

ESTIMATION OF RESPIRATORY SYNCYTIAL VIRUS (RSV) BURDEN FOR INFANTS IN SECONDARY CARE HOSPITAL RECORDS IN IRELAND 2017-2021 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 5,356 notifications in 2022/23: 50% of which were in infants <2 years [2].

OBJECTIVE

To describe RSV-related inpatient hospitalisations and estimate direct healthcare costs in infants <2 years of age in Ireland.

METHODS

Data for inpatient hospitalisations due to RSV in infants <2 years of age between 2017-2021 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 2022 admitted price list for minor respiratory infection (€2,719.70) [7, 8].

RESULTS

The number of RSV-specific hospitalisations in infants <2 years of age was 2,073 in 2021, compared to 1,200 notifications in 2017. This represents a 73% increase in discharges due to RSV from 2017 to 2021. In addition, 949 hospitalisations were reported under non-RSV-specific ICD-10 codes in infants <2 years in 2021. The corresponding cost of secondary care admissions for laboratory-confirmed RSV was €3,263,641 in 2017 rising to €5,637,940 in 2021. However, these costs could be as high as €8,218,936 in 2021 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 (2017-2021)

Age (yrs.)	2017	2018	2019	2020	2021
0	1,004	1,245	1,346	330	1,554
1	159	234	258	65	354
2	37	69	105	18	165
Total	1,200	1,548	1,709	413	2,073

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 (2017-2021)

Age (yrs.)	2017	2018	2019	2020	2021
Total RSV	1,200	1,548	1,709	413	2,073
0	1,465	1,427	1,426	520	799
1	192	167	155	88	138
2	18	16	17	7	12
Total	2,875	3,158	3,307	1,028	3,022

Table 3: Total Inpatient RSV Costs and RSV + Bronchiolitis Costs by year (2017-2021)

Total inpatient RSV costs				
2017	2018	2019	2020	2021
€3,263,641	€4,210,097	€4,647,969	€1,123,237	€5,637,940
Total inpatient RSV + bronchiolitis costs				
2017	2018	2019	2020	2021
€7,819,140	€8,588,816	€8,994,051	€2,795,853	€8,218,936

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. Therefore, further studies are required to understand the true burden of RSV to inform future policy decisions.

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