

C H A P T E R

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## **Addressing high prices of drugs covered under Medicare Part B**

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# Addressing high prices of drugs covered under Medicare Part B

## Chapter summary

Medicare spending on prescription drugs is substantial and growing rapidly. Under Part B, Medicare covers drugs administered by physicians and outpatient hospitals and a few types of drugs furnished by pharmacy suppliers. In 2020, the Medicare program and beneficiaries spent about \$40.7 billion on Part B-covered drugs. Between 2009 and 2019, Part B drug spending grew at an average rate of nearly 10 percent per year. In 2020, spending grew more slowly (about 4 percent), likely in part a reflection of the more general effect of the coronavirus pandemic on health care service utilization.

Between 2009 and 2019, the largest factor contributing to Part B drug spending growth was the rise in the average price Medicare paid for Part B drugs, which reflected increased prices for existing products; the introduction of new, higher-priced drugs; and shifts in the mix of drugs. Manufacturers set launch prices based on what they believe the U.S. health care market will bear and, historically, have set high prices for many new treatments, whether or not evidence exists that the product is comparatively more effective than existing standards of care. As a result, drug launch prices have been increasing, and increases in prices are not necessarily commensurate with the new products' efficacy relative to existing therapies. Likewise, prices for existing products are a concern.

## In this chapter

- Addressing uncertain clinical benefit and high launch prices of first-in-class drugs
- Promoting price competition among drugs with therapeutic alternatives
- Improving provider incentives under the ASP payment system

Some launched at high prices when first introduced to market, and prices have grown rapidly for certain drugs and biologics, even those with therapeutic alternatives, despite a lack of evidence of increased efficacy. Cost sharing for high-priced products can deter appropriate uptake, and Medicare program spending on high-priced products can crowd out valuable alternative uses of taxpayer resources.

Generally, Medicare has had only an indirect influence on how new Part B-covered drugs are priced. Medicare pays for most Part B drugs and biologics at a rate of 106 percent of average sales price (ASP + 6 percent). Medicare lacks the authority to use tools to pay for Part B drugs in a way that balances a drug's net clinical benefit with an appropriate reward for innovation and affordability for beneficiaries and taxpayers. Medicare also lacks tools to promote price competition among Part B drugs with therapeutic alternatives.

In this chapter, we discuss three approaches that Medicare could use to address high launch prices for new “first-in-class” drugs with limited clinical evidence, high and growing prices among products with therapeutic alternatives, and financial incentives associated with the percentage add-on to Medicare Part B's payment rate. Although we focus on strategies to improve price competition and payment for Part B drugs, some of the issues facing Part B drugs are similar to the issues facing Part D drugs. In addition, although we focus here on pharmaceuticals, the discussion may be applicable more broadly to other categories of medical treatments and products, including medical devices.

### **Addressing uncertain clinical benefit and high launch prices of first-in-class drugs**

For costly new drugs that face limited competition, such as first-in-class drugs, manufacturers have significant market power to set prices. Medicare does not have the authority to consider a new Part B drug's net clinical benefit compared with the standard of care to set its payment rate. Consequently, Medicare's Part B payment rate for a drug may exceed the payment justified by its net clinical effectiveness. Under the Part B ASP-based payment system, the program is a price taker, and a drug manufacturer with a new product with limited competition effectively sets its own Medicare payment rate. Linking information about the net clinical benefit of an item or service to fee-for-service (FFS) payment policies has the potential to improve Medicare's payment for products with uncertain clinical benefit. To address high launch prices of select first-in-class Part B drugs that the Food and Drug Administration

(FDA) approves with uncertain clinical evidence—based only on surrogate or intermediate clinical endpoints under its accelerated approval pathway—the Congress could give the Secretary discretion to:

- First, use coverage with evidence development (CED) to collect clinical evidence relevant to Medicare beneficiaries about the new drug. This approach would generate useful clinical evidence (which Medicare could use to refine coverage policies) while providing patients access to the product. CMS would need to develop a well-defined, consistent approach to designing CED studies, determining research methods, and setting a time line to reevaluate its application. Ensuring that the CED process is clear, transparent, and predictable with a process for public input would be key. Such a process might include criteria (e.g., disease prevalence, mortality, morbidity, practice variation, information gaps, estimated benefits and risks over existing therapies, and duplication with existing research efforts) for evaluating whether an item or service is a candidate for CED. In addition, a systematic and dedicated approach to fund CED (primarily focused on the administrative costs of conducting a CED study) might ease implementation. Some observers have suggested that CED applications should build on existing/emerging registries and data collection networks and partner with other organizations, including relevant regulatory bodies and private payers.
- Second, set a cap on the drug's payment rate based on information about the new product's estimated net clinical benefit (based on evidence from, for example, FDA clinical trials) and cost compared with the standard of care. This approach would prevent a manufacturer from setting a high price for a new product with little or no evidence that it is more effective than existing standards of care. This approach would require Medicare to develop a clear and predictable decision-making framework that ensures transparency and opportunities for public input. Medicare would also need to consider the methods for conducting such analyses, including the selection of comparator treatments, the method of defining costs, the prices of comparator drugs, the perspective of the analysis, and the time horizon.

This dual approach would likely lead to development of better evidence after FDA approval and better alignment of payment to the known clinical benefit of the drug. We envision that the Secretary would apply such a dual approach when needed for selected drugs approved under the FDA's accelerated pathway, based on factors such as a drug's clinical benefit compared with its

alternatives at the time of FDA approval and fiscal impact. We also envision that over time, Medicare would reevaluate the application of CED and the drug's payment rate based on, for example, information from postapproval clinical trials.

Since 2006, under existing statutory authority, the Secretary has applied CED to roughly 25 services. We do not envision that this dual approach would affect the Secretary's current use of CED. The Congress would need to provide the Secretary statutory authority to use methods other than ASP to set the payment for select first-in-class Part B drugs.

### **Promoting price competition among drugs with therapeutic alternatives**

The current ASP payment system maximizes price competition among generic drugs and their associated brand products by assigning these products to a single billing code, which we call a consolidated billing code. By contrast, single-source drugs, originator biologics, and biosimilars are assigned their own billing codes and paid according to their ASP, which undermines price competition. Indeed, research suggests that in many therapeutic classes, approval of a new brand-name drug or biologic leads to higher list prices, not just for the new product but also for the existing products.

To spur manufacturer competition among drugs with similar health effects, the Congress could give CMS the authority to use internal reference pricing or consolidated billing, under which Medicare would establish a single reference price for drugs that have similar health effects based on the Part B drug payment rates of the products in the reference group. (This policy is distinct from international reference pricing, in which a reference price for a drug is derived from the prices other countries pay for it.) Under reference pricing, products remain in their own billing code, while under consolidated billing, all clinically similar products are assigned to the same billing code. Because products remain in their own billing codes under reference pricing, the policy might offer more flexibility in defining groups of products that are clinically similar (e.g., to account for potential differences in dosage sizes between therapeutically similar drugs) and addressing medical exceptions. Importantly, because drugs would retain their own billing code under a reference pricing approach, researchers would continue to be able to use Medicare claims data to conduct pharmacoepidemiology studies.

Under reference pricing policies for Part B drugs, manufacturers would have incentive to lower their prices relative to competitors to make their products

more attractive to providers and garner market share, which would result in savings for beneficiaries and taxpayers. To carry out reference pricing for Part B drugs, Medicare would need to develop a clear and predictable decision-making framework that ensures transparency and opportunities for public input. CMS would need to determine a method for establishing the payment rate for a reference group; a process for determining exceptions to reference pricing policies (for example, when a beneficiary's clinical circumstances support the medical necessity for a more costly product); a method for defining groups of products that are clinically similar; and a method for products with similar health effects that have multiple indications. CMS would also need to determine how frequently reference prices would be updated.

### **Improving provider incentives under the ASP payment system**

While clinical factors play a central role in prescribing decisions, at the margins, financial considerations can also play a role in providers' choice of drugs. Medicare's 6 percent add-on to ASP may create incentives for use of higher-priced drugs when less-expensive therapeutic alternatives are available. Since 6 percent of a higher-priced drug generates more revenue for the provider than 6 percent of a lower-priced drug, selection of the higher-priced drug can generate more profit, depending on the provider's acquisition costs for the two drugs. The 6 percent add-on may also affect a provider's decision to initiate or continue drug treatment in some circumstances. To address concerns about these financial incentives, the add-on could be modified by placing a fixed dollar limit on the add-on payment or by converting a portion of the percentage add-on to a fixed fee, or a combination of these approaches could be used. The impact on payments for Part B drugs would vary, with a fixed dollar limit on the add-on payment reducing payment for very expensive drugs and the application of a fixed fee raising payments for relatively inexpensive drugs while decreasing payments for more expensive ones. ■



Under Part B, Medicare covers drugs administered by physicians and outpatient hospitals and a few types of drugs furnished by pharmacy suppliers. Medicare spending on these drugs is substantial and growing rapidly. In 2020, the Medicare program and beneficiaries spent about \$40.7 billion on Part B–covered drugs. Between 2009 and 2019, Part B drug spending grew at an average rate of nearly 10 percent per year.

An important driver of Medicare Part B drug spending is the price Medicare pays for drugs. Manufacturers set prices based on what they believe the U.S. health care market will bear and, historically, have set high prices for many new products, whether or not evidence exists that the treatments are comparatively more effective than existing standards of care. Likewise, prices for existing products are a concern. Some launched at high prices when first introduced to market, and prices have grown rapidly for certain drugs and biologics, even those with therapeutic alternatives, despite a lack of evidence of increased efficacy. Cost sharing for high-priced products can deter appropriate uptake, and Medicare program spending on high-priced products can crowd out valuable alternative uses of taxpayer resources.

Generally, Medicare has had only an indirect influence on how new Part B–covered drugs are priced. Under the current Part B payment system based on average sales price (ASP), the program is a price taker. Improvements to Medicare’s payment system for Part B drugs would help CMS balance a drug’s net clinical benefit with an appropriate reward for innovation and affordability for beneficiaries and taxpayers and would promote price competition among Part B drugs with therapeutic alternatives. However, it is important to recognize that Medicare operates within a context involving other payers as well as federal and state laws, agencies, and policies. Many influences over drug prices are outside Medicare’s purview, such as funding for biomedical research and development (R&D), patent policy, tax policy, and the Food and Drug Administration’s (FDA’s) drug approval process.

This chapter examines alternative approaches for Medicare Part B to address:

- **High launch prices for first-in-class drugs.** To address high launch prices of select first-in-class Part B drugs that the FDA approves based only on

surrogate or intermediate clinical endpoints under its accelerated approval pathway, one approach is to (1) collect clinical evidence about the new drug through coverage with evidence development (CED) and (2) set a cap on the drug’s payment based on its net clinical benefit compared with the standard of care. We consider this approach specifically for use of selected accelerated approval drugs because these products are approved with uncertain clinical benefit.

- **High-priced therapeutic alternatives to existing and new drugs.** To spur manufacturer competition among drugs with similar health effects, we consider the use of reference pricing or consolidated billing codes.
- **Financial incentives under current payment of 106 percent of ASP.** We explore several policy options to modify Medicare’s current 6 percent add-on payment to improve financial incentives, including placing a fixed dollar limit on the add-on payment, converting a portion of the percentage add-on to a fixed fee, or a combination of these approaches.

Although we focus on strategies to improve price competition and payment for Part B drugs, some of the issues facing Part B drugs are similar to the issues facing Part D drugs. For example, certain Part D drugs lack robust clinical outcome data specific to Medicare beneficiaries. In addition, although we focus here on pharmaceuticals, the discussion may be applicable more broadly to other categories of medical treatments and products, including medical devices.

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## Background

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Medicare Part B covers drugs and biologics that are administered by infusion or injection in physician offices and hospital outpatient departments (HOPDs). Medicare Part B also covers certain other drugs provided by pharmacies and suppliers (e.g., inhalation drugs; certain oral anticancer, oral antiemetic, and immunosuppressive drugs; and certain home infusion drugs).

Medicare Part B spending on prescription drugs is substantial and has grown rapidly. In 2020, the Medicare program and beneficiaries spent about \$40.7 billion on Part B–covered drugs. Part B drug spending grew at an average rate of nearly 10 percent per year

between 2009 and 2019. In 2020, spending grew more slowly (about 4 percent), likely in part a reflection of the more general effect of the pandemic on health care service utilization.

Prescription medicines play a crucial role in managing or treating many conditions (e.g., cancer, rheumatoid arthritis, macular degeneration, and many others). Important breakthroughs have contributed to an increased life expectancy for patients suffering from several cancers, such as immunotherapy for melanoma, second-generation androgen receptor antagonists for prostate cancer, and new drugs for myeloma (Schnog et al. 2021). Some products—such as hepatitis C treatments and COVID-19 vaccines—are transformative and represent large advancements in the standard of care and health outcomes. At the same time, many new drugs and biologics represent modest improvements over existing treatments or have similar efficacy to products already on the market. For example, six studies that reviewed newly approved cancer drugs over various time periods found that, among the group of new products included in each study, the median or mean gain in overall survival was roughly two to four months (Schnog et al. 2021). In addition, manufacturers sometimes develop new products that are modifications of existing products (e.g., different formulations or routes of administration, modifications of delivery devices like inhalers or injector pens) as ways to potentially improve products' utility, extend patents or market exclusivity, or increase product revenues (Berger et al. 2016, Feldman 2018, Sumarsono et al. 2020).

Drug launch prices have been increasing, and increases in prices are not necessarily commensurate with the new products' efficacy relative to existing therapies. For example, research suggests that launch prices for anticancer drugs have been increasing over time and that the increases are unrelated to increases in efficacy. Howard and colleagues analyzed the launch prices of anticancer drugs from 1995 and 2013 and found that, after controlling for inflation and differences in survival benefits, launch prices have increased about 10 percent per year (i.e., about \$8,500 per year) (Howard et al. 2015). The authors did not find a statistically significant relationship between launch prices and survival benefits. Similarly, a study by Vokinger and colleagues of 65 cancer drugs found no significant relationship between a drug's price and the product's

level of clinical benefits (as measured by the American Society for Clinical Oncology value framework scores) in the U.S. and in several European countries (England, Switzerland, and Germany) (Vokinger et al. 2020).

Prices of existing drugs have also been increasing, generally without new evidence of increased effectiveness. In a report from the Institute for Clinical and Economic Review (ICER), researchers determined that, among the top drugs with price increases in 2020 contributing to the largest increase in U.S. spending (including all types of drugs, not exclusively Part B drugs), 9 of 12 lacked adequate new evidence to demonstrate a substantial clinical benefit that was not yet previously known.<sup>1</sup> The 2020 price increases of these products, even after rebates and other price concessions, resulted in an additional \$1.7 billion beyond what payers would have spent if their net prices had remained flat (Rind et al. 2022).

Drug prices in the U.S. are substantially higher than in other countries. An analysis by the Department of Health and Human Services's Assistant Secretary for Planning and Evaluation found that Medicare Part B's payment rates (106 percent of ASP, or ASP + 6 percent) in 2018 were, on average, about double (2.05 times) the average prices in 19 high-income Organisation of Economic Co-operation and Development countries (Department of Health and Human Services 2020). Similarly, a study by Hwang and colleagues compared ASP for 67 Part B drugs with prices from 4 other high-income countries (Japan, Germany, Switzerland, and the U.K.). Median prices in the comparator countries were roughly 45 percent to 60 percent lower than ASP (Hwang et al. 2019).

Higher prices in the U.S. are the result of both higher launch prices and higher price inflation once products are on the market. According to research by Vokinger and colleagues on 65 new drugs approved between 2009 and 2019 to treat solid tumors and hematologic cancers, launch prices were substantially higher in the U.S. than in England, Germany, and Switzerland (Vokinger et al. 2021). Among the group of cancer drugs included in the study, the U.S. median monthly treatment costs at launch, adjusting for currency and inflation, were 45 percent higher than in Germany, 57 percent higher than in Switzerland, and 63 percent higher than in England. In addition, after launch of these products, prices tended to

increase faster than inflation for most products (74 percent) in the U.S., but not in England, Germany, or Switzerland (Vokinger et al. 2021).

Other countries' payment methods have evolved to address high launch prices and price increases over time. In our June 2019 report, we discussed how Germany refined its payment method to address rising drug spending and, since 2011, uses evidence on a drug's comparative clinical effectiveness in determining payment (Medicare Payment Advisory Commission 2019). In Appendix 4-A of this chapter, we describe Japan's use of multiple approaches to achieve price reductions over time.

### **Medicare coverage of Part A and Part B drugs**

The Social Security Act requires that the Medicare program cover Part A and Part B items and services that are included in a Medicare benefit category, are not statutorily excluded, and are “reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.” Based on statutory and regulatory text, “traditional,” or fee-for-service (FFS), Medicare covers on-label use of a drug that the FDA has approved that is reasonable and necessary for the beneficiary. According to the *Medicare Benefit Policy Manual*:

Use of the drug or biological must be safe and effective and otherwise reasonable and necessary. . . . Drugs or biologicals approved for marketing by the Food and Drug Administration are considered safe and effective for purposes of this requirement when used for indications specified on the labeling. Therefore, the program may pay for the use of an FDA approved drug or biological, if:

- It was injected [furnished] on or after the date of the FDA's approval;
- It is reasonable and necessary for the individual patient;<sup>2</sup> and
- All other applicable coverage requirements are met. (Centers for Medicare & Medicaid Services 2021)

In addition, the statute requires that Medicare cover off-label use of anticancer drug regimens if supported

in the cancer compendia or peer-reviewed literature. Medicare may cover off-label use of noncancer drugs if the use is recognized, following Medicare's review of the peer-reviewed literature, as an appropriate treatment. Part B drug coverage is limited to products that are furnished “incident to” a physician's service, provided that the drugs are not usually self-administered by the patients who take them.

Some Part B drugs are covered without the need for an explicit coverage policy. If the product is used for indications that the FDA approved and can be reimbursed on the basis of an existing billing code or a bundled payment system (e.g., the inpatient prospective payment system), Medicare may cover it without an explicit coverage policy. However, even when a drug is used for an FDA-approved indication, there may be uncertainty about its clinical benefits (see text box on the FDA's expedited approval pathways, pp. 92–93).

For other products, either CMS or Medicare administrative contractors (MACs) make explicit coverage determinations under which a formal review of the medical, technical, and scientific evidence is conducted to evaluate the relevance, usefulness, and medical benefits of an item or service to Medicare beneficiaries, with opportunities for public participation. MACs develop the majority of explicit coverage policies through the local coverage determination (LCD) process, which determines coverage of items and services that apply only in the contractor's regional jurisdiction. CMS develops coverage determinations for items and services that apply nationwide through the national coverage determination (NCD) process. Outcomes of the coverage process include (1) Medicare coverage of an item or service with no restrictions, (2) covering a service for beneficiaries with certain clinical conditions or when furnished by certain providers or facilities, (3) leaving the coverage determination to the discretion of the MACs, or (4) Medicare not covering the service. CMS can initiate an NCD internally or can initiate one at a stakeholder's request due to specific circumstances such as the following:

- Practitioners, patients, providers, or other members of the public have raised significant questions about the health outcomes attributable to the use of services by Medicare beneficiaries.

## The FDA's expedited approval pathways may shorten time to drug approval but can pose uncertainty for patients, clinicians, and payers

The role of the Food and Drug Administration (FDA) in the drug development process as a regulator is distinct and separate from the role of CMS as a payer. The FDA regulates whether a pharmaceutical product is “safe and effective” for its intended use by consumers. The FDA approval process may or may not include the new pharmaceutical product’s safety or effectiveness with regard to the Medicare population, and it typically does not provide clinical evidence about a product’s effectiveness relative to existing treatments. By contrast, the Medicare program adjudicates coverage and spending determinations based on the specific needs of the Medicare population.

The FDA approves most new drugs and biologics under two pathways—traditional or expedited. Traditional approval requires that manufacturers demonstrate the clinical benefit of a new drug before FDA approval. The four expedited pathways—fast track, breakthrough, accelerated, and priority—are used to approve drugs that treat serious conditions and address unmet medical needs, thus allowing patients quicker access to therapies

compared with drugs approved under traditional pathways (Table 4-1).<sup>3</sup> Expedited pathway approvals are more likely to be based on surrogate outcomes, single-arm trials, phase I or II trials, and studies with smaller sample sizes and shorter duration than drugs approved under traditional pathways (Government Accountability Office 2015, Puthumana et al. 2018, Ribeiro et al. 2020). On average, a drug approved using an expedited pathway reaches market almost a year sooner than drugs approved under traditional pathways (Frakt 2018).

Evidence of a new product’s effectiveness relative to existing treatments—comparative clinical effectiveness evidence—is often not collected under either the traditional or expedited approval pathways. Furthermore, because of expedited pathways’ use of surrogate outcomes and other design features, clinicians, patients, and payers generally have less data with which to judge the benefits, risks, and value of products approved under expedited pathways compared with drugs approved under traditional pathways.<sup>4,5</sup> ■

*(continued next page)*

- Rapid diffusion of a service is anticipated, and the evidence may not adequately address questions regarding impact on the Medicare beneficiaries.

Our review of NCDs and LCDs for drugs found that (1) the coverage policies appear to be aligned with the FDA’s label indications, and (2) some policies delineate off-label conditions (for noncancer drugs) and the types of facilities or providers that Medicare will cover. For example:

- In 2007, CMS opened an NCD internally in response to the FDA’s boxed warning regarding the safety of erythropoiesis-stimulating agents (ESAs)

when prescribed to treat cancer (i.e., nonrenal indications). The finalized NCD sets forth the Medicare-covered and noncovered indications of ESAs, which are aligned with the FDA’s label and black box warnings (Centers for Medicare & Medicaid Services 2007).

- In 2019, CMS opened an NCD at a stakeholder’s (United Healthcare) request to clarify the circumstances under which Medicare would cover chimeric antigen receptor T-cell (CAR-T) therapy. The finalized NCD covers CAR-T therapies when they are (1) administered at health care facilities enrolled in the FDA risk evaluation and mitigation

## The FDA's expedited approval pathways may shorten time to drug approval but can pose uncertainty for patients, clinicians, and payers (cont.)

**TABLE  
4-1**

### FDA's expedited drug approval pathways

Approach	Criteria	Features
Fast track	A drug that: <ul style="list-style-type: none"> <li>is intended to treat a serious condition AND nonclinical or clinical data demonstrate the potential to address unmet medical need OR</li> <li>has been designated as a qualified infectious disease product</li> </ul>	<ul style="list-style-type: none"> <li>More frequent meetings and communications with FDA</li> <li>Eligibility for accelerated approval and priority review if relevant criteria are met</li> <li>Rolling review<sup>a</sup></li> </ul>
Breakthrough therapy <sup>b</sup>	A drug that treats a serious condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over available therapy on a clinically significant endpoint(s)	<ul style="list-style-type: none"> <li>Impacts clinical trial design<sup>c</sup></li> <li>Eligible for all fast track designation features</li> </ul>
Accelerated approval	A drug that treats a serious condition that fills an unmet medical need; approval based on a surrogate or intermediate clinical endpoint followed by confirmatory trials	<ul style="list-style-type: none"> <li>Priority review, fast track, and breakthrough drugs can also be eligible for accelerated approval</li> </ul>
Priority review	A drug that is a significant improvement in the safety or effectiveness of the treatment, prevention, or diagnosis of a serious condition	<ul style="list-style-type: none"> <li>6-month priority review versus 10-month standard review</li> <li>Drugs qualifying for fast track, breakthrough therapy, and accelerated approval can also be eligible for priority review</li> </ul>

Note: FDA (Food and Drug Administration).

<sup>a</sup> "Rolling review" means that a drug company can submit completed sections of its biologic license application (BLA) or new drug application (NDA) for review by the FDA, rather than waiting until every section of the NDA is completed before the entire application can be reviewed. BLA or NDA review usually does not begin until the drug company has submitted the entire application to the FDA.

<sup>b</sup> Similar to fast track, but breakthrough drugs must show early clinical evidence of substantial improvement over existing therapies.

<sup>c</sup> Because breakthrough drugs have early ability to benefit patients, the FDA aims to collaboratively examine a breakthrough drug's entire development program and, for example, take scientifically appropriate steps to minimize the number of patients receiving placebos or less efficacious treatment as part of the testing process.

Source: Food and Drug Administration 2022.

strategies and (2) used for a medically accepted indication as defined in Social Security Act Section 1861(t)(2)—that is, used for either an FDA-approved indication (according to the FDA-approved label for that product) or for other uses when the product

has been FDA-approved and the use is supported in one or more CMS-approved compendia.

A small subset of NCDs links a service's national coverage to participation in an approved clinical study or to the collection of additional clinical data.<sup>6</sup>

This policy is referred to as coverage with evidence development (CED), and its goal is to expedite early beneficiary access to innovative technology while ensuring that patient safeguards are in place. CED allows coverage of certain items or services where additional data gathered in the context of clinical care would further clarify the impact of these items and services on the health of Medicare beneficiaries. Because CED provides Medicare the opportunity to generate clinical evidence that otherwise might not have been collected, it enables the program to ultimately develop better, more evidence-based policies. CED also provides an opportunity to collect clinical evidence for groups that are often underrepresented in clinical trials, including older beneficiaries and minorities. CMS currently applies CED to 21 items and services, and since the program's inception in 2005, 2 CED policies have been applied to drugs.<sup>7</sup>

### **For Part B drugs, FFS Medicare generally bases payments on manufacturer-reported or provider-reported data**

FFS Medicare largely acts as a price taker for Part B-covered drugs and biologics and under current law can do little to affect the amount the program pays for these products. Part B covers drugs that are administered by infusion or injection in physician offices and hospital outpatient departments, as well as certain drugs furnished by suppliers. Under FFS Medicare, these providers purchase drugs in the marketplace to administer to patients for whatever price the provider is able to negotiate. FFS Medicare pays these providers a prospectively determined rate for a Part B-covered drug, regardless of what the provider paid for the product. In many cases, FFS Medicare makes a separate payment for each drug administered, and in other cases Medicare bundles payment for drugs with payment for other services.

Medicare pays physicians and hospital outpatient departments for Part B drugs based on the manufacturer's ASP. ASP reflects the average price realized by the manufacturer for sales to most purchasers net of rebates, discounts, and price concessions, with certain exceptions. ASP is determined by the manufacturer's pricing decisions and is generally unrelated to the clinical value of the product. Medicare pays physicians and outpatient

hospitals for separately payable Part B drugs based on 106 percent of the average sales prices, except for 340B hospitals, to which Medicare pays a lower rate (ASP – 22.5 percent) for some products.<sup>8</sup>

In contrast, Medicare FFS pays some providers for Part B drugs as part of a broader payment bundle. For example, under the hospital outpatient prospective payment system (OPPS), hospitals are paid for a subset of Part B-covered drugs—those that are low cost or that function as supplies to a service—as part of the ambulatory payment classification (APC) payment for other services. The APC payment rates are determined based on a relative weight-setting process, in which CMS estimates the average cost of services associated with each APC, including bundled drugs.<sup>9</sup> Under the dialysis prospective payment system (PPS), Part B covers drugs furnished by end-stage renal disease (ESRD) facilities and makes a single case-mix-adjusted payment that bundles together payment for composite rate services and other ESRD-related services, including drugs.<sup>10</sup> The inclusion of drugs in the dialysis payment bundle has spurred price competition and use of the less costly product among some dialysis drug groups.

### **Medicare Part B currently has limited tools to manage drug prices**

Under current policy, Medicare Part B lacks tools to influence launch prices for new products or spur price competition among competing brand alternative products. Medicare exerts no influence on spending for biologics and brand drugs without generic competitors. For these products, Medicare Part B pays each product an ASP-based rate under the product's own billing code. With respect to first-in-class products, this policy means that Medicare will pay whatever launch price the manufacturer establishes for a product without generic competitors. Even for therapeutic classes in which there are multiple brand products, Medicare pays each product under its own billing code based on its own ASP, which permits manufacturers to establish high launch prices for “me-too” products and does little to spur price competition.

In contrast, for brand drugs with generic competitors, Medicare Part B pays for the brand product and its generic equivalents in the same billing code based on

106 percent of a volume-weighted average ASP. This policy creates incentives for providers to select the lower-cost product within a billing code and in turn lowers the weighted average ASP in future calendar quarters, leading to substantial price reductions in payment rates for brand products after generic entry.

Medicare pays for biosimilars differently from its payment for generic drugs. Each biosimilar receives its own billing code and is paid 100 percent of its own ASP, plus 6 percent of the originator's ASP. Medicare payment rates for originator biologics and their biosimilars have declined to some degree, but not to the extent observed with generic drugs.

In 2017, to address the lack of tools that Medicare has to influence Part B drug prices and spending, the Commission recommended several improvements to payment for Part B drugs. Two of the recommended policies included:

- consolidated billing codes for biosimilars and originator biologics that would spur price competition among these products and
- a manufacturer ASP inflation rebate that would address price growth in the years after a product's launch.

The recommendation included additional policies such as improvements to ASP data reporting and to payment for drugs without ASP data (which have been fully or partially adopted) and the development of a voluntary alternative to the ASP payment system based on a private vendor approach (Medicare Payment Advisory Commission 2017).

Recommended policies (e.g., consolidated billing codes for biosimilars and originator biologics and an ASP inflation rebate), if adopted, would be important steps forward to reduce the prices Medicare Part B pays for certain drugs; nonetheless, several additional issues remain that increase spending for the Medicare program and beneficiaries. For new drugs, Medicare lacks tools to arrive at payment rates that balance an appropriate reward for innovation with affordability for beneficiaries and taxpayers. Medicare also has limited tools to promote price competition among Part B drugs with therapeutic alternatives. In addition, the 6 percent add-on to Medicare Part B's ASP payment rates may create incentives for some

providers to select higher-priced products in some circumstances.

## **Price has been the biggest driver of spending growth**

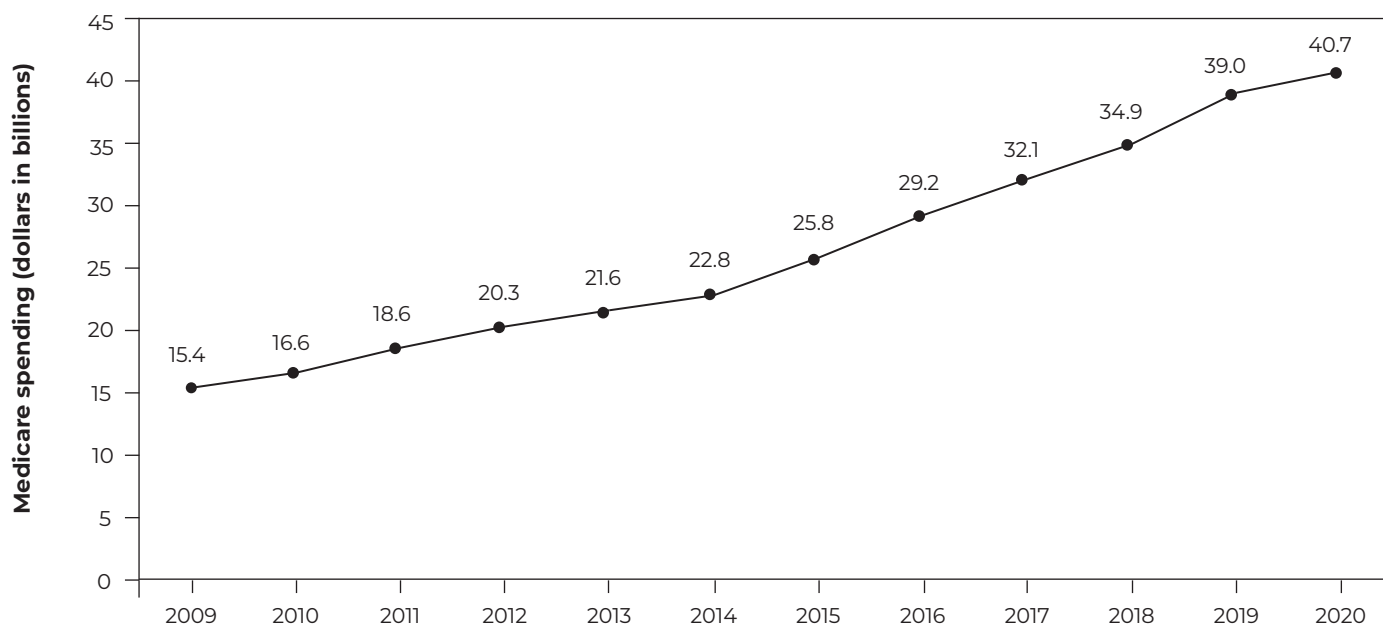
Medicare Part B spending on prescription drugs is substantial and has been growing rapidly. Between 2009 and 2019, FFS Medicare Part B drug spending grew nearly 10 percent per year, from \$15.4 billion to \$39.0 billion (Figure 4-1, p. 96). Growth in the size of the Medicare FFS population accounted for only a small portion of that spending growth: The total number of FFS beneficiaries with Part B grew only 0.4 percent per year on average from 2009 to 2019. In 2020, Medicare Part B drug spending growth slowed, increasing about 4 percent to \$40.7 billion. The slower growth in 2020 is likely in part related to the effect of the coronavirus public health emergency.

The largest factor contributing to spending growth between 2009 and 2019 was the change in the average price Medicare paid for Part B drugs, which reflects increased prices for existing products; the introduction of new, higher-priced drugs; and shifts in the mix of drugs. Between 2009 and 2019, spending on separately payable Part B drugs climbed, on average, by nearly 12 percent per year (Table 4-2, p. 96).<sup>11</sup> We found that the average annual payment per drug increased at an average rate of 7.1 percent per year. The number of beneficiaries using Part B drugs also increased, about an average of 4.6 percent per year, while the number of Part B drugs received per user declined slightly during this period (by about 0.2 percent per year).

## **Medicare spending on Part B drugs**

In 2020, Medicare and beneficiaries paid about \$40.7 billion for Part B-covered drugs and biologics.<sup>12</sup> Although there are roughly 900 billing codes for Part B drugs, spending is concentrated. In 2020, Part B drug spending for the top 10 products, which were all biologics, accounted for \$15.6 billion, or 38 percent of total Part B drug spending. Spending on the top 20 products accounted for \$21.0 billion, or about 52 percent of total Part B drug spending.

The top 20 Part B drugs tend to be concentrated in certain therapeutic areas (Table 4-3, p. 97). Nine of the top 20 Part B drugs are for the treatment of

**FIGURE  
4-1****Medicare Part B drug spending has grown rapidly since 2009**

Note: Data include Part B-covered drugs furnished by several provider types, including physicians, suppliers, and hospital outpatient departments, and exclude those furnished by critical access hospitals, Maryland hospitals, and dialysis facilities. "Medicare spending" includes program payments and beneficiary cost sharing. Data reflect all Part B drugs whether they were paid based on the average sales price or another payment formula. Data exclude blood and blood products (other than clotting factor).

Source: MedPAC and Acumen LLC analysis of Medicare claims data.

**TABLE  
4-2****Growth in the average price per Part B drug was the largest factor contributing to spending growth for separately payable Part B drugs, 2009–2019**

	2009	2019	Average annual growth, 2009–2019
<b>Total payments: Separately payable* Part B drugs, excluding vaccines (in billions)</b>	<b>\$11.7</b>	<b>\$35.8</b>	<b>11.9%</b>
Number of beneficiaries using a Part B drug (in millions)	2.6	4.1	4.6
Average total payments per beneficiary who used a Part B drug	\$4,420	\$8,639	6.9
Average number of Part B drugs per user	1.39	1.36	–0.2
Average annual payment per Part B drug per user	\$3,182	\$6,343	7.1

Note: This analysis includes Part B drugs paid based on the average sales price as well as the small group of Part B drugs that are paid based on the average wholesale price or reasonable cost or that are contractor priced. "Vaccines" refers to three Part B-covered preventive vaccines: influenza, pneumococcal, and hepatitis B. Data include Part B drugs furnished by physicians, hospitals paid under the outpatient prospective payment system, and suppliers and exclude data for critical access hospitals, Maryland hospitals, and dialysis facilities. Yearly figures presented in the table are rounded; the average annual growth rate was calculated using unrounded data.

\*For purposes of this analysis, spending on separately payable Part B drugs excludes any drug that was bundled in 2009 or 2019 (i.e., drugs that were packaged under the outpatient prospective payment system in 2009 or 2019 were excluded from both years of the analysis, regardless of the setting in which the drug was administered), drugs billed under not-otherwise-classified billing codes, and blood and blood products (other than clotting factor).

Source: MedPAC analysis of Medicare claims data for physicians, hospital outpatient departments, and suppliers.

**TABLE  
4-3****The top 20 highest-expenditure Part B drugs accounted for 52 percent of total Part B drug spending in 2020**

Part B drug	Indication	2020				
		Number of beneficiaries who used product	Total spending (in billions)	Average annual spending per user	Average annual ASP growth 2005–2022	Earliest year of ASP data if not 2005
Keytruda	Cancer	58,900	\$3.5	\$59,400	2.3%*	2016
Eylea	MD	286,900	3.0	10,500	–0.8*	2013
Prolia/Xgeva	OS, cancer SE	587,200	1.6	2,800	3.9*	2012
Opdivo	Cancer	25,500	1.6	62,200	2.4*	2016
Rituxan	Cancer, RA	57,400	1.3	22,700	4.0	
Lucentis	MD	121,600	1.1	9,200	–2.0*	2008
Orencia	RA	30,100	1.0	34,100	6.0*	2007
Neulasta	Cancer SE	67,800	0.9	13,300	–0.2	
Darzalex	Cancer	13,000	0.8	64,600	4.0*	2017
Avastin	Cancer, MD	176,500	0.7	3,900	1.0	
Remicade	RA	45,100	0.7	14,800	–2.0	
Tecentriq	Cancer	12,500	0.6	50,000	1.2*	2018
Ocrevus	MS	12,500	0.6	49,900	0.8*	2018
Soliris	Autoimmune	1,700	0.6	363,800	1.9*	2008
Cimzia	RA	19,700	0.5	25,900	4.4*	2010
Imfinzi	Cancer	9,200	0.5	55,000	0.8*	2020
Alimta	Cancer	18,700	0.5	26,700	3.8	
Fluzone High-Dose	Vaccine	8,046,600	0.5	60	7.6***	2011
Herceptin	Cancer	13,500	0.5	34,400	2.9	
Sandostatin LAR Depot	Cancer SE	10,000	0.4	44,800	5.3	
Top 20 drugs			21.0			
All Part B drugs			40.7			

Note: ASP (average sales price), MD (macular degeneration), OS (osteoporosis), SE (side effects), RA (rheumatoid arthritis), MS (multiple sclerosis). The drugs shown in the chart reflect the 20 Part B drug billing codes with the highest total Medicare spending in 2020. "Total spending" includes Medicare program payments and beneficiary cost sharing. Number of beneficiaries, total spending, and average spending per user displayed in the table are rounded; average spending per user was calculated using unrounded numbers. For originator biologics that have biosimilar competitors, data in the table reflect only the originator biologic. If spending for an originator biologic and its biosimilars is summed, 2020 total spending was \$1.6 billion for Rituxan, \$1.2 billion for Neulasta, \$1.0 billion for Avastin, \$0.8 billion for Remicade, and \$0.7 billion for Herceptin and their biosimilars.

\*Product was not on the market for the full period from 2005 to 2022. The average annual growth rate was calculated using the alternate base year displayed through 2022.

\*\*Fluzone High-Dose is a preventive vaccine paid based on 95 percent of the average wholesale price. Percent change in actual payment rate rather than ASP is displayed in the table.

Source: MedPAC analysis based on claims data, publicly available ASP payment rate files, and outpatient prospective payment system Addendum B from CMS.

cancer, and another three are supportive drugs used to treat cancer side effects. Three of the top 20 are used to treat macular degeneration. Four of the top 20 Part B products are used to treat rheumatoid

arthritis. The top 20 also include one product for multiple sclerosis, one extremely high-cost product (spending greater than \$300,000 per patient per year) for rare autoimmune conditions, and one influenza

**TABLE  
4-4**

**Prices for certain biologics have declined due to biosimilar entry, after substantial price growth for these products during the preceding 10-year period**

	First biosimilar entry	Percent change in originator biologic's ASP		Biosimilars' payment rate as a percentage of originator biologic's payment rate (2022 Q1)	Biosimilar market share (2021 Q3)
		In 10 years before biosimilar entry	Since biosimilar entry (through 2022 Q1)		
Neupogen and biosimilars	2015 Q3	71%	-1%	31-46%	79%
Remicade and biosimilars	2016 Q4	54	-55	105-120%	19
Neulasta and biosimilars	2018 Q3	117	-54	111-148%	31
Procrit/Epogen and biosimilars	2018 Q4	35	-33	99%	54
Avastin and biosimilars	2019 Q3	42	-17	59-75%	56
Herceptin and biosimilars	2019 Q3	69	-19	55-71%	56
Rituxan and biosimilars	2019 Q4	68	-10	66-75%	43

Note: ASP (average sales price), Q (quarter). An originator biologic is a drug product derived from a living organism. A biosimilar product is a follow-on product that is approved by the Food and Drug Administration (FDA) based on the product being highly similar to the originator biologic. The biosimilars included in the analysis are Zarxio, Nivestym, and Granix for originator Neupogen; Inflectra, Renflexis, and Avsola for originator Remicade; Fulphila, Udenyca, Ziextenzo, and Nyvepria for originator Neulasta; Retacrit for originator Procrit/Epogen; Mvasi and Zirabev for originator Avastin; Ontuzant, Herzuma, Ogivri, Trazimera, and Kanjinti for originator Herceptin; and Truxima, Ruxience, and Riabni for originator Rituxan. Although Granix is not a biosimilar in the U.S. (because it was approved under the standard FDA approval process for new biologics), we include it here because it was approved as a biosimilar to Neupogen in Europe and it functions as a competitor to Neupogen in the U.S. market. "First biosimilar entry" date reflects the earliest market date for a product approved by the FDA as a biosimilar to the originator biologic.

Source: MedPAC analysis of Medicare ASP payment rate files publicly available on CMS website and Medicare claims data for physicians and outpatient hospitals.

vaccine product. The top 20 Part B drugs did not change between 2019 and 2020, although the ranking of some products within the top 20 shifted.<sup>13</sup>

The patterns of spending among the top 20 products illustrate the effect of high launch prices on Medicare spending. For example, two products—Keytruda and Opdivo—were approved in late 2014 and belong to a newer class of immune-oncology biologics. Spending on these products in 2020 was \$3.5 billion and \$1.6 billion, respectively, reflecting these products' substantial launch prices as well as additional price inflation after launch. In 2020, average annual Medicare spending per user for these products was about \$59,000 and \$62,000, respectively. Other recently launched cancer products in the top 20, such as Darzalex, Imfinzi, and Tecentriq, also had average annual spending per patient of about \$50,000 or more.

Price inflation among products that have been on the market for a longer period also contributes to spending growth. For example, Alimta, Cimzia, Darzalex, Orencia, Prolia/Xgeva, Rituxan, and Sandostatin LAR Depot have all experienced average ASP growth of between 3.8 percent and 6.0 percent per year between 2005 and 2022 (or since launch if after 2005) (Table 4-3, p. 97). Fluzone High-Dose, which is paid 95 percent of the average wholesale price, also experienced substantial price growth (7.6 percent per year on average over the analysis period).

Biosimilar entry has led to some price competition. Recently, some biologics, including several in the top 20 (Rituxan, Herceptin, Neulasta, Avastin, and Remicade), have faced biosimilar entry. Biosimilars have resulted in savings because originators have

generally lowered their prices in response to biosimilar competition and because biosimilar prices are in some cases substantially below innovators' prices (Table 4-4).<sup>14</sup> These price reductions, however, have come after many years of price growth for the originator biologics. Medicare's ASP + 6 percent payment rate for the 7 originator biologics that now face biosimilar competition increased substantially in the 10 years before biosimilar entry, with price growth ranging from 35 percent to 117 percent over that period (Table 4-4).

## Drug research and development

As we consider changes to Medicare's payment approach for Part B drugs, it is important to consider the implications for drug R&D and innovation.

The price that Medicare and other entities pay for drugs is one of many factors that influence manufacturer R&D investment. According to the Congressional Budget Office (CBO), manufacturer R&D investment is influenced by the expected lifetime global revenues a new drug would generate, the expected cost of developing the new drug, and any policies that affect supply or demand for the drug (Congressional Budget Office 2021b). Expected global revenues from new drug development depend on the prices and volume of sales that companies expect in different markets and the likelihood that drug development efforts will succeed (Congressional Budget Office 2021b). Several studies have found a positive relationship between market size, as measured by expected revenue or other related proxies, and R&D investment, such as the number of products undergoing clinical trials or the number of new products launched (Blume-Kohout and Sood 2013, Cerda 2007, Dubois et al. 2015). Because Medicare's payment rates for drugs contribute to expected global revenues, changes in how Medicare pays for drugs could have some influence on R&D spending, all else being equal.

Not only is the amount of R&D investment of interest, but also the type of products R&D is focused on. In response to the establishment of Medicare Part D, several studies found increased clinical trial activity among drugs intended to treat clinical conditions prevalent among Medicare beneficiaries (Blume-Kohout and Sood 2013, Dravone et al. 2020). However,

Dravone and colleagues found the increase in clinical trial activity was most pronounced among "less scientifically novel" products, whereas clinical trials for products that were in the most scientifically novel category (meaning the first use of a targeted base action) increased only modestly (Dravone et al. 2020).

R&D is influenced by many factors beyond Medicare policy, including regulatory policies related to drug approval, patents and intellectual property, and tax policy; payment policies of other payers within the U.S. and internationally; the cost of drug development, including capital availability and costs; and collaboration between pharmaceutical manufacturers and academic institutions (Congressional Budget Office 2021b). In addition, the federal government contributes to innovation both indirectly (through its substantial funding of basic science research) and directly (through its funding of drug development research for some products) (Galkina Cleary et al. 2018, Sampat and Lichtenberg 2011).

Some stakeholders raise concerns that policies aimed at reducing Medicare spending for drugs would reduce drug R&D and innovation. For example, Danzon and Ketcham argue that certain policies to reduce drug prices for on-patent innovator drugs reduce the manufacturer's ability to recoup the costs of R&D, which in turn negates the intent of patents and undermines the incentives for product improvement or innovation (Danzon and Ketcham 2004). CBO released a working paper discussing the agency's simulation model to analyze legislation that may affect drug development (Congressional Budget Office 2021a). CBO's model assumes that policies that reduce earnings for drug manufacturers would lead to some reduction in the number of new drugs developed; however, CBO explicitly makes no assumptions about the types of new drugs affected or the effect on health outcomes.<sup>15</sup>

Even if changes in payment policy influence the number of new drugs, it is possible that payment policy changes focused on a drug's net clinical benefit will drive R&D investment toward products that have potential for larger impacts on patient health and expected profitability. For example, Sachs and Frakt suggest that some drug payment policy changes,

including reference pricing, have the potential to shift the mix of innovation toward drugs that provide more value (Sachs and Frakt 2016). Under the current process, drug development typically focuses on a stand-alone assessment of the safety and efficacy of a product. In an environment that considers a drug's comparative clinical effectiveness, manufacturers would have an incentive to compare the efficacy of their product with other products in the clinical trials they sponsor to demonstrate the clinical benefit that their product offers over existing treatments.

To promote innovation, it could be argued that drug manufacturers should receive a reasonable return on investment for the development of new, innovative products. However, under current Medicare policy, drug manufacturers are largely able to set their own prices even when incremental benefits to Medicare beneficiaries are low or are not well established. Payment policy approaches such as comparative effectiveness analysis and reference pricing could be used to account for a drug's net clinical benefit and spur competition in the system.

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## **Addressing uncertain clinical benefit and high launch prices of first-in-class drugs**

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For costly new drugs that face limited or no competition, such as the first drug in a class, manufacturers have significant market power to set prices. Medicare lacks authority to consider a drug's net clinical benefit compared with the standard of care to set its payment rate. In essence, the program has no way of ensuring that Medicare's payments for new drugs covered under Part B do not exceed the products' incremental clinical benefits relative to existing treatments. In addition, certain first-in-class drugs are approved with uncertain clinical benefit.

One approach to address the lack of evidence and high launch price of certain "first-in-class" drugs would (1) collect evidence on the product's risks and benefits through CED and (2) set a cap on a drug's payment using information about the new product's clinical benefit compared with the standard of care.<sup>16</sup> We consider this approach specifically

for accelerated approval drugs because the FDA approves the products based only on surrogate or intermediate clinical endpoints. Several of the top 20 drugs have been approved through accelerated approval pathways for some indications, including Alimta, Avastin, Darzalex, Imfinzi, Keytruda, Opdivo, and Tecentriq. In some cases, the products have been converted to full approval after securing confirmatory evidence, while trials are still underway for specified indications for some of these products. In several cases, approvals for specified indications were withdrawn after trials failed to confirm clinical benefits for patients with that condition (Food and Drug Administration 2022). Examples of drugs that lost approval for specified indications include Avastin and Tecentriq for breast cancer, Keytruda for previously treated gastric cancer, Opdivo for hepatocellular carcinoma as a single agent, Keytruda and Opdivo for small cell lung cancer, and Imfinzi and Tecentriq for urothelial carcinoma in certain circumstances.

This dual approach would likely lead to:

- development of better clinical evidence after FDA approval and
- better alignment of payment with the known clinical benefit of the drug.

Moreover, this dual approach would "help implement the infrastructure necessary to generate complementary real-world evidence while limiting the financial risk of using products with uncertain benefit" (Lederer and Dusetzina 2021). The use of CED and a payment cap could evolve over time. Based on new clinical evidence that the drug manufacturer and other providers gather after FDA approval, Medicare could reevaluate the level of the application of CED and the payment rate. Doing so might also provide strong incentives for the completion of post-approval trials (Gyawali et al. 2021).

For first-in-class drugs with high launch prices and unclear clinical evidence, we envision that the Secretary would have discretion in applying a dual approach using CED and setting a cap on payment based on the new product's net clinical benefit. CMS already applies CED in the NCD process to services covered under Medicare Part A and Part B.<sup>17</sup> Applying

CED under this dual approach is not intended to affect the program's ongoing application of CED for other items and services.

The Congress would need to provide the Secretary with statutory authority to set a cap on a new drug's payment based on factors such as its net clinical benefit compared with the standard of care. On two occasions, Medicare tried to consider clinical benefit and/or cost in the coverage process when determining whether an item or a service was reasonable and necessary. In 1989, the agency issued a proposed regulation that explicitly considered the cost-effectiveness of services in the coverage process. In 2000, CMS released a notice of intent (NOI) on new criteria that would have considered cost in the coverage process only for services that provided equivalent clinical benefits compared with an existing covered service but were more costly. Neither the 1989 proposed rule nor the new criteria included in the NOI were finalized.

### **Need for more systematic use of CED in Medicare**

More systematic use of CED is an approach that could generate clinical evidence to cover products that lack evidence showing their clinical effectiveness in specific patient populations. Some items and services diffuse quickly into routine medical care with incomplete information about their clinical effectiveness. At the time of FDA approval, evidence on some new medical products may be incomplete, particularly for those drugs in which surrogate and intermediate endpoints were the basis of their approval under the accelerated approval pathway. CED is a policy that CMS has implemented in the NCD process. Using CED more systematically would help generate clinical effectiveness evidence to support coverage and use of products in certain patient populations. Under CED, beneficiaries have access to medical services while clinical evidence is being collected in prospective clinical studies and registries. The Commission supported CMS's use of CED for coverage of CAR-T products, a type of immunotherapy used to treat certain types of cancer, and Aduhelm, a treatment for Alzheimer's disease (Medicare Payment Advisory Commission 2022a, Medicare Payment Advisory Commission 2021).

Since 1995, Medicare has linked coverage to the collection of clinical evidence.<sup>18</sup> In making coverage decisions involving CED, CMS (as part of the NCD process) can decide, after a formal review of the medical literature, to cover a service only in the context of an approved prospective clinical study or when additional clinical data are collected to assess the appropriateness of an item or service for use with a particular beneficiary. In 2006, CMS formally adopted CED (issued in guidance). As of March 2022, 21 NCDs included a CED policy (Table 4-5, pp. 102-103), but few were related to drug therapies. The design of each CED effort has varied, depending on the service and circumstance leading to the CED policy. A CED cycle is considered "completed" when CMS completes a reconsideration of the coverage determination and removes the CED requirement as a condition of coverage. CMS has removed the CED requirement for the following services:

- implantable cardioverter defibrillators (CED released in 2005 and removed in 2018);
- fluorodeoxyglucose-positron emission tomography (FDG-PET) imaging for cancers (CED released in 2005 and removed in 2013);
- artificial hearts (CED released in 2008 and removed in 2020);
- MRI for beneficiaries with implanted cardiac devices (CED applied in 2011 and removed in 2018); and
- home use of oxygen to treat cluster headaches (CED released in 2011 and removed in 2021).

The benefits of applying CED include improving postmarket evidence development and providing important new knowledge for care decisions and clearer understanding for patients, providers, and payers regarding the risks and benefits of a new intervention. CED could help support, and be reinforced by, other efforts to improve the postmarket data infrastructure (McClellan 2012). CED, along with other postmarketing surveillance efforts implemented by the manufacturer, could be used by Medicare to establish a payment rate. For example, Medicare payment could be lowered if the product does not demonstrate that it is better than an existing standard of care (Pearson and Bach 2010).

**TABLE  
4-5****Medicare's ongoing coverage with evidence development studies**

<b>CED</b>	<b>Year CED released</b>	<b>Study type and CMS approval year</b>	<b>Sponsor</b>
Allogeneic hematopoietic stem cell transplant for myelodysplastic syndromes	2010	Clinical trials approved by CMS, 2010, 2013	Medical College of Wisconsin, Center for International Blood and Marrow Transplant Research
Allogeneic hematopoietic stem cell transplant for multiple myeloma	2016	Clinical trial approved by CMS, 2017	Center for International Blood and Marrow Transplant Research
Allogeneic hematopoietic stem cell transplant for myelofibrosis	2016	Clinical trial approved by CMS, 2016	Medical College of Wisconsin
Allogeneic hematopoietic stem cell transplant for sickle cell disease	2016	Clinical trials approved by CMS, 2016–2017	Medical College of Wisconsin
Autologous platelet-rich plasma	2012	Clinical trials, Medicare claims analysis approved by CMS, 2013–2019	Reaplix, RegenLab SA, ACR Biologics LLC, and others
Beta amyloid PET in dementia and neurodegenerative disease	2013	Clinical trials approved by CMS, 2014–2020	American College of Radiology, University of Utah, NIA
Cochlear implantation	2005	Clinical trial approved by CMS, 2013–2018	MED-EL Corporation, Washington University School of Medicine, Advanced Bionics, and others
Continuous positive airway pressure for obstructive sleep apnea	2008	No clinical trial is listed on CMS's website	—
Extracorporeal photopheresis for bronchiolitis obliterans syndrome following lung transplant	2012	Clinical trial approved by CMS, 2014	Washington University School of Medicine
FDG–PET and other neuroimaging devices for dementia	2004	Clinical trial approved by CMS, 2006	University of California, Los Angeles
Home oxygen for chronic obstructive pulmonary disease	2006	Clinical trial approved by CMS, 2006	NHLBI

**Implementation issues**

The Commission contends that CED can generate useful clinical evidence at the same time as patients are provided access to a service and that Medicare can use this evidence to refine its coverage policies (Medicare Payment Advisory Commission 2021, Medicare Payment Advisory Commission 2020, Medicare Payment Advisory Commission 2010). However, CMS lacks a

well-defined, consistent approach to (1) designing CED studies, (2) developing methods, and (3) setting a time line to reevaluate Medicare's payment for the service under study (Medicare Payment Advisory Commission 2010).

Ensuring that the CED process is clear, transparent, and predictable and includes a process for public input is

**TABLE  
4-5****Medicare's ongoing coverage with evidence development studies (cont.)**

<b>CED</b>	<b>Year CED released</b>	<b>Study type and CMS approval year</b>	<b>Sponsor</b>
Leadless pacemakers	2017	Clinical trials approved by CMS, 2017	Abbott Medical Devices, Medtronic
NaF-18 PET for bone metastasis	2010	Registry approved by CMS, 2010	American College of Radiology
Off-label use of colorectal cancer drugs	2005	Clinical trials approved by CMS, 2005–2006	NCI, Alliance for Clinical Trials in Oncology, Eastern Cooperative Oncology Group, and others
Percutaneous image-guided lumbar decompression for lumbar spinal stenosis	2014	Clinical trials, Medicare claims analysis approved by CMS, 2014, 2017	Vertos Medical, VertiFlex Inc.
Percutaneous left atrial appendage closure	2016	Clinical trials, registry approved by CMS, 2016–2022	Boston Scientific, American College of Cardiology
Pharmacogenomic testing for warfarin response	2009	Clinical trials approved by CMS, 2009–2010	Washington University School of Medicine, Iverson Genetic Diagnostics Inc.
Transcutaneous electrical nerve stimulation for chronic low back pain	2012	No clinical study has been approved by CMS	—
Transcatheter aortic valve replacement	2012	Registry, clinical trials approved by CMS, 2012–2022	Society of Thoracic Surgeons, Edwards Lifesciences, Medtronic, and others
Transcatheter edge-to-edge repair	2014	Registry, clinical trials approved by CMS, 2014–2022	American College of Cardiology, Cardiothoracic Surgical Trials Network, Abbott, and others
Vagus nerve stimulation for treatment-resistant depression	2019	Clinical trial approved by CMS, 2019	LivaNova

Note: CED (coverage with evidence development), PET (positron emission tomography), FDG-PET (fluorodeoxyglucose-PET), NIA (National Institute on Aging), NHLBI (National Heart, Lung, and Blood Institute), NaF (sodium fluoride), NCI (National Cancer Institute).

Source: MedPAC analysis of CMS's Medicare coverage database.

key. Currently, when CMS decides to develop a national coverage policy (with or without a CED policy), the agency provides public notice and seeks input from the public and clinical evidence from manufacturers and physicians. For example, after CMS posts proposed NCDs, stakeholders may submit written comments to the agency. CMS responds to these comments in its final NCDs, which are published on the agency's website.

Some researchers argue that clearer statutory authority might enable Medicare to develop a more systematic approach in applying CED (Daniel et al. 2013, Mohr and Tunis 2010). Medicare's statutory justification to apply CED has shifted over time. The agency's early CED decisions were made under the Secretary's authority to cover items and services that

are “reasonable and necessary” (in Section 1862(a)(1)(A) of the statute). NCDs issued since 2006 rely on the Secretary’s authority under the statute’s Section 1862(a)(1)(E), which allows Medicare payment for services determined by the Agency for Healthcare Research and Quality (AHRQ) to reflect the research needs and priorities of the Medicare program.<sup>19,20</sup> When CED under this section is required, it is because there are outstanding questions about the service’s health benefit in the Medicare population. As such, the service is covered only in the context of a study that requires patient monitoring, data collection, and an open presentation of results. When CED under Section 1862(a)(1)(A) is required, it is because additional clinical information is needed to ensure the appropriate use of the service in the Medicare population to facilitate accurate claims processing and payment (Centers for Medicare & Medicaid Services 2014). Mohr and Tunis argue that the agency’s lack of clear statutory authority has affected the research questions and study design of the CED effort, the clinical evidence that was collected, and Medicare’s ability to develop a proactive mechanism to identify potential CED topics (Mohr and Tunis 2010).<sup>21</sup>

Stakeholders have raised other issues about the implementation of CED, including:

- **Developing a process to identify potential candidates for CED.** Currently, Medicare lacks a process to actively identify and determine which medical services—new services or new indications of existing services—would be suitable candidates for CED. CED generally has been applied on a case-by-case basis within the time frame of an NCD (McClellan 2012, Tunis et al. 2011). Some health plans in the U.S. have developed such a capability (Institute of Medicine 2008). Such a process might include criteria (e.g., disease prevalence, mortality, morbidity, practice variation, information gaps, estimated benefits and risks over existing therapies, and duplication with existing research efforts) for evaluating whether a service is a candidate for CED. A more proactive process with predictable priorities and implementation might lead to a more efficient CED process (McClellan 2012).
- **Designing CED studies.** Some observers have raised concerns about whether CMS has sufficient time to consider applying CEDs. The agency deliberates on CEDs in the NCD process under

the following deadlines the Congress established: (1) six months to issue an initial draft of an NCD that does not require a technology assessment or deliberation from the Medicare Evidence Development and Coverage Advisory Committee and (2) nine months for an NCD that requires such an assessment or deliberation. At issue is whether CMS is able to develop well-considered methods for CED implementation within this time frame. Researchers have also suggested that CMS should provide periodic evaluation and updates of ongoing CED studies.

- **Establishing a time frame to reconsider CED.** CMS lacks a specific time frame as to when it will reevaluate Medicare’s coverage for a service studied under CED. There have been five instances to date in which CMS removed a service’s CED. The concern is that without time lines, the goal of CED—to evaluate the clinical effectiveness of a service—may not be achieved. That is, a service whose clinical effectiveness is not well established could be covered under a CED indefinitely.
- **Funding CED efforts.** In some, but not all, instances, the lack of a designated funding source to pay for the research costs of CED studies has delayed the start of the data collection effort. Medicare pays for the cost of services being studied under CED. However, Medicare generally does not fund clinical research and data collection activities. The lack of Medicare funding means that other public sources, such as the National Institutes of Health, or private sources, such as medical societies, providers, and product developers, are needed to cover a CED’s research costs (Tunis et al. 2011). Some analysts have called for a more systematic and dedicated approach to fund CED (primarily focused on the administrative costs of conducting a CED study) that would ease its implementation, while some observers have suggested that CED applications should build on existing/emerging registries and data collection networks and partner with other organizations, including relevant regulatory bodies and private payers.

Finally, a key challenge is that CED is likely to face pushback from multiple stakeholders, including clinical and patient communities as well as product manufacturers. Recent proposed CED policies for

CAR-T products exemplify concerns from stakeholders related to patient access, higher administrative burden, and duplication of or competition with FDA review and approval.

In 2019, CMS proposed to apply CED in its NCD for CAR-T products, which, based on publicly available payment rate information under the OPPS in effect as of January 2022, are paid roughly \$400,000 to \$450,000 per treatment. The proposed CED policy would have covered the products when they were furnished in a CMS-approved registry or clinical study, in which patients would be monitored for at least two years post-treatment. CMS anticipated that the clinical evidence obtained from the CED would help the program identify the types of patients who benefit from CAR-T therapy (Centers for Medicare & Medicaid Services 2019a). However, stakeholders raised concerns about the additional administrative burden of CED and potential patient access issues (American Society of Gene & Cell Therapies 2019, Twachtman 2019).<sup>22</sup> When CMS finalized its NCD for CAR-T therapies, the agency did not implement the CED policy (Centers for Medicare & Medicaid Services 2019b).

Since CMS issued the final NCD for CAR-T products (without invoking CED), some clinicians have noted that limited clinical information exists regarding the products' adverse effects. For example, according to Gupta and colleagues, "extremely limited information exists regarding adverse kidney manifestations or electrolyte disorders in patients receiving CAR-T therapy, with existing data derived from clinical trials rather than real-world practice and mostly limited to the pediatric population with acute lymphoblastic leukemia" (Gupta et al. 2020b). The completion date of the final reports of the postapproval trials that the FDA is requiring of each manufacturer of a CAR-T product is more than 15 years in the future (in 2037 and beyond).

### **Setting a cap on the payment for Part B drugs**

For costly new drugs that face limited competition, such as the first drug in a class, manufacturers have significant market power to set prices, and payers—including Medicare—currently have very limited ability to influence those prices. Under Section 1847A of the Social Security Act (which established the ASP-based system for Part B drugs), FFS Medicare lacks the

authority to use tools to pay for Part B drugs in a way that balances a drug's net clinical benefit with both an appropriate reward for innovation and affordability for beneficiaries and taxpayers. Consequently, Medicare's Part B payment rate for a drug may have little relationship to a drug's clinical effectiveness compared with other available treatments. Under the Part B ASP-based payment system, the program is a price taker, and a drug manufacturer with a new product with limited competition effectively sets its own Medicare payment rate. Linking information about the net clinical benefit of health care services to FFS payment policies has the potential to improve Medicare payment policies (Medicare Payment Advisory Commission 2007). Medicare rarely uses such information to set payment rates.<sup>23</sup>

There are different policy options to address high launch prices of first-in-class drugs with unclear clinical benefit. In the Commission's 2019 report to the Congress, we discussed a policy that would permit the Secretary to enter into binding arbitration with drug manufacturers for costly new Part B drugs that have limited competition, such as the first drug in a class or a product that offers added clinical benefit over existing treatments (Medicare Payment Advisory Commission 2019). In this chapter, we discuss an approach to set a cap on the payment rate of select first-in-class drugs that have unproven clinical benefit using information about products' net clinical benefit and cost-effectiveness. Such an approach would address instances in which the manufacturer sets a high price for a new product with little or no evidence that it is more effective than existing standards of care.

Comparative clinical effectiveness of two or more treatment options for the same condition serves as the foundation for cost-effectiveness analysis (CEA). For most items and services, including most pharmaceuticals, Medicare lacks statutory authority to consider evidence on cost-effectiveness in either the coverage or payment processes.<sup>24</sup> CEA compares the incremental cost in dollars of one intervention with another in creating one unit of health outcome. It has been used to assess a wide range of interventions, including vaccination against pneumococcal pneumonia, bypass surgery for coronary artery disease, and diabetes prevention programs. The results of CEAs are typically summarized in a series

of incremental cost-effectiveness ratios that show, for one intervention compared with another, the cost of achieving an additional unit of health (outcome). To estimate expected health effects and costs, CEAs require data on each treatment's clinical effectiveness (including comparative clinical effectiveness evidence, if available), health outcomes, and health care resource use and costs.

CEAs measure the effect (outcome) of a medical intervention in terms of the quantity of health gained. Some CEAs express health benefits in terms of outcomes specific to the treatment and disease under investigation, such as the number of cancer cases prevented or the number of cancer-related hospital admissions prevented. Alternatively, other CEAs express health benefits in terms of the number of years of life gained. Under this approach, an added month of life with disability or pain is valued the same as an added month without disability or pain.

A related outcome measure—quality-adjusted life years (QALYs)—accounts for gains in both the quantity and quality of health gained, is widely used in economic evaluations, and has been endorsed by several CEA research panels (Gold et al. 1996, Neumann et al. 2017). However, there is debate among researchers and stakeholders about their use, centering on the methods used to develop QALYs as well as concerns that QALYs may be biased against certain populations, including the elderly and the disabled (Drummond et al. 2015, Gold et al. 1996). The Affordable Care Act of 2010 prohibits the Secretary from using QALYs (or similar measures) as a threshold to determine Medicare coverage or reimbursement.<sup>25</sup>

Pharmaceutical manufacturers are common sponsors of cost-effectiveness studies (published in peer-reviewed literature). For example, in a review of CEAs published between 1991 and 2012 that examined breast cancer drugs, 62 percent (65 of 105 studies) were sponsored by pharmaceutical manufacturers (Lane et al. 2016). An earlier analysis found that nearly half of the cost-effectiveness studies published between 1988 and 1998 on cancer drugs (20 of 44 studies) were sponsored by pharmaceutical manufacturers (Friedberg et al. 1999).

Reports in the lay press suggest an increasing interest in examining information on the comparative clinical

effectiveness and cost-effectiveness of medical interventions (Cohen 2019). In particular, pharmacy benefit managers, insurers, and government agencies show increasing interest in using reports by ICER on products' comparative clinical and cost-effectiveness in negotiating pricing and preferred formulary placements with manufacturers (Berkrot 2017).<sup>26</sup> Medicare organizations that take on financial risk, including Medicare Advantage (MA) plans and accountable care organizations, have flexibility in using cost-effectiveness in the design of their medical and pharmacy management programs.

### Implementation issues

There are several implementation issues to consider in setting a cap on a new drug's Part B payment rate based on its net clinical benefit. Medicare would need to develop a clear and predictable decision-making framework that ensures transparency and opportunities for public input. A key issue is which entity should sponsor CEAs—manufacturers, Medicare, or both, or Medicare with other public payers and private groups (e.g., academia).

Medicare would also need to consider the methods for conducting cost-effectiveness analyses and the procedures for evaluating evidence on cost-effectiveness.<sup>27</sup> Methodological issues that the program would need to consider when designing such a process include:

- **The selection of comparator treatments.** Omission of relevant comparators can produce misleading results. For example, researchers may overestimate the cost-effectiveness of an intervention (and underestimate its incremental cost-effectiveness ratio) because an intervention has not been compared with more cost-effective alternatives that are available (Drummond et al. 2015). According to Bach, “Highly expensive but poorly effective treatments look good when they are marginally superior on either dimension (i.e., slightly less expensive or slightly more effective) to the treatment they are replacing. The picture can be quite different when you compare new treatments with a lower-cost alternative” (Bach 2015). For example, the absence of active surveillance for treating localized prostate cancer would alter the comparative clinical effectiveness

and cost-effectiveness of the other treatment options (e.g., radiation therapy, surgery, hormone therapy).

- **The method of defining costs.** Costs include direct medical (e.g., cost of medical services to payers and patients), direct nonmedical (e.g., transportation costs), and non-health care costs (also referred to as indirect costs). For example, lost productivity (an indirect cost) measures monetary effects associated with impaired ability to work or engage in leisure activities and lost economic productivity due to death.
- **The prices of comparator drugs.** The assignment of prices or costs to pharmaceuticals (as well as other medical services) to which the product being evaluated is compared will affect the results and conclusions that are derived from CEAs. For example, under a payer (health system) perspective, some researchers use as price estimates for comparator products, when available, ASP or other price estimates that are net of discounts, rebates, and other price concessions as the base-case input for prices.<sup>28</sup> However, if comparator products are priced high relative to their net clinical benefit, those high prices will carry through into the price determination of the new product.
- **The perspective of the analysis.** A cost-effectiveness analysis from a societal perspective includes everyone who is affected by the service, all health outcomes and costs borne by insurers and patients, other medical costs, and nonmedical costs. By contrast, a cost-effectiveness analysis from a health care purchaser's viewpoint would include only those outcomes and costs that affect the purchaser.
- **The time horizon.** Researchers must choose the period of time to measure a service's costs and outcomes. The time horizon of the analysis should extend far enough into the future to capture important health effects, and the choice of a time horizon should not bias the analysis in favor of one intervention over another (Drummond et al. 2015). Analyses with a societal perspective often follow patients over their lifetime, while analyses with a health care purchaser's perspective typically use a shorter time period (e.g., five years).

- **The discounting of costs and outcomes.** When the time horizon of the analysis extends into the future, researchers often convert future costs and future health outcomes to present value. In doing so, researchers adjust the cost-effectiveness ratios for the different timing of cost and outcomes.

### **An illustrative example of applying CED and setting a cap to cover and pay for a new drug: Aduhelm**

The newly approved Alzheimer's biologic Aduhelm exemplifies the challenges the Medicare program faces with coverage and payment for new drugs.

First, the first-in-class product was approved by the FDA under the accelerated approval pathway with limited, conflicting data on its clinical effectiveness, using surrogate endpoints. Available evidence has not yet tied reductions in brain plaque to improved cognitive outcomes. The FDA is requiring the manufacturer (Biogen) to conduct a new randomized, controlled clinical trial to verify the drug's clinical benefit within a nine-year time frame (Food and Drug Administration 2021). If the trial does not confirm the product's benefit, the FDA can withdraw approval.

Second, the spending implications of the product could be very large if there is significant uptake of Aduhelm. Biogen initially set the price for a one-year supply at \$56,000 but later reduced the price to \$28,200 to increase uptake (Biogen 2021b). An estimated 6.2 million adults ages 65 and older have Alzheimer's dementia, but it is unclear what share is likely to receive the product (Alzheimer's Association 2021). When launching the product, Biogen stated that although the product is appropriate for up to 2 million individuals, the company expected uptake to be gradual and not all patients will receive the product (Biogen 2021a). In December 2021, Biogen projected that 50,000 patients would begin treatment in 2022 (Biogen 2021b). At the current price of \$28,200 for a year of maintenance therapy, Medicare Part B spending and beneficiary cost sharing could total \$1.5 billion if 50,000 FFS beneficiaries receive the product and \$15 billion if 500,000 receive it. Thus, with substantial uptake, spending for Aduhelm has the potential to swamp current Part B drug spending, which totaled \$40.7 billion in 2020.

In addition, use of Aduhelm would likely increase use of and Medicare spending for magnetic resonance

imaging (which the FDA has stated should be done at certain intervals to monitor for brain swelling) and potentially positron emission tomography (PET) scans (which Medicare currently covers under an NCD to diagnose Alzheimer's disease in limited circumstances). Higher spending on Aduhelm and related services has implications for Medicare Part B premiums and deductibles and Medigap premiums for beneficiaries with supplemental coverage and could have substantial spending implications for MA plans, which generally must cover Part A and Part B services covered by traditional FFS Medicare (including following NCDs and, in some cases, LCDs). One of the factors contributing to the increase in the Part B monthly premium for 2022 was the need to create contingency reserves due to uncertainty over the potential use of Aduhelm.<sup>29</sup>

Thus, Aduhelm is an example of a first-in-class drug approved with limited and conflicting clinical evidence, under which the dual approach could be beneficial: (1) Issue a national coverage determination to implement CED, enabling the Medicare program to collect evidence about the product's use among Medicare beneficiaries, and (2) set a cap on the drug's payment rate based on an analysis of its net clinical benefit in relation to the standard of care.

In January 2022, CMS proposed an NCD to apply CED for monoclonal antibodies that target amyloid (anti-amyloid mAb), including Aduhelm, for the treatment of Alzheimer's disease. In its proposal, the agency noted that although there was insufficient evidence that this therapeutic class is reasonable and necessary for the treatment of Alzheimer's disease, the condition is a particularly important disease that affects many beneficiaries, and "the CED paradigm provides the most appropriate pathway to provide Medicare coverage while additional evidence is developed" (Centers for Medicare & Medicaid Services 2022a).<sup>30</sup> In April 2022, CMS finalized its NCD policy that applies CED to the use of anti-amyloid mAb products. For Aduhelm and other drugs in this therapeutic class that the FDA approves under its accelerated approval pathway (based on a surrogate outcome), coverage is linked to participation in FDA-approved randomized controlled clinical trials (RCTs) or trials supported by the National Institutes of Health (Centers for Medicare & Medicaid Services 2022b).<sup>31</sup>

By contrast, for anti-amyloid mAb products that the FDA approves under its traditional pathway (based on a direct measure of clinical benefit), coverage is linked to participation in CMS-approved prospective comparative studies.<sup>32</sup>

The agency lacks statutory authority to set a cap on a Part B drug's payment rate based on its net clinical benefit. With respect to Aduhelm, ICER used comparative clinical effectiveness and cost-effectiveness analysis to estimate that, for the product to reflect its clinical benefit, a fair annual price would lie between \$2,500 and \$8,300. ICER's report also stated, "Even in our most optimistic cost-effectiveness scenario—which ignores the contradictions within the two pivotal trials and presumes that only the positive trial captures the true benefits of treatment—[Aduhelm's] health gains would support an annual price between \$11,100 to \$23,100" (Institute for Clinical and Economic Review 2021a).

Given these pricing estimates from ICER, if the product's annual payment rate under Part B was capped at \$8,300, annual spending for beneficiaries and the Medicare program would decline by roughly 70 percent. If the product's annual payment was capped at \$23,100, annual spending would decline by roughly 20 percent.

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## Promoting price competition among drugs with therapeutic alternatives

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One approach to improve the existing ASP payment system for drugs with therapeutic alternatives uses reference pricing or consolidated billing codes to spur price competition among drugs with similar health effects. The current ASP payment system maximizes price competition among generic drugs and their associated brand products by assigning these products to a single billing code, which we call a consolidated billing code. For example, after the launch of generic zoledronic acid, the ASP for the branded product and generics assigned to the same billing code declined by roughly 55 percent within four quarters. By contrast, products that are assigned to their own billing code and paid according to their ASP—single-source drugs, originator biologics, and biosimilars—do not face the same incentives for price competition. In addition, the 6 percent add-on to ASP can create incentives for

some providers to choose higher-priced products over lower-priced products (Dusetzina and Mello 2021).

Thus, the current system does not always spur competition among originator biologics and their biosimilars. Since the availability of biosimilars, the ASP for some originator biologics has declined (Table 4-4, p. 98). Others, however, do not face much price competition. For example, the originator biologic Rituxan has faced biosimilar competition since the fourth quarter of 2019 but has reduced its price, as measured by ASP, by only 10 percent. As of the first quarter of 2022, the payment rates for Rituxan's biosimilars were 25 percent to 34 percent lower than the originator's payment rate. Biosimilars accounted for 43 percent of the market share as of the third quarter of 2021. Addressing the issue of price competition, in 2017 the Commission recommended that the Congress establish consolidated billing codes to pay for an originator biologic and its biosimilars (Medicare Payment Advisory Commission 2017).

In addition, the current system does not spur competition among therapeutically similar single-source drugs and biologics. Table 4-6 (pp. 112–113) presents examples of groups of drugs with similar health effects; each group includes the top three drugs as measured by Medicare spending in 2020. Two or more brand-name products in the same class paid under separate billing codes do not always compete much on price. Several of the top 20 Part B products ranked by expenditures have ASPs that have either remained the same or increased over more than a decade (Table 4-3, p. 97). For example, the ASP for Cimzia has increased on average by 4.4 percent per year since 2010, and the ASP for Orencia has increased by 6.0 percent per year since 2007, despite the availability of other targeted immune modulators for the treatment of rheumatoid arthritis.

Indeed, research suggests that in many therapeutic classes, approval of a new brand-name drug or biologic leads to higher list prices, not just for the new product but also for the existing products. For example:

- Hartung and colleagues reported that, between 1993 and 2013, the cost of first-generation disease-modifying therapies for treating multiple sclerosis increased many times more than overall prescription drug inflation. The authors concluded that the cost growth may have been a response

to the introduction of competing treatments with higher prices (Hartung et al. 2015).<sup>33</sup>

- Gordon and colleagues found that, between 2005 and 2017, the mean cumulative price increase of 24 Part B anticancer drugs was 36.5 percent. Using multivariate regression, the authors reported that new supplemental FDA approvals, new off-label indications, and new competitors did not influence rates of changes in each drug's ASP (Gordon et al. 2018).<sup>34</sup>
- A systematic review of 10 original studies on competition among branded drugs found no evidence of a price-lowering effect of new drug entry on intraclass brand-name products (Sarpawari et al. 2019).
- Hernandez and colleagues reported that the annual mean change in the net prices (measured using data from SSR Health) of drugs (available in January 2007) in six therapeutic classes increased by 4.5 percent between 2007 and 2018.<sup>35</sup> When the authors included drugs that entered the market after 2007, the estimates for net price increases rose (Hernandez et al. 2020).

One reason some new drugs that are not first in class have not experienced price competition could be that lowering prices has not historically resulted in selling more units of a drug. Instead, some manufacturers with lower market share in a given therapeutic class have raised their drug's price to make up for lost market share. Drugs in the class with larger market shares can, in turn, follow with price hikes (Herper 2020). According to San-Juan-Rodriguez and colleagues, the rising prices for existing products could reflect manufacturers' opportunism in response to new, higher-priced agents (San-Juan-Rodriguez et al. 2019).

To address too little competition among FFS Part B products with therapeutic alternatives, policymakers could consider reference pricing or consolidated billing codes, approaches that set a single reference price for products with similar health effects that are currently assigned to their own billing codes. Both approaches are tools that payers outside of Medicare already use. Compared with other drug management strategies (e.g., formularies), reference pricing does not restrict the selection of drugs within a given therapeutic class. By contrast, MA plans have several

mechanisms to promote more efficient prescribing of Part B drugs, through use of prior authorization and contracting arrangements that direct enrollees to more efficient sites of care. Anderson and colleagues noted that in four clinical scenarios where similarly or equally effective Part B drugs exist and are substantially different in terms of cost, older adults receiving treatment for the given condition with MA coverage more often received the low-cost drug alternative compared with older adults with FFS coverage (Anderson et al. 2021).

In the past, Medicare used reference pricing policies to pay for Part B drugs, but it does not do so currently. Between 1995 and 2010, Medicare implemented two reference pricing policies—referred to as the least costly alternative (LCA) and functional equivalence policies—to pay for groups of drugs with similar health effects (prostate cancer drugs and antianemia biologics). Since 2010, because of judicial rulings and statutory changes, Medicare Part B no longer uses either reference pricing policy and pays for each drug according to its own ASP. Because the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) requires that biologics and single-source drugs (without generic competition) be paid based on their ASP and not averaged with other products' ASPs, a change in the statute would be necessary. Consequently, the Secretary would require statutory authority to apply either reference pricing or consolidated billing policies to groups of drugs with similar health effects. (A detailed description of Medicare's prior application of reference pricing approaches can be found online at [https://www.medpac.gov/wp-content/uploads/import\\_data/scrape\\_files/docs/default-source/reports/jun18\\_ch10\\_medpacreport\\_sec.pdf](https://www.medpac.gov/wp-content/uploads/import_data/scrape_files/docs/default-source/reports/jun18_ch10_medpacreport_sec.pdf).)

Some researchers have called for applying reference pricing to Part B drugs. Tunis and colleagues called for the Congress to restore and expand Medicare's authority to apply reference pricing (under an LCA policy) to products that are similar in their biological or physical characteristics and achieve comparable clinical outcomes (Tunis et al. 2011). Pearson and Bach proposed a “dynamic pricing model” to encourage Medicare to pay equally for services that provide comparable patient outcomes (Pearson and Bach 2010). Under their approach, only services with superior effectiveness would be paid based on a drug's own

ASP, while the remainder would be paid based on reference pricing.<sup>36</sup> To improve competition, Conti and colleagues called for Medicare not to pay the additional costs associated with a more expensive drug when a clinically similar, lower-priced drug is available (Conti et al. 2021).

### **Establishing a single reference price for products with similar health effects**

Under Part B, reference pricing policies could take the form of assigning products with similar health effects to the same billing code—a consolidated billing code. Alternatively, Medicare could establish a single reference price for products with similar health effects that are assigned to their own billing codes—reference pricing. Under both approaches, the payer sets a single payment rate. The reference price can be based on the average, median, or volume-weighted average of the prices of all the products in the reference group. When the reference price is based on the least costly product of all the products in the group, the reference pricing policy is referred to as the LCA policy. Reference pricing might offer more administrative flexibility in, for example, defining groups of products that are clinically similar and in addressing medical exceptions.

The Commission has held that Medicare should pay similar rates for similar care. As such, this principle might warrant that Medicare Part B use reference pricing when paying for drug products with similar health effects. Table 4-6 (pp. 112–113) presents examples of groups of competing products, with each product paid under a separate billing code based on its separate ASP. We derived these groups from approaches that group therapeutically similar branded drugs implemented by Medicare or commercial payer policies or suggested by CBO, the Office of Inspector General (OIG), and other researchers. The pricing behavior exhibited by some manufacturers—in which ASPs for some of the products did not substantially decline between 2005 and 2022—suggests there is room for greater price competition among these products. In 2020, Medicare spending for all the products in the therapeutic groups included in Table 4-6 totaled roughly \$10 billion (data not shown).

Not included in Table 4-6 (pp. 112–113) are other groups of drugs that would be subject to the Commission's 2017 consolidated billing code recommendation, a reference pricing policy that sets a single payment rate

for an originator biologic and its biosimilars, including (1) long-acting leukocyte growth factor Neulasta and its biosimilars Fulphila, Ziextenzo, Nyvepria, and Udenyca; (2) short-acting erythropoietin-stimulating agent Epogen and its biosimilar Retacrit; (3) Herceptin and its biosimilars Kanjinti, Trazimera, Ontruzant, Herzuma, and Ogivri; and (4) Remicade and its biosimilars Inflectra, Renflexis, and Avsola.

Potentially, reference pricing could be applied to other Part B drugs, including:

- Part B drugs approved under the FDA's 505(b)(2) pathway (e.g., the chemotherapy agents Treanda, Bendeka, and Belrapzo/bendamustine). A 505(b)(2) application is a type of new drug application (NDA) that contains full reports of investigations of safety and effectiveness, in which at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. In some cases, drugs approved under Section 505(b)(2) share significant portions of labeling with generic drugs that are paid as multiple-source drugs under Section 1847A of the Social Security Act. The 505(b)(2) pathway is a hybrid between the generic approval process (under 505(b)(j)) and a full NDA under 505(b)(1). According to Freije and colleagues, most 505(b)(2) applications consist of changes to a previously approved drug product (e.g., a new dosage form or new route of administration) (Freije et al. 2020).
- The six CAR-T therapies, as their outpatient use becomes more common over time. When furnished in an inpatient setting (the setting in which most beneficiaries currently receive treatment), these products are paid for under a single diagnosis related group. By contrast, when they are furnished on an outpatient basis, they are paid according to each product's ASP.

### **Reference pricing would likely reduce Part B spending for drugs**

Under reference pricing policies for Part B drugs, manufacturers would have incentive to lower their prices relative to competitors to make their products more attractive to providers and garner market share. Federal government agencies have estimated that

applying reference pricing policies to Part B drugs would result in savings for beneficiaries and taxpayers:

- OIG estimated that by using an LCA policy in 2008 and 2009 to pay for drugs that treat wet age-related macular degeneration (Avastin and Lucentis), beneficiaries would have saved \$275 million and Medicare would have saved \$1.1 billion (Office of Inspector General 2011). Conversely, OIG calculated that if Medicare reimbursement for all beneficiaries treated with Avastin or Lucentis for wet age-related macular degeneration had been paid at the Lucentis rate, Part B spending would have increased by approximately \$1.5 billion and beneficiaries would have paid approximately \$370 million more in copayments.
- CBO projected that if Medicare had used an LCA policy between 2010 and 2019 for drugs that treat osteoarthritis of the knee, the program would have saved almost \$500 million (Congressional Budget Office 2008).
- OIG has twice recommended that the Secretary apply LCA policies to prostate cancer drugs. In 2004, OIG reported that not all carriers included one of the prostate cancer drugs (leuprolide acetate) in their LCA policy and recommended that CMS encourage all Medicare contractors to include this product when applying LCA policies to this drug group. OIG estimated that if implemented, Medicare and beneficiaries would have saved \$40 million per year (Office of Inspector General 2004). In 2012, OIG reported that after LCA policies were removed for a group of drugs that treat prostate cancer, utilization patterns shifted dramatically in favor of costlier products, and the agency concluded that spending for these products was higher in the absence of LCA policies (Office of Inspector General 2012).<sup>37</sup> OIG estimated one-year savings of nearly \$7 million for beneficiaries and nearly \$27 million for Medicare if an LCA policy was used to pay for these prostate cancer drugs (Office of Inspector General 2012). Neither study addressed the effect of the LCA policies on beneficiaries' use of other medical services.

Researchers have also estimated significant savings from reference pricing:

- Dickson and colleagues estimated Medicare savings of \$7 billion for setting a "domestic reference

**TABLE  
4-6**

**Medicare spending for products with similar health effects varies**

	Average annual spending per beneficiary, 2020	Average annual ASP growth 2005–2022	First year of pricing data if not 2005
<b>Anti-vascular endothelial growth factors: Biologics that treat wet age-related macular degeneration and other eye disorders</b>			
Eylea (aflibercept)	\$10,241	–0.8%	2013
Lucentis (ranibizumab)	\$8,867	–2.0	2008
Beovu (brolucizumab)	\$6,132	–0.9	2020
Avastin (bevacizumab) <sup>a</sup>	\$306	1.0	
<b>Targeted immune modulators: Biologics that treat rheumatoid arthritis</b>			
Orencia (abatacept)	\$33,904	6.0%	2007
Rituxan (rituximab)	\$24,769	4.0	
Cimzia (certolizumab pegol)	\$24,728	4.4	2010
<b>Short-acting leukocyte growth factors: Biologics that stimulate proliferation and differentiation of normal white blood cells<sup>b</sup></b>			
Neupogen (filgrastim originator)	\$2,356	3.0%	
Zarxio (filgrastim-sndz)	\$1,475	–17.5	2016
Granix (tbo-filgrastim)	\$1,134	–7.7	2015
<b>Immune globulins: Products that treat primary humoral immunodeficiency and other selected conditions</b>			
Gamunex-c/Gammaked	\$26,823	2.5%	2008
Gammagard liquid injection	\$22,098	2.8	2008
Privigen	\$23,303	2.1	2009
<b>Luteinizing hormone–releasing hormone agonists for prostate cancer: Products that treat prostate cancer</b>			
Lupron/Eligard (leuprolide acetate suspension) <sup>c</sup>	\$1,631	–1.4%	
Trelstar (triptorelin pamoate)	\$1,805	3.7	
Firmagon (degarelix)	\$1,311	2.9	2010

price” for new drugs based on the payment rates of three existing drugs that are clinically comparable (i.e., of similar therapeutic class, mechanism of action, and indication) (Dickson et al. 2021). The domestic reference price would be calculated as the inflation-adjusted launch price of its comparators, weighted by the relative utilization

of each comparator, and adjusted by an innovation premium based on the average time since approval for comparators. Under their approach, the domestic reference price of the 66 drugs analyzed was not always lower than the launch price of the new drug. However, across all Part B and Part D drugs, the researchers estimated this approach

**TABLE  
4-6**

**Medicare spending for products with similar health effects varies** (cont.)

	Average annual spending per beneficiary, 2020	Average annual ASP growth 2005–2022	First year of pricing data if not 2005
<b>Botulinum toxins:</b>			
<b>Products that treat cervical dystonia</b>			
Botox (onabotulinumtoxinA)	\$3,123	1.6%	
Myobloc (rimabotulinumtoxinB)	\$3,132	2.7	2010
Xeomin (incobotulinumtoxin A)	\$2,705	–0.9	2012
<b>Viscosupplements using hyaluronate for osteoarthritis of the knee</b>			
GenVisc 850 <sup>d</sup>	\$2,599	16.2%	2017
Gel-One <sup>d</sup>	\$1,709	8.1	2013
Synvisc or Synvisc-One	\$764	–1.0	2010
<b>Bone-modifying agents for osteoporosis</b>			
Prolia (denosumab)	\$1,689	3.9%	2012
Evenity (romosozumab-aqqg)	\$10,068	1.4	2020
Zometa (zoledronic acid) <sup>c</sup>	\$55	–18.8	
<b>Iron agents for anemia</b>			
Injectafer (ferric carboxymaltose)	\$1,617	0.8%	2015
Feraheme (ferumoxytol)	\$1,193	2.4	2010
Infed (iron dextran)	\$366	2.1	

Note: ASP (average sales price). For each group (other than the group containing products that treat eye disorders), the table lists only the three leading drugs based on their total 2020 Part B Medicare spending. For the eye disorder group, we also include a fourth product (Avastin) that clinicians extensively prescribe off label. Average annual spending per beneficiary in 2020 is based on Part B claims data for patients with conditions listed in the title for each drug group. Average annual ASP growth is calculated based on first-quarter data for each year.

<sup>a</sup> In February 2004, the Food and Drug Administration (FDA) approved Avastin for colon cancer. According to the American Academy of Ophthalmology, since 2004, ophthalmologists commonly use the drug to treat age-related macular degeneration off label (i.e., use of a drug for indications other than those that the FDA approves) with “great results” (Mukamal 2020). Compared with the on-label alternatives, a greater possibility of infection exists with Avastin due to potential contamination when the drug is being repackaged into smaller doses for the eye. According to Mukamal, when appropriate guidelines are followed for preparing such medicines, this risk is minimized (Mukamal 2020).

<sup>b</sup> Pricing estimates include all furnished indications of the products.

<sup>c</sup> Billing code includes one or more brand or generic drugs.

<sup>d</sup> Payment rates for 2022 were based on data from CMS’s 2022 Addendum B of the outpatient hospital prospective payment system (because the first-quarter 2022 ASP payment rate file publicly displayed on CMS’s website does not include a payment amount for this product).

Source: MedPAC analysis of data from CMS’s publicly available ASP payment rate files, 2005–2022, and CMS carrier and institutional outpatient files, 2020.

would have yielded Medicare savings of \$7 billion between 2015 and 2019.

- After adjusting for sociodemographic and clinical characteristics and regional effects, Anderson and colleagues found that, compared to FFS beneficiaries, MA enrollees were more likely to

receive the lower-cost drug in four therapeutic drug classes (Anderson et al. 2021). The authors estimated that if FFS use aligned with MA prescribing patterns, FFS spending (in 2016 dollars) would be reduced by:

- \$204 million for anti-vascular endothelial growth factor used to treat macular degeneration (representing 8 percent of FFS spending for this drug group);
- \$28 million for bone resorption inhibitor treatment of osteoporosis (representing 6 percent of FFS spending for this drug group);
- \$101 million for bone resorption inhibitor treatment of malignant neoplasms (representing 20 percent of FFS spending for this drug group); and
- \$6 million for intravenous iron treatment of anemia (representing 7 percent of FFS spending for this drug group).
- The Committee for a Responsible Federal Budget proposed “clinically comparable drug pricing,” under which Part B payment for physician-administered drugs would be set at a single price for groups of drugs within the same therapeutic class (Committee for a Responsible Federal Budget 2021). That price would be set at the weighted average of prices manufacturers charge for each of the clinically comparable drugs. For any such group, Medicare would set the payment for all drugs at a volume-weighted average price, which would be calculated quarterly using each product’s quarterly ASP, weighted by the average annual usage of each product, and amortized based on each drug’s standard dosing. The researchers estimated that for drugs that treat macular degeneration, rheumatoid arthritis, and prostate cancer, their policy would reduce Medicare FFS spending between 2021 and 2030 by \$81 billion and result in \$29 billion in savings for the MA program. Most of these estimated savings come from the macular degeneration and rheumatoid arthritis groups, due to the high price differential for the drugs in these groups and their significant use among FFS beneficiaries.

## Implementation issues

To carry out reference pricing for Part B drugs, Medicare would need to develop a clear and predictable decision-making framework that ensures transparency and opportunities for public input. The program would also need a clear legal foundation to apply such a payment approach. Specifically, the Congress would need to restore the Secretary’s

authority to apply reference pricing approaches that was changed by the MMA, which requires that biologics and single-source drugs (without generic competition) be assigned to their own billing code and be paid based on their own ASP.

A key issue is deciding which reference pricing strategy Medicare would apply—reference pricing, under which products are assigned to their own billing codes, or consolidated billing, under which products are assigned to the same billing code. Both approaches would set one payment rate for each group of therapeutically similar drugs. However, reference pricing might offer more flexibility in defining groups of products that are clinically similar (e.g., to account for potential differences in dosage sizes between therapeutically similar drugs) and in addressing medical exceptions. Importantly, because drugs would retain their own billing code under a reference pricing approach, researchers could continue to use Medicare claims data to conduct pharmacoepidemiology studies.

Another key issue is how CMS would establish the payment rate for a reference group. The agency could determine the payment rate for each drug based on the prevailing payment policy and then set the payment rate for all the clinically similar products in the drug group based on, for example, the weighted average of all products within the group, the 50th percentile of all ASPs of all the products within the group, or the ASP of the LCA. CMS currently uses a volume-weighted approach when determining the payment rate for generic drugs and their associated brand drug assigned to a single billing code. In 2016 and 2017, CMS used a volume-weighted approach to pay for all biosimilar products associated, but not grouped, with a given originator biologic. Another alternative would be to set the reference price based on the lower of (1) the volume-weighted ASP of all drugs within the reference group or (2) the ASP for the individual drug. The statute uses such an approach to pay for certain drugs.<sup>38</sup> Compared with other alternatives, basing payment on the least-costly product in a reference group would likely yield the greatest savings to beneficiaries and taxpayers. On the other hand, an advantage of the volume-weighted ASP compared with the LCA is that the volume-weighted approach might give providers time to adjust to the new payment rates without creating financial disruption, especially for practices

that might have already purchased the higher-priced drug before the policy went into effect.

CMS would need to establish a process for determining exceptions to reference pricing policies when a beneficiary's clinical circumstances support the medical necessity of a more costly product. Our recommendation for establishing consolidated billing codes for the original biologic and its biosimilars discussed the potential for a medical exception process (Medicare Payment Advisory Commission 2017). We said that under such a policy, the clinician would continue to have the choice to prescribe the product most appropriate for the patient, with Medicare's payment based on the reference price. The Congress could consider allowing the Secretary to provide a very limited payment exception process under which Medicare would reimburse the provider based on the ASP of the higher-priced product if the clinician provided justification that the product was medically necessary, such as instances for which there has been documented clinical failure of a particular product (Medicare Payment Advisory Commission 2017). A payment exception process addresses the concern that beneficiary access under a reference pricing policy could be harmed if some providers were unwilling to supply the higher-cost product to a beneficiary for whom the product was a medical necessity. Providers could submit medical justification to the regional Medicare administrative contractors (MACs), and the exception process could be coupled with Medicare's existing appeals process that gives beneficiaries, providers, or their representatives the right to appeal the MACs' coverage and payment decisions.

However, unless carefully designed, a payment exception process could create incentives for the use of higher-priced products when the beneficiary's clinical circumstance does not support an exception. Since the add-on of a higher-priced product generates more revenue for the provider than the add-on of a lower-priced product, selection of the higher-priced product could generate more profit, depending on the provider's acquisition costs for the two products. In 2017, the Commission said that to minimize such unintended effects:

- the clinician's payment from Medicare when an exception is granted could be set at the higher-cost product's ASP without an add-on payment (i.e., 100 percent of ASP); and

- the Medicare program would pay the provider 80 percent of the ASP of the exception (higher-cost) product that was furnished, and the beneficiary would pay the provider 20 percent of the exception (higher-cost) product's ASP (Medicare Payment Advisory Commission 2017).

A related issue concerns situations in which a beneficiary and their provider opt for a more costly product that is not supported by clinical necessity. Under one approach, the provider would absorb any additional costs (i.e., the difference in the ASP between the product prescribed and the reference price). Alternatively, some payers have designed their reference pricing policies for drugs and medical services such that, absent a medical exception, the patient absorbs the additional costs (Robinson 2017).

For a drug newly approved by the FDA, the Secretary would need a clear, transparent, and timely process for evaluating its comparative clinical effectiveness compared with existing drugs that are the standard of care and for determining whether the drug should be included in an existing reference product group.<sup>39</sup> The Secretary already has experience under the prospective payment systems for inpatient, outpatient, and end-stage renal disease services to assess whether new services represent clinical improvements compared with existing treatments. While a new drug's comparative clinical effectiveness is being considered, its payment rate could be based on prevailing Medicare payment policies (i.e., ASP + 6 percent), which would obviate delays in beneficiaries' access. Determining the overall length of time for the Secretary to implement this process would also need to be addressed.

How Medicare would define groups of products that are clinically similar—narrowly or broadly—is another significant design issue. For example, a group could be defined that would broadly apply to both short-acting erythropoiesis-stimulating agent (ESAs) (Epogen and its biosimilar Retacrit) and long-acting ESAs (Aranesp and Mircera). Alternatively, two groups could be defined—one for short-acting agents and another for long-acting agents. Designing groups more broadly would have a greater effect on Medicare spending than groups defined narrowly.

Another issue concerns whether a repackaged drug used for an off-label indication should be included in a given reference group. One example is the off-label

use of Avastin, a cancer treatment that is repackaged by compounding pharmacies into smaller doses for treatment of eye disorders, including wet age-related macular degeneration. Medicare may cover off-label use of FDA-approved drugs and biologics if it determines the use to be medically accepted, which the program has for off-label Avastin use for ophthalmologic indications.<sup>40,41</sup>

Another design issue with reference pricing is how to pay for products with similar health effects that have multiple indications (i.e., on label and covered off label). Approaches include Medicare's payment at the reference price across all indications or only for indications that the reference group covers. These approaches differ in their ease of implementation and predictability for providers. Under a single payment approach, the Secretary would need to consider the payment of products with multiple indications.

Three additional design elements would be involved in establishing reference pricing policies:

- how frequently the reference price would be updated (e.g., quarterly, annually);
- providing pricing information to beneficiaries and clinicians (to make them sensitive to the difference in out-of-pocket spending); and
- whether Medigap policies could cover beneficiary cost sharing that is greater than the reference price.

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## Improving provider incentives under the ASP payment system

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The 6 percent add-on to Medicare Part B's payment rates has garnered attention because of concern that it may create incentives for use of higher-priced drugs when lower-priced alternatives exist. While clinical factors play a central role in prescribing decisions, at the margins, financial considerations can also play a role in providers' choice of drugs. Several studies examining utilization patterns for specific products have found shifts in utilization of higher-priced products that could reflect the effect of the 6 percent add-on. Policy options to modify the add-on could

be considered to improve incentives under the ASP payment system.

## Context for Medicare's ASP + 6 percent payment rate

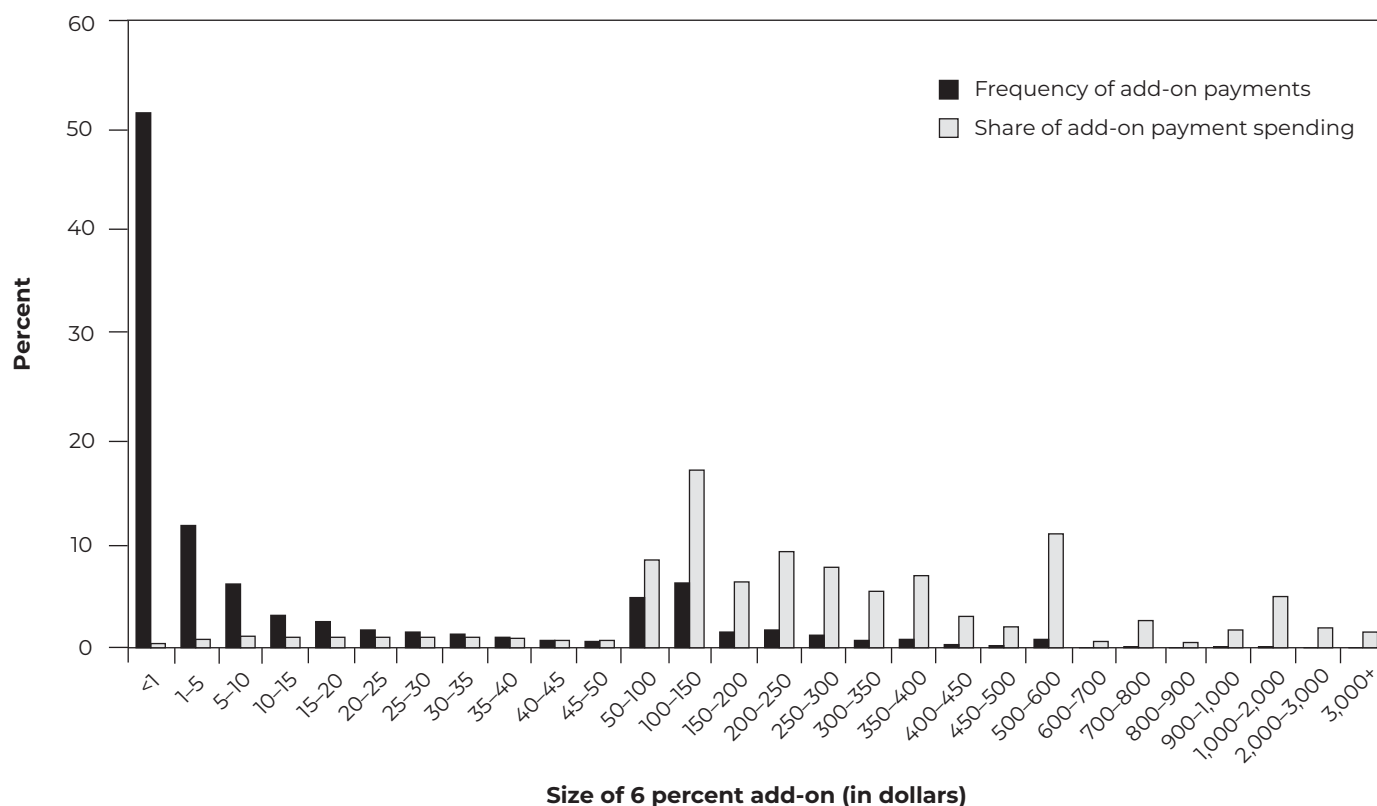
The 6 percent add-on is often thought of as the profit margin providers make on Part B drugs, but the actual profit margin may be greater or less than 6 percent (including possibly negative margins in some circumstances), depending on a variety of factors. If a provider purchases a drug at a price equal to ASP, the profit margin on the drug is 6 percent.<sup>42</sup> A provider may purchase a drug at a price other than ASP for several reasons. Since ASP is an average, some providers will pay more and some will pay less than the average if there is price variation across purchasers (e.g., due to volume discounts). Because there is a lag in the ASP payment rates, the provider's margin is reduced when a drug's price increases (and the margin increases when the drug's price declines) until the ASP payment rates catch up two quarters later. In addition, prompt-pay discounts paid by manufacturers to wholesalers (which are anecdotally reported in the range of 1 percent to 2 percent) can create a gap between ASP and provider's acquisition costs because these discounts are subtracted from ASP but are reportedly not fully passed on to purchasers. Information on providers' acquisition costs for Part B drugs is very limited, but a few older studies examined this issue for certain drugs and found that pharmaceutical manufacturers' pricing patterns responded to past policy changes (see text box on providers' acquisition costs, pp. 118–120).

There is no consensus on the original intent of the 6 percent add-on to ASP. Some analysts have suggested that the 6 percent is intended to cover price variation across purchasers or other factors that can result in a provider's purchase prices being above the ASP. Another view is that the 6 percent is intended to cover drug storage and handling costs, although it seems unlikely that these costs would vary across products based on a percentage of each product's price.<sup>43</sup> Some stakeholders have also suggested that the 6 percent add-on is intended to cover the financing costs associated with maintaining a drug inventory.

Because Medicare Part B covers a diverse set of products ranging in price from very inexpensive to extremely expensive, the size of ASP add-on payments varies widely across Part B drugs. In 2019, about

**FIGURE  
4-2**

**Most Part B drug add-on payments are small, but expensive drugs with large add-on payments account for most add-on spending**



Note: Analysis includes all Part B-covered drugs paid under the ASP + 6 percent system, excluding drugs billed through not-otherwise-classified Healthcare Common Procedure Coding System codes. Part B drugs furnished by 340B hospitals paid ASP – 22.5 percent are excluded from the analysis. Data for critical access hospitals, Maryland hospitals, and beneficiaries with Medicare as a secondary payer are excluded from the analysis.

Source: MedPAC analysis of Medicare claims data for physicians, hospitals, and suppliers.

40 million Part B drug administrations received a 6 percent add-on, and those add-on payments accounted for about \$1.7 billion of the total \$29 billion in payments for those drugs.<sup>44</sup> Most Part B drug administrations involve low-cost products with small add-ons. In 2019, about half of Part B drug administrations involved an add-on of less than \$1; 69 percent of Part B drug administrations involved an add-on of less than \$10 (Figure 4-2). Examples of products with small add-on payments include corticosteroid injections, vitamin B-12, and contrast agents. The bulk of add-on payment spending is concentrated among relatively lower-frequency, high-priced drugs and biologics. For

example, less than 15 percent of drug administrations had an add-on payment exceeding \$100, and those administrations accounted for more than 80 percent of add-on spending (Figure 4-2). Furthermore, just over 1 percent of drug administrations had an add-on payment exceeding \$500, and those administrations accounted for 25 percent of add-on spending. Examples of products with some of the highest add-ons include CAR-T products, certain clotting factors, and certain products for rare conditions.

When a provider furnishes a Part B drug, in addition to receiving a payment of ASP + 6 percent for the

## Information on providers' acquisition costs for drugs is limited

**I**nformation on providers' acquisition costs for Part B drugs is very limited, but a few older studies examined this issue for certain drugs.

When the average sales price (ASP) payment system was adopted in January 2005, the Commission found evidence suggesting that pharmaceutical manufacturers responded to the new payment system by narrowing the variation in invoice prices across purchasers (Medicare Payment Advisory Commission 2006). Specifically, we found that between December 2004 and June 2005, variation in invoice prices (which included discounts but not retrospective rebates) declined for the basket of 26 drugs overall and for various categories of drugs including chemotherapy drugs, supportive drugs, brand drugs, and generic drugs. This analysis was based on proprietary invoice price data from IMS Health for clinic purchasers for 26 drugs commonly used by oncologists. In addition, two Office of Inspector General studies that collected drug acquisition cost data during the first six months of the ASP payment system found that oncology practices could generally acquire most drugs for prices at or below Medicare's payment rates (Office of Inspector General 2007b, Office of Inspector General 2005).

In the Commission's June 2016 report to the Congress, we analyzed more recent proprietary IMS Health data on invoice prices for a group of high-expenditure Part B drugs to get a sense of how providers' acquisition costs for drugs compared with ASP (Medicare Payment Advisory Commission 2016). The analysis focused on 34 high-expenditure Part B drugs for which we had quarterly invoice price data for the clinic channel of purchasers for the entire period from the first quarter of 2012 to the second quarter of 2015. Data were available only for the clinic channel as a whole, which included physician offices, hospital outpatient departments, dialysis clinics, nonhospital surgical centers, and public health service clinics. Because the IMS data for the clinic channel included discounted sales to 340B entities, we focused on invoice prices for the top half of the price distribution (i.e., the 50th, 75th, and 90th percentiles) to avoid reflecting 340B prices in our analysis. The prices in the IMS data reflected all on-invoice discounts and rebates but not off-invoice rebates, so in some cases the data may have overstated the actual end price paid by the purchaser. Our analysis did not report prices for any individual drugs due to the terms of our contract with IMS. Instead, we divided each drug's invoice

*(continued next page)*

drug, the provider also receives a separate payment for drug administration services. Medicare Part B pays providers for drug administration services under the physician fee schedule and OPPS. For example, under the physician fee schedule in 2022, payment for an injection is about \$75 for a chemotherapy product and \$15 for a nonchemotherapy product, and payment for the first hour of infusion of a chemotherapy product is \$140 and \$69 for a nonchemotherapy product.<sup>45</sup> Additional payments are made if more than one drug is furnished or if an infusion lasts longer than the initial hour. Hospital outpatient departments generally receive higher drug administration payment rates than physician offices.

### **Does the 6 percent add-on influence use of high-cost drugs?**

Prescribing decisions depend on a variety of clinical factors. For example, drugs can vary in terms of their effectiveness in treating patients with certain conditions or comorbidities, and they can differ in terms of side effects. In addition, providers may take into account whether a drug is on label or off label for a patient's condition or whether a drug is compounded.

While clinical factors play a central role in prescribing decisions, at the margins, financial considerations can also play a role in providers' choice of drugs. Some researchers and stakeholders have expressed concern

## Information on providers' acquisition costs for drugs is limited (cont.)

price by 100 percent of the ASP that was in effect for payment purposes in each quarter to create a ratio of the invoice price to ASP and summarized the results across the group of 34 drugs.

Analysis of the IMS data offered a sense of the distribution of invoice prices across clinic purchasers. As shown in Table 4-7 (p. 120), 35 percent of the drugs had a 75th percentile invoice price that was less than 100 percent of ASP, and another 29 percent of the drugs had a 75th percentile invoice price that was between 100 percent of ASP and 101.9 percent of ASP. In other words, for about two-thirds of the drugs (22 of 34 drugs), at least 75 percent of the volume was sold at an invoice price that was less than 102 percent of ASP. The remainder of the drugs had a 75th percentile invoice price that for 12 percent of the drugs ranged from 102 percent to 103.9 percent of ASP; for another 12 percent of the drugs, from 104 percent to 105.9 percent of ASP; and for another 12 percent of drugs, 106 percent or more of ASP. In interpreting these results, we note that prices for some purchasers could have been lower than what was observed in these data because the data did not include any off-invoice rebates that may have been given.

The analysis also found evidence suggesting that manufacturers responded to implementation of the sequester (a 2 percent reduction to the Medicare program payment) by changing their pricing to mitigate the effect of the sequester on providers' margins. In the second quarter of 2013, Medicare's net payment rate for Part B drugs was effectively lowered from 106 percent of ASP to 104.3 percent of ASP due to the sequester. Our analysis of IMS Health data found a decline in invoice prices for Part B drugs that coincided with the reduction in Medicare's payment rates. Specifically, the study found that the median across the 34 drugs of the 75th percentile invoice price as a percentage of ASP declined in the second quarter of 2013 when the sequester went into effect (from around 103 percent of ASP in the first quarter of 2012 through the first quarter of 2013 to about 101.5 percent of ASP in the second quarter of 2013 through the second quarter of 2015) (Medicare Payment Advisory Commission 2016).

Another source of information on acquisition costs is a report from the Office of Inspector General (OIG) examining the acquisition costs for two drugs for wet age-related macular degeneration (AMD) and certain other eye conditions (Office of Inspector General 2011). OIG surveyed ophthalmologists to

*(continued next page)*

that the 6 percent add-on to ASP creates an incentive to use higher-priced drugs when less-expensive therapeutic alternatives are available (Bach and Ohh 2018, Dusetzina and Mello 2021, Hutton et al. 2014, Sanghavi et al. 2014). Since 6 percent of a higher-priced drug generates more revenue for the provider than 6 percent of a lower-priced drug, selection of the higher-priced drug can generate more profit, depending on the provider's acquisition costs for the two drugs. At the same time, other financial considerations might create an incentive to use lower-priced drugs in some situations. For example, when selecting a drug, a provider may take into account the cost sharing

associated with each drug and the patient's ability to pay, which might lead to choosing a lower-priced drug for some patients. Also, the financial capital required to acquire and keep an inventory of a high-priced drug can be a disincentive for some providers to furnish expensive drugs. With respect to oncology specifically, some payers and providers use clinical pathways to guide clinicians' choice of a patient's most appropriate drug regimen. It is not clear how often clinicians have the opportunity within oncology pathways to choose among differently priced drugs that are equally appropriate for a given patient.

## Information on providers' acquisition costs for drugs is limited (cont.)

**TABLE  
4-7**

**Distribution of invoice prices for 34 Part B drugs, 1st quarter 2015**

	50th percentile invoice price as a percentage of ASP	75th percentile invoice price as a percentage of ASP	90th percentile invoice price as a percentage of ASP
Percentage of 34 drugs with invoice price as percent of ASP:			
Less than 100%	59%	35%	18%
100% to 101.9%	21	29	6
102% to 103.9%	6	12	26
104% to 105.9%	6	12	21
106% or greater	9	12	29
Median across the 34 drugs	99.7% ASP	101.6% ASP	104.0% ASP

Note: ASP (average sales price). The data are for the clinic channel of sales, which includes physician offices, hospital outpatient departments, dialysis centers, nonhospital surgical centers, and public health services clinics. Figures reflect invoice price data for 34 drugs that have high total expenditures. For drugs with multiple national drug codes (NDCs), the data for the highest-volume NDC were used. Data come from a sample of wholesalers and do not include direct sales by manufacturers. The percentile distribution of invoice prices is at the drug unit level. Prices reflect on-invoice discounts and rebates but not off-invoice rebates. Invoice prices are for the first quarter of 2015 and are displayed as a percentage of the ASP that was in effect for payment purposes in the first quarter of 2015. Numbers may not sum to 100 percent due to rounding.

Source: These figures are MedPAC estimates derived from the use of information under license from the following IMS Incorporated information service: Pricetrak for the first quarter of 2015.

obtain data on their acquisition costs in the first quarter of 2010 for Lucentis and Avastin. Lucentis is a biologic with a label indication for wet AMD for which Medicare paid just over \$2,000 per dose in 2010. Avastin is a biologic that is used off label for wet AMD at a significantly lower cost; Medicare paid roughly \$50 per dose on average in 2010. OIG found that, on average, ophthalmologists reported acquiring Lucentis for 5 percent below Medicare's 106 percent of ASP (ASP + 6 percent) payment amount in the first quarter of 2010. OIG also found that 98 percent of survey respondents acquired Lucentis at a price below Medicare's payment rate in the first quarter of 2010. Since that time, additional biologics (Eylea and Beovu) with indications similar to Lucentis have entered the market, and together these biologics accounted for over \$4 billion in Medicare program payments and beneficiary cost sharing in 2020.

Research on providers' drug acquisition costs is limited by lack of available data. Periodically, OIG has done studies collecting drug acquisition cost data directly from providers, including the aforementioned studies of oncology drugs and Lucentis, as well as studies of immune globulin acquired by physicians and hospitals and drugs acquired by dialysis facilities (Office of Inspector General 2010, Office of Inspector General 2007a). To the extent that there is interest in understanding more about providers' acquisition costs for drugs, OIG may be best positioned to obtain this type of data. It is important to note, however, that any data on drug acquisition costs reflect prices at a historical point in time and do not necessarily reflect what acquisition costs might look like if Medicare policy changed and manufacturers altered their pricing behavior in response. ■

Several studies examining utilization patterns for certain products with therapeutic alternatives found some growth in use of higher-priced products that could reflect the effect of the 6 percent add-on. A study by Jacobson and colleagues examining oncologists' prescribing patterns for lung cancer found a modest increase in use of the most expensive cancer drug after January 2005, when Medicare began paying for Part B drugs based on ASP + 6 percent (Jacobson et al. 2010).<sup>46</sup> Another study by Conti and colleagues of drugs used to treat colorectal cancer found that use of the chemotherapy drug irinotecan declined (by just under 20 percent) after it went generic in 2008 relative to use of an alternative higher-priced brand drug, oxaliplatin (Conti et al. 2012). The authors suggested that physician reimbursement incentives may have been a driver of those utilization changes, but they also stated that changes in recommended treatment regimens that occurred over this period could also have contributed to these trends. When the LCA policy for certain prostate cancer drugs was removed in 2010 and Medicare began paying for the drugs based on 106 percent of their own ASPs, OIG found a shift from the lowest-priced prostate cancer drug toward higher-priced competitor products (Office of Inspector General 2012). A study by Hambley and colleagues examined utilization of several iron products among Medicare beneficiaries between 2015 and 2017, a period that included a shortage of the low-priced product iron dextran during the early part of 2016 (Hambley et al. 2020). The study found increasing market share for a high-priced iron product, ferric carboxymaltose, even after the shortage of iron dextran subsided, which the authors suggest may have been related to its higher add-on payment. Gupta and colleagues found that after the FDA approved denosumab (a bone resorption inhibitor drug) in 2018 for skeletal-related events in patients with multiple myeloma, the product rapidly diffused among FFS beneficiaries with multiple myeloma, despite lack of evidence of superiority compared with its lower-cost alternatives, zoledronic acid and pamidronate (Gupta et al. 2020a). The authors questioned the routine use of denosumab except in patients with renal dysfunction or in those unable to tolerate the lower-cost agents. In addition, a study by Anderson and colleagues examining use of Part B drugs for differently priced products for the treatment of four conditions found that MA beneficiaries had a higher likelihood of receiving the lower-cost product (ranging from 5 percentage points to 13 percentage

points higher) than FFS beneficiaries (Anderson et al. 2021). The authors stated that a variety of factors could contribute to these differences, such as choice of network providers, MA plans' utilization management efforts, beneficiary cost sharing and lack of supplemental coverage, and how providers are paid, including Part B's payment of ASP + 6 percent.

The 6 percent add-on may also affect a provider's decision to initiate or continue drug treatment rather than opt for nondrug treatment, watchful waiting, or palliative care. Although studies have not evaluated this question directly, some have looked at whether large reimbursement changes—specifically, the payment rate changes that occurred when the MMA changed the Part B drug payment rates from 95 percent of average wholesale price (AWP) to ASP + 6 percent—affect utilization of drugs. A study by Elliott and colleagues found that when reimbursement for androgen suppression therapy (AST) declined by 64 percent between 2003 and 2005, AST use declined among nonindicated, low-risk patients (from 10 percent to 6 percent receiving AST) but remained steady among higher-risk patients with metastatic disease (Elliott et al. 2010). A study by Colla and colleagues found some reduction in patients with a poor prognosis receiving chemotherapy in the last 14 days and in the last 3 months of life in physician offices, but not in hospital outpatient departments, after the payment rate was reduced from 95 percent of AWP to ASP + 6 percent (Colla et al. 2012). The authors attributed the decrease in chemotherapy provision to physician offices' response to reduced drug profit margins, hypothesizing that physician offices were more responsive to the payment reduction than outpatient hospitals because physicians' income is more directly related to chemotherapy use in the physician office setting than it is in the hospital outpatient setting.

Taken together, the literature suggests that the 6 percent add-on likely has an effect on prescribing in some circumstances. The size of the effect is difficult to quantify because many factors affect prescribing. Identifying what portion of utilization patterns reflects the effect of the 6 percent add-on versus other factors is challenging. In addition, for the percentage add-on to have the potential to affect product selection, differently priced therapeutic alternatives must exist. Researchers have not quantified the amount of total Part B drug spending accounted for by drugs for which differently priced substitutes are available at the

patient level. This calculation in some cases depends on clinical information not available in claims data (e.g., stage of cancer, comorbidities, and laboratory or pathology results).

### **Considering alternatives to the 6 percent add-on**

Over the years, the Commission has explored a number of options to modify the percentage add-on to ASP. Most recently, in 2017, the Commission recommended reducing the percentage add-on as part of its recommendation to develop what we described as the Drug Value Program (DVP). As recommended, the DVP would be a voluntary, market-based alternative to the ASP payment system that would rely on private vendors to negotiate drug prices using tools like a formulary and share savings with providers that chose to enroll. To create pressure for DVP development and implementation and to encourage provider enrollment in the DVP, the Commission recommended that the percentage add-on be reduced beginning no later than 2022, regardless of the status of the DVP. The report suggested that the ASP add-on could be reduced gradually, by 1 percentage point per year (i.e., ASP + 5 percent in 2022, ASP + 4 percent in 2023, and ASP + 3 percent in 2024 and onward).

Before the 2017 report, the Commission explored several models for converting the percentage add-on to a flat fee. Building on that work, we explored additional approaches to modify the ASP add-on. Previously, we observed that policies to modify the ASP add-on would involve trade-offs (Medicare Payment Advisory Commission 2016, Medicare Payment Advisory Commission 2015). Eliminating the percentage add-on would reduce any incentives that exist for providers to use a higher-priced drug when a lower-priced drug with similar health effects is available to treat a particular patient. At the same time, eliminating a percentage add-on might result in Medicare's payment rate being lower than providers' acquisition costs for some products or some providers. An alternative to fully eliminating the percentage add-on is a hybrid approach with a reduced percentage add-on and flat fee, which might reduce the potential for unintended consequences on providers' ability to acquire drugs for the Medicare payment amount. A hybrid approach would reduce, but not eliminate, the difference in add-on payments between high-priced and low-priced drugs. We also explored the use of a flat dollar

limit on the percentage add-on. Such an approach would reduce add-on payments for very expensive products that account for most add-on spending while maintaining the current ASP + 6 percent payment for other products.

To explore the implications of modifying the percentage add-on, we developed three illustrative policy options. In developing these options, we sought to balance a number of goals, including (1) improving financial incentives under the ASP payment system, (2) minimizing unintended consequences such as providers having difficulty acquiring drugs at Medicare payment rates, and (3) paying more efficiently and potentially generating savings for beneficiaries and taxpayers.

The first option would place a flat dollar limit on the 6 percent add-on. We chose a \$175 limit as an illustration. In 2019, about 25 percent of Part B drugs had an average add-on payment greater than \$175, accounting for less than 7 percent of all drug administrations and nearly three-fifths of total add-on payments. Thus, this approach would modify add-on payments for a subset of expensive products that account for a disproportionate share of add-on payment spending while maintaining the existing 6 percent add-on for most Part B drugs. A rationale for this approach is that a percentage add-on is particularly inefficient for high-priced drugs. If one rationale for an ASP add-on is price variation across purchasers, paying a percentage results in a large dollar add-on payment that may not be in line with actual price variation. Even if prices currently vary across purchasers for these products, changes to Medicare add-on payments could spur manufacturers to reduce or eliminate the variation. The existence of a large add-on on top of an already expensive drug also raises concerns from a beneficiary cost-sharing perspective, particularly when the purpose of large add-on payments is unclear. While placing a dollar limit on the ASP add-on would reduce the financial incentives to choose a very expensive drug subject to this limit, it would not affect potential incentives to use more expensive drugs among the group of products that are priced below the limit. Also, the add-on limit might create incentives to furnish drugs in smaller, more frequent doses to lessen the effect of the limit.

The second option reduces the percentage add-on and converts that portion of payments to a flat fee across all drugs. We modeled a policy of ASP + 3 percent + \$21 per drug per administration day. We arrived at the \$21 flat fee by estimating the budget-neutral equivalent of a 3 percent add-on (i.e., the average of 3 percent of ASP across all drug administrations). By reducing the percentage add-on by half, the differential in add-on payments between high-cost and low-cost products would be reduced by half, reducing the potential incentives to use a higher-cost product. However, a concern with this approach is the relatively large flat add-on for very inexpensive Part B drugs, which account for the majority of Part B drug administrations. In past work, the Commission has noted that if the flat fee is very large relative to low-priced drugs, it might create incentives for use of the product when treatment might not otherwise be initiated (Medicare Payment Advisory Commission 2016, Medicare Payment Advisory Commission 2015). It is also unclear how manufacturers of lower-cost products would respond to the large add-on and whether they would see it as an opportunity to raise prices. The fact that lower-cost products tend to be generics with competition might mitigate concerns about price increases. Finally, from a beneficiary cost-sharing perspective, an issue to be considered is how large an add-on for low-cost drugs is appropriate when the beneficiary is liable for 20 percent cost sharing on the add-on.

The third policy option combines Options 1 and 2 as a way to address some of the issues raised by each option separately. This third option would pay the lesser of (1) 6 percent of ASP or (2) 3 percent of ASP + \$21, with a \$175 limit on the add-on for very expensive drugs. For lower-cost drugs, this option maintains the 6 percent add-on, which could address potential concerns about a large flat fee for inexpensive drugs. For higher-cost drugs, the 6 percent add-on is reduced to 3 percent and a \$21 flat fee would be added, reducing financial incentives for use of these products relative to less-expensive products. This option also includes a \$175 flat dollar limit on the ASP add-on to address concerns about a percentage add-on generating large dollar add-ons for very expensive drugs.

To illustrate the effect of the three policy options, Table 4-8 (p. 124) displays the current add-on payments and total payments as a percentage of ASP under current

policy (6 percent of ASP) compared with the three policy options for a variety of differently priced drugs (as measured by ASP).

- Under Option 1, the \$175 limit on add-on payments reduces add-on payments for drugs with an ASP greater than \$2,917 per administration but leaves add-on payments unchanged for drugs with an ASP below that threshold. This means Option 1 affects incentives only for very expensive drugs.
- Under Option 2, add-on payments change across all Part B drugs. Relative to the current 6 percent add-on, add-on payments drop for drugs with an ASP per administration greater than \$700 and rise for drugs with an ASP less than \$700. Because the percentage add-on is reduced from 6 percent to 3 percent, the differential in add-on payments between higher-cost and lower-cost products is reduced by half compared with current policy. Option 2 also results in very large add-on payments for drugs with small ASPs, which account for a large share of Part B drug administrations. For example, a drug with a \$5 ASP would receive a \$21.15 (i.e., 3% of \$5 + \$21) add-on payment under Option 2.
- Option 3 combines Option 1 and Option 2. For drugs with an ASP under \$700, add-on payments are unchanged from current policy. For drugs with an ASP greater than \$700, add-on payments are reduced to 3 percent + \$21. Add-on payments are also capped at \$175, which limits the add-on for drugs with an ASP greater than \$5,133. Thus, for products with an ASP greater than \$700, incentives to use a higher-priced product compared to a lower-priced product are reduced.

Comparing the difference in add-on payments among differently priced drugs further illustrates the effect of the various policy options. Table 4-8 (p. 124) shows the current dollar amounts of add-on payments for drugs at different ASPs, with add-ons for our three options. If two drugs, one with an ASP of \$100 and the other with an ASP of \$1,000, were therapeutic alternatives, under current policy the difference in add-on payments between the two products would be \$54 (i.e., \$60 – \$6). The add-on differential would remain the same under Option 1 (\$54), would be cut in half (\$27) under Option 2, and would be reduced by 17 percent (\$45) under Option 3. Comparing two drugs with an ASP of \$1,000 and \$3,000, the difference in add-on payments

**TABLE  
4-8****ASP add-on amounts for differently priced drugs under current policy and illustrative policy options**

ASP per drug administered	Add-on payment amount				Add-on payment amount as percentage of ASP		
	Current: 6%	Option 1: Lesser of: 6% or \$175	Option 2: 3% + \$21	Option 3 (combine Options 1 & 2): Lesser of: 6%, 3% + \$21, or \$175	Option 1 Lesser of: 6% or \$175	Option 2: 3% + \$21	Option 3 (combine Options 1 & 2): Lesser of: 6%, 3% + \$21, or \$175
\$5	\$0.30	\$0.30	\$21.15	\$0.30	6.0%	423.0%	6.0%
10	0.60	0.60	21.30	0.60	6.0	213.0	6.0
50	3.00	3.00	22.50	3.00	6.0	45.0	6.0
100	6.00	6.00	24.00	6.00	6.0	24.0	6.0
250	15.00	15.00	28.50	15.00	6.0	11.4	6.0
500	30.00	30.00	36.00	30.00	6.0	7.2	6.0
750	45.00	45.00	43.50	43.50	6.0	5.8	5.8
1,000	60.00	60.00	51.00	51.00	6.0	5.1	5.1
3,000	180.00	175.00	111.00	111.00	5.8	3.7	3.7
5,000	300.00	175.00	171.00	171.00	3.5	3.4	3.4
10,000	600.00	175.00	321.00	175.00	1.8	3.2	1.8
15,000	900.00	175.00	471.00	175.00	1.2	3.1	1.2

Note: ASP (average sales price). "ASP per drug administered" is defined as the ASP unit price times the number of units of the drug administered to the patient on a particular day. For drugs furnished by suppliers (e.g., nebulizer drugs and certain oral drugs), the data reflect ASP per prescription rather than ASP per administration. Add-on payment amounts include Medicare program payments and beneficiary cost sharing and are calculated before application of the sequester.

Source: MedPAC calculation of Medicare payment rates under alternative payment formulas.

between the products would be smallest under Options 2 and 3 (\$60) compared with current policy (\$120) and Option 1 (\$115). For two more-expensive products with ASPs of \$5,000 and \$10,000, the add-on differential between the products is \$300 under current policy. Option 1 would eliminate and Option 3 would nearly eliminate the add-on differential between the two products, while Option 2 would reduce the add-on differential by half. These examples show that Option 1 has the most effect on reducing the add-on differential among very expensive products; Option 2 has the most effect on mid- and low-priced products; and Option 3 has the most effect on mid- and high-priced products.

Table 4-9 shows the effect of the add-on policy options on overall Part B drug spending. These estimates are based on 2019 utilization data without any assumptions about how the policies might affect prescribing behavior. Overall, Options 1 and 3 would reduce aggregate Part B drug payments by 1.9 percent and 2.6 percent, respectively, while Option 2 results in no change in aggregate Part B drug spending. Options 1 and 3 generate savings due to the \$175 cap on add-on payments for very expensive drugs. Option 3 generates additional savings by paying the lower of ASP + 6 percent or ASP + 3 percent + \$21. Option 2 generates no overall savings and instead redistributes add-on revenue across drugs and specialties because the reduction in the ASP add-on by 3 percentage points

**TABLE  
4-9****Simulated impact of the policy options on total  
Part B drug payments by type of provider**

	2019 Total payments for Part B drugs paid ASP + 6% (in billions)	Percentage change in total Part B drug payments		
		Option 1 Lesser of: 6% or \$175	Option 2: 3% + \$21	Option 3: Lesser of: 6%, 3% + \$21, or \$175
All	\$28.7	-1.9%	0.0%	-2.6%
Physician	18.7	-1.6	0.6	-2.4
Oncology	7.5	-2.4	-1.1	-2.8
Ophthalmology	3.9	-0.2	-1.3	-1.8
Other	2.3	-1.8	6.7	-2.3
Rheumatology	2.3	-1.4	-1.6	-2.4
Primary care	1.8	-1.7	7.0	-2.3
Neurology	0.5	-2.3	-1.2	-2.9
Urology	0.4	-1.2	0.8	-1.9
Hospital outpatient departments	8.2	-2.5	-2.1	-3.0
Suppliers	1.8	-1.4	3.9	-1.8

Note: ASP (average sales price). Total payments include Medicare program payments and beneficiary cost sharing and include the effect of the sequester. Analysis includes all Part B-covered drugs paid under the ASP + 6 percent system, excluding drugs billed through not-otherwise-classified Healthcare Common Procedure Coding System codes. Part B drugs furnished by 340B hospitals paid ASP - 22.5 percent are excluded from the analysis. Data for critical access hospitals, Maryland hospitals, and beneficiaries with Medicare as a secondary payer are excluded from the analysis. Components may not sum to totals due to rounding.

Source: MedPAC analysis of Medicare claims data for physicians, hospitals, and suppliers.

was converted into a budget-neutral flat fee of \$21 paid on each Part B drug administered. To the extent that the policy options result in substitution of lower-cost drugs for higher-cost drugs, the Medicare program and beneficiaries could realize additional savings beyond those estimated. At the same time, if a flat add-on or dollar limit on the 6 percent add-on resulted in some drugs being furnished in smaller, more frequent doses, those dynamics could to some extent reduce the savings generated by the policy options.

The effects of the policy options vary across clinical specialties under each option (Table 4-9). With Option 1, Part B drug revenues decrease across different provider types and specialties by 0.2 percent to 2.5

percent. This variation is driven entirely by the extent to which these provider groups utilize drugs that currently receive add-on payments greater than \$175 per drug administered. Under Option 2, some provider types (oncologists, ophthalmologists, rheumatologists, neurologists, and outpatient hospitals) would experience a decline in Part B drug payments of 1.1 percent to 2.1 percent, and some would experience an increase in Part B drug payments (primary care physicians, suppliers, urologists, and other physician specialties) ranging from 0.8 percent to 7.0 percent. The redistribution in payments across specialties is driven by the mix of drugs used by each specialty, with those specialties that tend to use very low-cost drugs

seeing a substantial payment increase due to the \$21 flat add-on. For example, under Option 2, drugs with an ASP per administration of less than \$100 would experience a 141 percent increase in their Part B drug payments, from roughly \$365 million under current policy to \$880 million (data not shown). Under Option 3, all provider categories would experience a decline in Part B drug payments, ranging from 1.8 percent to 3.0 percent.

In considering a change to the ASP add-on, it is important to consider the effect on providers' ability to purchase drugs within the Medicare payment amount. Table 4-8 (p. 124) displays what the add-on under each policy option equates to in terms of a percentage of ASP. These models all reflect payment rates before the sequester. The 2 percent sequester, which the Congress suspended from May 2020 through March 2022 and reduced to 1 percent from April to June 2022, will be reinstated July 2022. A 2 percent sequester generally lowers the total payments a provider receives for Part B drugs by 1.6 percent. Under Options 1 and 3, the flat \$175 add-on equates to a smaller percentage add-on the higher the ASP for the drug. With a 2 percent sequester, net payments for some very expensive drugs would fall below 100 percent of ASP unless the \$175 add-on limit policy was explicitly designed to avoid that outcome. For example, for a drug with an ASP of \$15,000 per administration, a \$175 add-on equates to a payment of about ASP + 1.2 percent before the sequester (Table 4-8) and a payment of 99.5 percent of ASP after the sequester. For a drug with a \$100,000 ASP per administration, the net payment rate with a \$175 add-on would equal about 98.6 percent ASP after the 2 percent sequester. However, the add-on cap under Options 1 or 3 could be structured to ensure that net payments do not fall below ASP. For example, the add-on cap could be set at a level equal to the greater of \$175 or, only if the 2 percent sequester is in effect, 1.6 percent of ASP.<sup>47</sup> This formula would ensure that with the \$175 add-on limit, net payment for expensive drugs would not fall below 100 percent of ASP.

Over the years, some stakeholders have expressed concern about small purchasers' ability to acquire drugs for the Medicare payment amount if the ASP add-on is changed. Under Options 2 and 3, Medicare's payment for drugs with an ASP per administration over \$700 would be reduced based on a formula of ASP + 3 percent + \$21 (with Option 3 also having a \$175 cap on add-on payments). Before the sequester, this payment formula equates to a payment of ASP + 5.1 percent for a drug with an ASP per administration of \$1,000 and a payment rate of ASP + 3.4 percent for a drug with an ASP of \$5,000 before the sequester (Table 4-8, p. 124); net payment rates would be about ASP + 3.4 percent and ASP + 1.8 percent, respectively, after application of a 2 percent sequester. In addition, under Options 1 and 3, as previously discussed, the \$175 add-on cap could bring the net payment rates for very expensive drugs close to or equal to 100 percent of ASP (assuming the adjustment to the add-on cap just discussed). As the payment rate gets close to ASP, it is possible that smaller purchasers could have difficulty purchasing the product for the Medicare payment amount if volume discounts exist for a product that the small purchaser does not receive. However, it is unknown whether prices vary substantially across purchasers for expensive drugs with generally smaller patient populations. In addition, it is in manufacturers' interest to ensure that providers are able to acquire drugs at a price in line with the Medicare payment amount.

In addition, some stakeholders have raised concerns that changing the ASP add-on could accelerate a trend toward hospitals buying community oncology practices. Several reasons have been cited for hospitals' acquisition of these practices (e.g., availability of 340B discounts at some hospitals, general reimbursement pressures, a movement toward integrated care models, and interest among some physicians in employment rather than running a practice). If a change to the ASP add-on resulted in some practices having difficulty purchasing drugs at the Medicare payment rate, this circumstance might contribute to the trend toward more hospital-based oncology care. However, it is in drug manufacturers' interest to support community oncology practices since acquisition of practices by hospitals, some of which participate in the 340B program, would potentially subject more manufacturer sales to 340B discounts. ■

# 4 A P P E N D I X A

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## **Japan's approach to lowering drug prices**

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Under the Japanese health care system, medicines and medical devices approved by the Pharmaceutical and Medical Devices Agency (PMDA) are generally covered by the National Health Insurance (NHI) program and are reimbursed by payers (e.g., insurers, labor unions) based on prices set by the Ministry of Health, Labour, and Welfare (MHLW).<sup>48</sup> The MHLW maintains a price list called the Drug Price Standard (DPS) for all medicines covered by the NHI. DPS prices are approved by the Central Social Insurance Medical Council (“Chuikyo”), which is an advisory board consisting of individuals representing payers, health care providers, and individuals intended to represent the public interest (Shiroiwa et al. 2017). Chuikyo plays a central role in setting prices for medicines and medical devices covered by the NHI.

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### **Price of a new medicine reflects incremental value when a therapeutic alternative is available**

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When a new brand-name drug (or biologic product) is approved by the PMDA, the price is determined using one of two methods: “similar efficacy comparison method” or “cost calculation method.” Under the former, the price of a new drug is based on the price of an existing medicine that is similar in terms of efficacy and pharmacological properties (a comparator drug) (Yamate 2016). If the new drug is determined to be superior to the comparator drug (e.g., higher efficacy and safety), it qualifies for premium pricing that would be set at a level ranging from 5 percent to 120 percent above the comparator drug’s price (Yamate 2016).

The second method, the cost calculation method, is used when there is no comparator drug on the DPS list. The price calculated under this method would account for cost of manufacturing (or importing) and other costs such as marketing, distribution, research and development, and consumption taxes. The method also has an allowance for operating profit, in which the base rate is the average profit rate across all industries. However, the rate may be adjusted upward based on factors such as novelty, efficacy, and safety compared with an existing therapy (Yamate 2016).

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### **Elements of external and internal reference pricing may help constrain high prices at launch**

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The final step in setting a price for a new drug is to compare the price determined using one of the two methods described above with an average price from four countries—the U.S., the U.K., France, and Germany. The price is adjusted downward if it exceeds 125 percent of the average foreign price and adjusted upward if it is lower than 75 percent of the average foreign price (Mamiya 2018). The adjustment formula applies a proportionately greater adjustment as the differential between the price in Japan and the average foreign price increases.

A new generic or biosimilar product is priced at a discount relative to the price of the brand counterpart listed on the DPS (typically a 50 percent discount for generics and a 30 percent discount for biosimilars). For drugs and biologics in competitive classes (defined as more than 10 competitors), larger discount rates are applied, while lower discount rates may apply for biosimilars that meet certain conditions (Mamiya 2018).

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### **Routine and “special” price adjustments are used to lower prices over time**

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After the initial price is set, DPS prices tend to decline because the prices are reviewed every two years to ensure that the reimbursement amounts are not excessive relative to prevailing market prices (Mamiya 2018).<sup>49</sup> If the DPS price is higher than the prevailing market price, the DPS price is adjusted downward (Mamiya 2018). Among drugs that were subject to price revisions, adjustments have averaged between –5 percent and –7 percent in most years since 2000 (Fukuda 2018). Prevailing market prices are typically lower than DPS prices because purchasers, such as medical institutions, may require that the manufacturer or the wholesaler provide discounts as a condition for their purchase or in exchange for a guarantee of a certain market share (Shiroiwa et al. 2017).

To promote generic use, an “exceptional reduction” is also applied in some circumstances. For an off-patent,

brand-name drug with at least one generic drug that has been on the market for at least five years, an additional price reduction of between 1.5 percent and 2 percent applies unless the generic drug(s) accounted for is at least 70 percent of the product's market (Mamiya 2018).

### **Special repricing for market expansion (“huge-seller” repricing)**

This repricing policy allows the MHLW to revise the price for high-priced, high-sales drugs more frequently than the standard two-year increment when the sale of a product is expected to far exceed the manufacturer's forecast submitted at the time the price was set (Yamate 2016). Depending on the magnitude of expected sales relative to the original projection and the amount of the expected sale, the price could be reduced by up to 50 percent. This repricing policy was implemented in response to concerns raised by academics and policymakers about the cost of Opdivo (nivolumab) after it gained additional indications in 2016 (Niki 2020). The policy has subsequently been applied to at least four other drugs and biologics, including Harvoni (ledipasvir/sofosbuvir) and Avastin (bevacizumab) (Branch et al. 2017).

### **Cost-effectiveness evaluation system**

Beginning in April 2019, Chuikyo implemented a new cost-effectiveness (CE) evaluation system for repricing medicines and medical devices.<sup>50</sup> Products are selected for CE evaluation based on the magnitude of the premium add-on and market size (Shiroiwa et al. 2017).<sup>51</sup> CE data submitted by the manufacturer are then reviewed by the Center for Outcomes Research and Economic Evaluation for Health.<sup>52</sup> As of December 2019, six medicines, including Kymriah (Novartis), had undergone a CE evaluation (Shiroiwa 2020). During the 2016 to 2017 period, Chuikyo conducted trial evaluations of seven medicines and six medical devices. The evaluations resulted in price reductions for two products—Opdivo (nivolumab) and Kadcyla (trastuzumab emtansine)—and a price increase for one medical device (Shiroiwa 2020). The lack of price adjustments for the other medicines and medical devices examined may reflect difficulty in reaching agreement among the parties involved in the evaluation. According to one researcher, CE evaluations did not result in more price adjustments “due to large gaps between results of appraisals undertaken by drug companies and those by independent researchers” (Niki 2020). ■

## Endnotes

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- 1 On the basis of SSR Health data, the authors identified a list of prescription drugs that met each of the following criteria: (1) were among the top 250 drugs by 2020 U.S. sales revenue; (2) had list price increases that were more than 2 percentage points higher than the rate of medical inflation between the end of 2019 and the end of 2020; (3) had net price increases after accounting for rebates and other concessions; and (4) after net price increases were vetted with manufacturers, were found to be the top 10 drugs whose price increases—as opposed to volume increases—contributed to the largest increase in U.S. spending. Based on public input, an additional two drugs were included in the analysis.
- 2 CMS considers a service “reasonable and necessary” if the service is safe and effective, not experimental or investigational, and appropriate for beneficiaries (Centers for Medicare & Medicaid Services 2019c).
- 3 Depending on the specific expedited program, sponsors of new drugs may receive a variety of benefits, such as additional opportunities to meet with and obtain advice from FDA officials during drug development; a rolling review (the FDA reviews portions of the application as they come in instead of waiting for the complete application); the ability to use certain surrogate endpoints or an intermediate clinical endpoint that is reasonably likely to predict clinical benefit; and a shorter goal for review time for the drug application.
- 4 FDA guidance states that there is a risk under accelerated approval that patients may be exposed to a drug that ultimately will not be shown to provide an actual clinical benefit and that with fewer, smaller, or shorter clinical trials, there may be less information about rare or delayed adverse events (Food and Drug Administration 2014).
- 5 The Government Accountability Office and others have found weaknesses in the FDA’s oversight of postmarket safety for drugs approved under the expedited pathways. The agency lacks reliable information to determine the progress of postmarket studies and manufacturers have delayed confirmatory studies of drugs approved under the accelerated approval pathway (Government Accountability Office 2015, Institute for Clinical and Economic Review 2021b).
- 6 According to CMS, although the definition of an LCD in the Social Security Act does not support the use of coverage with evidence development (under Section 1862(a)(1)(E)), MACs may use LCDs to determine coverage of items and services to the extent that they do not conflict with national Medicare policy (Centers for Medicare & Medicaid Services 2014).
- 7 In 2005, CMS applied CED to cover off-label use of colorectal cancer drugs (oxaliplatin, irinotecan, cetuximab, or bevacizumab), linking coverage to participation in nine clinical trials sponsored by the National Cancer Institute. As of September 2021, this CED is ongoing. In 2009, Medicare applied CED for pharmacogenomic testing for warfarin response.
- 8 The 340B Drug Pricing Program allows certain hospitals to obtain discounted prices from drug manufacturers on drugs and biologics other than vaccines. Under the hospital outpatient prospective payment system (OPPS), 340B hospitals are paid ASP + 6 percent for drugs with pass-through status. New drugs, biologics, and biosimilars typically receive pass-through status for the first two to three years on the market.
- 9 CMS takes the charges for items and services, including bundled drugs, and multiplies them by department-level cost-to-charge ratios to estimate the average cost associated with each APC. In this way, an estimate of hospitals’ average drug costs flows into the bundled payment rates under the OPPS.
- 10 Drug costs are incorporated into the dialysis payment bundle based on CMS’s estimate of historical utilization and the manufacturer’s ASP for the drugs.
- 11 This analysis of separately payable Part B drugs between 2009 and 2019 excludes any drug that was bundled in 2009 or 2019. That is, drugs that were packaged in 2009 or 2019 were excluded from both years of the analysis, regardless of the setting in which the drug was administered.
- 12 In addition to payment for a drug, Medicare makes a separate payment for administration of the drug under the physician fee schedule or OPPS. Medicare pays a dispensing or supplying fee to pharmacies that dispense inhalation drugs and oral anticancer, oral antiemetic, and immunosuppressive drugs to beneficiaries; Medicare also pays a furnishing fee to providers of clotting factors.
- 13 This is the first year we have included preventive vaccines paid 95 percent of average wholesale price in our top 20 Part B drug analysis. Previously, we focused only on drugs paid under the ASP payment system. If the 2019 version of Table 4-2 (p. 96) had included preventive vaccines, Fluzone High-Dose would have been the 20th highest expenditure drug, with spending over \$400 million that year. With that adjustment to our 2019 analysis, the same drugs were in the top 20 in both 2019 and 2020.

- Among the top 20 highest-expenditure products, relative rankings shifted somewhat between 2019 and 2020. Spending on several originator biologics with biosimilar competition declined between 2019 and 2020, reflecting greater biosimilar uptake and price decreases among originator biologics with biosimilar competitors. However, it is important to note that spending on biosimilar competitors is not reflected in the data in the table for the originator biologic. If biosimilar spending is summed with each originator biologic's spending, total 2020 spending was \$1.6 billion for Rituxan, \$1.2 billion for Neulasta, \$1.0 billion for Avastin, \$0.8 billion for Remicade, and \$0.7 billion for Herceptin and their respective biosimilars.
- 14 The extent to which originator biologics have lowered their prices in response to biosimilar entry and the extent to which market share has shifted to biosimilars vary by product. For example, the originator Remicade has lowered its price substantially and retained most of its market share. In contrast, the originator Neupogen has lowered its price slightly and most market share has shifted to biosimilars.
  - 15 In describing the assumptions of its simulation mode, CBO stated that “a 15 percent to 25 percent reduction in expected returns for drugs in the top quintile of expected returns is associated with a 0.5 percent average annual reduction in the number of new drugs entering the market in the first decade under the policy, increasing to an 8 percent annual average reduction in the third decade” (Congressional Budget Office 2021a).
  - 16 Policymakers could consider setting a cap on a drug's payment based on its net clinical benefit separately from applying CED. However, this chapter has not considered such an approach.
  - 17 Medicare Advantage (MA) plans are generally required to provide the same set of benefits that are available to beneficiaries under FFS Medicare. In addition, MA plans must adhere to NCDs and LCDs applicable in their service areas (with two exceptions related to regional preferred provider organizations and MA plans that include multiple MAC areas). In NCDs requiring CED, Medicare covers items and services in CMS-approved CED studies. MA plans are responsible for payment of items and services in CMS-approved CED studies unless CMS determines that the significant cost threshold is exceeded for that item or service.
  - 18 In addition, although the framework to implement “coverage with evidence development” had yet to be developed, in 1995 Medicare linked coverage of lung volume reduction surgery to the collection of clinical evidence (Mohr and Tunis 2010). The publicly funded study was completed and main findings published in 2003. Medicare revised its NCD to cover all patients who matched the characteristics of patients in the trial who experienced a survival or quality-of-life benefit. In addition, in 2001, Medicare linked coverage of angioplasty of the carotid artery with stenting (Mohr and Tunis 2010).
  - 19 Section 1142 of the statute describes the authority of AHRQ to conduct and support research on outcomes, effectiveness, and appropriateness of services and procedures to identify the most effective and appropriate means to prevent, diagnose, treat, and manage diseases, disorders, and other health conditions.
  - 20 Under Section 1862(a)(1)(E) of the statute, the Secretary has the authority to “conduct and support research through the AHRQ administrator with respect to the outcomes, effectiveness, and appropriateness of health care services and procedures in order to identify the manner in which diseases, disorders, and other health conditions can most effectively and appropriately be prevented, diagnosed, treated, and managed clinically.”
  - 21 See the Commission's June 2010 report to the Congress, Chapter 1 and appendixes, for a more detailed discussion of Medicare's statutory foundation to implement CED and other implementation issues.
  - 22 Some stakeholders argue that CED can be burdensome. However, researchers have noted that modernizing data collection by, for example, designing registries that can be used for multiple purposes (e.g., CED, FDA surveillance, and quality benchmarking) and enhancing data linkages across other databases can minimize operational challenges of CED (Duke Margolis Center for Health Policy 2020).
  - 23 Medicare uses clinical information to determine when new technologies qualify for add-on payments under the inpatient, outpatient, and end-stage renal disease prospective payment systems.
  - 24 Only for preventive services (including vaccinations and colorectal screening tests), and based on legislative requests and statutory directives, has Medicare explicitly considered the cost-effectiveness of a service when making a national coverage decision.
  - 25 According to the statute: (1) “The Secretary shall not utilize such an adjusted life year (or such a similar measure) as a threshold to determine coverage, reimbursement, or incentive programs under title XVIII,” and (2) “The Secretary shall not use evidence or findings from clinical comparative effectiveness research . . . in determining coverage, reimbursement, or incentive programs . . . in a manner that treats extending the life of an elderly, disabled, or terminally ill person as of lower value than extending the life of an individual who is younger, nondisabled, or not terminally ill.”

- 26 ICER is an independent nonprofit organization that, since 2005, conducts independent analyses of the comparative clinical effectiveness and cost-effectiveness of medical interventions, including drugs, medical devices, tests, and delivery system innovations.
- 27 For example, should studies limit the population to Medicare beneficiaries or patients of all ages? Should costs be limited to Medicare payments? Should the model include all costs—taking the societal perspective? Should the analysis measure outcomes that use QALYs or another method, such as life years gained?
- 28 Researchers use sensitivity analysis to test the effect of varying parameters of interest (e.g., drug prices) on the conclusions of CEAs.
- 29 See Chapter 1 of the Commission's March 2022 report for a more detailed discussion of Aduhelm's implications for the Part B premium (Medicare Payment Advisory Commission 2022b).
- 30 The Commission's comment letter that supports the agency's CED proposal can be found at [https://www.medpac.gov/wp-content/uploads/2022/02/Feb22\\_NCD\\_Monoclonal\\_Alzheimers\\_MedPAC\\_comment\\_v2\\_SEC.pdf](https://www.medpac.gov/wp-content/uploads/2022/02/Feb22_NCD_Monoclonal_Alzheimers_MedPAC_comment_v2_SEC.pdf).
- 31 CMS is not requiring a separate RCT that duplicates an RCT conducted for FDA approval. According to the final NCD, because each anti-amyloid mAb product (approved based on a surrogate outcome) may have a distinct mechanism of action resulting in a distinct benefit/risk profile, CMS will evaluate each on its own merit in its own studies (Centers for Medicare & Medicaid Services 2022b).
- 32 Prospective comparative studies may include a variety of study designs, ranging from observational comparative studies to pragmatic randomized trials, and study data may be collected in a registry. These studies must address the following questions: (1) Does the drug meaningfully improve health outcomes (i.e., slow the decline of cognition and function) for patients in community practice? (2) Do benefits and harms associated with use of the drug, such as brain hemorrhage and edema, depend on characteristics of patients, treating clinicians, and settings? (3) How do the benefits and harms change over time (Centers for Medicare & Medicaid Services 2022b)?
- 33 According to the authors, net costs to a Medicaid program were estimated by adjusting the acquisition cost (as measured by average wholesale price, the prevailing payment during most of the study period) for average rebates.
- 34 The 24 Part B anticancer drugs were approved by the FDA between 1996 and 2012 and did not go off patent during the follow-up period (between 2005 and 2017). Adjusting for annual general and health-related inflation rates, the mean cumulative increases were 19.1 percent and 8.4 percent, respectively. Using multivariate regression techniques, the researchers reported that the number of years after a drug's launch may have influenced price change rates. For every additional year after a drug's launch, there was an additional increase of 0.3 percent in inflation-adjusted price change and a 0.2 percent increase in health-related inflation-adjusted price change rates.
- 35 The authors included the following six classes: antineoplastic agents, insulins, lipid-lowering agents, multiple sclerosis therapies, noninsulin antidiabetic agents, and tumor necrosis factor inhibitors.
- 36 Services that lack comparative clinical effectiveness information would be paid according to current Medicare policies for a period of three years. At the end of this period, Medicare would decide whether evidence was currently available to determine whether the service was superior, comparable, or inferior to alternatives.
- 37 The prostate cancer drugs were triptorelin pamoate, goserelin acetate implant, and leuprolide acetate suspension.
- 38 Under the Medicare, Medicaid, and SCHIP Extension Act of 2007, CMS calculates the payment rate for albuterol and levalbuterol based on the lower of (1) the volume-weighted average of 106 percent of the ASP for both drugs or (2) the payment rate based on 106 percent of the ASP for the individual drug.
- 39 The statute constrains Medicare's use of comparative clinical effectiveness evidence to pay for drugs. Medicare cannot withhold coverage of prescription drugs using comparative clinical effectiveness evidence that AHRQ produces. The Affordable Care Act of 2010 constrains Medicare's use of comparative clinical effectiveness research conducted by the Patient-Centered Outcomes Research Institute when making coverage decisions and setting payment rates.
- 40 The statute requires that Medicare cover off-label indications of cancer drugs if the drug's off-label use is supported by selected third-party drug compendia.
- 41 The National Eye Institute funded a study that found that off-label Avastin and on-label Lucentis had equivalent effects on visual acuity when administered according to the same schedule (Catt Research Group et al. 2011).
- 42 When the 2 percent sequester is in effect, it reduces payments providers receive for Part B-covered drugs by 1.6 percent, which results in a net payment equivalent to ASP + 4.3 percent. Legislation suspended the sequester through

March 31, 2022. For April to June 2022, the sequester was reduced to 1 percent, and in July 2022 the 2 percent sequester will be reinstated.

- 43 For drugs provided by outpatient hospitals, some portion of the drug payment amount is intended to cover pharmacy overhead. With respect to payment for separately paid drugs under the OPPOS, CMS has stated that the drug payment rate (currently ASP + 6 percent; in prior years, as low as ASP + 4 percent) includes payment for drug acquisition costs and pharmacy overhead (Centers for Medicare & Medicaid Services 2012).
- 44 This analysis of add-on payments excludes drugs furnished by 340B hospitals that are paid ASP – 22.5 percent. Specifically, we exclude those drugs billed by OPPOS hospitals using the JG modifier.
- 45 The payment amount for drug administration varies by type of drug and mode of administration. For example, under the physician fee schedule, the payment rates for some common drug administration services in 2022 are \$14.54 for a therapeutic, prophylactic, or diagnostic injection, subcutaneous or intramuscular, and \$69.21 for a therapeutic, prophylactic, or diagnostic intravenous infusion, first hour, excluding chemotherapy and other highly complex drugs or highly complex biologic agents. In contrast, the payment rate for a chemotherapy antineoplastic injection, subcutaneous or intramuscular, is \$77.86, and for a chemotherapy intravenous infusion, first hour, is \$140.16. Additional payments are made if the infusion lasts longer than the initial hour or if more than one drug is furnished. In addition, drug administration payment rates may vary based on the location of the injection (e.g., injections in the eye and in the knee).
- 46 Whereas 9.2 percent of beneficiaries used the most expensive drug in the 10 months before the payment change, 11.0 percent of beneficiaries used that drug in the 10 months after.
- 47 The 2 percent sequester reduces the total payment a provider receives for Part B drugs by 1.6 percent because the sequester applies to the Medicare program payment (80 percent of the payment) but not beneficiary cost sharing (20 percent of the payment). A \$175 add-on cap policy could be designed to ensure that payments do not fall below 100 percent of ASP after application of the sequester. That could be accomplished using the following formula: Cap equals the greater of \$175, or if the 2 percent sequester is in effect, 1.626 percent of ASP. The percentage of ASP in this formula is slightly higher than 1.6 percent because it accounts for the effect of the sequester on both the ASP portion and add-on portion of the payment.
- 48 Japan's multipayer social insurance-based system is similar to the systems in France and Germany (Shiroiwa et al. 2017).
- 49 Prevailing market prices are obtained through a survey of wholesalers and purchasers such as medical institutions and pharmacies (Mamiya 2018).
- 50 The results of the cost-effectiveness evaluation are not used by the NHI to make coverage decisions (Shiroiwa 2020).
- 51 Under the CE evaluation system, highly innovative drugs associated with high spending are subject to a CE evaluation and, if warranted, price adjustments. This policy applies to (1) newly listed products with projected peak sales of over ¥10 billion (about US\$92 million) or annual sales of between ¥5 billion and ¥10 billion; and (2) existing products with projected peak sales of over ¥100 billion, or significantly high prices. CE is measured using an incremental cost-effectiveness ratio (ICER) and estimates of costs per quality-adjusted life years gained. The price adjustment, if warranted, applies to the premium add-on (if applicable) and the operating profit portion of the NHI price. Cancer drugs and other specialty drugs are assessed against “relaxed” ICER thresholds. Therapies targeting designated intractable diseases, HIV, hemophilia, and some cancer indications can be excluded from CE evaluation (Sharma 2020).
- 52 The Center for Outcomes Research and Economic Evaluation for Health is a department within the National Institute of Public Health that was founded in 2018 to conduct independent CE analysis to be used during the CE evaluation process (Hasegawa et al. 2020).

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