EE333

Budget Impact of Oral Nirmatrelvir/Ritonavir in Patients at High Risk for Progression to Severe COVID-19 in the U.S.; An Updated Analysis

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OBJECTIVE

To estimate the annual budget impact of introducing NMV/r in a U.S. commercial health plan setting in the current Omicron variant COVID-19 era

INTRODUCTION

- Nirmatrelvir/ritonavir (NMV/r) is indicated for the treatment of mild-to-moderate coronavirus disease 2019 (COVID-19) in adults who are at high risk for progression to severe COVID-19, including hospitalization or death[1]
- An agreement was announced on October 13, 2023, between Pfizer and the US government that will allow access to NMV/r through more channels[2]
- Patients with government insurance through Medicare, Medicaid, TRICARE VA Community Care Network or are uninsured may be able to get NMV/r at no cost through a patient assistance program until December 31, 2024[3]
- A previously published budget impact model found NMV/r resulted in a small budget impact from a commercial payer perspective, but a new analysis is needed that reflects current costs and impacts of COVID-19[4]

METHODS

- A budget impact model was developed to assess the impact of providing access to NMV/r on healthcare costs in a hypothetical 1-million-member health plan over a 1-year period in the U.S.
- Outcomes included the number of hospitalizations, number of deaths, total cost, per-member per-month (PMPM) costs, and annual cost per treated patient (PPPY)
- Population, clinical, and cost inputs were derived from published literature, focusing on the recent COVID-19 era of vaccinated patients and predominance of the Omicron variant (Table 1-2)[5-21]
  - NMV/r ($1,390), remdesivir ($2,323) and molnupiravir ($707) costs include undiscounted wholesale acquisition cost (WAC) and administration cost [9,10,12]
  - Hospitalizations costs were derived from a published cost-effectiveness analysis COVID-19 antiviral treatment[10]
  - Rates of healthcare visits for those treated with remdesivir and molnupiravir were assumed to be the same as those treated with NMV/r[8]
  - Inpatient mortality of COVID-19 was 4.9%[21]
- In the scenario with NMV/r, 84% received treatment with NMV/r, 11% molnupiravir, and 4% remdesivir[20]
  - In the scenario without NMV/r, 65% received supportive care only, 25% molnupiravir, and 10% remdesivir
- The potential effect of treatment on post-COVID conditions (PCC) was assessed in a scenario analysis
  - Based on a real-word study, PCCs were experienced by 12.99% of patients treated with NMV/r and 17.51% for those who received supportive care only[23]
  - NMV/r is not approved to treat or reduce the incidence of PCC
- It was assumed that patients receiving treatment with other antiviral therapies experienced the same rate of PCCs as those treated with NMV/r
- One-way and two-way sensitivity analyses were conducted to assess uncertainty around key model inputs including
  - Two-way sensitivity analyses varied average hospitalization cost with 1) hospitalization rate with supportive care and 2) the efficacy of NMV/r in reducing hospitalizations and deaths

Table 1. Treatment Eligible Population[5-9]

Inputs	Value
Plan size	1,000,000
Adults who have COVID-19 infection	12.4%
Infections at high risk for severe disease	47.2%
COVID-19 infections that are symptomatic	64.1%
People that seek treatment for COVID-19	80%

Table 2. Hospitalization Rate Inputs[18-20]

Treatments	Efficacy Rate	Hospitalization Rate
Supportive care	N/A	3.43%
NMV/r	79.6%	0.70%
Remdesivir	59.0%	1.41%
Molnupiravir	20.0%	2.74%

CONCLUSIONS

- **Treatment with NMV/r is estimated to result in a modest budget impact with substantial cost offsets from a reduction in hospitalizations**
- **The use of NMV/r is cost savings for US health plans when PCC was considered in a scenario analysis**

RESULTS

- An estimated 29,999 patients were eligible for treatment with NMV/r over a one-year period
- In the base case, the total budget impact with NMV/r was $864,985, $29 PPPY and $0.07 PMPM (Table 3)
- The availability of NMV/r was estimated to result in 631 fewer hospitalizations and 31 deaths (Figure 1)
- The scenario with NMV/r was cost saving when the impacts on post-COVID conditions were included
  - The resulting total budget impact in the scenario with PCC was -$2,782,928, $93 reduction PPPY, and a PMPM savings of $0.23
- Sensitivity analyses indicated results were most sensitive to the market share of NMV/r, composite efficacy rate of NMV/r in reducing hospitalizations and deaths, and the baseline risk of hospitalization under supportive care

Figure 1. Impact of NMV/r on Hospitalizations and Deaths Over 1-Year

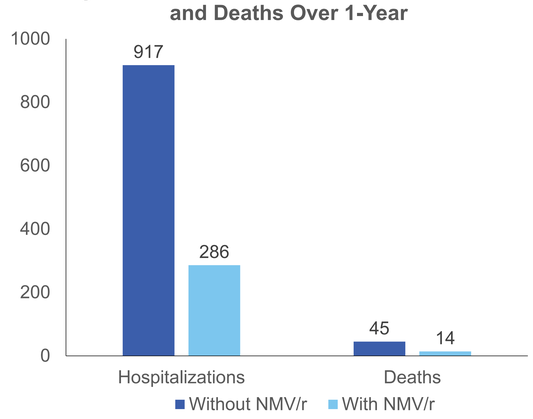

Table 3. Budget Impact Model Results

	Without NMV/r	With NMV/r	Incremental
Drug cost	$14,093,469	$41,366,330	$27,710,179
Hospitalization cost	$37,275,269	$11,621,852	-$25,653,417
End of life cost	$127,494	$39,751	-$87,743
Care visit cost	$2,900,148	$2,233,434	-$666,715
Base case results	**$54,396,381**	**$55,261,366**	**$864,985 ($0.07 PMPM)**
Scenario with PCC	**$76,707,401**	**$73,924,473**	**-$2,782,928 (-$0.23 PMPM)**

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Disclosures

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