

BRIEF COMMUNICATION

Respiratory Syncytial Virus (RSV) Illness and Prevention in Older AdultsMusa Mohd Nordin, FRCPCH ¹, Husna Musa, MMED Paeds ²**ABSTRACT**

Many non-paediatric doctors are less aware that RSV is also an important cause of acute respiratory infections (ARIs) in adults, especially those above 65 years old and adults suffering from co-morbidities such as diabetes, ischaemic heart disease, asthma or who are immunocompromised. Other factors associated with severe RSV disease in older adults include frailty and residence in a nursing home or other long-term care facility. This article discussed the RSV-associated burden among older adults and potential prevention strategies that should be considered.

Keywords: RSV, pneumonia, vaccine

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Introduction

The prevalence of RSV comprised 16.3% of the viral community acquired pneumonia (CAP) in a Malaysian adult urban population. The median age was 68 years and the median length of stay (LOS) was 6 days. The mortality rate from RSV-CAP was 1.34%. ^{1,2} In an earlier article, we showed that child health doctors and nurses are very familiar with this common respiratory virus causing RSV croup, bronchiolitis and pneumonia. ³ RSV infections are often mistaken for the common cold (rhinovirus), influenza, covid or even allergies because the signs and symptoms are very similar and/or may overlap. Nasal swabs for real-time reverse transcriptase polymerase chain reaction (rRT-PCR) will diagnose RSV from other viral and bacterial infections.

Clinical Outcome and Burden of RSV Disease

The risk of severe RSV illness increases with age. The incidence of hospitalization is 7-9 times

higher in the 65-69 years age group versus the 18-49 years age group. (Figure 1). ^{4, 6-7} Severe outcomes, namely admissions in the ICU and death are frequent among adults of all ages hospitalized for RSV. The RSV Case Fatality Rate (CFR) for adults more than 65 years old is 17 times that of children less than 5 years old (Figure 2). ⁵⁻⁷ Compared with influenza, RSV is associated with higher rates of pneumonia, hospitalisations, ICU admissions and length of hospital stay (Table 1). ⁸

There is much uncertainty in the burden of RSV disease, as reflected in the wide range of the numbers. The estimated RSV-associated acute respiratory infections (ARI) burden among persons more than 60 years old from industrialised countries, in 2019, are 5.2 million ARI episodes, 470, 000 hospitalisations and 33,000 deaths ¹. Global data from LMICs is poorly defined but suggest higher rates of ARI hospitalization and deaths. ⁹

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RSV-associated hospitalization rates by adult age group RSV-NET 2016–2020

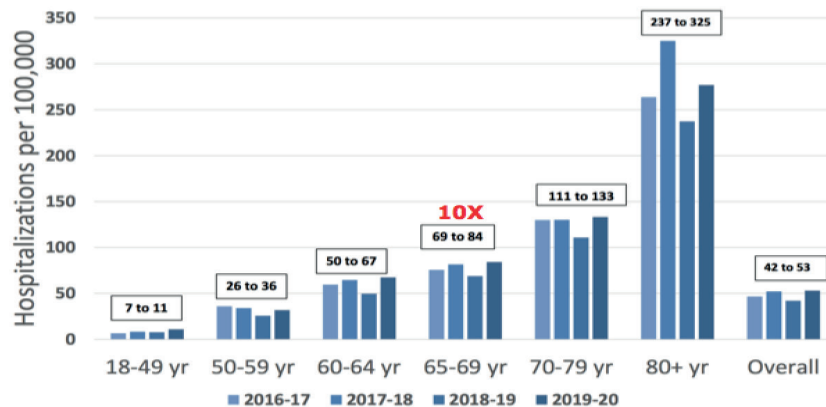


Figure 1: RSV-associated hospitalisation rates in adults

Outcomes among adults ≥18 years hospitalized for RSV: RSV-NET 2017–18 to 2019–20 seasons (n=8,214)

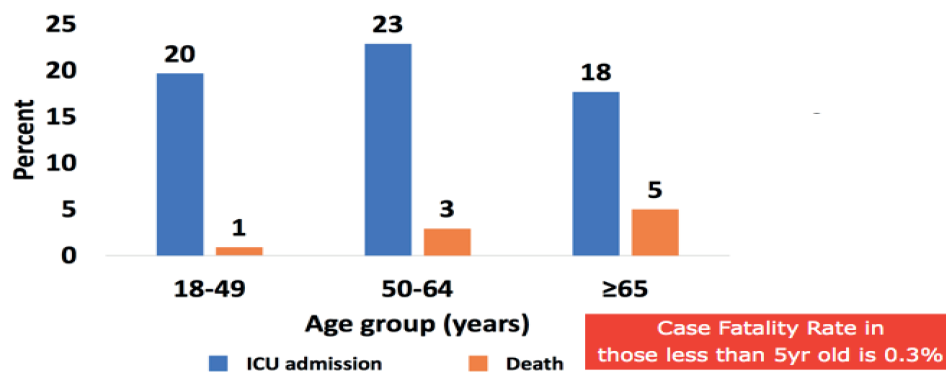


Figure 2: RSV outcomes among adults

Table 1: Comparison between severity of RSV and Influenza

Clinical parameter	RSV	INFLUENZA
Pneumonia	28.8%	17.2%
Hospitalisations	83.2%	70.0%
ICU admissions	7.2%	3.0%
Length of stay (LOS)	9 days	5 days

RSV Prevention Strategies

The F protein on the surface of the RSV, is responsible for viral fusion to the membrane of the host cell, facilitating the entry of the virus into the host cell and its replication. Antibodies to the F protein will block this entry and protect the host

cell from RSV infection (Figure 3).¹⁰ Instead of the entire virus, the RSV vaccine is a sub-unit vaccine containing only the component or antigen (prefusion F protein), which best stimulate the immune system to produce antibodies against the F protein. RSV vaccines provide an opportunity to protect high-risk adults against severe RSV illness.¹¹

Two RSV vaccines are presently available for use in older adult populations. In adults who are older than 60 years old, both vaccines demonstrated high efficacy against symptomatic RSV-related lower respiratory tract disease (LRTD) in phase 3 clinical trials.^{12,13} One of the RSV vaccines has been approved in Malaysia. It showed a vaccine efficacy of 82.6% against RS-LRTD and 94.1%

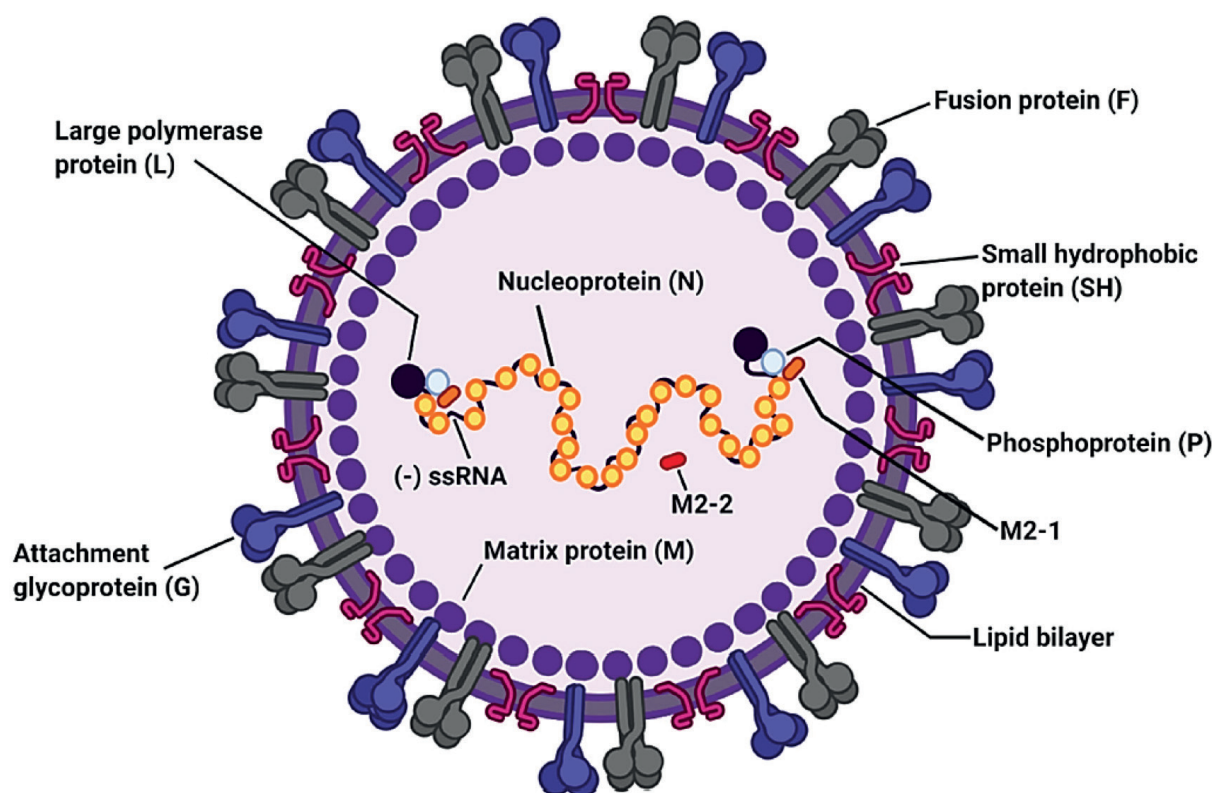


Figure 3: The F protein on the surface of the RSV

against severe RSV-LRTD. Vaccine efficacy (VE) was 94.6% among participants with comorbidities and 92.9% among those with pre-frail status.^{12,14} Both RSV vaccines have an acceptable safety profile. The most common adverse effects

following immunization (AEFI) are similar to other vaccines, namely pain at injection site, headache, fatigue, joint and muscle pain. At this point in time, only one dose is recommended.

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