NIGERIA

Estimating the cost of RSV and other acute respiratory infections in Nigeria

Cost of illness data to evaluate the economic burden of RSV

Respiratory syncytial virus (RSV), a leading cause of acute lower respiratory tract infections in young children, is responsible for more 100,000 deaths annually, with 97% of these deaths occurring in low- and middle-income countries (LMICs).[1] In Nigeria, where under-five mortality remains high, RSV substantially contributes to the country's burden of childhood pneumonia, which is the highest in the world.[2,3] The World Health Organization (WHO) has recommended the implementation of preventive strategies, including maternal immunization. Cost of illness data can help determine the economic burden of RSV and inform potential preventive strategies for protecting infants in LMICs.

To support country and global decision-makers in evaluating RSV preventive interventions in Nigeria, a collaboration involving PATH, the University Medical Centre Utrecht, and the Institute of Child Health at the Ahmadu Bello University Teaching Hospital (ABUTH) conducted a study to estimate the health and economic burden of RSV in the country. The study estimated the cost of RSV infection in children younger than two years of age who sought care at a tertiary hospital in North-West Nigeria during the 2023 RSV season. The cost of other acute respiratory infections will also be explored in the publication.

Key terms

- ***Health system costs:*** Expenses incurred by the health care system due to a specific health issue or illness.
- ***Household costs:*** The total cost borne by individuals or families, including the cost of transportation to health facilities, medication, and lost income due to illness or caregiving.
- ***Societal costs:*** The total economic impact of a health issue on society as a whole, including health system costs, household costs, productivity losses, and any other indirect costs.

Study summary & methods

This study is part of the RSV GOLD III-Health Economics Study, a multi-country collaboration evaluating the economic burden of RSV and the impact and cost-effectiveness of prevention in Gavi, the Vaccine Alliance-eligible countries. The study was conducted at ABUTH and an associated public outpatient clinic, the Institute of Child Health (ICH) in North-West Nigeria. The study estimates costs from the societal, health system, and household perspectives, grouped into the following major categories:

- **Direct medical costs**, such as costs for health facility care, medications, and laboratory services.
- **Direct non-medical costs**, including costs for transportation, meals, and lodging.
- **Indirect costs**, defined as lost income and lost leisure time.

The study examined children younger than two years of age presenting with (severe) acute respiratory illness at ABUTH and ICH from April to November 2023, excluding neonates less than four days old. Researchers categorized children into non-severe, severe, and life-threatening groups, and determined RSV status using a molecular point-of-care test. Researchers also administered caregiver questionnaires, collected data from hospital records, and conducted follow-up interviews with caregivers four to six weeks post-visit or post-discharge.

Key study findings

- RSV in young children in Nigeria presented a **significant health and economic burden**.
- The average societal cost per episode of RSV infection was **US$13 for non-severe cases, US$244 for severe cases**, and **US$179 for life-threatening cases**.
- For an episode of severe RSV infection, average household costs were **more than 200% of monthly minimum wage**.
- Most households resorted to **personal savings** to cover costs for severe RSV cases.

Cost of RSV in Nigeria

Of the 792 children included in the analysis, 21% tested positive for RSV. Of these positive cases, 80% were non-severe, 12% were severe, and 9% were life-threatening. Although fewer female children (46%) were included in the study than male, female children made up 79% of the life-threatening RSV-positive group.

On average, one episode of RSV-related illness cost US$13 for non-severe cases, US$244 for severe cases, and US$179 for life-threatening cases. The inclusion of fatalities in the life-threatening group affected the estimated average costs. Costs were higher for inpatient cases than outpatient cases.

Health system costs for severe and life-threatening RSV averaged US$122 and US$92, respectively, while the cost for non-severe RSV averaged US$4. From the household perspective, total costs were US$9, US$122, and US$88 per episode of non-severe, severe, and life-threatening RSV, respectively. Most households (89%) reported using personal savings to cover costs.

The study results point to a substantial economic burden of RSV on the Nigerian health system. Additionally, RSV imposed significant costs on families and caregivers, with household costs totaling 247% of the monthly minimum wage for severe cases and 173% for life-threatening cases.

Average cost per episode of RSV infection in children younger than two years old (USD)

	Severe	Non-severe	Life-threatening
Societal costs	$13	$244	$179
Health system costs	$4	$122	$92
Household costs	$9	$122	$88

Conclusions

This study provides some of the first findings on the cost of RSV infection in Nigeria, underlining the substantial burden of the disease in young children in the country. Global and local stakeholders can use these data to inform decisions on potential RSV preventive interventions in Nigeria. With new global recommendations in place, including WHO's prequalification of maternal RSV vaccines, this study adds to a growing body of data on the health and economic burden of RSV in LMICs.

Read the full report: Shabaan FL, et al. Journal of Global Health. 2025. Accessed at: http://jogh.org/2025/jogh-15-04307

Endnotes

1. Li Y, Wang X, Blau DM, et al. Global, regional, and national disease burden estimates of acute lower respiratory infections due to respiratory syncytial virus in children younger than 5 years in 2019: a systematic analysis. Lancet 2022;399:2047-2064. doi:10.1016/S0140-6736(22)00478-0.
2. Nigeria Demographic and Health Survey 2018. 2019. Available: www.DHSprogram.com.
3. Nigeria contributes highest number to global pneumonia child deaths. [cited 20 Oct 2025]. Available: https://www.unicef.org/nigeria/press-releases/nigeria-contributes-highest-number-global-pneumonia-child-deaths

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