Estimation Of Respiratory Syncytial Virus (RSV) Burden For Infants In Secondary Care Hospital Records In Ireland 2017-2022 Using ICD-10 Diagnosis Codes

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BACKGROUND

RSV has been a notifiable disease in Ireland since 2012 and is the second most common respiratory virus after influenza [1, 2]. RSV is a leading cause of lower respiratory tract infections (LRTI) (primarily bronchiolitis and pneumonia) and hospitalisations in children worldwide resulting in a substantial clinical and economic burden [3-6].

Hospitalisations due to RSV may be under-reported in Ireland because not all children hospitalised with a LRTI undergo laboratory testing to identify the causal pathogen. However, there has been a significant increase in RSV notifications in Ireland since 2012/13 with 7,835 notifications in 2023, and the 0-4 years age group the most affected [2].

OBJECTIVE

To describe RSV-related inpatient hospitalisations and estimate direct healthcare costs in infants <2 years of age in Ireland over a 5-year period, from 2017 to 2022

METHODS

Data for inpatient hospitalisations due to RSV in infants <2 years of age between 2017–2022 in Ireland were obtained from the Hospital Inpatient Enquiry (HIPE) database based on RSV-specific ICD-10 codes (J12.1/J20.5/J21.0/B97.4) [7].

Additional bronchiolitis ICD-10 codes (J21.1/J21.8/J21.9) are also useful for capturing LRTI hospitalisations [7]. Hospital costs were estimated by applying unit costs to the number of hospitalisations.

Unit costs were based on the cost per day for an inpatient stay from the ABF 2023 admitted price list for minor respiratory infection (€3972) [7, 8].

RESULTS

The number of RSV-specific hospitalisations in infants <2 years of age was 2,727 in 2022, compared to 1,200 notifications in 2017. This represents a **127% increase in discharges due to RSV from 2017 to 2022**. In addition, 1,430 hospitalisations were reported under non-RSV-specific ICD-10 codes in infants <2 years in 2022.

The corresponding cost of secondary care admissions for laboratory-confirmed RSV was €4,766,400 in 2017 rising to €10,831,644 in 2022. However, these costs could be as high as €16,511,604 in 2022 if discharges due to bronchiolitis are considered.

Table 1: Total number of hospital inpatient discharges due to RSV (J12.1/J20.5/J21.0/B97.4) in infants <2 years (2017-2022)

Age (yrs.)	2017	2018	2019	2020	2021	2022
0	1004	1245	1346	330	1554	2091
1	159	234	258	65	354	413
2	37	69	105	18	165	223
Total	**1,200**	**1,548**	**1,709**	**413**	**2,073**	**2,727**

Table 2: Total number of hospital inpatient discharges due to RSV (J12.1/J20.5/J21.0/B97.4) and bronchiolitis (J21.1/J21.8/J21.9) in infants <2 years (2017-2022)

Age (yrs.)	2017	2018	2019	2020	2021	2022
Total RSV	1200	1548	1709	413	2073	2727
0	1465	1427	1426	520	799	1242
1	192	167	155	88	138	173
2	18	16	17	7	12	15
Total	**2,875**	**3,158**	**3,307**	**1,028**	**3,022**	**4,157**

Table 3: Total Inpatient RSV Costs and RSV + Bronchiolitis Costs by year (2017-2022)

Total Inpatient RSV Costs					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
€4,766,400	€6,148,656	€6,788,148	€1,640,436	€8,233,956	€10,831,644
Total Inpatient RSV + Bronchiolitis Costs					
2017	**2018**	**2019**	**2020**	**2021**	**2022**
€11,419,500	€12,543,576	€13,135,404	€4,083,216	€12,003,384	€16,511,604

CONCLUSIONS

RSV imposes a major economic burden on hospitals in Ireland. However, this burden may be underestimated due to under-reporting of RSV. The data presented in this study does not include GP, emergency or outpatient department visits, which means that the full economic burden of RSV in Ireland remains unknown. Further studies are required to understand the true burden of RSV to inform future policy decisions.

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15th Annual IDSI Conference
May 16th – 17th, 2024

Acknowledgements: Funding for this study was provided by Sanofi and AstraZeneca.
Disclosures: Seán Brennan is an employee of Sanofi. Keith Patterson has nothing to disclose.

Poster
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