

State Medicaid Coverage and Reimbursement of Adult Vaccines Administered by Physicians and Pharmacists



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Introduction: Effective from October 2023, federal law requires Medicaid programs to cover all recommended adult vaccines administered by physicians with no cost sharing for all eligibility groups. However, uniform coverage does not always translate to optimal uptake. Rather, other factors such as Medicaid reimbursement rates influence vaccine access and ultimately patient uptake. This study reviewed Medicaid policies to understand vaccine coverage and reimbursement, for both physicians and pharmacists, in all 50 U.S. states; Washington, DC; and Puerto Rico (collectively referred to as states).

Methods: Between March and September 2022, the researchers reviewed states' public Medicaid policies regarding adult vaccines, focusing on the service of injectable vaccine administration and 3 products: hepatitis A, 9-valent human papilloma virus, and 23-valent pneumococcal polysaccharide.

Results: Among 50 states with available data, 7 (14%) restricted Medicaid coverage for hepatitis A, 9-valent human papilloma virus, and/or 23-valent pneumococcal polysaccharide administered by physicians, and 15 (30%) did so for pharmacists. Median physician reimbursement rate was below the private sector rate for hepatitis A (89%) and 9-valent human papilloma virus (94%) but above the rate for 23-valent pneumococcal polysaccharide (108%). Median physician reimbursement for vaccine administration during an office visit was \$11.86; the median pharmacist administration fee was \$10.67.

Conclusions: Although federal law now requires all state Medicaid programs to cover, without cost sharing, all recommended adult vaccines administered by physicians, equitable vaccine access may be hindered by state coverage restrictions for pharmacists and by relatively low reimbursement rates relative to Medicare and commercial coverage for both physicians and pharmacists.

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INTRODUCTION

Although the rates of early childhood vaccination in the U.S. are above 90%, vaccination rates for adolescents and adults tend to be substantially lower, with only 20% of adults receiving all vaccines recommended by the Centers for Disease Control and Prevention (CDC)'s Advisory Committee on Immunization Practices (ACIP).^{1,2} Improving adult vaccination rates can help reduce the morbidity and mortality of vaccine-

preventable diseases as well as associated effects, including hospitalizations, missed days of work, and economic impacts.^{3–5}

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Vaccination rates vary not only by age group but also by health coverage status and demographic factors such as race, ethnicity, and geography.^{6,7} Notably, vaccination rates among adults with private health coverage tend to be higher than for the 47 million adults enrolled in Medicaid,^{8,9} a joint federal–state health coverage program for low- and middle-income people. These disparate vaccination rates reflect a combination of factors, including individual factors such as vaccine hesitancy as well as systemic access barriers such as financial burdens on patients and providers.^{8,10}

Congress addressed one long-standing financial barrier with the passage of the Inflation Reduction Act (IRA), which now requires state Medicaid programs to cover all ACIP-recommended vaccines with no out-of-pocket cost for all beneficiaries. Previously, only some Medicaid beneficiaries were federally entitled to such coverage, including children and youth aged <21 years as well as adults covered under the Affordable Care Act's Medicaid expansion. By contrast, for traditionally eligible Medicaid-enrolled adults aged ≥21 years—that is, those who qualify for Medicaid on the basis of pregnancy, disability, advanced age, or being a caretaker of young children—state Medicaid programs had the discretion to decide which vaccines to cover (if any) and whether to require cost sharing (subject to federal limits) until the IRA requirement went into effect on October 1, 2023.

Although the IRA's coverage guarantee is an important step, the elimination of patient cost barriers is not sufficient to guarantee equitable access. Also critical is the ease with which an individual can find an appropriate provider and actually receive vaccination services.¹¹ For example, a robust body of evidence suggests that vaccination rates increase when vaccines are made available in community pharmacies, which typically have more locations and expanded hours than physician practices.^{12–14} In fact, certain vaccines are now more commonly administered by community pharmacies than by physicians.^{15,16}

In addition, state reimbursement policies may affect a physician or pharmacy's willingness to offer vaccinations. The evidence shows that reimbursement levels vary considerably across states.^{17,18} Moreover, pursuant to analyses conducted by a congressional advisory body (the Medicaid and CHIP Payment and Access Commission), Medicaid reimbursement levels in some states are insufficient to cover providers' costs of acquiring, storing, and administering vaccines; furthermore, the evidence shows that increasing reimbursement rates may improve access to vaccines for Medicaid enrollees.¹⁹

This study provides an updated overview of Medicaid coverage and reimbursement policies for routine adult

vaccines in the U.S. on the eve of the IRA's implementation. The study covers publicly available Medicaid policies to assess coverage gaps for traditionally eligible adults, in both fee-for-service (FFS) programs and privately administered Medicaid MCOs, regarding 3 vaccines: hepatitis A (HepA), 9-valent human papilloma virus (9vHPV), and 23-valent pneumococcal polysaccharide (PPV23). These vaccines were selected because they have the following qualities:

- Nonseasonal, which can contribute to access challenges due to unpredictable demand²⁰;
- Recommended for different populations: for HepA, adults of any age with high risk or upon request; for 9vHPV, adults up to age 45 years, with an emphasis on adults aged <26 years; and for PPV23, for adults aged >64 years as well as high-risk younger adults²; and
- Known to have disparities in uptake between adults with Medicaid and those with commercial insurance.⁸

This study also assessed whether the state restricts FFS coverage for pharmacist-administered vaccines, in addition to examining states' FFS reimbursement, for both physicians and pharmacists, as to the vaccine product and the service of vaccine administration. Managed care reimbursement methodologies and rates are typically not publicly available. However, the evidence suggests that MCO reimbursement is correlated with the applicable state's FFS reimbursement.²¹

METHODS

Overall Approach

Between March 17 and May 17, 2022, the researchers investigated the public domain for state Medicaid policies regarding adult vaccine coverage and reimbursement in all 50 states as well as Washington, DC, and Puerto Rico (for ease of reference, this paper will use the term states to refer collectively to these 52 jurisdictions). From September 15 to September 27, 2022, the researchers performed a targeted research update with respect to the coverage policies in states that, as of the original research, did not provide coverage for all 3 vaccines of interest with respect to physicians and/or pharmacists. IRB approval was not required.

The research questions included the following:

- Whether state Medicaid programs cover the following adult vaccines for traditionally eligible adults aged ≥21 years under both FFS and managed care (as applicable):

- HepA—Current Procedural Terminology (CPT) code 90632 (note: this code refers to vaccines against HepA only; code 90636 is used for combination vaccines that inoculate against both HepA and hepatitis B);
- 9HPV—CPT code 90651; and
- PPV23—CPT code 90732.
- Under federal law, individuals enrolled in managed care are entitled to the same set of benefits as those under FFS, plus any additional benefits covered exclusively through the managed care delivery system.²² Whether states extended FFS coverage for the same vaccines when administered by a pharmacist as opposed to a physician.
- For both physicians and pharmacists:
 - Whether providers must bill for vaccine products and administration under the medical benefit (the typical approach for physicians' professional services) or under the pharmacy benefit (the typical approach for pharmacy dispensing of prescription drugs);
 - The state's default FFS reimbursement methodology for vaccine products and vaccine administrations, focusing on adults aged ≥ 21 years (because some states define separate methodologies for children/youth aged < 21 years) and not including enhanced rates or add-on payments that some states apply to specific vaccines (e.g., for coronavirus disease 2019 [COVID-19] or influenza); and
 - The current FFS reimbursement rate for the 3 vaccine product codes of interest, including a comparison with private sector vaccine prices, as reported by manufacturers to the Centers for Disease Control and Prevention as of May 2022²³ and the service of injectable vaccine administration to adults, focusing on the first vaccine administered (some states pay a different rate for coadministration of additional vaccinations during the same encounter) and for physicians, vaccines administered during a billable office visit (some states pay a different rate for vaccine-only visits). For physicians, adult vaccine administration is often (but not always) associated with CPT code 90471.

Public Document Review

The review included, where available, each state's federally approved Medicaid state plan, which defines key details regarding coverage and reimbursement; Medicaid provider manuals and other guidance from the state Medicaid agency; FFS fee schedules; MCO contracts; and state statutes and regulations. The researchers identified these documents through extensive reviews of each

state's Medicaid program website and legal research on the Thompson Reuters Westlaw platform, and if these methods failed to identify relevant documents in each of the categories listed earlier, they targeted queries in a standard search engine utilizing the search string [state name] + Medicaid +, as applicable, Medicaid state plan; [provider/physician/pharmacy/pharmacist] [manual/handbook]; fee schedule; [physician/pharmacist] + vaccine [coverage/reimbursement]; or managed care + contract.

RESULTS

In 50 of 52 states (all but Puerto Rico and Tennessee), the researchers identified publicly available coverage policies for physician-administered vaccines for traditionally eligible adults aged ≥ 21 years.

This study found that 43 of 50 states (86%) cover all 3 adult vaccines of interest (HepA, 9vHPV, and PPV23) in both FFS and managed care (if applicable), whereas 7 (14%) exclude or limit coverage for at least 1 of these vaccines, as described in [Table 1](#).

In 50 of 52 states (all but Hawaii and Puerto Rico), the researchers identified publicly available coverage policies for vaccines administered by pharmacists to adults aged ≥ 19 years. This study found that 20 of 50 states (40%) restrict coverage for pharmacist-administered vaccines.

- In the 30 states (60%) that do not restrict coverage, it appears that pharmacists may receive reimbursement for any vaccine that is both (1) covered by the Medicaid program when administered by a physician and (2) within the pharmacist's scope of practice under state law (in all 50 U.S. states, pharmacist scope of practice includes the ability to administer all ACIP-recommended adult vaccines, potentially subject to a prescription or prescriber protocol²⁴). Note that 2 of these states (Florida and Mississippi) restrict coverage for at least 1 vaccine code of interest even when administered by a physician ([Table 1](#)).
- Seventeen states (34%) restrict pharmacists to a subset of the adult vaccines that are covered for physicians, including 11 states (24%) that restrict coverage for 1 or more of the adult vaccine codes of interest, as described in [Table 2](#).
- Three states (6%)—Nebraska, New Jersey, and Rhode Island—exclude Medicaid coverage entirely for adult vaccines administered by pharmacists. However, in Rhode Island, pharmacists may receive ACIP-recommended adult vaccine products free of charge through the State-Supplied Vaccine Program.

Table 1. State Medicaid Limitations on Coverage for Vaccines for Traditionally Eligible Adults Aged ≥ 21 Years

Vaccine	Coverage limits
HepA (CPT code 90632)	3 states do not cover the HepA vaccines: FL, MS, VA
9vHPV (CPT code 90651)	5 states do not cover the HPV vaccine: AR, FL, ^a RI, ^b SC, VA
	2 states cover 9vHPV but only for certain subpopulations: GA (covered for women only) and MS (covered only for adults aged ≤ 26 years)
PPV23 (CPT code 90732)	1 state limits coverage of PPV23 to adults living in long-term care institutions: FL ^a

Note: Data are from a public domain document review conducted between March 17 and May 17, 2022, with rereview of select states (including all those listed in the table) conducted in September 2022. This table identifies vaccine coverage exclusions or limitations for traditionally eligible adults aged ≥ 21 years in the Medicaid program, referring to adults aged ≥ 21 years who are not enrolled under the Affordable Care Act's Medicaid expansion but rather qualify for Medicaid on the basis of disability, advanced age, pregnancy, or being a caretaker with young children. As of October 1, 2023, federal law required all states to cover adult vaccines in accordance with ACIP recommendations for traditionally eligible adults aged ≥ 21 years.

^aFL's FFS program does not cover any vaccines for traditionally eligible adults aged ≥ 21 years except for a limited set of vaccines (including pneumococcal) that are covered for adults living in long-term care institutions. However, FL's MCOs may, at their option, offer expanded vaccine coverage for traditionally eligible adults, including vaccines for HPV and/or pneumococcal but not for HepA.

^bAlthough RI does not appear to cover 9vHPV for traditionally eligible adults, it maintains a State-Supplied Vaccine Program that furnishes 9vHPV and other vaccines to providers free of charge, subject to available state funds, because such individuals in RI have access to 9vHPV vaccination through other coverage pathways.

9vHPV, 9-valent human papilloma virus; ACIP, Advisory Committee on Immunization Practices; AR, Arkansas; CPT, Current Procedural Terminology; FFS, fee-for-service; FL, Florida; GA, Georgia; HepA, hepatitis A; HPV, human papilloma virus; MS, Mississippi; PPV23, 23-valent pneumococcal polysaccharide; RI, Rhode Island; SC, South Carolina; VA, Virginia.

Of the 50 states with available FFS data (all but Puerto Rico and Tennessee), 26 states (52%) benchmark their physician reimbursement for adult vaccine products to Medicare's Average Sales Price (ASP) Drug Pricing File, which lists a price of ASP + 6% for many ACIP-recommended vaccines. Of these, 21 states match the Medicare

rate, whereas another 5 states reimburse at a fixed percentage of the Medicare rate, ranging from a low of 80% (Washington, DC) to a high of 104% of the Medicare rate (South Carolina). States vary with respect to whether they benchmark against the national Medicare rate or a geographically adjusted rate and also with

Table 2. State Medicaid Coverage Restrictions for Select Adult Vaccines When Administered by a Pharmacist

State	HepA (CPT code 90632)	9vHPV (CPT code 90651)	PPV23 (CPT code 90732)
Alabama	Covered	Not covered	Covered
Arkansas	Not covered	N/A ^a	Covered
Georgia	Not covered	Covered	Covered
Kansas	Covered	Not covered	Covered
Nebraska ^b	Not covered	Not covered	Not covered
New Jersey ^b	Not covered	Not covered	Not covered
North Carolina	Not covered	Not covered	Covered
Rhode Island ^c	Not covered	Not covered	Not covered
South Carolina	Not covered	N/A ^a	Covered
Tennessee	Not covered	Not covered	Not covered
Texas	Not covered	Not covered	Not covered
Virginia	Not covered	Covered	Covered
West Virginia	Covered	Not covered	Covered
Wisconsin	Not covered	Not covered	Not covered
Total state restrictions	11 states	10 states	6 states

Note: Data are from a public domain document review conducted between March 17 and May 17, 2022, with a targeted additional review of certain states conducted in September 2022. All vaccines listed in this chart are covered when administered by physicians, except as noted in the footnotes.

^aIn Arkansas and South Carolina, the Medicaid program does not cover 9vHPV, regardless of practitioner type.

^bNebraska and New Jersey do not appear to cover any adult vaccines when administered by pharmacists.

^cRhode Island does not appear to cover any adult vaccines when administered by pharmacists, although the state furnishes federally recommended adult vaccines free of charge through the State-Supplied Vaccine Program, subject to available state funds.

9vHPV, 9-valent human papilloma virus; CPT, Current Procedural Terminology; HepA, hepatitis A; N/A, not available; PPV23, 23-valent pneumococcal polysaccharide.

respect to whether they incorporate Centers for Medicare & Medicaid Services' quarterly rate updates or update their benchmark price on a less frequent basis.

The 24 remaining states (48%) rely on different reimbursement methodologies for adult vaccine supply, such as benchmarking against wholesale acquisition cost or the physician's actual acquisition cost or taking the lowest rate among multiple potential benchmarks. Similarly, states that benchmark to Medicare must rely on methodologies such as these for any vaccines that do not have a Medicare ASP rate, including 9vHPV. [Appendix Table 1](#) (available online) provides state-by-state detail regarding vaccine product reimbursement for the 3 vaccines of interest. ([Appendix Table 2](#) (available online) provides state-by-state detail on vaccine administration fees for physicians, as described further below.)

Of the 48 states that cover pharmacist-administered vaccines and for which FFS coverage policies were available, the reimbursement methodology is typically dictated by the benefit under which pharmacist-administered vaccines are covered: vaccines covered under the pharmacy benefit are typically reimbursed consistent with the standard pharmacy methodology for prescription drugs (26 of 33 states [79%]), whereas vaccines covered under the medical benefit are typically reimbursed in the same manner as physician-administered vaccines (13 of 18 states [72%]). [Appendix Table 3](#) (available online) provides state-level details.

Of the 50 states for which FFS data are available (all but Puerto Rico and Tennessee), 41 (82%) pay physicians a separate administration fee for administering a vaccine to an adult aged ≥ 21 years during an office visit. These fees range from a low of \$3.72 (South Carolina) to a high of \$25.62 (Arizona). The median administration fee among these states is \$13.27 but drops to \$11.68 if the 9 (18%) that do not pay an administration fee (i.e., a fee of \$0) are included. [Figure 1](#) and [Appendix Table 2](#) (available online) provide additional details.

Among the 48 states that cover pharmacist-administered vaccines, 45 (90%) pay a fee for administering a vaccine to an adult aged ≥ 21 years, ranging from a low of \$4.10 (Arizona) to a high of \$21.32 (Montana). The median administration fee among these states is \$12.95 but drops to \$10.67 if the 5 (10%) that do not pay an administration fee for pharmacist vaccinations are included. In 34 states (71%), the administration fee for pharmacists is equal to or greater than the fee for physicians, including 8 states with a difference of \$5 or more. [Figure 1](#) and [Appendix Table 2](#) (available online) provide additional details.

DISCUSSION

This study found that approximately 1 year before the IRA closed the remaining vaccine coverage gaps for adult Medicaid enrollees under federal law, 6 states imposed restrictions on 1 or more vaccines discussed in this paper, demonstrating the law's value in closing those remaining gaps. Although all state Medicaid programs must now cover adult vaccinations for all enrollees without cost sharing when administered by physicians, this study finds that 20 of 50 states (40%) restrict coverage for at least some vaccines when administered by pharmacists. In addition, states vary in their approach to FFS reimbursement of vaccine products and adult vaccine administration. In many states, Medicaid FFS reimbursement lags compared with reimbursement rates under Medicare and private insurance, which may contribute to lower vaccination rates among adult Medicaid enrollees.

For pharmacist-administered adult vaccines, this study shows a substantial increase in coverage in recent years. [Granade et al.²⁵ \(2021\)](#) reported that only 37 of 43 responding states (86%) covered any vaccines administered by pharmacists, whereas this study identified 47 of 50 states (94%) that do so, although 17 of these states

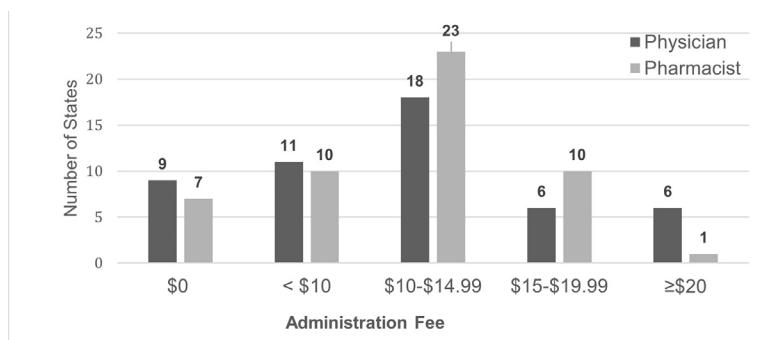


Figure 1. State Medicaid FFS reimbursement rates for initial adult vaccine administration by injection, for physicians (during billable office visit) and for pharmacists (March–May 2022). FFS, fee-for-service.

(34% of total) appear to restrict pharmacists to a subset of covered vaccines. This increase in coverage is consistent with a broader trend toward states enhancing the scope of practice of pharmacy personnel to order, administer, and bill Medicaid for vaccinations.²⁶ The evidence suggests that lifting restrictions on pharmacist vaccinations would enhance overall vaccine access and vaccine uptake.^{11–14}

State Medicaid reimbursement rates for vaccine products and administration have historically been lower than those under Medicare or private insurance.^{17,18,27,28} Lower Medicaid reimbursement rates may depress providers' willingness to stock and administer vaccines to Medicaid recipients, which may impede access for Medicaid enrollees even if the vaccine is covered. Ensuring adequate payment for vaccinations is a key mechanism for promoting robust and equitable vaccine access and uptake. States can assess the adequacy of their rates by examining typical provider costs for vaccinations and/or by comparing with the equivalent rates under Medicare and commercial coverage.

With respect to vaccine product reimbursement for physicians (and for pharmacists when reimbursed under the physician methodology, as noted in [Appendix Table 3](#), available online), states are clustered around the median rate for all 3 vaccine products of interest. The median rate falls below the CDC-reported private rate for HepA (89% of the private rate) and 9vHPV (94%) but above the private rate for PPV23 (108%). [Appendix Table 1](#) (available online) provides state-by-state details. These percentages are comparable with the findings of Granade and colleagues¹⁸ from 2018 to 2019 (85%, 94%, and 103%, respectively), reflecting modest increases in both the state median and private rates in the intervening years.

With respect to the physician administration fee for injectable vaccines, this methodology is unique among recent studies for its assessment of the actual fee that a physician would receive for an initial vaccination during a billable office visit—the setting in which physician vaccinations are most likely to be delivered. This study accounts for states in which CPT code 90471 is billable only for vaccine-only visits (where no other services are provided) as well as states in which the administration fee is paid through a mechanism other than billing code 90471. Whereas Granade et al.¹⁸ reported a median physician vaccine administration fee of \$13.62, this study found a median of \$13.27 among states that pay an administration fee and a median of \$11.86 overall, taking into account the 9 states that do not pay an administration fee. This \$11.86 median fee is 30% lower than Medicare Part B's national 2022 rate of \$16.96 for CPT code 90471 and 60% lower than Medicare Part B's national

rate of \$30 for the administration of hepatitis B, influenza, and pneumococcal. No contemporaneous data are publicly available regarding vaccine administration fees under commercial insurance, but the 2022 median fee for Medicaid is 54% lower than the average nationwide fee in 2016, the most recent year for which data are publicly available.²⁹

With respect to pharmacists, this study found that the majority of states (34 of 52 or 65%) pay an administration fee equal to or higher than the administration fee for physicians. However, whereas physicians are potentially able to bill for office visit fees in addition to any vaccine administration fee, pharmacists are typically unable to do so. Thus, pharmacist reimbursement for vaccine product and administration must be sufficient to cover the costs associated with any related patient counseling, documentation, storage and handling, and reporting, in addition to the vaccine itself. In a 2016 meta-analysis, pharmacists cited coverage and reimbursement considerations across payers as barriers to vaccine access in the pharmacy setting.³⁰ It is thus noteworthy that this study identified 7 states that do not reimburse pharmacists for the service of vaccine administration at all, of which 3 pay at least a small administration fee for physician vaccinators. In 5 additional states, although pharmacists receive an administration fee, this fee is \$5–\$22 lower than the physician administration fee.

Limitations

First, this research was limited to publicly available documents, which occasionally contain ambiguities and which may not always reflect a state's actual current practices. Second, this research focused primarily on FFS programs. The majority of adult Medicaid enrollees now receive some or all Medicaid services through MCOs,³¹ for which reimbursement data are generally not publicly available. However, the evidence suggests that FFS rates are often used as a benchmark for MCO reimbursement rates.²¹ Third, this research focused exclusively on physicians and pharmacists and so does not capture potential distinctions in Medicaid coverage or reimbursement policies for other practitioner types that can similarly support access to services, such as advanced practice clinicians and additional pharmacy personnel.^{25,32} Fourth, state Medicaid policies can change frequently, so the findings reported in this paper may not be current for all states at the time of reading. With respect to coverage, all states were required to come into compliance with the IRA's coverage requirements by October 1, 2023. With respect to reimbursement, many states update their fee schedules annually or even quarterly. Finally, should a state provide coverage and access to

vaccines through state-purchase program, as was the case for Rhode Island, that was not considered a substitute for explicit Medicaid coverage.

Even with these limitations, these findings reveal wide cross-state variation in Medicaid policies that affects vaccine access for low-income adults as well as knowledge gaps that can be addressed in future research to describe vaccine-related policies under Medicaid managed care and to assess the impact of changing federal and state policies on vaccine uptake for adult Medicaid enrollees.

CONCLUSIONS

Although the IRA has eliminated the remaining gaps in Medicaid coverage of routine adult vaccines for physician vaccinators, Medicaid enrollees' access to vaccines may continue to be hindered by certain state policies regarding provider coverage and reimbursement, among other barriers.

Medicaid-eligible individuals are, by definition, low income, and they are also disproportionately likely to be members of historically marginalized and underserved communities and may face other compounding social determinants of health or health-related social needs that can impact access and utilization of vaccination services. Ultimately, addressing the barriers identified in this study is a critical step toward addressing the vaccination disparities that exist between Medicaid and commercially insured beneficiaries—which have only widened during the course of the COVID-19 pandemic.³³

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SUPPLEMENTARY MATERIALS

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