources, and RAND internal documents. Survey construction was guided by the criteria described in Chapter 4 and considerations identified in the environmental scan described in Chapter 2.

This survey asks questions regarding the expenses of providing care at [PRACTICE NAME]'s medical office, located at [ADDRESS]. The purpose of this survey is to measure all expenses that directly and indirectly enable practitioners at this office to provide clinical care. Your input is very important, as it enables CMS to determine the resources required to deliver health care and address the needs of physician practices. You will need roughly XX minutes to complete this survey.

[Statement of confidentiality]

In the questions below, the term *office* refers only to the location at the address indicated in this survey. The term *practice* refers to [PRACTICE NAME], which our records indicate is a physician practice at [ADDRESS].

Answering this survey completely will require a knowledge of the clinical and administrative expenses borne by [PRACTICE NAME] at this office, as well as any expenses at this office that [PRACTICE NAME] may share with affiliated medical organizations. Therefore, we encourage that this survey be completed in whole or in part by someone familiar with practice operations, such as a practice administrator, office manager, or medical director.

Many of the answers to questions in this survey can be found in this office's tax and accounting records. Therefore, to give quick and accurate responses, it will be helpful to have available: [List of relevant documents]. When possible, please use data from these records in your responses. If you cannot answer a question based upon office records, please provide your best estimate.

CHARACTERISTICS OF THE OFFICE AND THE PRACTICE

1. Our records show that [PRACTICE NAME] has a medical office at [ADDRESS]. Is this correct?

- ☐ Yes
- ☐ No → Please provide correct name _____

In the following questions, this survey will refer to the office you identified above as "your medical office."

2. We would like to know about the people primarily responsible for completing or coordinating completion of this survey on behalf of your practice. Which of the following best describes their roles? Please select all that apply.

- ☐ Office Manager
- ☐ Medical Assistant
- ☐ Receptionist
- ☐ Practice Administrator
- ☐ Billing
- ☐ Accountant
- ☐ Nurse (RN/LPN/LVN)
- ☐ Nurse Practitioner
- ☐ Physician Assistant
- ☐ Physician
- ☐ Medical Director
- ☐ Other _____

Organization, Ownership, and Affiliation

3. Which of the following best describes [PRACTICE NAME]?

- ☐ Solo practice
- ☐ Single-specialty group practice
- ☐ Multi-specialty group practice
- ☐ Other

4. Including your medical office, how many practice site locations does [PRACTICE NAME] practice in? _____

- ☐ I'm not sure→
    - **4a. Roughly speaking, how many medical offices does your practice operate?**

        - ☐ 1–5
        - ☐ 6–10
        - ☐ 11–30
        - ☐ >30
        - ☐ I don't know

5. Is [PRACTICE NAME] <u>owned by (in whole or in part)</u> a larger medical practice or health care organization?

- ☐ No
- ☐ Yes (please check **all** that apply)
    - Owned by a large health care system [e.g., Kaiser, Partners, or Mayo Clinic]
    - Owned by a group of physician-owned practices
    - Owned by an insurance company [e.g., UnitedHealth Group, Humana, or Anthem]
    - Owned by an academic medical center or Faculty Practice Plan
    - Owned by a nonteaching hospital
    - Owned by a group of outpatient care centers [e.g., walk-in, urgent care, or outpatient surgical center]
    - Owned by a Management Services Organization (MSO) or Physician Practice Management Company (PPMC)
    - Owned by an Independent Practice Association (IPA)
    - Owned by private equity investors
    - Owned by venture capital investors
    - Owned by a health care corporation not described above
    - Other _____
- ☐ Not sure / I don't know

In the following questions, this survey may refer to these organizations as "parent" organizations.

6. What is the ownership structure of [PRACTICE NAME]?

- ☐ Wholly owned by physicians in the practice
- ☐ Wholly owned by a hospital, health care corporation, or other nonphysician medical organization
- ☐ Jointly owned by physicians in the practice and a hospital, health care corporation, or other nonphysician medical organization
- ☐ Other _____
- ☐ I don't know

7. Excluding ownership relationships identified above, does [PRACTICE NAME] have any legal arrangements with other medical organizations where expenses and/or resources related to this medical office are shared?

- ☐ No
- ☐ Yes (please check **all** that apply)
  - Large health care system [E.g., Kaiser, Partners, or Mayo Clinic]
  - Group of physician-owned practices
  - Health insurance company
  - Academic medical center or faculty practice plan
  - Nonteaching hospital
  - Group of outpatient care centers [E.g., walk-in, urgent care, or outpatient surgical center]
  - Management Services Organization (MSO) or Physician Practice Management Company (PPMC)
  - Independent Practice Association (IPA)
  - Other health care corporation
  - Other _____
- ☐ Not sure / I don't know

Specialties in Your Medical Office

8. Please indicate the specialties of [PRACTICE NAME] physicians who work in your medical office (check all that apply).

- ☐ Allergy and Immunology
- ☐ Anesthesiology
- ☐ Audiology
- ☐ Cardiology
- ☐ Cardiothoracic Surgery
- ☐ Chiropractor
- ☐ Clinical Psychology
- ☐ Clinical Social Work
- ☐ Colon and Rectal Surgery
- ☐ Dermatology
- ☐ Emergency Medicine
- ☐ Endocrinology
- ☐ Family Medicine
- ☐ Gastroenterology
- ☐ General Practice
- ☐ General Surgery
- ☐ Geriatrics
- ☐ Hand Surgery
- ☐ Hospitalist
- ☐ Internal Medicine
- ☐ Interventional Pain Medicine
- ☐ Interventional Radiology
- ☐ Medical Oncology
- ☐ Nephrology
- ☐ Neurosurgery
- ☐ Nuclear Medicine
- ☐ Obstetrics/Gynecology
- ☐ Ophthalmology
- ☐ Optometry
- ☐ Oral Surgery (Dentist only)
- ☐ Orthopedic Surgery
- ☐ Osteopathic Manipulative Therapy
- ☐ Otolaryngology
- ☐ Pain Medicine
- ☐ Pathology
- ☐ Pediatrics
- ☐ Physical Medicine and Rehab
- ☐ Physical Therapy
- ☐ Plastic Surgery
- ☐ Podiatry
- ☐ Psychiatry
- ☐ Pulmonary Disease
- ☐ Radiation Oncology
- ☐ Radiology
- ☐ Registered Dietician
- ☐ Reproductive Endocrinology
- ☐ Rheumatology
- ☐ Sleep Medicine
- ☐ Spine Surgery
- ☐ Urology
- ☐ Vascular Surgery
- ☐ Other specialty _____

Facility versus Nonfacility

9. What is the most common place of service (POS) code under which your medical office bills Medicare?

- ☐ 01 Pharmacy
- ☐ 02 Telehealth
- ☐ 03 School
- ☐ 04 Homeless Shelter
- ☐ 05 Indian Health Service, Freestanding
- ☐ 06 Indian Health Service, Provider-Based
- ☐ 07 Tribal 638, Freestanding
- ☐ 08 Tribal 638, Provider-based
- ☐ 09 Prison/Correctional Facility
- ☐ 11 Office
- ☐ 12 Home
- ☐ 13 Assisted Living Facility
- ☐ 14 Group Home
- ☐ 15 Mobile Unit
- ☐ 16 Temporary Lodging
- ☐ 17 Walk-in Retail Health Clinic
- ☐ 18 Place of Employment—Worksite
- ☐ 19 Off Campus-Outpatient Hospital
- ☐ 20 Urgent Care Facility
- ☐ 21 Inpatient Hospital
- ☐ 22 On Campus—Outpatient Hospital
- ☐ 23 Emergency Room—Hospital
- ☐ 24 Ambulatory Surgical Center
- ☐ 25 Birthing Center
- ☐ 26 Military Treatment Facility
- ☐ 31 Skilled Nursing Facility
- ☐ 32 Nursing Facility
- ☐ 33 Custodial Care Facility
- ☐ 34 Hospice
- ☐ 49 Independent Clinic
- ☐ 50 Federally Qualified Health Center
- ☐ 51 Inpatient Psychiatric Facility
- ☐ 52 Psychiatric Facility—Partial Hospitalization
- ☐ 53 Community Mental Health Center
- ☐ 54 Intermediate Care Facility/Individuals with Intellectual Disabilities
- ☐ 55 Residential Substance Abuse Treatment Facility
- ☐ 56 Psychiatric Residential Treatment Center
- ☐ 57 Nonresidential Substance Abuse Treatment Facility
- ☐ 60 Mass Immunization Center
- ☐ 61 Comprehensive Inpatient Rehabilitation Facility
- ☐ 62 Comprehensive Outpatient Rehabilitation Facility
- ☐ 65 End-Stage Renal Disease Treatment Facility
- ☐ 71 Public Health Clinic
- ☐ 72 Rural Health Clinic
- ☐ 81 Independent Laboratory
- ☐ 99 Other place of service

☐ I don't know → **9a. Does your medical office usually bill Medicare as a facility or as a nonfacility?**
- Facility
- Nonfacility
- I don't know

Participation in Alternative Payment Models (APMs)

APMs are payment approaches that provide incentive payments to provide high-quality care that is cost efficient. Examples include Accountable Care Organizations, bundled payment programs, advanced primary care, and the Medicare Shared Savings Program.

10. Do [PRACTICE NAME] physicians at this medical office participate in any APMs?

☐ Yes
- [SELECT ALL FROM A LIST OF APMs]

☐ No
☐ I don't know

Mix of Patients and Revenues by Payer

11. Please provide an approximate percentage of your medical office's total patients and revenue that come from the following payers. Include Medicaid Managed Care plans, Medicare Advantage plans, and Medigap plans in the private health plan category.

Payer	Percentage of Patients	Percentage of Revenue
Private health plans (include private Medicare MCOs, Medigap, and Medicaid MCOs)	%	%
Traditional Medicare (FFS only, parts A, B, and D)	%	%
Traditional Medicaid (FFS only)	%	%
Patient out-of-pocket (include all deductibles and coinsurance)	%	%
Other	%	%
Total	**100%**	**100%**
Largest private health carrier in your practice (i.e. private insurer that covers the largest number of your patients)	%	%

NOTE: MCO = managed care organization.

EXPENSES

The following sections relate to [PRACTICE NAME]'s expenses supporting the provision of care associated with the medical office at [ADDRESS]. Unless otherwise instructed, please report only the expenses associated with this medical office, and report them only once. If an expense is included in a response to a question, please exclude that expense from questions that follow, unless instructed otherwise. Please report expenses related to ALL PAYERS, not just Medicare.

Staffing

12. In a typical week, how many days is your medical office open? _____ of 7 days

We will now ask about the staff who work at your medical office by their titles. Please include those present and on payroll in a typical week. Do not include persons you do not treat as employees, such as independent contractors. You may report either by head count and typical hours worked (Option 1) or in full-time equivalents (FTEs) (Option 2).

<u>Option 1</u>: How many staff by position/title are present on a typical day? *(please complete the table)*

13.

Position/Title	Count
Primary care physicians	
Medical subspecialist physicians	
Surgeons	
Nurse practitioners	
Physician assistants	
Registered nurses	
Licensed vocational nurses (LVNs or LPNs)	
Medical assistants	
Clerks or receptionists	
Social workers	

Nutritionists or dieticians	
Practice managers or office managers (excluding any individuals already counted above)	
Staff members who work only on billing or interacting with payers	
Information technology staff ("tech support" staff) employed by the practice	
Other(s) (specify):_____	

How many hours, on average, does each position/title work during a typical day of a typical week?

Position/Title	Hours per Day
Primary care physicians	
Medical subspecialist physicians	
Surgeons	
Nurse practitioners	
Physician assistants	
Registered nurses	
Licensed vocational nurses (LVNs or LPNs)	
Medical assistants	
Clerks or receptionists	
Social workers	
Nutritionists or dieticians	
Practice managers or office managers (excluding any individuals already counted above)	
Staff members who work only on billing or interacting with payers	
Information technology staff ("tech support" staff) employed by the practice	
Other(s) (specify):_____	

<u>Option 2:</u> This option asks you about staff FTEs. You do not need to respond to this section if you answered Option 1, above.

14. How will you be counting FTEs? By:

- ☐ Day
- ☐ Week
- ☐ Month
- ☐ Year

15. How many FTEs work at your office by position/title? *(please complete the table below)*

Position/Title	FTE

Primary care physicians	
Medical subspecialist physicians	
Surgeons	
Nurse practitioners	
Physician assistants	
Registered nurses	
Licensed vocational nurses (LVNs or LPNs)	
Medical assistants	
Clerks or receptionists	
Social workers	
Nutritionists or dieticians	
Practice managers or office managers (excluding any individuals already counted above)	
Staff members who work only on billing or interacting with payers	
Information technology staff ("tech support" staff) employed by the practice	
Other(s) (specify):_____	

16. How many hours is considered to be full-time in [PRACTICE NAME] in the time frame you indicated above? _____

17. Next, we are going to ask about salaries. How will you be reporting salaries below?

- ☐ Weekly
- ☐ Biweekly
- ☐ Monthly
- ☐ Annually

18. What is the average salary at your practice by title, including benefits?

Position/Title	Average Total Salary and Benefits ($)
Nurse practitioners	
Physician assistants	
Registered nurses	
Licensed vocational nurses (LVNs or LPNs)	

Medical assistants	
Clerks or receptionists	
Social workers	
Nutritionists or dieticians	
Practice managers or office managers (excluding any individuals already counted above)	
Staff members who work only on billing or interacting with payers	
Information technology staff ("tech support" staff) employed by the practice	
Other(s) (specify):_____	

Clinical Services, Supplies, and Equipment

19. Estimate [PRACTICE NAME]'s expenses in 20XX for clinical and clinical support services at this office.

Includes (but is not limited to):

- Secure waste disposal
- Laboratory services
- Radiology and imaging
- Dietary services
- Laundry services (i.e., washing scrubs and linens)
- Amortization, if relevant

Does not include:

- EHR and IT-related services, which are included in "Information Technology"
- Professional and consulting services, which are included under "Professional Fees"

Expenses: _____

20. Estimate [PRACTICE NAME]'s expenses in 20XX for medical materials and supplies used in the provision of patient care at this office.

Includes (but is not limited to):

- X-ray films
- Disposable medical products (e.g., catheters, syringes, cotton pads)
- Personal protective equipment
- Drugs incident to clinical services provided in the office

Does not include:

- Expenses for nonclinical office supplies
- IT

- Materials/supplies sold to patients primarily for use outside the practice and not in the provision of medical services (e.g., prescription drugs, hearing aids, and other medical supplies)
- Separately billable drugs or supplies
- Any other expenses associated with purchases of materials and supplies for resale
- The cost of any equipment subject to depreciation/capitalization, which is reported in question 23

Expenses: _____

21. Are either of the previous clinical expenses provided to your office in whole or in part by a parent organization without charge or need for reimbursement?

☐ No
☐ Yes (please check all that apply) →
  - Clinical or clinical support services
  - Medical materials and supplies

The following questions ask about* [PRACTICE NAME]'s *expenses related to medical equipment and assets used in the diagnosis or treatment of patients at this office. Because these expenses can be large and infrequent, they are often accounted for over the span of many years. These questions correspond to how your office accounted for these expenses on its 20XX tax returns. If tax return information is unavailable and you are otherwise unable to report on equipment expenses and depreciation for 20XX, skip questions 22–24 and proceed to question 25.

22. What were your [PRACTICE NAME]'s 20XX expenses related to medical equipment and assets at this office? Do not include depreciation taken on capitalized equipment. (Report this in question 23.) Report only the portion that was deducted as an expense in 20XX.

Include:

- Specialized IT equipment and software dedicated for exclusive use in clinical laboratory, radiology, imaging, or other ancillary services
- All component costs associated with acquisition of items (cost of item, shipping/freight, tax, installation/assembly, insurance)
- Repairs, improvements, additions, if they are expensed
- Recurring expenses, such as insurance, maintenance contracts
  Leases/rent

Do not include:

- Any capitalized equipment; this is reported under question 23

Expenses: _____

23. How much did [PRACTICE NAME] take in depreciation of medical equipment and assets in this office in 20XX?

Include:

- Capitalized improvements/additions that increase the service potential of the equipment.
- Capitalized leases

Do not include:

- Depreciation of office equipment, furniture, and buildings, which is captured in questions 35 and 40
- Depreciation of IT-related furniture and equipment, which is captured under "Information Technology"
- Any nonmedical equipment depreciation

Expenses: _____

24. Was any medical equipment provided to [PRACTICE NAME] in whole or in part by a parent organization without charge or need for reimbursement?

☐ No
☐ Yes

25. [If tax information is not available] Please list all durable medical equipment brought into service in your office over the past ten years, including the year they were brought into service and the quantity. List only equipment whose purchase expense you have NOT reported in the previous questions. Please combine bulk purchases of like equipment whose total value is > $5,000.

Equipment Name	Year Brought into Service	Quantity

Office Space

26. Who owns the office space where you practice?

☐ The practice affiliated with my office → skip to [28]
☐ A parent organization of my practice
☐ A third party

27. Does [PRACTICE NAME] pay rent or lease payments on the office space where you practice?

☐ Yes

- **27a. What does [PRACTICE NAME] pay in lease or rental payments (include payments for buildings, structures, storage spaces, and offices) for this office?**

  _____ per _____ (week, month, year, or other period) → skip to [29]

☐ No → skip to [29]

- **27b. Does a parent organization or third party pay the lease/rent for the office space where you practice?**
  - Yes → skip to [29]
  - No→ skip to [29]

28. If there is a real estate loan or mortgage, who is ultimately responsible for paying the interest on the loan for the office space where you practice?

☐ My medical practice

- **What does [PRACTICE NAME] pay in mortgage interest payments (include payments for buildings, structures, storage spaces, and offices)?**
  - _____ per _____ (week, month, year, or other period)

☐ A parent organization
☐ Other _____
☐ There is no real estate loan or mortgage

29. What is the gross square footage of your office space? Please include the total occupied square feet of your office or suite, including patient care space, office space, support space, and other spaces, such as hallways, closets, and stairways.

Exclude:

- Exterior and garage space
- Spaces that generate revenue unrelated to your office's delivery of clinical services, such as leased or subleased office space, parking lots, gift shops, or restaurants

_____

30. Approximately what percentage of the office space reported above is devoted to nonclinical uses? This may correspond to the spaces used prior to when a patient is seen by a practitioner (such as lobby, waiting room, and reception). _____

31. Please list the number of rooms dedicated to the following purposes:

Room Description	**Number**
Waiting rooms/receptions	
Exam and assessment rooms	
Practitioner offices	
Procedure rooms	

Supply storage rooms	
File storage rooms	

32. How much does [PRACTICE NAME] pay for the following items at your office? Fill in all that apply. For items fully covered by any lease payments reported above, enter 0. Alternatively, report the total paid for all items listed below.

- ☐ Office security _____ per _____ (week, month, year, etc.)
- ☐ Building maintenance and groundskeeping _____ per _____
- ☐ Cleaning/janitorial service _____ per _____
- ☐ Utilities (e.g., electricity, gas, water, internet) _____ per _____
- ☐ Property taxes _____ per _____
- ☐ Facility license fees _____ per _____
- ☐ Other expenses for general operation of office or grounds _____ per _____

- ☐ Total _____ per _____

33. Are any of the items listed above provided to [PRACTICE NAME] by a parent or other medical organization without charge, reimbursement, or inclusion in lease or rental agreements?

- ☐ No
- ☐ Yes →
  - Please check all that apply:
    - Office security
    - Building maintenance and groundskeeping
    - Cleaning/janitorial service
    - Utilities (e.g., electricity, gas, water, internet)
    - Property taxes
    - Facility license fees
    - Other expenses for general operation of office or grounds

34. Beyond what is reported above, did [PRACTICE NAME] expense any repairs to buildings or grounds in 20XX? Do not include renovations or capital improvements.

- ☐ No →
  - **34a. Were there any repairs to this office in 20XX which were paid for by another medical organization, such as a parent organization?**
    - No
    - Yes
- ☐ Yes →
  - **34b. How much did [PRACTICE NAME] expense for these repairs?** _____

35. How much did [PRACTICE NAME] take in depreciation charges in 20XX against the building space corresponding to the gross square footage reported above? Include any depreciation taken against previous renovations or improvements to the office space. _____

Office Supplies and Services (Nonclinical)

36. Estimate [PRACTICE NAME]'s expenses in 20XX for all nonclinical information technology (IT) equipment, devices, materials, parts, peripherals, software, and services at this office. These expenses will include all computer, web, voice, video, scanning, and data network systems not specifically excluded below. Also include all expenses related to Electronic Health Record (EHR/EMR) systems.

Exclude:

- Specialized information technology equipment and software dedicated for exclusive use in clinical laboratory, radiology, imaging, or other ancillary services, which are included in questions 22–23
- Large expenses that were capitalized and depreciated over time, which will be included in questions 39–40
- Costs for staff on payroll, which are included in the "Staffing" section

_____

37. How much did [PRACTICE NAME] spend in 20XX on nonclinical office supplies, appliances, and furniture at this office (e.g., pens, paper, printer ink, chairs, and refrigerators)?

Exclude:

- Appliances and furniture that your office will capitalize and depreciate over time, which you will include in questions 39–40

_____

38. How much did [PRACTICE NAME] spend in 20XX on nonclinical office services and maintenance contracts not included in IT at this office (e.g., transcription services)?

Exclude**:**

- Professional fees, such as legal, accounting, consulting and office management, which you will include in question 45

_____

39. How much did [PRACTICE NAME] spend in 20XX on lease and rental payments for nonclinical appliances and other tangible items at this office?

_____

40. How much did [PRACTICE NAME] take in depreciation charges in 20XX against nonclinical fixed assets contained within the office (e.g., furniture, appliances, and IT software and equipment)? Include depreciation taken against tangible assets that are owned, owned within leaseholds, or obtained through capital lease agreements.

Exclude**:**

- Depreciation taken for medical equipment

_____

41. Did [PRACTICE NAME] use an electronic health/medical record system (EHR) in 20xx?

☐ No → Skip to question 42
☐ Yes

41a. When was the system used in 20XX put in place?

_____

The following questions ask specifically about expenses related to your EHR system, a subset of total IT costs reported above.

41b. What was the original acquisition cost for your office's electronic health/medical record system?

Include:

- Hardware purchased for purposes of EHR implementation, such as database servers, desktop computers, tablets/laptops, printers, scanners
- Software, such as EHR application, interface modules (e.g., lab interface module), and upgrades to your EHR application
- Implementation costs
- Training of physicians, nurses, and office staff before implementation

Amount: _____

41c. Estimate [PRACTICE NAME] ongoing annual operating cost for the electronic health/medical record system.

Include:

- Ongoing network fees and services, technical support, telecom fees, software license maintenance agreements
- Additional hardware/software
- Contractor/consultant costs
- Ongoing training of physicians, nurses, and office staff

Do not include:

- Staffing costs, such as IT operations staff, clinical data analysts, or application analysts, which are included under "Staffing"

Amount: _____

42. Are any of the items listed in this section provided to [PRACTICE NAME] in whole or in part by a parent organization without charge or need for reimbursement?

☐ No
☐ Yes (please check all that apply) →
  - Nonclinical IT (including EMR)
  - Nonclinical office supplies
  - Nonclinical office services
  - Nonclinical fixed assets (appliances and furniture)

Professional Services and Other Expenses

43. What was [PRACTICE NAME]'s total tax-deductible 20XX expense for association memberships, maintenance of certification or licensure, journal subscriptions, continuing education fees, or other expenses related to maintaining professional competence at this office? _____

44. Does [PRACTICE NAME] pay a third party or parent organization to assist with billing services (e.g., check-in, claims transmission, direct billing of patients, collection services)?

☐ No
☐ Yes →
  - **44a. How much did [PRACTICE NAME] pay for these billing services at this office in 20XX? _____**
    - On what is the charge for these services based?
      - Claim volume
      - A percentage of net collections
      - A fixed charge
      - Other

45. Estimate [PRACTICE NAME]'s tax-deductible 20XX expenses at this office for professional services not previously reported. Do not include expenses associated with time spent by office staff.

Legal fees _____
Marketing and promotion _____
Accounting and tax services _____
Office management _____
Consultant fees _____
Contracted clinical labor _____
Other _____

46. Were any of the items listed above provided to your office in whole or in part by a parent organization without charge or need for reimbursement?

- ☐ No
- ☐ Yes →
  - Legal fees
  - Marketing and promotion
  - Billing
  - Accounting and tax services
  - Office management
  - Consultant fees
  - Maintaining professional competence
  - Other

47. What was the cost of professional liability insurance for [PRACTICE NAME] at this office? Include amounts set aside for self-insurance. _____

48. Does [PRACTICE NAME] have any other operating expenses at this office that were not reported in this or other sections of the survey?

- ☐ No
- ☐ Yes →
  - **48a. What are the primary sources of these expenses and how much was spent in 20XX? Source: _____. Amount: _____**
  - **48b. What proportion of these expenses would you say were associated with the direct observation, diagnosis, or treatment of patients? _____ %**

49. Total Expenses: Please give an estimate of the total medical practice expenses at this office in 20xx. ____

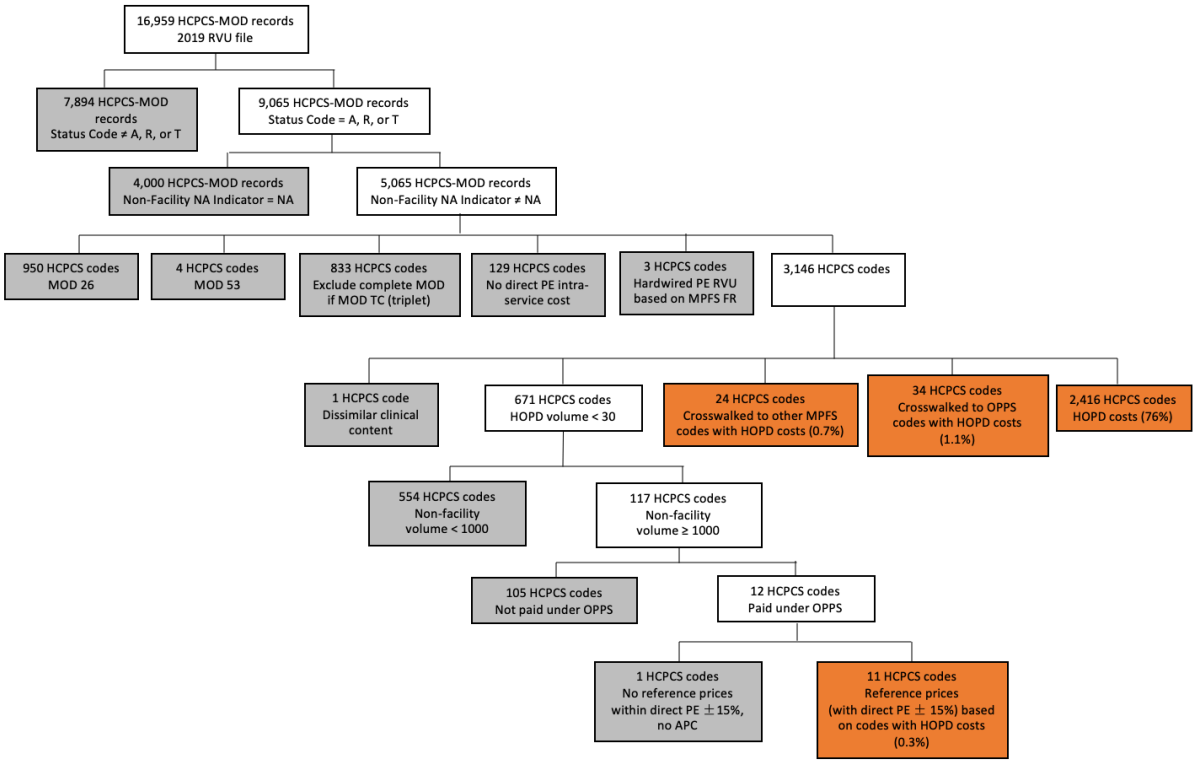
Appendix E. Supplemental Information for the Outpatient Prospective Payment System Analyses

This appendix contains supplemental information on the methodology and results from the OPPS analyses described in Chapter 7.

Determining Which Services Furnished in Nonfacility Settings Could Be Valued Using Outpatient Prospective Payment System Data

This section includes further details on the criteria we developed to identify services that are eligible for PE valuation using OPPS data. Figure E.1 shows the HCPCS codes with PE paid under the MPFS, each of our exclusion stages, and the final set of codes for which we derived OPPS-based relative values in nonfacility settings.

Figure E.1. HCPCS Codes with Outpatient Prospective Payment System Costs Comparable with Nonfacility Practice Expense



SOURCE: Authors' analysis of MPFS and OPPS data.
NOTE: A = Active Code; FR = final rule; MOD = modifier; NA = not applicable; R = Restricted Coverage; T = Injections; TC = technical component. HCPCS codes in the gray boxes are excluded from the OPPS-based PE valuation for the following reasons: PE is not paid, there is no direct PE component, or we could not estimate costs from the OPPS data. For HCPCS in the orange boxes, we used OPPS-based relative values to replace nonfacility intra-service PE RVUs in the simulations.

We started with 16,959 records according to the CY 2019 MPFS final rule (CMS, 2018c). These records are at the HCPCS code-modifier level. We then applied the following exclusion criteria:

1. We excluded HCPCS codes that are not separately paid under the MPFS (indicated by status codes other than A, R, and T).
2. We excluded HCPCS codes that are not payable in a nonfacility setting (indicated by the "nonfacility NA indicator" in the published rate files) and modifiers that do not incur intra-service direct PE. In the published rate files, a HCPCS code can have two or three records with different modifiers. For HCPCS codes with two records, one billed without a modifier and one billed for a professional component (modifier 26) or discontinued procedure (modifier 53), we retained the record without the modifier.

When a HCPCS code has two or three records and one of them is billed with modifier TC (technical component), we retained the record with modifier TC.

3. We excluded HCPCS codes that have zero intra-service direct PE. The OPPS cost data are comparable with relative PE during the intra-service period in nonfacility settings.[16]
4. We excluded HCPCS codes that have fixed values that are hardwired based on MPFS rulemaking from prior years.

In addition, we excluded one HCPCS code, Q0092, for setting up portable X-ray equipment because the clinical content is different between nonfacility and outpatient settings. After the first stage of exclusions, we retained 3,146 unique HCPCS codes that are paid PE. Next, we excluded HCPCS codes for which we had insufficient data to estimate total intra-service costs from the OPPS data.

Of the 3,146 HCPCS codes, 671 have low HOPD volumes, defined as fewer than 30 services per year, which we deemed as not having enough data to have a reliable cost estimate. Of the codes with low HOPD volumes, 554 also are infrequently provided in nonfacility settings (frequency less than 1,000), and 105 are not paid under OPPS and thus do not have OPPS cost data. These 659 codes were excluded from the valuation using OPPS-based relative values. One HCPCS code, Q0092, for setting up X-rays, was not included because the clinical content is different when performed in nonfacility and outpatient settings.

For the remaining 12 HCPCS codes that have low HOPD volumes but high physician office volumes, we determined reference prices based on their APC grouping and intra-service direct PE costs. Specifically, for each of the 12 target codes that needed a reference price, we identified all codes under the same APC with intra-service direct PE between 85 and 115 percent of the target code's intra-service direct PE. The average PE across these identified codes is the reference price for the target code. We did not find reference prices for one code, 92621, and excluded these from the valuation using OPPS-based relative values.

In the current MPFS rate setting process, there are HCPCS codes that are mapped to other codes in MPFS and take on the same PE RVU. This applies to 24 codes for which we have OPPS data. In addition, some codes paid under the MPFS are billed under different codes in OPPS. We crosswalked 34 codes to OPPS codes and applied their relative value according to the cost of the corresponding OPPS codes. Some of the crosswalked codes are one-to-one matches between the MPFS and OPPS, while other codes in the OPPS correspond to more than one code in the MPFS and vice versa. For example, for an ultrasonic guidance for placement of radiation therapy fields, HCPCS code G6001 is used in the MPFS, while code 77387 is used in the OPPS. Another example is the E&M office visit codes that are 99201–99215 in MPFS but that are billed using a

[16] Using the CY 2019 MPFS final rule direct PE inputs, we calculated the intra-service direct costs as the sum of the nonfacility service, supply, and equipment costs minus facility supply and equipment costs. We subtracted the facility supply and equipment costs from this intra-service estimate because they are typically for post-service supply and equipment costs for codes that have a ten- or 90- global period.

single code, G0463, in the OPPS. After applying these criteria, we ended up with 2,466 HCPCS codes with OPPS data that could be used to establish PE RVUs in the simulation analyses. Because of the 24 codes that take on values of other codes, we used OPPS data for 2,461 unique codes to value PE RVUs for these 2,485 codes.

Estimating Postoperative Visit Counts in Global Periods

To derive OPPS-based PE estimates for postoperative visits, we applied the OPPS cost for an E&M visit (G0463) to an estimated number of postoperative visits that typically occur after each procedure. Following Mulcahy, Liu, et al., 2019, we imputed actual visits for each procedure with a ten- or 90-day global period using data on postoperative visits reported via HCPCS code 99024, a no-pay code for postoperative visits that CMS required select practitioners in nine states to report for 296 procedures.

We estimated the ratio of the median number of reported nonfacility 99024 visits over the expected number of nonfacility visits at the procedure-code level. For the purpose of this project, we calculated the ratio to reflect the setting of a "typical" procedure, whether it is in a nonfacility or a facility, to be consistent with the Physician Time File and current payment policy. We assumed that procedures with at least one expected inpatient-based postoperative visit in the Physician Time File typically would be performed in facility settings, while others typically would be performed in nonfacility settings. For example, the ratio of the median number of reported 99024 visits over the expected number of 99024 visits for a procedure typically done in a nonfacility setting is measured using only procedures that occurred in a nonfacility setting. Of the 296 procedures where reporting was required, we excluded five codes with zero expected outpatient postoperative visits and three codes that had since transitioned to zero-day global periods. The final analytic sample included 288 procedure codes. We estimated the ratio of actual to expected postoperative visits among the identified typical procedures with claims-based reporting of 99024 using a fractional logit model with a log link function and binomial family to account for the fact that the dependent variable is a percentage (Papke and Wooldridge, 1993). Specifically,

$$g(\mu_i) = \alpha + \beta_1 * Global90_i + \beta_2 * IntraTime_i + \beta_3 * PostTime_i + \beta_4 * Facility\ Share_i + \beta_5 * SpecialtyShare_i ,$$

where $g(.)$ is a log link function; μ_i is the ratio of the median number of reported 99024 visits over the expected number of 99024 visits for procedure code i; *Global90* is an indicator for a 90-day global period; *IntraTime* represents the intraprocedure time in minutes (i.e., the summation of pre-position time, preservice scrub dressing and waiting time, median intraservice time, and immediate postservice time); *PostTime* is the total postoperative visit time in minutes (i.e., total physician time minus pre- and intra-service time); *FacilityShare* represents the share of

procedures performed in a facility setting; and *SpecialtyShare* is a vector that contains the share of procedures performed within the typical setting by each of 24 different specialties. We predicted the ratio of actual to expected postoperative visits using the regression model for all procedures with ten- and 90-day global periods (including those that required HCPCS code 99024 reporting because reporting was only required in nine states), multiplied by the number of expected visits from the Physician Time File, and rounded estimated actual visits to the nearest tenth of a visit. Lastly, we applied the OPPS cost for an E&M visit (G0463) to an estimated number of postoperative visits.

Types of Service Categories

Table E.1 shows the HCPCS codes included in each type of service category. We developed this categorization based on the BETOS coding system and the section headings in the CPT codebook. For codes not included in the BETOS, we considered BETOS of similar codes. For radiology services, we also considered the Neiman Imaging Types of Service (NITOS) coding system to identify invasive procedures (Harvey L. Neiman Health Policy Institute, 2020). For new and revised codes between 2017 and 2019, we considered the procedure descriptions and sections in the CPT codebook, as well as the mapping of revised codes to prior codes and APC assignments.

Table E.1. HCPCS Codes in Types of Service Categories

Type of Service	HCPCS
Anesthesia	00100–00105, 00109–00110, 00112–00128, 00130–00150, 00160, 00162–00174, 00176–00192, 00197, 00200, 00205, 00210–00222, 00228, 00230, 00241–00242, 00254, 00263, 00274, 00284–00285, 00300, 00313, 00320, 00322, 00326, 00330, 00350, 00365, 00378, 00400–00406, 00409–00411, 00420, 00450, 00452–00474, 00490, 00499–00520, 00522, 00524, 00527–00550, 00555–00604, 00615, 00620, 00622–00626, 00630, 00632–00635, 00640, 00650, 00670, 00700–00708, 00730, 00740–00744, 00750, 00752, 00754, 00756, 00770, 00781, 00790, 00792, 00794, 00796–00802, 00810–00840, 00842 00844–00880, 00882–00914, 00916, 00918–00924, 00926, 00928, 00930, 00932–00934, 00936–00948, 00950, 00952, 00999, 01000, 01002, 01100, 01110, 01112, 01120–01150, 01160, 01170, 01173, 01180–01183, 01190–01234, 01240–01330, 01340–01360, 01380, 01382, 01390–01440, 01442, 01444–01654, 01656, 01670, 01680, 01682, 01699, 01700, 01710–01716, 01730–01782, 01800, 01810, 01820, 01829–01844, 01850, 01852, 01860, 01900–01926 01930–01953, 01958, 01960–01963, 01965–01969, 01990–01999
Evaluation and Management—Office Visits	99201–99205, 99211–99215, G0101, G0248
Evaluation and Management—ED/OB	99217–99220, 99221–99226, 99234–99236, 99281–99288, G0380–G0384
Evaluation and Management—Inpatient	99227–99230, 99231–99233, 99238, 99239, 99291, 99292, 99460–99486
Evaluation and Management—Other Visits	99304–99310, 99315–99316, 99318, 99324–99328, 99334–99337
Evaluation and Management—Other	All other services in range 99201–99499, G0101, G0102, G0181–G0182, G0245, G0246, G0247–G0248, G0249, G0250, G0296, G0337, G0372, G0396,

Type of Service	HCPCS
	G0397, G0402, G0406–G0408, G0409, G0420–G0421, G0425–G0427, G0436–G0439, G0442, G0444, G0446, G0454, G0459, G0513, G0514, G2010–G2012, G9187, Q0091
Medicine—Manipulative Treatment	98925–98943
Medicine—Neurology	95805–96020, G0453
Medicine—Physical Medicine	97010–98778, G0151, G0157, G0159, G0270–G0271, G0281–G0283, G0329
Medicine—Cardiovascular	92920–93799, G0166, G0269, G0278, G0403–G0405, G0422–G0423, G9157, Q0035
Medicine—Other	All other services in range 90281–99199 and 99500–99607, G0108–G0109, G0117–G0118, G0128–G0129, G0152–G0156, G0158, G0162–G0164, G0179–G0180, G0237–G0239, G0277, G0365, G0410, G0424, G0443, G0445, G0447, G0451, G0473, G8482
Pathology and Laboratory	All services in range 80000–89999, G0103, G0123–G0124, G0141, G0143, G0145, G0306–G0307, G0328, G0417–G0419, G0431–G0432, G0434–G0435, G0452, G0461–G0462, P3001
Radiology—Standard Diagnostic Imaging	70030–70332,70350–70390, 70550, 71010–71130, 72010–72120, 72170, 72190, 72200–72220, 73000–73030, 73050–73080, 73090–73110, 73120, 73130, 73140, 73500, 73510, 73520, 73530, 73540–73560, 73562, 73564, 73565, 73570, 73590–73600, 73610, 73620–73652, 73660, 74000, 74010, 74020, 74022, 74210–74260, 74270, 74280, 74290–74363, 74400–74775, 76006–76066, 76075, 76080, 76086–76092, 76095–76102, 76120, 76125, 76140, 76150, 76350, 77012, 77031–77057, 77061–77063, 77071–77078, 77080–77081, 77085, 77086, G0106, G0120, G0122, G0130, G0202, G0204, G0206, G0279, G0297, Q0092
Radiology—Advanced Diagnostic Imaging	70336, 70450–70549, 70551–70559, 71250–71275, 71550–71555, 72125–72159, 72191–72198, 73200–73206, 73218–73225, 73700–73706, 73718–73725, 74150–74185, 74261–74263, 75552–75574, 75635, 76070, 76071, 76093, 76094, 76355–76370, 76380–76400, 76497, 76498, 77058, 77059, 77078, 77084, G0288
Radiology—Diagnostic Ultrasound	76506–76886, 76937, 76942, 76970, 76977, 76999, G0389
Radiology—Radiation Oncology	77261–77799, G0339, G0340, G6003–G6016, 0073T
Radiology—Nuclear Medicine	78012–79999, G0252
Radiology—Other[a]	All other services in range 70000–79999, G6001, G6002
Surgery—Musculoskeletal	20000–29999, G0259–G0260, G0289, G0412–G0415
Surgery—Spine and Spinal Cord	62268–64999
Surgery—Cardiovascular	33010–37799
Surgery—Digestive	40490–49999, G0104–G0105, G0121, G0341, G0343, G0455, G0618–G6020, G6022–G0625
Surgery—Eye	65091–68899
Surgery—Other	All other services in ranges 10004–10010, 10021–69990, G0127, G0168, G0268, G0293, G0342, G0364, G0416, G0429, G0516–G0518

SOURCE: Authors' analysis using the CPT codebook, BETOS coding system, and NITOS coding system.
NOTES: ED = emergency department; OB = observation.
[a] *Radiology—Other* includes imaging/procedures that are invasive, such as vascular procedures, and radiologic guidance procedures.

"Base APC" Categories

The APC is a grouping of clinically related services requiring similar resource levels. The OPPS payment rates are established at the APC level so that HCPCS codes assigned to each

APC are paid the same average payment rate. We categorized HCPCS codes into "base APC" categories that reflect types of procedures at a higher level than APCs.

Table E.2 shows the APCs included within each base APC category. Most base APCs reflect the collapsing of levels for a given APC; e.g., the base APC for "Airway Endoscopy" reflects the APCs for Levels 1–5 "Airway Endoscopy." However, HCPCS codes in the APCs for "Minor Procedures" and "Diagnostic Tests and Related Services" are split into other base APC categories that contain related services.

Table E.2. Base APC Categories

Base APC	Included APC and HCPCS Codes
Abdominal/Peritoneal/Biliary and Related Procedures	• APC 5341 for Abdominal/Peritoneal/Biliary and Related Procedures
Airway Endoscopy	• APCs 5151–5155 for Levels 1–5 Airway Endoscopy
Allergy Tests	• HCPCS 95004, 95012, 95017, 95018, 95024, 95027, 95028, 95044, 95060, 95070, 95076 for allergy testing in APCs 5732–5734 for Levels 2–4 Minor Procedures and APCs 5723–5724 for Levels 3–4 Diagnostic Tests and Related Services
Blood Product Exchange and Related Services	• APCs in 5241–5243 for Levels 1–3 Blood Product Exchange and Related Services
Breast/Lymphatic Surgery and Related Procedures	• APCs in 5091–5093 for Levels 1–3 Breast/Lymphatic Surgery and Related Procedures
Cardiac Rehabilitation	• APC 5771 for Cardiac Rehabilitation • HCPCS 93668 in APC 5733 for Level 3 Minor Procedures
Clinic Visits and Related Services	• APC 5012 for Clinic Visits and Related Services (excluding HCPCS 92002, 92004, 92012, 92014 that are included in Ophthalmology) • HCPCS 99195 in APC 5734 for Level 4 Minor Procedures
Critical Care	• APC 5041 for Critical Care
Drug Administration Levels 1–2	• APCs 5691–5692 for Levels 1–2 Drug Administration • HCPCS 96523 in APC 5733 for Level 3 Minor Procedures
Drug Administration Levels 3–4	• APCs 5693–5694 for Levels 3–4 Drug Administration • HCPCS 95180 in APC 5735 for Level 5 Minor Procedures
Electronic Analysis of Devices	• APCs 5741–5743 for Electronic Analysis of Devices • HCPCS 93005, 93017, 93041, 93225, 93226, 93229, 93278, 93291, 93701, 93702, 93786, 93788, 95970, 95981 in APCs 5731–5734 for Levels 1–4 Minor Procedures and APCs 5721–5722 for Levels 1–2 Diagnostic Tests and Related Services
Electrophysiologic Procedures	• APC 5211 for Electrophysiologic Procedures • HCPCS 93024, 93050, 93660 in APCs 5732–5735 for Levels 2–5 Minor Procedures and APC 5723 for Level 3 Diagnostic Tests and Related Services
Endovascular Procedures	• APCs 5191–5194 for Levels 1–4 Endovascular Procedures
ENT Procedures	• APCs 5161–5164 for Levels 1–4 ENT Procedures • HCPCS 30300, 30901, 30903, 30905, 41250, 41800, 42809, 69200, 69209, 69210 in APCs 5733–5735 for Levels 3–5 Minor Procedures
Excision/Biopsy/Incision and Drainage	• APCs 5071–5073 for Levels 1–3 Excision/Biopsy/Incision and Drainage • HCPCS 20665 in APC 5735 for Level 5 Minor Procedures
Extraocular, Repair, and Plastic Eye Procedures	• APCs 5501–5504 for Levels 1–4 Extraocular, Repair, and Plastic Eye Procedures • HCPCS 65205, 65210, 65220, 65222, 65430, 67820, 68200, 68801 in APCs 5734–5735 Levels 4–5 Minor Procedures
Gynecologic Procedures	• APCs 5411–5415 for Level 1–5 Gynecologic Procedures • HCPCS 57150 and Q0091 in APCs 5731 and 5734 for Levels 1 and 4 Minor Procedures

Base APC	Included APC and HCPCS Codes
Health and Behavior Services	• APCs 5281–5283 for Levels 1–3 Health and Behavior Services • HCPCS 90870, 90911, 96116, 96127 in APC 5732 for Level 2 Minor Procedures and APCs 5721–5723 for Levels 1–3 Diagnostic Tests and Related Services
Hyperbaric Oxygen	• APC 5061 for Hyperbaric Oxygen
Imaging with Contrast	• APCs 5571–5573 for Levels 1–3 Imaging with Contrast
Imaging Without Contrast	• APCs 5521–5524 for Levels 1–4 Imaging Without Contrast • HCPCS 72285, 72295, 76510, 76514, 76936, 93922–93924 in APC 5431 for Level 1 Nerve Procedures, APCs 5731 and 5734 for Levels 1 and 4 Minor Procedures, and APCs 5721–5722 for Levels 1–2 Diagnostic Tests and Related Services
Implantation of Drug Infusion Device	• HCPCS 11980–11983 for Implantation of Drug Infusion Device in APCs 5734–5735 for Levels 4–5 Minor Procedures
Intraocular Procedures	• APC 5491 for Level 1 Intraocular Procedures
Laparoscopy and Related Services	• APCs 5361–5362 for Levels 1–2 Laparoscopy and Related Services
Laser Eye Procedures	• APC 5481 for Laser Eye Procedures
Lower GI Procedures	• APCs 5311–5313 for Levels 1–3 Lower GI Procedures • HCPCS 46600–46601 in APCs 5734 for Level 4 Minor Procedures
Manipulation Therapy	• APC 5811 for Manipulation Therapy
Moderate Sedation	• HCPCS 99151, 99152, 99153, and G0500
Musculoskeletal Procedures	• APCs 5111–5114 for Levels 1–4 Musculoskeletal Procedures
Nerve Injections	• APCs 5441–5443 for Levels 1–3 Nerve Injections • HCPCS 64402 in APC 5734 for Level 4 Minor Procedures
Nerve Procedures	• APC 5431 for Level 1 Nerve Procedures (excluding HCPCS 72285, 72295 that are included in Imaging Without Contrast)
Neurology and Neuromuscular Procedures	• HCPCS 95812, 95813, 95816, 95819, 95822, 95827, 95860, 95861, 95863–98570, 95872, 95875, 95905, 95907–95913, 95921–95930, 95933, 95937–95939, 95950, 95953, 95956, 95958, 95961 for Neurology and Neuromuscular Procedures in APCs 5733–5734 for Levels 3–4 Minor Procedures and APCs 5731–5734 for Levels 1–4 Diagnostic Tests and Related Services
Neurostimulator and Related Procedures	• APCs 5461–5463 for Levels 1–3 Neurostimulator and Related Procedures
Nuclear Medicine and Related Services	• APCs 5591–5593 for Levels 1–3 Nuclear Medicine and Related Services • APC 5661 for Therapeutic Nuclear Medicine
Ophthalmology	• HCPCS 92002, 92004, 92012, 92014, 92020, 92025, 92060, 92065, 92081–92083, 92132–92134, 92136, 92145, 92225–92228, 92230, 92235, 92240, 92242, 92250, 92260, 92270, 92283–92287, 92311, 92313, 92315, 92325 for Ophthalmology in APC 5012 for Clinic Visits and Related Services, APCs 5732–5735 for Levels 2–5 Minor Procedures, and APCs 5732–5733 for Levels 2–3 Diagnostic Tests and Related Services
Otorhinolaryngology	• HCPCS 92512, 92516, 92520, 92537, 92538, 92540–92542, 92544–92546, 92548, 92550, 92552, 92553, 92555–92557, 92562, 92563, 92565, 92567, 92568, 92570, 92571, 92577, 92579, 92582–82588, 92603, 92604, 92620, 92625, 92626 for otorhinolaryngology in APCs 5732 and 5734 for Levels 2 and 4 Minor Procedures and APCs 5731–5733 for Levels 1–3 Diagnostic Tests and Related Services
Pathology	• APCs 5671–5674 for Levels 1–4 Pathology • HCPCS 86077, 86486, 86510, 86580, 88104, 88106, 88108, 88160, 88161, 88300, 88302, 88313, 88321, 88329, 88363 in APCs 5731–5733 for Levels 1–3 Minor Procedures

Base APC	Included APC and HCPCS Codes
Pulmonary Treatment	• APC 5791 for Pulmonary Therapy • HCPCS 94010, 94015, 94060, 94070 ,94200, 94250, 94375, 94400, 94450, 94452, 94453, 94621, 94644, 94667, 94668, 94680, 94681, 94690, 94726–94728, 94750, 94762, G0237–G0239, G0424 in APCs 5732–5734 for Levels 2–4 Minor Procedures and APCs 5731–5732 for Levels 1–2 Diagnostic Tests and Related Services
Radiation Therapy	• APCs 5621–5627 for Levels 1–7 Radiation Therapy
Resuscitation and Cardioversion	• APC 5781 for Resuscitation and Cardioversion • HCPCS 92950 in APC 5722 for Level 2 Diagnostic Tests and Related Services
Skin Procedures	• APCs 5051–5055 for Levels 1–5 Skin Procedures (excluding HCPCS 36470–36471 that are included in Vascular Procedures) • HCPCS 11719–11721, 11740, 17340, 96900, 96910, 96912, 96932, G0127 in APCs 5731–5734 for Levels 1–4 Minor Procedures
Sleep Medicine Testing	• HCPCS 95782, 95783, 95800, 95801, 95803, 95805–95808, 95810, 95811 for Sleep Medicine Testing in APCs 5733–5734 for Levels 3–4 Minor Procedures and APCs 5731–5734 for Levels 1–4 Diagnostic Tests and Related Services
Strapping and Cast Application	• APCs 5101–5102 for Levels 1–2 Strapping and Cast Application • HCPCS 29125, 29126, 29130, 29131, 29240, 29260, 29280, 29520, 29530, 29550 in APCs 5732–5734 for Levels 2–4 Minor Procedures
Therapeutic Radiation Treatment Preparation	• APCs 5611–5613 for Levels 1–3 Therapeutic Radiation Treatment Preparation
Upper GI Procedures	• APCs 5301–5303 for Levels 1–3 Upper GI Procedures • HCPCS 91010, 91020, 91030, 91034, 91035, 91037, 91038, 91040, 91065, 91132, 91133, 91200 in APCs 5734 for Level 4 Minor Procedures and APCs 5731 and 5733 Levels 1 and 3 for Diagnostic Tests and Related Services
Urology and Related Services	• APCs 5371–5377 for Levels 1–7 Urology and Related Services • HCPCS 51701–51703, 51736, 51741, 51784, 51792, 51798, 53601, 53660, 53661, 54240, 91120 in APCs 5733–5734 for Levels 3–4 Minor Procedures and APCs 5731 Level 1 for Diagnostic Tests and Related Services
Vascular Procedures	• APCs 5181–5184 for Levels 1–4 Vascular Procedures • HCPCS 36470, 36471, 36591, 36592, 36600, G0166 in APC 5052 for Level 2 Skin Procedures and APC 5734 for Level 4 Minor Procedures

SOURCE: Authors' analysis using the APC and CPT codebook.

Appendix F. Steps of the Current Algorithm Used in the Practice Expense Rate Setting

For easy reference, we reproduce the steps of the current PE allocation algorithm here. These steps are quoted from the 2020 proposed rule, available from 42 C.F.R. Parts 403, 409, 410, 411, 414, 415, 416, 418, 424, 425, 489, and 498. For some steps, we have added annotations in brackets. The steps are as follows:

> *Step 1:* Sum the direct costs of the inputs for each service. [Note: Various categories of direct costs are tabulated on an HCPCS-level basis using input from the RUC.]
>
> *Step 2:* Calculate the aggregate pool of direct PE costs for the current year. We set the aggregate pool of PE costs equal to the product of the ratio of the current aggregate PE RVUs to current aggregate work RVUs and the proposed aggregate work RVUs. [Note: In this context, "proposed" work RVUs are the RVUs from a new year of utilization and "aggregate pool" sums across all HCPCS.]
>
> *Step 3:* Calculate the aggregate pool of direct PE costs for use in ratesetting. This is the product of the aggregate direct costs for all services from Step 1 and the utilization data for that service.
>
> *Step 4:* Using the results of Step 2 and Step 3, use the CF [conversion factor] to calculate a direct PE scaling adjustment to ensure that the aggregate pool of direct PE costs calculated in Step 3 does not vary from the aggregate pool of direct PE costs for the current year. Apply the scaling adjustment to the direct costs for each service (as calculated in Step 1).
>
> *Step 5:* Convert the results of Step 4 to a RVU scale for each service. To do this, divide the results of Step 4 by the CF. Note that the actual value of the CF used in this calculation does not influence the final direct cost PE RVUs as long as the same CF is used in Step 4 and Step 5. Different CFs would result in different direct PE scaling adjustments, but this has no effect on the final direct cost PE RVUs since changes in the CFs and changes in the associated direct scaling adjustments offset one another. . . .
>
> *Step 6:* Based on the survey data, calculate direct and indirect PE percentages for each physician specialty. [Note: These survey data primarily come from the PPI Survey.]
>
> *Step 7:* Calculate direct and indirect PE percentages at the service level by taking a weighted average of the results of Step 6 for the specialties that furnish the service. Note that for services with TCs [technical components] and PCs [professional components], the direct and indirect percentages for a given service do not vary by the PC, TC, and global service. [Note: This step ensures that RVUs vary by HCPCS, not by specialty.]
>
> . . . *Step 8:* Calculate the service level allocators for the indirect PEs based on the percentages calculated in Step 7. The indirect PEs are allocated based on the

three components: The direct PE RVUs; the clinical labor PE RVUs; and the work RVUs.

For most services the indirect allocator is: Indirect PE percentage * (direct PE RVUs/direct percentage) + work RVUs. There are two situations where this formula is modified: (a) If the service is a global service (i.e., a service with global, professional, and TCs), then the indirect PE allocator is: indirect percentage (direct PE RVUs/direct percentage) + clinical labor PE RVUs + work RVUs. . . .

If the clinical labor PE RVUs exceed the work RVUs (and the service is not a global service), then the indirect allocator is: Indirect PE percentage (direct PE RVUs/direct percentage) + clinical labor PE RVUs. [**Note that while direct costs are tabulated at the HCPCS level, indirect PE in most cases depends only on the specialties performing the service, direct PE RVUs, and work RVUs.**]

Step 9: Calculate the current aggregate pool of indirect PE RVUs by multiplying the result of Step 8 by the average indirect PE percentage from the survey data.

Step 10: Calculate an aggregate pool of indirect PE RVUs for all PFS [physician fee schedule] services by adding the product of the indirect PE allocators for a service from Step 8 and the utilization data for that service.

Step 11: Using the results of Step 9 and Step 10, calculate an indirect PE adjustment so that the aggregate indirect allocation does not exceed the available aggregate indirect PE RVUs and apply it to indirect allocators calculated in Step 8. . . .

Step 12: Using the results of Step 11, calculate aggregate pools of specialty-specific adjusted indirect PE allocators for all PFS services for a specialty by adding the product of the adjusted indirect PE allocator for each service and the utilization data for that service.

Step 13: Using the specialty-specific indirect PE/HR data, calculate specialty-specific aggregate pools of indirect PE for all PFS services for that specialty by adding the product of the indirect PE/HR for the specialty, the work time for the service, and the specialty's utilization for the service across all services furnished by the specialty.

Step 14: Using the results of Step 12 and Step 13, calculate the specialty-specific indirect PE scaling factors.

Step 15: Using the results of Step 14, calculate an indirect practice cost index at the specialty level by dividing each specialty-specific indirect scaling factor by the average indirect scaling factor for the entire PFS.

Step 16: Calculate the indirect practice cost index at the service level to ensure the capture of all indirect costs. Calculate a weighted average of the practice cost index values for the specialties that furnish the service. (*Note:* For services with TCs and PCs, we calculate the indirect practice cost index across the global service, PCs, and TCs. Under this method, the indirect practice cost index for a given service (for example, echocardiogram) does not vary by the PC, TC, and global service.) [Note: As with Step 7, ensure that RVUs vary only by HCPCS, not specialty.]

Step 17: Apply the service level indirect practice cost index calculated in Step 16 to the service level adjusted indirect allocators calculated in Step 11 to get the indirect PE RVUs. . . .

Step 18: Add the direct PE RVUs from Step 5 to the indirect PE RVUs from Step 17 and apply the final PE budget neutrality (BN) adjustment. The final PE BN adjustment is calculated by comparing the sum of steps 5 and 17 to the proposed aggregate work RVUs scaled by the ratio of current aggregate PE and work RVUs. This adjustment ensures that all PE RVUs in the PFS account for the fact that certain specialties are excluded from the calculation of PE RVUs but included in maintaining overall PFS budget neutrality. . . .

Step 19: Apply the phase-in of significant RVU reductions and its associated adjustment. Section 1848(c)(7) of the [Medicare] Act specifies that for services that are not new or revised codes, if the total RVUs for a service for a year would otherwise be decreased by an estimated 20 percent or more as compared to the total RVUs for the previous year, the applicable adjustments in work, PE, and MP [malpractice] RVUs shall be phased in over a 2-year period. In implementing the phase-in, we consider a 19 percent reduction as the maximum 1-year reduction for any service not described by a new or revised code. This approach limits the year one reduction for the service to the maximum allowed amount (that is, 19 percent), and then phases in the remainder of the reduction. To comply with section 1848(c)(7) of the Act, we adjust the PE RVUs to ensure that the total RVUs for all services that are not new or revised codes decrease by no more than 19 percent, and then apply a relativity adjustment to ensure that the total pool of aggregate PE RVUs remains relative to the pool of work and MP RVUs. For a more detailed description of the methodology for the phase-in of significant RVU changes, we refer readers to the CY 2016 PFS final rule with comment period (80 FR 70927 through 70931).

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