

The disease burden of Respiratory Syncytial Virus among the adult population in Greece

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Introduction

- Respiratory syncytial virus (RSV) is recognized as one of the leading causes of acute respiratory illness in adults worldwide (1-2).
- The clinical burden can be substantial: among hospitalized adults with RSV infection, severe outcomes such as intensive care unit admission, mechanical ventilation, or death occur in approximately one in five patients (19.1%) (3).
- Apart from the humanistic/clinical burden, RSV infection is a global health problem that exerts a significant economic burden on healthcare systems (4).
- A better understanding of both the clinical outcomes and the societal economic consequences of RSV in adults is essential to support evidence-based decision-making, guide health policy, and inform preventive strategies.

Objective

The aim of present study was to estimate the burden of RSV illness in Greek adults aged 18 years and above from both the payer and societal perspectives.

Methods

Model overview

A decision-analytic model with a Markov structure was locally adapted to simulate the lifetime clinical and economic burden of RSV among adults in Greece aged ≥18 years.

- **Population stratification:** Adults were characterized by age groups (18–49, 50–64, 65–74, 75–84, ≥85 years) and by risk status based on the existence of chronic medical conditions (CMC) which increase risk for severe RSV illness (with vs. without chronic or immunocompromising medical conditions [CMC+ vs. CMC-]).
- Health outcomes and economic costs projected monthly, from model entry through end of modelling horizon, including:
 - **Health outcomes:** Medically attended lower respiratory tract infections due to RSV (RSV-LRTD) categorized by care setting: hospital (RSV-H), emergency department (RSV-ED), outpatient physician visit (RSV-OV), and RSV-related deaths.
 - **Economic outcomes:**
 - Direct medical costs of treatment for RSV are generated based on event rates and unit costs in relation to the setting of care (hospital, ED and OV), age, and risk status.
 - Indirect costs associated with RSV-related morbidity were calculated based on the estimated number of work-loss days due to illness, age-specific work-force participation rates, and average daily wages.

Estimation of Model Inputs

- Population was characterized by age and risk status were extracted from official website of the European Union (Eurostat) and published study (5).

Methods (cont.)

Estimation of Model Inputs (cont.)

- The annual rate of RSV cases requiring hospitalization was obtained from local experts and published study (5), while age-specific rates of RSV- requiring outpatient care (such as ED and OV) were obtained from published studies (6-7) (Table 1).
- Rates of RSV were allocated across calendar months based on published study (5) and the distribution by calendar month was assumed to be invariant by care setting.
- Case-fatality rates due to RSV-H were obtained from literature (8), while CFR assumed to be zero for RSV requiring outpatient care only.
- As for age/CP-specific direct medical costs associated with RSV hospitalization, EM and OV were obtained from the Diagnosis-Related Group(9) and published study (5) (Table 1).

Table 1: Comorbidity profile, annual Incidence rates of RSV by care setting, age/comorbidity profile and associated direct medical costs considered in the model.

Age group/CP	CP distribution	Case-fatality (per 100,000) for hospitalized RSV	Annual Incidence rates of RSV (per 100,000) by care setting, age and CP			RSV-attributable direct medical costs by care setting age and CP		
			Hospital	Emergency Department	OV	Hospital	Emergency Department	OV
18-49								
CMC-	67%	0.8	16	57	1,353	€892	€243	€165
CMC+	33%	2.2	222	95	2,638	€1,549	€311	€234
50-64								
CMC-	47%	1.4	28	80	1,496	€1,714	€243	€165
CMC+	53%	4.7	409	201	2,591	€2,923	€311	€234
65-74								
CMC-	30%	3.3	59	92	1,505	€2,919	€319	€243
CMC+	70%	6.5	558	261	2,894	€3,881	€388	€313
75-84								
CMC-	16%	8.0	150	101	1,511	€5,111	€319	€243
CMC+	84%	9.9	740	310	3,143	€7,083	€388	€313
85-99								
CMC-	7%	10.1	190	111	1,517	€7,087	€319	€243
CMC+	93%	11.8	977	365	3,420	€8,983	€388	€313
Source: Gourzoulidis et al.(5), McLaughlin et al.(6), Weycker et al.(7) Diagnosis-Related Group tariffs issued by the Greek Ministry of Health (9), official website of EOPYY (10) and Local experts								

Results

- Over the lifetime horizon of the modelled cohort of Greek adults, the model projected there would be 880,103 RSV hospitalizations, 452,339 RSV cases requiring ED visits, 5,968,542 RSV cases requiring OV care, and 70,713 RSV-related deaths (Figure 1).
- The total RSV-related medical cost was estimated at approximately €5 billion, with indirect costs contributing to 36% of the total burden. Moreover, RSV-related hospitalizations constituted 12% of all RSV medically-attended cases yet accounted for most (72%) of the RSV-related direct medical costs (Figure 2).

Figure 1: Estimated medically-attended RSV cases by care setting over the lifetime horizon

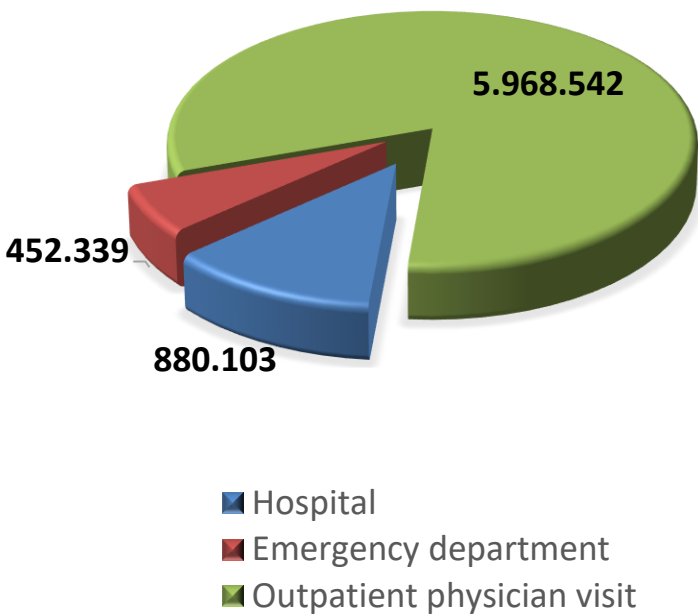
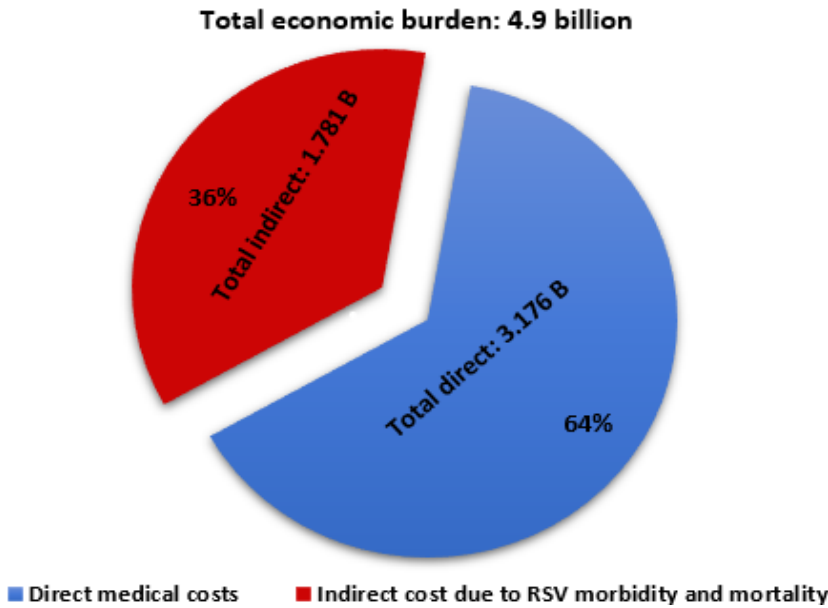


Figure 2: Estimated Economic Burden of RSV in Adults Aged ≥18 Years Over a Lifetime Horizon



References

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Conclusion

- The study analysis demonstrates that RSV imposes a significant clinical and economic burden among Greek adults, highlighting the need of prevention in the absence of specific RSV treatments.
- The findings provide critical evidence for policymakers and healthcare stakeholders, emphasizing the need to prioritize RSV prevention within national public health strategies.
- The recent regulatory approval of RSV vaccines for use among adults in Europe offers a valuable opportunity to reduce disease rates and ease the strain on Greece’s healthcare system.