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(REVIEW ARTICLE)

# Optimizing RSV vaccination in U.S. older adults: Cost-effectiveness insights, payer coverage strategies, and implementation pathways

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## Abstract

Respiratory syncytial virus places a heavy burden on older adults in the United States, leading to considerable respiratory morbidity, frequent hospitalizations, and high healthcare costs. Approval of RSV vaccines for adults aged 60 years and older has moved prevention toward immunization. Reliable economic evaluations are crucial for guiding coverage and policy decisions. This review, the second in a two-part series, synthesizes U.S.-specific cost-effectiveness evidence for RSV vaccination in this population and addresses implications for payer strategies, clinical adoption, and health system alignment. Societal-perspective analyses show favorable value, with incremental cost-effectiveness ratios well below standard U.S. willingness-to-pay thresholds of $100,000 to $150,000 per quality-adjusted life-year. Payer-perspective analyses produce higher ratios because they exclude indirect costs and broader societal benefits. The analytical perspective is the primary factor influencing conclusions, followed by hospitalization costs, vaccine efficacy, and the duration of protection. Effective implementation depends on budget offsets, aligning quality metrics, accurate coding, and risk adjustment. RSV vaccination offers significant economic value within frameworks relevant to decision-makers. Incorporating societal benefits more fully into payer assessments would promote sustained coverage and greater uptake.

**Keywords:** Respiratory Syncytial Virus; Cost-Effectiveness; USA; Adult Vaccination; Health Economics; Health Policy

## 1. Introduction

Respiratory syncytial virus is a primary cause of lower respiratory tract illness in older U.S. adults. Persons aged 60 years and older face markedly higher risks of hospitalization, severe complications, and prolonged recovery, especially with comorbidities such as cardiopulmonary disease, diabetes, or immunosuppression (1,2,12). Hospitalization burden and surveillance data further confirm substantial seasonal health system impact in this population (10,11). Recent FDA approvals of RSV vaccines for this group represent a shift toward preventive immunization, with the potential to reduce seasonal hospital demand and resource utilization (3). In the U.S. healthcare system, where no centralized health technology assessment body exists, vaccine adoption depends heavily on payer and institutional decision frameworks (14,15).

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## 2. Materials and methods

### 2.1. Study Identification

U.S.-focused cost-effectiveness analyses of RSV vaccination in adults aged 60 years and older were identified through PubMed and targeted journal searches. Eligible studies reported incremental cost-effectiveness ratios per quality-adjusted life-year gained and specified the analytical perspective.

### 2.2. Data Extraction and Prioritization

Extracted data included the target population, vaccine type, model structure, time horizon, perspective, incremental cost-effectiveness ratios, willingness-to-pay thresholds, and findings from the sensitivity analysis. Emphasis was placed on U.S.-relevant parameters, including hospitalization costs, vaccine efficacy against severe outcomes, and duration of protection.

### 2.3. Synthesis Framework

Results were synthesized qualitatively, with main findings presented in tables. Non-U.S. studies provided context for modeling assumptions but were not combined quantitatively with U.S. estimates.

## 3. Results

### 3.1. Cost-Effectiveness by Perspective

**Table 1** Summarizes principal U.S. cost-effectiveness outcomes for RSV vaccination in adults aged 60 years and older.

| Perspective | ICER ($ per QALY gained) | Willingness-to-Pay Threshold | Conclusion | Reference |
|---|---|---|---|---|
| Societal | 18,430 | 100,000–150,000 | Cost-effective | (4) |
| Societal | 176,557–196,842 | 100,000–150,000 | Potentially cost-effective, varies by vaccine and age | (3) |
| Healthcare payer | 49,366 | 100,000–150,000 | Cost-effective | (4) |

The analytical perspective had the most significant impact on outcomes. Societal base-case estimates from La et al. (4) demonstrate lower ICERs, while Hutton et al. (3) reflects broader sensitivity and higher-cost scenarios, driven by model structure and population assumptions.

### 3.2. Key Determinants of Value

**Table 2** Identifies primary sensitivity drivers in U.S. models.

| Driver | Impact on ICER | Evidence |
|---|---|---|
| Analytical perspective | Societal substantially lowers ICER | (3,4) |
| Hospitalization costs | Higher costs improve value | (3,4) |
| Vaccine efficacy | Higher efficacy reduces ICER | (3,4) |
| Protection duration | Longer duration enhances value | (4) |
| Vaccine price | Lower price improves alignment | (3,4) |

Hospitalization prevention and sustained protection were the dominant drivers, consistent with the high acute care costs in the U.S. system.

### 3.3. U.S. Willingness-to-Pay Context

**Table 3** Positions RSV vaccination relative to established thresholds.

| Context | Threshold ($ per QALY) | Policy Implication |
|---|---|---|
| Public/private payers | 100,000–150,000 | Societal ICERs support coverage |
| Payer assessments | 100,000–150,000 | May appear less favorable without indirect costs |
| Public health | Undefined | Favors broader adoption |

Interpretations vary across stakeholders in the absence of a unified national authority. Value assessment in the United States is influenced by analytical perspective, payer incentives, and decision context, which can result in divergent conclusions regarding cost-effectiveness (14,15).

### 3.4. Implications for High-Risk Groups

U.S. models have primarily assessed average-risk populations, with limited evaluation of subgroups. Higher baseline risks in chronic conditions yield greater absolute benefits and more favorable cost-effectiveness. International evidence supports prioritization of high-risk groups (Shoukat et al., 2024).

**Table 4** Outlines the expected implications by population segment.

| **Population Group** | **Estimated Outcome** | **Strategic Implication** |
|---|---|---|
| General adults aged ≥60 years | Cost-effective societally | Supports routine vaccination |
| Adults with chronic conditions | Highly cost-effective | Justifies prioritization |
| Frail or medically complex | Greatest benefit | Aligns with value-based care |

### 3.5. Practical Implementation Factors

**Table 5** Practical implementation factors and strategic impacts for U.S. RSV vaccination

| **Domain** | **Practical Implementation Factor** | **Strategic Clinical/Economic Impact** |
|---|---|---|
| Budget Impact (BIA) | Model-based analyses suggest substantial cost offsets driven by reductions in RSV-related hospitalizations and downstream healthcare utilization (3,4,10,11). | Prioritizing Age 75+ or 60–74 with comorbidities optimizes the plan's Medical Loss Ratio (MLR). |
| Quality Measures | HEDIS: Adult Immunization Status (AIS-E): Tracks recommended routine vaccinations for adults (6). | Improved performance directly correlates with higher Medicare Star Ratings and Plan Quality Bonus Payments (QBP) (7). |
| Coding Triggers | Primary ICD-10-CM Codes: J12.1 (RSV Pneumonia), J20.5 (RSV Bronchitis), J21.0 (RSV Bronchiolitis) (9). | Automated EHR flags using these codes identify high-utilization patients for targeted outreach. |
| Payer Policy | CPT/Billing Codes: 90679 (GSK), 90678 (Pfizer), 90683 (Moderna) (13). | Transitioning from "Shared Clinical Decision-Making" to routine recommendation simplifies pharmacy adjudication. |
| Risk Adjustment | HCC Coding Integration: Linking RSV (B97.4) to chronic secondary conditions (e.g., J44.0 for COPD with Acute Bronchitis) (8,14). | Ensures accurate risk-adjustment and capitation rates for value-based contracts by capturing morbidity. |

## 4. Discussion

U.S.-specific cost-effectiveness analyses indicate that RSV vaccination in adults aged 60 years and older offers substantial value from a societal perspective. This viewpoint incorporates avoided hospitalizations, reduced healthcare

utilization, and mitigation of indirect costs, producing incremental cost-effectiveness ratios that align with accepted benchmarks (10,11,12). Payer-focused evaluations, limited by narrower cost inclusion, often assign lower value and may constrain optimal coverage.

The first part of this series (2025) detailed the clinical epidemiology, vaccine efficacy, and initial economic context. The current analysis builds upon this work by emphasizing U.S. modeling results and operational translation. Real-world data on vaccine duration, incidence patterns, and cost offsets, particularly in high-risk subgroups, remain critical for refining evaluations. Presenting economic evidence in terms directly applicable to payers and health systems, as shown in Table 5, supports the practical adoption and sustainability of programs.

Societal incremental cost-effectiveness ratios, such as $18,430 per quality-adjusted life-year (QALY) (4), align well with conventional thresholds. The divergence between societal and payer estimates reflects differences in cost inclusion boundaries rather than uncertainty in clinical effectiveness. Narrow payer approaches risk undervaluing adult immunization efforts overall. As real-world evidence accumulates through 2025 and into 2026 (14,15), these assessments will become increasingly precise. The collective evidence supports continued coverage, targeted prioritization of high-risk individuals, and structured implementation using the described mechanisms.

### 4.1. Implications for U.S. practice and policy

#### *4.1.1. For Payers*

Evaluations should include societal cost offsets to prevent underestimation of benefits. Quality incentives, coding accuracy, and risk adjustment (Table 5) offer practical ways to capture system-wide value.

#### *4.1.2. For Health Systems*

Routine vaccination can ease seasonal capacity demands and support value-based care models.

#### *4.1.3. For Medical Affairs and Leadership*

Evidence should emphasize averted hospitalizations, system efficiencies, and actionable tools to engage stakeholders, inform guidelines, and advance clinician and patient education.

## 5. Conclusion

This second part of the series, building on the first part, 2025, confirms that RSV vaccination for U.S. adults aged 60 years and older is cost-effective under societal frameworks and U.S.-specific analyses, with incremental cost-effectiveness ratios below standard thresholds. Building on the earlier clinical and epidemiological foundation, these findings underscore the need for payer methods to incorporate societal offsets, quality improvements such as HEDIS metrics, and accurate risk capture, including the integration of hierarchical condition categories, to achieve comprehensive population health and economic benefits. Such alignment would facilitate routine inclusion of RSV vaccination in adult immunization programs and enable sustainable implementation through the practical factors outlined in Table 5.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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