



—Inflation Reduction Act Research Series—

Medicare Part D Enrollee Savings from Elimination of Vaccine Cost-Sharing

Effective January 1, 2023, the Inflation Reduction Act (IRA) eliminated enrollee cost-sharing for recommended vaccines covered under Medicare Part D. In 2021, 3.4 million people received vaccines under Part D, and annual out-of-pocket costs were \$234 million. This translates to nearly \$70 in out-of-pocket spending per Medicare enrollee receiving a Part D vaccine that they would not have had to pay if the IRA had been in effect in 2021.

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KEY POINTS

- As of January 1, 2023, the Inflation Reduction Act eliminated out-of-pocket costs for vaccines covered under Medicare Part D that are recommended by the Advisory Committee on Immunization Practices (ACIP). Currently, about 51 million Medicare beneficiaries are enrolled in a Part D plan.
- We examined vaccine use, total costs, and out-of-pocket spending for vaccines covered under Part D, including vaccines to prevent herpes zoster (shingles); tetanus and diphtheria (Td); tetanus, diphtheria, and pertussis (Tdap); hepatitis A; and hepatitis B.*†
- About 3.4 million (7 percent) of Medicare Part D enrollees received a Part D covered vaccine, paying a total of \$234 million in out-of-pocket costs in 2021, or approximately \$70 per beneficiary. The majority of enrollees who received a vaccine were immunized with the shingles vaccine (82 percent) with each patient paying an average of \$77 in out-of-pocket costs, followed by the Tdap vaccine (21 percent) with each patient paying an average of \$28 in out-of-pocket costs. There was variation around the average out-of-pocket costs with enrollees in the top 10 percent of costs paying \$193 or higher for the shingles vaccine and \$66 or higher for the Tdap vaccine.

* Our analysis does not include vaccines for Coronavirus Disease 2019 (COVID-19) because they are covered under Medicare Part B and do not have any cost-sharing requirements. See: [COVID-19 Vaccine Insurance Coverage \(medicare.gov\)](https://www.medicare.gov/covid-19-vaccine-insurance-coverage).

† Hepatitis B is covered under Medicare Part B for enrollees who are at medium or high risk and Medicare Part D for enrollees who are at low risk.

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- In addition, on average, enrollees paid \$20 out-of-pocket for the Td vaccine, \$34 for the hepatitis A vaccine, and \$51 for the hepatitis B vaccine. There was variation around the average with enrollees in the top 10 percent of out-of-pocket costs paying \$56 or higher for the Td vaccine, \$97 or higher for the hepatitis A vaccine, and \$139 or higher for the hepatitis B vaccine.
 - Enrollees without the Part D low-income subsidy (LIS)* generally have the highest cost burden for prescription drugs, including vaccines. Non-LIS enrollees paid on average \$86 per enrollee in 2021 for Part D vaccines, driven largely by the shingles vaccine.
 - If the new vaccine provisions had been in effect in 2021, they would have resulted in cost-sharing savings across a wide range of demographic groups, including 2.7 million White enrollees, 271,000 Black enrollees, 113,000 Asian enrollees, and 86,000 Latino enrollees. Improved affordability may also reduce existing racial and ethnic disparities in access to these vaccines.
 - State-level estimates show that California (\$20,000,000), Florida (\$18,000,000), and Texas (\$14,000,000) had the highest total beneficiary out-of-pocket costs for all Part D vaccines.
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BACKGROUND

Vaccines are necessary to reduce the spread of disease, prevent serious illness, and limit adverse health consequences. Access to vaccines for older Americans, most of whom are covered by Medicare, is particularly important because changes in the immune system in older age can increase susceptibility to infectious diseases.¹ For individuals with Medicare, vaccines are covered through a combination of Medicare Part B and Part D, depending on the vaccine.² Medicare Part B vaccine coverage includes vaccines to prevent influenza, pneumococcal disease, hepatitis B for beneficiaries who are at medium or high risk, and COVID-19. Vaccines for these conditions do not have any cost-sharing requirements.³ All other commercially available vaccines that are determined to be necessary, including vaccines to prevent shingles (herpes zoster), tetanus, hepatitis A, and hepatitis B (for individuals who are at low risk) are covered under Medicare Part D. Currently, about 51 million of 65 million Medicare beneficiaries are enrolled in Part D, including both Prescription Drug Plan (PDP) and Medicare Advantage prescription drug plan (MA-PD) enrollees.⁴

Part D vaccine coverage historically included cost-sharing requirements,⁵ but the recently enacted Inflation Reduction Act (IRA) provides access to vaccines covered under Medicare Part D without cost-sharing. The IRA provision applies to vaccines that are recommended by the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP). Most private insurance, Medicaid for managed care or expansion enrollees, and Marketplace plans have been required to cover adult vaccines without cost-sharing

* For eligible enrollees whose income and resources are limited, the Medicare Prescription Drug, Improvement and Modernization Act of 2003 established the low-income subsidy to help pay for prescription drugs. Subsidies are paid by the Federal government to drug plans and provide eligible individuals assistance with premiums, deductibles, and co-payments.

† Congress has on four occasions amended the Medicare statute to cover specific preventive vaccines with no cost-sharing under Part B: pneumococcal disease (1981); hepatitis B for patients at medium or high risk (1984); seasonal influenza, recommended annually (1993); and COVID-19 (2020). (See Medicare Payment Advisory Commission (MedPAC), Report to the Congress: Medicare and the Health Care Delivery System, June 2021 (https://www.medpac.gov/wp-content/uploads/import_data/scrape_files/docs/default-source/reports/jun21_medpac_report_to_congress_sec.pdf), p. 245.) Medicare Part D was enacted as part of the Medicare Modernization Act of 2003. Under Medicare Part D, vaccines determined reasonable and necessary to prevent illness are covered and subject to cost-sharing, except those vaccines covered by Part B.

under the Affordable Care Act (ACA).^{*} Beginning January 1, 2023, Medicare Part D does as well.⁶ Prior to the IRA, Part D enrollees were required to pay out-of-pocket for commercially available vaccines that are not covered under Part B. These cost-sharing amounts were based on the amount of cost-sharing that Part D plans set for each vaccine and an individual enrollee’s spending on prescription drugs at that point in the year.[†]

In this Issue Brief, we examine vaccine use, total vaccine spending, and out-of-pocket spending for all vaccines that are covered under Medicare Part D. We present estimates separately for shingles; tetanus/diphtheria (Td); tetanus, diphtheria, and pertussis (Tdap); hepatitis A; and hepatitis B vaccinations because these vaccines comprise the majority of vaccines administered under Medicare Part D.[‡] All estimates include enrollees in both PDPs and MA-PDs.[§]

Overview of Part D Vaccines

The vaccines covered by Medicare Part D prevent infectious diseases that have serious health and quality of life effects and may lead to increased health care utilization for patients. Table 1 lists the diseases for which vaccines are most commonly used among Medicare Part D enrollees and their potential health effects.

Table 1. Health Effects of Part D Covered Vaccine Preventable Diseases

Diseases	Description and Health Effects
Shingles (Herpes Zoster)	A painful and debilitating condition caused by a virus that causes nerve pain throughout the body. It may lead to serious complications such as loss of vision and long-term nerve pain. Although rates of hospitalization and mortality are generally low, about 8 to 10 percent of people with shingles develop complications. ⁷
Tetanus	A life-threatening condition caused by exposure via skin wounds to bacteria that live in the soil and attack the nervous system. Tetanus can lead to paralysis and death. The prevalence of tetanus is very low in the United States, largely due to the availability of vaccines and improved wound management. ⁸

^{*} Effective October 1, 2023, other Medicaid enrollees will receive coverage with no cost-sharing for all recommended adult vaccines under Section 11405 of the Inflation Reduction Act.

[†] Enrollee cost-sharing varies based on the phase of Part D drug coverage they are in at the time they obtain a Part D covered vaccine. Cost-sharing can range from 100 percent in the deductible phase to 5 percent in the catastrophic coverage phase; the Inflation Reduction Act reduces cost-sharing in the catastrophic phase to 0 percent beginning January 1, 2024.

[‡] These vaccines are generally covered under Part D but may be covered under Part B if they are used for treatment of exposure (for example, rabies treatment after exposure and tetanus vaccine or booster after exposure). Hepatitis B vaccine is covered by Medicare Part B if an individual is determined to be at medium or high risk.

[§] Estimates include Part D enrollees in Employer Group Waiver Plans (EGWPs).

Diseases	Description and Health Effects
Diphtheria	A bacterial infection that primarily affects the respiratory tract, causing severe sore throat, throat swelling, and difficulty breathing. Complications from diphtheria can include damage to the heart, nerve damage, and kidney failure. The most severe form of diphtheria is respiratory diphtheria; without treatment, up to half of people with this form of the disease would not survive. Diphtheria is rare in the United States, largely due to the availability of vaccines. ⁹
Pertussis	Pertussis is also known as “Whooping Cough,” and it is caused by bacteria that attack the respiratory system. It is a highly contagious disease that poses the greatest risk to infants, unimmunized children, and older adults. People with underlying respiratory conditions such as asthma are at increased risk. Pertussis causes violent bouts of coughing and may result in long term and sometimes serious acute complications such as pneumonia. ¹⁰
Hepatitis A	Hepatitis A is caused by a virus in contaminated food or water that attacks the liver and results in liver inflammation. Although hepatitis A is most often a short-term infection that resolves without complications, in rare cases, it may lead to serious complications such as liver failure and death. ¹¹ CDC reports that more than 30 states have had outbreaks of hepatitis A since 2016. ¹²
Hepatitis B	Hepatitis B is caused by a virus that infects the liver and can lead to serious and long-term health consequences such as cirrhosis of the liver or liver cancer.
Other diseases	Other vaccine-preventable diseases covered under Part D include all commercially available vaccines when they have been determined to be reasonable and necessary to prevent illness, except those covered by Part B. ¹³ Examples include vaccines for measles, mumps, and rubella; vaccines for meningitis B; and vaccines needed for international travel.

ACIP issues vaccine recommendations to protect against these diseases and limit severe illness in case of infection. General ACIP vaccine recommendations for vaccine preventable diseases covered under Part D vary by age, and depending on the disease, may require periodic boosters. Table 2 presents vaccine recommendations for the most commonly used Part D covered vaccines by adult age group.

Table 2. General ACIP Recommendations for Commonly Used Vaccines Covered Under Medicare Part D

Vaccine Covered Under Part D	General ACIP Recommendation		
	<u>19-49 years</u>	<u>50-64 years</u>	<u>≥ 65 years</u>
Shingles (Zoster)	2 doses (immunocompromised)	2 doses	2 doses
Tetanus/Diphtheria/Pertussis***	1 dose Tdap, then Td or Tdap dose every 10 years 1 dose Tdap (each pregnancy) 1 dose Tdap or Td (wound management, if no prior vaccination within past 5 or 10 years depending on the wound)	1 dose Tdap, then Td or Tdap dose every 10 years 1 dose Tdap or Td (wound management, if no prior vaccination within past 5 or 10 years depending on the wound)	1 dose Tdap, then Td or Tdap dose every 10 years 1 dose Tdap or Td (wound management, if no prior vaccination within past 5 or 10 years depending on the wound)
Hepatitis A*	2 or 3 doses depending on vaccine (at-risk populations)	2 or 3 doses depending on vaccine (at-risk populations)	2 or 3 doses depending on vaccine (at-risk populations)
Hepatitis B**	2, 3, or 4 doses depending on vaccine or condition	2, 3, or 4 doses depending on vaccine or condition (at-risk populations, ≥60 years of age and older)	2, 3, or 4 dose series depending on vaccine (at-risk populations, ≥60 years of age and older)

Source: [ACIP Vaccine Recommendations | CDC¹⁴](#)

Notes: ACIP issues recommendations for other vaccines that are covered under Part D in addition to the ones listed above.

* Risk criteria for hepatitis A include chronic liver disease, HIV infection, men who have sex with men, injection or noninjection drug use, homelessness, work with hepatitis A virus, travel in countries with high or intermediate endemic hepatitis A, close personal contact with international adoptees, pregnancy, and settings for exposure.

** Medicare Part B pays for vaccination to protect against hepatitis B if an individual is deemed to be at medium or high risk.¹⁵ Hepatitis B vaccines are recommended for individuals 60 years and older with known risk factors, however, individuals ages 60 years and older without known risk factors may also complete the hepatitis B vaccine series. Hepatitis B at-risk populations include people with chronic liver disease, HIV infection, sexual exposure risk (sex partners with hepatitis B surface antigens, sexually active persons not in mutually monogamous relationships, persons seeking evaluation or treatment for sexually transmitted infections, men who have sex with men), current or recent injection drug use, percutaneous or mucosal risk for exposure to blood, incarcerated persons, or travel to countries with high or intermediate endemic hepatitis B.

*** Medicare Part B pays for vaccination to protect against tetanus (Td) if it is required due to illness or injury.¹⁶

Vaccination rates among adults, including older adults, are generally low.^{17,18} CDC analysis of data from the National Health Interview Survey (NHIS) showed that fewer than half of all adults (<45 percent) received age-appropriate recommended vaccinations in 2019.¹⁹

A variety of factors can affect individuals' decision and ability to obtain vaccines, including out-of-pocket costs, availability and access to health care services, health literacy, trust in vaccines, perceived risk, and socio-

demographic factors.^{20,21} Existing research shows that higher out-of-pocket costs contribute to lower vaccine use.^{22,23, 24} For example, there has been concern that the recommended vaccine for shingles - Shingrix - while more effective than the Zostavax vaccine that was previously available, is also more expensive, and that the additional cost could limit access.^{25,26} CDC data show that in 2019, only about 26 percent of adults ages 50 and older reported ever receiving a shingles vaccination.²⁷

Multiple other factors, in addition to out-of-pocket costs, affect vaccine use. For example, studies show that individuals are more likely to obtain a shingles vaccine if they have been recommended to do so by a health care provider and if they are aware that the vaccine is recommended for their age group.²⁸ Moreover, recent research finds that people who report increased contact with health care providers and who report having a usual source of health care are more likely to report receiving the shingles vaccine.²⁹ Individuals who obtain annual health checkups and flu shots are also more likely to receive the shingles vaccine, suggesting that interaction with health care providers plays a role in individuals' use of vaccines.³⁰

Studies also find disparities in vaccination rates based on race, ethnicity, gender, and income.³¹ Black and Latino adults have lower rates of obtaining the shingles vaccine than their White counterparts, and women are more likely to obtain the shingles vaccine than men.^{32,33} Individuals with higher incomes are also more likely to obtain the vaccine than those with lower incomes.^{34,35} This may reflect affordability barriers, which the new IRA vaccine provision was designed to address.

METHODS

We examined vaccine use in 2021 using the Medicare Prescription Drug Event (PDE) and Medicare enrollment data for beneficiaries enrolled in Part D. We examined vaccine use for all vaccines covered under Part D, and present estimates separately for shingles, tetanus/diphtheria (Td), tetanus/diphtheria and pertussis (Tdap), hepatitis A, and hepatitis B vaccines, which make up the majority of Part D vaccine utilization and out-of-pocket spending prior to implementation of the IRA. Estimates for the remainder of Part D vaccines are presented as "Others" and include, for example, the measles, mumps, rubella (MMR) vaccine and other commercially available vaccines that are not covered under Part B but are determined to be reasonable and necessary under the Medicare statute (including vaccines for international travel).³⁶ We highlight use and spending for shingles because the majority of vaccinations administered and covered by Part D are for prevention of this condition.

Next, we examined total vaccine costs and out-of-pocket costs for Part D vaccines in 2021, overall and separately by low-income subsidy (LIS) status.* Total vaccine costs include the cost of the vaccine and its administration costs, whether borne by Medicare, enrollee cost-sharing, or third parties such as patient assistance programs or the Veterans Health Administration. Out-of-pocket costs include only those actually paid for by the enrollee. For vaccines that require multiple doses to complete the vaccination series, cost estimates include all doses received in 2021. We also examined average out-of-pocket spending by enrollee demographic characteristics and by state of residence.

* Total vaccine costs, also known as gross costs, include the cost of the vaccine and administration of the vaccine, including out-of-pocket costs and third-party costs.

RESULTS

3.4 million Medicare Part D enrollees spent \$234 million on out-of-pocket cost for vaccines in 2021, but would pay \$0 in 2023 under the Inflation Reduction Act for these vaccines

About 7 percent of Medicare Part D enrollees received a vaccine in 2021 under their Part D coverage. *This rate only reflects whether an enrollee received a Part D vaccine in 2021* and does not include enrollees who are up to date on their vaccines but received them prior to 2021 or whose vaccines were not paid for by Part D. Since none of the Part D covered vaccines are required to be re-administered every year, the number of Medicare enrollees who are up to date on at least some of the ACIP vaccine recommendations is likely to be much higher than the annual vaccination rate of 7 percent.

Enrollees with LIS had slightly lower annual rates (5 percent) of Part D vaccine receipt than non-LIS enrollees (7 percent). The differences between LIS and non-LIS vaccine use rates may reflect differences in access to health care, awareness of vaccine recommendations, concerns

about vaccine risks and safety, and other factors in addition to cost-sharing that impact vaccine use, as discussed earlier.

Table 3 shows vaccine use among all Part D enrollees who received one or more Part D covered vaccines in 2021. Overall, the shingles vaccine was the most common vaccine covered by Part D (about 82 percent of enrollees receiving any vaccine), followed by Tdap (about 21 percent). The shingles vaccine was the most common Part D vaccine received by both LIS and non-LIS enrollees.

Table 3. Vaccine Use for Medicare Part D Enrollees, 2021

Vaccines	LIS Enrollees		Non-LIS Enrollees		Total Enrollees	
	(n)	%	(n)	%	(n)	%
Shingles	562,276	83.2%	2,182,942	81.2%	2,744,025	81.6%
Tdap	136,966	20.3%	558,871	20.8%	695,830	20.7%
Td	6,874	1.0%	41,840	1.6%	48,714	1.4%
Hepatitis A	6,093	0.9%	14,362	0.5%	20,455	0.6%
Hepatitis B	8,515	1.3%	13,134	0.5%	21,629	0.6%
Others*	7,823	1.2%	13,285	0.5%	21,098	0.6%
Total Number of Enrollees Who Received a Vaccine**	675,882	108%	2,689,999	105%	3,364,518	106%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Notes: This sample is restricted to enrollees who received at least one vaccine that is covered under Part D.

*Other vaccines include, for example, immunizations to protect against measles, mumps, and rubella (MMR); meningococcal disease; typhoid fever, and others, including vaccines for international travel.

**Total enrollees are those who received any Part D vaccine. Enrollees are counted only once even if they received more than one vaccine. Percentages do not add up to 100 percent because some enrollees have received more than one type of vaccine.

We also examined vaccine use among Part D enrollees from 2017 through 2021 to understand patterns of use over time. Vaccine use rates increased from 2017 to 2019, but began to decline during the COVID-19 pandemic, similar to other reports on vaccine use trends for adults and children.^{37,38} See Appendix Figure A1 and Figure A2.

Table 4 presents the total vaccine costs for all Medicare Part D enrollees who received any Part D covered vaccine in 2021, which totaled over \$740 million. The shingles vaccine accounted for about 92 percent of total costs, followed by Tdap at about 6 percent. Td, hepatitis A, hepatitis B, and other vaccines covered under Part D were all under 1 percent of total costs each. The average total vaccine cost per enrollee was highest for hepatitis B (\$252), followed by shingles (\$248), and other vaccines (\$230).

Out-of-pocket costs totaled \$234 million, which translates to about \$70 per enrollee who received a Part D covered vaccine in 2021.* The majority of these costs were related to the shingles vaccine, with total out-of-pocket costs for shingles vaccines representing about 90 percent of all out-of-pocket Part D vaccine spending in 2021. On average, enrollees paid \$77 out of-pocket for the shingles vaccine, \$28 for the Tdap vaccine, and \$51 for the hepatitis B vaccine.

Table 4. Total Vaccine Costs and Out-Of-Pocket Costs for Vaccines Covered Under Medicare Part D, 2021

Vaccines	Enrollees Receiving Vaccines (n)	Total Vaccine Costs (\$)	Percent of Total Vaccine Costs	Average Total Vaccine Cost (\$)	Total OOP Costs (\$)	Percent of Total OOP Costs	Average OOP per Enrollee (\$)
Shingles	2,744,025	\$681,660,727	92.1%	\$248.31	\$211,224,136	90.1%	\$76.94
Tdap	695,830	\$43,926,342	5.9%	\$63.13	\$19,437,408	8.3%	\$27.93
Td	48,714	\$2,480,467	0.3%	\$50.92	\$986,221	0.4%	\$20.25
Hepatitis A	20,455	\$2,072,517	0.3%	\$101.32	\$697,594	0.3%	\$34.10
Hepatitis B	21,629	\$5,454,712	0.7%	\$251.96	\$1,108,099	0.5%	\$51.18
Others	21,098	\$4,860,914	0.7%	\$230.29	\$1,000,716	0.4%	\$47.41
Received any vaccine*	3,364,518	\$740,455,679	100%	\$220.08	\$234,454,174	100%	\$69.68

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Estimates are presented for enrollees who received any Part D covered vaccines.

For vaccines that require multiple doses to complete the vaccination series, cost estimates include all doses received in 2021.

*Enrollees are counted only once even if they received more than one vaccine.

OOP = Out-of-Pocket

Medicare Part D enrollees who do not receive LIS are the most exposed to out-of-pocket costs for all Part D drugs, including vaccines. Table 5 presents estimates for total and average out-of-pocket costs per enrollee

* We also examined trends in average out-of-pocket costs from 2017 to 2021. Results follow similar patterns over time as vaccination use, with out-of-pocket costs increasing from 2017 – 2019 and declining during the COVID-19 Pandemic (see Figure A2 in Appendix).

receiving vaccines by LIS status. Average out-of-pocket costs were considerably lower for LIS enrollees than for enrollees who do not have LIS. Among enrollees with LIS, total out-of-pocket costs were about \$4.3 million, with average out-of-pocket cost per enrollee ranging from about \$3 to \$6, and an overall average of \$6.35. Out-of-pocket costs for non-LIS enrollees totaled \$230.2 million and averaged \$86 per enrollee who received any Part D covered vaccine. The highest average out-of-pocket cost was for shingles (\$95), followed by hepatitis B (\$81), and other vaccines (\$73).

Table 5. Out-Of-Pocket Costs for Medicare Part D Enrollees on Part D Covered Vaccines by LIS Status, 2021

Vaccines	LIS			Non-LIS		
	Enrollees Receiving Vaccines (n)	Total OOP Costs (\$)	Average OOP per Enrollee (\$)	Enrollees Receiving Vaccines (n)	Total OOP Costs (\$)	Average OOP per Enrollee (\$)
Shingles	562,276	\$3,628,594	\$6.45	2,182,942	\$207,595,542	\$95.10
Tdap	136,966	\$532,137	\$3.89	558,871	\$18,905,271	\$33.83
Td	6,874	\$22,158	\$3.22	41,840	\$964,063	\$23.04
Hepatitis A	6,093	\$24,846	\$4.08	14,362	\$672,748	\$46.84
Hepatitis B	8,515	\$47,324	\$5.56	13,134	\$1,060,776	\$80.77
Others	7,823	\$36,679	\$4.69	13,285	\$964,037	\$72.57
Received Any Vaccine*	675,882	\$4,291,738	\$6.35	2,689,999	\$230,162,437	\$85.56

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Estimates are presented for enrollees who received any Part D covered vaccines. For vaccines that require multiple doses to complete the vaccination series, estimates include all doses received in 2021.

*Enrollees are counted only once even if they received more than one vaccine.

OOP = Out-of-Pocket

Out-of-pocket costs for all vaccines represented 32 percent of total vaccine costs. For LIS enrollees, out-of-pocket costs were 3 percent of total vaccine costs, while non-LIS enrollees paid considerably more in out-of-pocket costs as a percentage of total vaccine costs (39 percent).

Table 6 presents the distribution of out-of-pocket costs per enrollee for vaccines covered under Medicare Part D. For all enrollees who received a Part D covered vaccine, the median out-of-pocket spending per enrollee was lower compared to the average out-of-pocket spending for each vaccine. However, beneficiaries at the 90th percentile of spending paid about 2.5 times the average in out-of-pocket costs for the shingles vaccine (\$193). The large difference between average out-of-pocket spending and out-of-pocket spending at the 90th percentile was observed for all vaccines, suggesting that a subset of beneficiaries had a much higher cost burden for Part D covered vaccines.

Table 6. Distribution of Out-of-Pocket Costs Per Medicare Part D Enrollee for Part D Covered Vaccines, 2021

Vaccines	LIS			Non-LIS			All		
	Average OOP (\$)	Median OOP (\$)	90 th Percentile OOP (\$)	Average OOP (\$)	Median OOP (\$)	90 th Percentile OOP (\$)	Average OOP (\$)	Median OOP (\$)	90 th Percentile OOP (\$)
Shingles	\$6.45	\$4.00	\$18.40	\$95.10	\$47.95	\$194.89	\$76.94	\$45.00	\$192.80
Tdap	\$3.89	\$4.00	\$9.20	\$33.83	\$42.00	\$66.50	\$27.93	\$20.00	\$66.30
Td	\$3.22	\$0.00	\$9.20	\$23.04	\$14.54	\$57.56	\$20.25	\$9.20	\$56.21
Hepatitis A	\$4.08	\$4.00	\$9.20	\$46.84	\$44.57	\$98.50	\$34.10	\$20.00	\$97.15
Hepatitis B	\$5.56	\$4.00	\$12.63	\$80.77	\$47.00	\$180.00	\$51.18	\$18.40	\$139.29
Others	\$4.69	\$4.00	\$9.20	\$72.57	\$45.00	\$171.73	\$47.41	\$9.20	\$136.13

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Estimates are presented for enrollees who received any Part D covered vaccines. For vaccines that require multiple doses to complete the vaccination series, estimates include all doses received in 2021.

OOP = Out-of-Pocket

Demographic Characteristics of Medicare Part D Enrollees Receiving Part D Covered Vaccines

Table 7 presents demographic characteristics for enrollees receiving any Part D covered vaccine in 2021. Among both LIS and non-LIS enrollees who received at least one vaccine covered under Medicare Part D, a higher share were women (58 percent) than men (42 percent), which is consistent with existing research.³⁹ For LIS enrollees, people under the age of 65, who are eligible for Medicare due to disability or End-Stage Renal Disease (ESRD), represented a larger share of vaccine users than other age groups. For non-LIS enrollees, among those who obtained a Part D covered vaccine, a larger share of vaccines were obtained by people between 65 and 69 years of age than other age groups. For both LIS and non-LIS, among individuals who obtained a Part D covered vaccine, the majority of enrollees receiving a vaccine were White.

Among LIS enrollees, the majority of vaccine recipients were full duals while nearly all non-LIS enrollees were not dually eligible for Medicare and Medicaid.* Among both LIS and non-LIS enrollees, most vaccine recipients resided in urban areas.

Overall, 2.7 million White enrollees, 271,000 Black enrollees, 113,000 Asian enrollees, 86,000 Latino enrollees, 12,000 AI/AN enrollees, and 173,000 other race enrollees received a Part D vaccine. More women (2.0 million) than men (1.4 million) received a Part D vaccine. Vaccine utilization was highest among the 65 – 69 age group (1.1 million). Most vaccine use was for individuals who were non-dual and resided in urban areas.

* Dual eligibility automatically confers LIS status so the exceptions may be people who changed LIS status during the year. Participants in Medicare Savings Programs who do not qualify for full Medicaid benefits based on their income and assets are considered partial duals. These enrollees receive full LIS benefits in Part D along with assistance toward premiums in Part A or Part B. See <https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/MedicareMedicaidEnrolleeCategories.pdf> and <https://www.cms.gov/files/document/lis-memo.pdf>.

Demographic characteristics of enrollees who received a vaccination for shingles, Tdap, Td, hepatitis A, and hepatitis B are shown in the Appendix. Results generally follow the same patterns as described above for all enrollees receiving a vaccine under Part D.

Table 7. Demographic Characteristics of Medicare Part D Enrollees Receiving a Vaccine under Part D, 2021

	LIS		Non-LIS		Total	
	Enrollees		Enrollees		Enrollees	
	(n)	%	(n)	%	(n)	%
Total	675,882	100%	2,689,999	100%	3,364,518	100%
Gender						
Female	431,514	63.8%	1,521,749	56.6%	1,952,403	58.0%
Male	244,368	36.2%	1,168,250	43.4%	1,412,115	42.0%
Age						
<65	236,596	35.0%	161,648	6.0%	398,019	11.8%
65-69	178,404	26.4%	874,748	32.5%	1,052,741	31.3%
70-74	114,364	16.9%	764,627	28.4%	878,700	26.1%
75-79	71,625	10.6%	477,452	17.7%	548,874	16.3%
80-84	43,490	6.4%	256,009	9.5%	299,376	8.9%
>=85	31,403	4.6%	155,515	5.8%	186,808	5.6%
Race and Ethnicity						
White	405,992	60.1%	2,304,813	85.7%	2,709,823	80.5%
Black	119,545	17.7%	151,272	5.6%	270,669	8.0%
Latino	57,196	8.5%	28,916	1.1%	86,035	2.6%
Asian	53,170	7.9%	60,365	2.2%	113,455	3.4%
AI/AN	6,045	0.9%	5,491	0.2%	11,530	0.3%
Other/Unknown	33,934	5.0%	139,142	5.2%	173,006	5.1%
Dual Eligibility						
Non-dual	82,677	12.2%	2,684,319	99.8%	2,766,373	82.2%
Partial dual	145,864	21.6%	1,767	0.1%	147,382	4.4%
Full dual	447,341	66.2%	3,913	0.1%	450,763	13.4%
Area						
Urban	613,989	90.8%	2,474,396	92.0%	3,087,164	91.8%
Rural	43,654	6.5%	149,555	5.6%	193,093	5.7%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Vaccine Use and Out-of-Pocket Costs by State

We examined the number of enrollees who received vaccines covered under Part D, their total out-of-pocket spending, and average out-of-pocket spending for each state. Table 8 presents vaccine use and out-of-pocket costs for all enrollees who received any vaccine under Part D, by state. California (403,000) Florida (227,000), and Texas (204,000) had the highest number of enrollees receiving any Part D vaccine. Total out-of-pocket spending was highest for California (\$20 million), Florida (\$18 million), and Texas (\$14 million). Annual out-of-pocket costs were highest for South Dakota (\$142), Wyoming (\$129), and North Dakota (\$127). Variation in average out of pocket spending across states may occur because of variation in the mix of vaccines that were received by enrollees as well as the share of enrollees who have LIS financial protection. Estimates for use and spending by LIS status are presented in the Appendix (Table A6).

Table 8. Out-of-Pocket Costs for Medicare Part D Enrollees on Part D Covered Vaccines in 2021, by State

State	Number of Enrollees	Total OOP (\$)	Average OOP (\$)
Alabama	46,572	\$2,608,021	\$56.00
Alaska	4,668	\$219,176	\$46.95
Arizona	69,793	\$5,458,900	\$78.22
Arkansas	23,029	\$1,993,391	\$86.56
California	403,144	\$20,485,565	\$50.81
Colorado	56,425	\$4,443,029	\$78.74
Connecticut	48,313	\$2,953,012	\$61.12
Delaware	12,224	\$934,702	\$76.46
District of Columbia	5,038	\$164,954	\$32.74
Florida	227,344	\$17,871,526	\$78.61
Georgia	93,651	\$6,946,928	\$74.18
Hawaii	21,995	\$1,010,558	\$45.94
Idaho	17,156	\$1,863,104	\$108.60
Illinois	109,816	\$9,910,342	\$90.24
Indiana	77,232	\$6,123,585	\$79.29
Iowa	36,510	\$4,259,984	\$116.68
Kansas	28,166	\$3,030,515	\$107.59
Kentucky	37,289	\$2,566,639	\$68.83
Louisiana	37,982	\$2,448,642	\$64.47
Maine	24,520	\$1,660,212	\$67.71
Maryland	55,924	\$2,941,648	\$52.60
Massachusetts	97,115	\$4,990,803	\$51.39
Michigan	137,918	\$7,912,422	\$57.37
Minnesota	71,667	\$6,887,417	\$96.10
Mississippi	15,719	\$1,371,952	\$87.28
Missouri	62,795	\$4,728,828	\$75.31
Montana	10,920	\$1,354,807	\$124.07
Nebraska	20,708	\$2,435,991	\$117.64
Nevada	23,739	\$1,862,211	\$78.45
New Hampshire	16,111	\$1,459,622	\$90.60
New Jersey	75,358	\$5,585,343	\$74.12

State	Number of Enrollees	Total OOP (\$)	Average OOP (\$)
New Mexico	24,729	\$1,473,385	\$59.58
New York	181,732	\$9,008,318	\$49.57
North Carolina	114,385	\$7,743,573	\$67.70
North Dakota	8,662	\$1,100,209	\$127.02
Ohio	135,253	\$10,091,367	\$74.61
Oklahoma	32,631	\$2,337,476	\$71.63
Oregon	53,531	\$4,404,782	\$82.28
Pennsylvania	177,459	\$10,723,347	\$60.43
Rhode Island	12,834	\$877,907	\$68.40
South Carolina	59,695	\$4,237,362	\$70.98
South Dakota	10,136	\$1,443,301	\$142.39
Tennessee	58,792	\$4,416,899	\$75.13
Texas	203,593	\$13,966,302	\$68.60
Utah	21,768	\$2,085,598	\$95.81
Vermont	9,224	\$869,667	\$94.28
Virginia	71,069	\$5,950,166	\$83.72
Washington	96,065	\$7,042,902	\$73.31
West Virginia	16,159	\$917,539	\$56.78
Wisconsin	81,269	\$6,467,545	\$79.58
Wyoming	4,413	\$570,703	\$129.32
Total	3,364,518	\$234,454,174	\$69.68

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Notes: Estimates are presented for enrollees who received any Part D covered vaccines. For vaccines that require multiple doses to complete the vaccination series, estimates include all doses received in 2021.

Totals include enrollees residing in U.S. territories or outside the United States.

OOP = Out-of-Pocket

DISCUSSION

Prior to the IRA, Medicare beneficiaries faced different cost-sharing for vaccines depending on whether the vaccine was covered by Part B or Part D. Medicare beneficiaries receiving influenza, pneumococcal, hepatitis B for individuals at medium or high risk, and COVID-19 vaccines, which are all covered under Part B, were available without cost-sharing. However, until the implementation of the IRA, vaccines covered under Part D—including those for prevention of shingles, tetanus, hepatitis A, hepatitis B for individuals at low risk, and other conditions—required cost-sharing by Part D enrollees. The IRA eliminated out-of-pocket costs for recommended Part D vaccines effective January 1, 2023. This change aligned Medicare Part D vaccine coverage policy with Medicare Part B vaccine coverage policies, and with ACA preventive services requirements applying to most other types of health coverage.⁴⁰

Our estimates show that in 2021, 3.4 million Medicare enrollees received Part D vaccines and paid \$234 million in out-of-pocket costs. For all enrollees, these costs represent about 32 percent of the \$740 million total cost for these vaccines. For non-LIS enrollees, the out-of-pocket cost burden was higher than for LIS enrollees, representing about 39 percent of the total costs for these vaccines. In 2023, under the IRA, all enrollees will receive these vaccines with \$0 in out-of-pocket costs.

There are several limitations of our analyses. First, the estimates presented in this Issue Brief do not represent rates of vaccine coverage for the Medicare Part D population because our analyses do not capture enrollees who received a Part D covered vaccine prior to 2021. It is possible, for example, that some enrollees obtain recommended vaccines at the age they first become eligible, in some cases before they are even enrolled in Medicare (for instance, shingles vaccination is recommended starting at age 50). If so, their vaccine use would only be included in our analyses if they became eligible for and received the Part D covered vaccine in 2021. Second, our estimates do not disentangle how different factors such as income, race or ethnicity, institutional setting, and age contribute to differences in vaccine use. Existing research shows that cost-sharing is one factor among other determinants, such as trust in vaccines, access to health care, and awareness of vaccine recommendations, that shape whether individuals obtain a recommended vaccine. Third, vaccine use in Medicare, as among other populations, declined during the COVID-19 pandemic. Vaccine use rates may start to recover to pre-COVID levels in future periods. Thus, future rates of Part D vaccine savings may exceed the estimates presented here. Fourth, if an enrollee received a vaccine that was not paid for by Medicare, it would not be included in our estimates. For example, if an enrollee received a Part D covered vaccine in an institutional setting and there was no separate Part D claim for the vaccine because it was bundled with other services, it would not be included in our estimates. This would lead to an undercount of vaccine use.

Importantly, our estimates only include beneficiaries who actually received Part D covered vaccines in 2021. Some beneficiaries may have chosen not to get vaccinated because they could not afford them. Thus, out-of-pocket savings and the number of enrollees saving money on vaccines are likely to be even higher since eligible Medicare Part D enrollees may be more likely to obtain recommended vaccines now that the IRA has eliminated cost-sharing for these vaccines.

Finally, our analysis does not take into account the ways in which other IRA Part D provisions, including the \$35 cap on cost-sharing for insulin (already in effect), the expansion of eligibility for full LIS status (effective January 1, 2024), and the \$2,000 cap on out-of-pocket costs (effective January 1, 2025) will reduce cost-sharing for Medicare beneficiaries.⁴¹

The Community Preventive Services Taskforce recommends reducing out-of-pocket costs along with other interventions to increase rates of vaccine use for all populations, including older adults.⁴² As noted above, the elimination of cost-sharing under the IRA is likely to increase the utilization of vaccines covered under Part D for enrollees who have Medicare Part D coverage. The IRA may similarly help address racial and ethnic disparities we found in 2021 receipt of Part D vaccines.

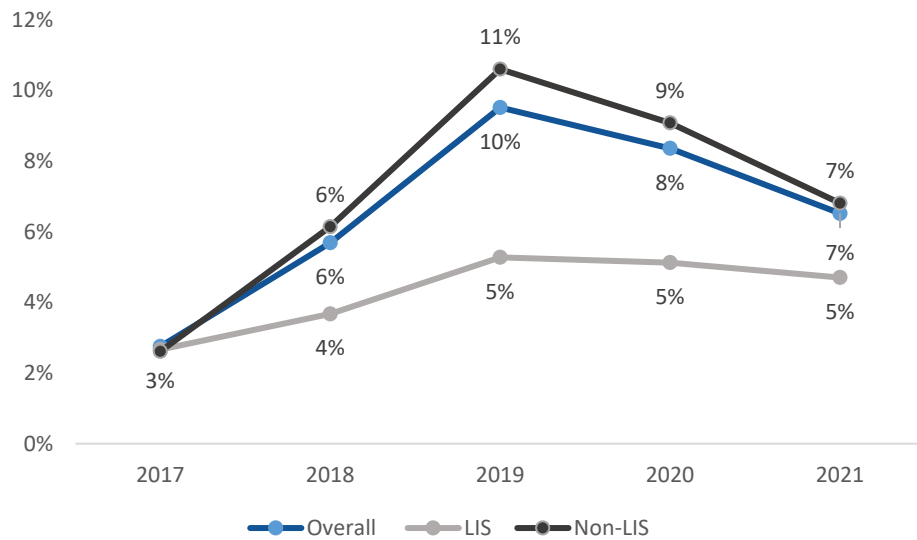
Reducing out-of-pocket spending may make it easier for enrollees to access vaccines and may prevent downstream consequences and serious complications that arise from vaccine preventable diseases. However, about 9 percent of Medicare beneficiaries have no drug coverage from any source and these Medicare beneficiaries may still face cost-sharing requirements for vaccines.⁴³ Researchers should consider examining the impact of eliminating cost-sharing on vaccination rates and any associated reductions in downstream health care use and costs (for example, hospitalizations and other medical care to treat shingles, tetanus, diphtheria, hepatitis A, and hepatitis B). Researchers should also consider examining demographic patterns of vaccine use, which may change due to the elimination of cost-sharing for these vaccines, leading to more equitable access to these services and reduced burdens from the conditions they prevent.

APPENDIX

Vaccine use was about 3 percent in 2017 and increased to about 10 percent in 2019 before declining to about 7 percent in 2021 during the COVID-19 pandemic. Vaccine use rates were lower for LIS enrollees over the five year period than non-LIS enrollees (Figure A1).

Out-of-pocket spending has followed a similar pattern, with increases in out-of-pocket spending until 2019, followed by declines during the COVID-19 pandemic (Figure A2).

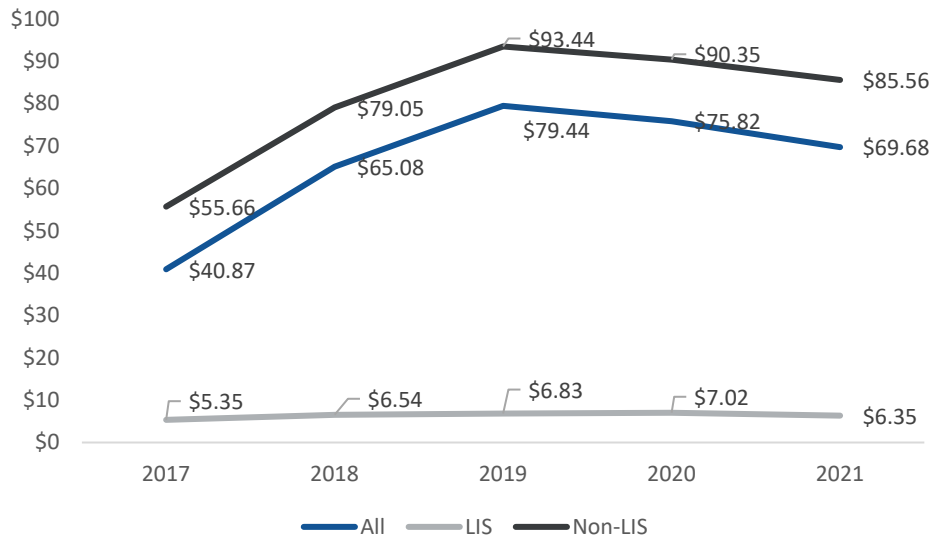
Figure A1. Vaccine Utilization Rates for Enrollees Who Received a Part D Vaccine in 2017 - 2021



Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Notes: Estimates are presented for enrollees who received any Part D covered vaccine. For vaccines that require multiple doses to complete the vaccination series, estimates include all doses received in 2021.

Figure A2. Average Out-of-Pocket Spending for Enrollees Who Received a Part D Vaccine in 2017 - 2021



Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Notes: Estimates are presented for enrollees who received any Part D covered vaccine. For vaccines that require multiple doses to complete the vaccination series, estimates include all doses received in 2021.

Table A1. Demographic Characteristics of Medicare Part D Enrollees Receiving the Shingles Vaccine under Part D, 2021

<u>Demographic Characteristics</u>	<u>LIS Enrollees</u>		<u>Non-LIS Enrollees</u>	
	(n)	%	(n)	%
Total	562,276	100.0%	2,182,942	100.0%
Gender				
Female	362,250	64.4%	1,237,996	56.7%
Male	200,026	35.6%	944,946	43.3%
Age				
<65	185,934	33.1%	127,334	5.8%
65-69	153,979	27.4%	711,735	32.6%
70-74	97,754	17.4%	616,289	28.2%
75-79	61,297	10.9%	390,374	17.9%
80-84	36,985	6.6%	210,174	9.6%
>=85	26,327	4.7%	127,036	5.8%
Race				
White	339,158	60.3%	1,880,749	86.2%
Black	100,070	17.8%	125,232	5.7%
Latino	45,637	8.1%	20,292	0.9%
Asian	43,950	7.8%	44,563	2.0%
North American Native	5,437	1.0%	4,899	0.2%
Other/Unknown	28,024	5.0%	107,207	4.9%
Dual Eligibility				
Non-dual	69,304	12.3%	2,178,432	99.8%
Partial dual	124,020	22.1%	1,456	0.1%
Full dual	368,952	65.6%	3,054	0.1%
Area				
Urban	509,674	90.6%	1,999,771	91.6%
Rural	38,070	6.8%	129,585	5.9%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Table A2. Demographic Characteristics of Medicare Part D Enrollees Receiving the Tdap Vaccine under Part D, 2021

Demographic Characteristics	LIS Enrollees		Non-LIS Enrollees	
	(n)	%	(n)	%
Total	136,966	100.0%	558,871	100.0%
Gender				
Female	84,267	61.5%	311,334	55.7%
Male	52,699	38.5%	247,537	44.3%
Age				
<65	53,963	39.4%	36,457	6.5%
65-69	32,680	23.9%	182,656	32.7%
70-74	21,693	15.8%	162,424	29.1%
75-79	13,756	10.0%	95,755	17.1%
80-84	8,405	6.1%	50,259	9.0%
>=85	6,469	4.7%	31,320	5.6%
Race				
White	78,642	57.4%	466,819	83.5%
Black	23,404	17.1%	29,660	5.3%
Latino	14,915	10.9%	9,575	1.7%
Asian	11,992	8.8%	17,387	3.1%
North American Native	685	0.5%	629	0.1%
Other/Unknown	7,328	5.4%	34,801	6.2%
Dual Eligibility				
Non-dual	16,450	12.0%	557,711	99.8%
Partial dual	26,940	19.7%	310	0.1%
Full dual	93,576	68.3%	850	0.2%
Area				
Urban	126,218	92.2%	522,379	93.5%
Rural	6,629	4.8%	22,832	4.1%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Table A3. Demographic Characteristics of Medicare Part D Enrollees Receiving the Td Vaccine under Part D, 2021

Demographic Characteristics	LIS Enrollees		Non-LIS Enrollees	
	(n)	%	(n)	%
Total	6,874	100.0%	41,840	100.0%
Gender				
Female	4,336	63.1%	23,431	56.0%
Male	2,538	36.9%	18,409	44.0%
Age				
<65	2,605	37.9%	2,466	5.9%
65-69	1,611	23.4%	12,137	29.0%
70-74	1,097	16.0	12,911	30.9%
75-79	694	10.1%	7,221	17.3%
80-84	468	6.8%	4,286	10.2%
>=85	399	5.8%	2,819	6.7%
Race				
White	4,390	63.9%	34,779	83.1%
Black	1,200	17.5%	2,535	6.1%
Latino	413	6.0%	434	1.0%
Asian	461	6.7%	1,377	3.3%
North American Native	112	1.6%	93	0.2%
Other/Unknown	298	4.3%	2,622	6.3%
Dual Eligibility				
Non-dual	815	11.9%	41,715	99.7%
Partial dual	1,456	21.2%	33	0.1%
Full dual	4,603	67.0%	92	0.2%
Area				
Urban	6,246	90.9%	39,305	93.9%
Rural	404	5.9%	1,452	3.5%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Table A4. Demographic Characteristics of Medicare Part D Enrollees Receiving the Hepatitis A Vaccine under Part D, 2021

Demographic Characteristics	LIS Enrollees		Non-LIS Enrollees	
	(n)	%	(n)	%
Total	6,093	100.0%	14,362	100.0%
Gender				
Female	3,395	55.7%	7,680	53.5%
Male	2,698	44.3%	6,682	46.5%
Age				
<65	3,516	57.7%	1,465	10.2%
65-69	1,325	21.8%	5,574	38.8%
70-74	707	11.6%	4,084	28.4%
75-79	322	5.3%	2,047	14.3%
80-84	157	2.6%	836	5.8%
>=85	66	1.1%	356	2.5%
Race				
White	3,805	62.5%	12,155	84.6%
Black	1,195	19.6%	834	5.8%
Latino	444	7.3%	179	1.3%
Asian	327	5.4%	339	2.4%
North American Native	54	0.9%	20	0.1%
Other/Unknown	268	4.4%	835	5.8%
Dual Eligibility				
Non-dual	658	10.8%	14,329	99.8%
Partial dual	1,172	19.2%	11	0.1%
Full dual	4,263	70.0%	22	0.2%
Area				
Urban	5,515	90.5%	13,230	92.1%
Rural	355	5.8%	756	5.3%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Table A5. Demographic Characteristics of Medicare Part D Enrollees Receiving the Hepatitis B Vaccine under Part D, 2021

Demographic Characteristics	LIS Enrollees		Non-LIS Enrollees	
	(n)	%	(n)	%
Total	8,515	100.0%	13,134	100.0%
Gender				
Female	4,740	55.7%	6,481	49.4%
Male	3,775	44.3%	6,653	50.7%
Age				
<65	4,657	54.7%	1,647	12.5%
65-69	2,050	24.1%	5,205	39.6%
70-74	1,013	11.9%	3,676	30.0%
75-79	479	5.6%	1,809	13.8%
80-84	226	2.7%	584	4.5%
>=85	90	1.1%	213	1.6%
Race				
White	5,133	60.3%	11,105	84.6%
Black	1,651	19.4%	771	5.9%
Latino	931	10.9%	223	1.7%
Asian	417	4.9%	274	2.1%
North American Native	53	0.6%	36	0.3%
Other/Unknown	330	3.9%	725	5.5%
Dual Eligibility				
Non-dual	809	9.5%	13,057	99.4%
Partial dual	1,800	21.1%	23	0.2%
Full dual	5,906	69.4%	54	0.4%
Area				
Urban	7,808	91.7%	12,212	93.0%
Rural	466	5.5%	621	4.7%

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Table A6. Out-of-Pocket Costs for Medicare Part D Enrollees on Part D Covered Vaccines in 2021, by State and LIS Status

State	<u>LIS</u>			<u>Non- LIS</u>		
	Number of Enrollees	Total OOP Costs (\$)	Average OOP per Enrollee (\$)	Number of Enrollees	Total OOP Costs (\$)	Average OOP per Enrollee (\$)
Alabama	12,154	\$118,870	\$9.78	34,438	\$2,489,151	\$72.28
Alaska	684	\$4,698	\$6.87	3,985	\$214,478	\$53.82
Arizona	13,629	\$81,557	\$5.98	56,184	\$5,377,343	\$95.71
Arkansas	6,537	\$60,729	\$9.29	16,586	\$1,932,662	\$116.52
California	100,347	\$480,218	\$4.79	302,910	\$20,005,346	\$66.04
Colorado	10,003	\$58,523	\$5.85	46,441	\$4,384,506	\$94.41
Connecticut	12,322	\$101,019	\$8.20	36,026	\$2,851,993	\$79.16
Delaware	1,818	\$13,318	\$7.33	10,408	\$921,384	\$88.53
District of Columbia	2,320	\$5,960	\$2.57	2,718	\$158,994	\$58.50
Florida	42,201	\$295,363	\$7.00	185,234	\$17,576,163	\$94.89
Georgia	24,013	\$221,456	\$9.22	69,723	\$6,725,472	\$96.46
Hawaii	3,765	\$17,442	\$4.63	18,236	\$993,116	\$54.46
Idaho	2,876	\$22,522	\$7.83	14,284	\$1,840,582	\$128.86
Illinois	19,079	\$106,870	\$5.60	90,817	\$9,803,472	\$107.95
Indiana	13,936	\$96,626	\$6.93	63,321	\$6,026,958	\$95.18
Iowa	6,113	\$36,749	\$6.01	30,412	\$4,223,236	\$138.87
Kansas	4,339	\$35,707	\$8.23	23,836	\$2,994,808	\$125.64
Kentucky	9,396	\$87,652	\$9.33	27,904	\$2,478,987	\$88.84
Louisiana	11,380	\$80,981	\$7.12	26,617	\$2,367,661	\$88.95
Maine	5,816	\$40,831	\$7.02	18,711	\$1,619,381	\$86.55
Maryland	12,145	\$73,770	\$6.07	43,805	\$2,867,878	\$65.47
Massachusetts	20,143	\$83,606	\$4.15	77,011	\$4,907,197	\$63.72
Michigan	19,792	\$149,088	\$7.53	118,152	\$7,763,334	\$65.71
Minnesota	8,941	\$45,152	\$5.05	62,744	\$6,842,264	\$109.05
Mississippi	4,859	\$40,387	\$8.31	10,871	\$1,331,566	\$122.49
Missouri	10,883	\$73,714	\$6.77	51,929	\$4,655,114	\$89.64
Montana	1,621	\$14,686	\$9.06	9,302	\$1,340,121	\$144.07
Nebraska	3,336	\$18,043	\$5.41	17,387	\$2,417,948	\$139.07
Nevada	3,914	\$38,060	\$9.72	19,834	\$1,824,152	\$91.97
New Hampshire	1,952	\$15,480	\$7.93	14,162	\$1,444,142	\$101.97
New Jersey	11,194	\$56,670	\$5.06	64,179	\$5,528,673	\$86.14
New Mexico	6,916	\$50,912	\$7.36	17,826	\$1,422,473	\$79.80
New York	46,624	\$202,027	\$4.33	135,188	\$8,806,292	\$65.14
North Carolina	23,078	\$155,578	\$6.74	91,343	\$7,587,995	\$83.07
North Dakota	1,292	\$7,859	\$6.08	7,377	\$1,092,350	\$148.08
Ohio	22,414	\$136,558	\$6.09	112,871	\$9,954,808	\$88.20
Oklahoma	7,318	\$45,489	\$6.22	25,323	\$2,291,987	\$90.51
Oregon	8,747	\$63,287	\$7.24	44,796	\$4,341,495	\$96.92
Pennsylvania	31,643	\$175,146	\$5.54	145,920	\$10,548,201	\$72.29
Rhode Island	2,257	\$11,785	\$5.22	10,580	\$866,121	\$81.86

South Carolina	12,551	\$88,392	\$7.04	47,167	\$4,148,969	\$87.96
South Dakota	1,440	\$11,234	\$7.80	8,698	\$1,432,067	\$164.64
Tennessee	13,387	\$98,986	\$7.39	45,424	\$4,317,913	\$95.06
Texas	46,840	\$367,134	\$7.84	156,846	\$13,599,168	\$86.70
Utah	2,857	\$19,836	\$6.94	18,917	\$2,065,762	\$109.20
Vermont	1,431	\$9,076	\$6.34	7,795	\$860,591	\$110.40
Virginia	13,100	\$98,440	\$7.51	57,990	\$5,851,725	\$100.91
Washington	16,118	\$81,818	\$5.08	79,980	\$6,961,084	\$87.04
West Virginia	4,510	\$37,121	\$8.23	11,661	\$880,418	\$75.50
Wisconsin	10,721	\$48,444	\$4.52	70,566	\$6,419,101	\$90.97
Wyoming	547	\$4,141	\$7.57	3,867	\$566,562	\$146.51
Total	675,882	\$4,291,737	\$6.35	2,689,999	\$230,162,437	\$85.56

Source: ASPE analysis of the CMS 2021 Medicare Prescription Drug Event (PDE) and Medicare enrollment data files.

Notes: Totals include enrollees residing in U.S. territories or outside the United States.

OOP = Out-of-Pocket

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