NZ Winter: Who Needs COVID, Flu, RSV Vaccination?

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New Zealand's winter brings the predictable surge of respiratory infections, but the post-pandemic era has complicated the traditional influenza season with persistent COVID-19 circulation and the emergence of respiratory syncytial virus (RSV) as a significant concern for vulnerable populations. Clinicians must navigate a complex landscape of vaccination recommendations, balancing individual patient risk with public health imperatives.

KEY TAKEAWAYS

- The Pivot: RSV vaccination is now a key consideration for specific high-risk groups, adding a new layer to winter respiratory protection strategies.
- The Data: Influenza vaccination reduces hospitalisation for acute respiratory infection by 37% (95% CI, 27-45%) in adults aged 65 years and older.
- The Action: Prioritise COVID-19, influenza, and RSV vaccinations based on age, comorbidities, and pregnancy status, adhering to the latest Ministry of Health guidelines.

The annual winter respiratory season in New Zealand presents a substantial burden on the healthcare system, driven primarily by influenza, COVID-19, and RSV. These viruses, while distinct in their epidemiology and pathophysiology, share common transmission routes and often present with overlapping clinical syndromes, making differential diagnosis challenging without laboratory confirmation. The cumulative impact of these infections, particularly in susceptible populations, necessitates a proactive vaccination strategy to mitigate severe outcomes, hospitalisations, and mortality. Public health efforts focus on reducing this burden through targeted immunisation campaigns, but the onus falls on primary care clinicians to identify eligible patients and ensure uptake.

Influenza, a perennial threat, causes seasonal epidemics resulting in an estimated 290,000 to 650,000 deaths globally each year.1 The virus constantly evolves, necessitating annual vaccine reformulation to match circulating strains. COVID-19, caused by SARS-CoV-2, continues to circulate, with new variants emerging that can evade prior immunity from infection or vaccination, though vaccines consistently reduce severe disease. RSV, historically recognised as a major cause of bronchiolitis and pneumonia in infants, has recently gained prominence as a significant pathogen in older adults and those with underlying medical conditions, prompting the development and approval of new preventive strategies. The convergence of these three pathogens demands a comprehensive approach to immunisation, moving beyond single-disease prevention to a more integrated respiratory health strategy.

The Numbers on Protection

Influenza vaccination remains a cornerstone of winter preparedness. Meta-analyses consistently demonstrate its effectiveness in preventing influenza-related illness and complications. For adults aged 65 years and older, influenza vaccination reduces hospitalisation for acute respiratory infection by 37% (95% CI, 27-45%).2 In younger, healthy adults, vaccine effectiveness against laboratory-confirmed influenza can range from 40% to 60%, varying by season and circulating strains.3 The vaccine also offers indirect protection by reducing community transmission, a phenomenon known as herd immunity, which benefits those unable to be vaccinated, such as very young infants. Annual vaccination is crucial because of antigenic drift, the gradual accumulation of mutations in the viral surface proteins haemagglutinin and neuraminidase, which allows the virus to evade prior immunity.

COVID-19 vaccination continues to be a critical public health intervention, even as the virus transitions to endemic circulation. While vaccine effectiveness against infection may wane over time, particularly with the emergence of new variants, protection against severe disease, hospitalisation, and death remains robust. A systematic review and meta-analysis of mRNA vaccines showed effectiveness against symptomatic infection of 95% (95% CI, 94-96%) and against severe disease of 97% (95% CI, 96-98%) in the initial post-vaccination period.4 Booster doses are recommended to restore and enhance this protection, especially for older adults and those with immunocompromising conditions. The Ministry of Health in New Zealand advises booster doses for specific populations, typically 6 months after their last dose or confirmed infection, to maintain high levels of immunity against severe outcomes. The mechanism involves stimulating both humoral and cellular immune responses, producing neutralising antibodies and T-cells that target the viral spike protein.

RSV vaccination represents a newer frontier in respiratory disease prevention, particularly for infants and older adults. Two primary strategies exist: maternal vaccination and direct vaccination of older adults. Maternal RSV vaccination, typically administered in late pregnancy, transfers protective antibodies to the infant, offering protection during the first 6 months of life when infants are most vulnerable to severe RSV disease. A Phase III trial of an RSV prefusion F protein vaccine (RSVPreF) in pregnant individuals showed vaccine efficacy of 81.8% (95% CI, 40.6-96.3%) against severe RSV-associated lower respiratory tract illness in infants through 90 days post-birth.5 This efficacy remained substantial, at 69.4% (95% CI, 30.5-90.4%), through 180 days. The vaccine was generally well-tolerated, with no significant safety concerns for either the mother or the infant. This approach leverages the natural transplacental transfer of IgG antibodies, providing passive immunity to the neonate.

For older adults, direct RSV vaccination aims to protect a population at high risk of severe outcomes, including hospitalisation and death. A bivalent RSV prefusion F vaccine (RSVPreF3 OA) demonstrated efficacy of 82.3% (95% CI, 57.9-92.2%) against RSV-associated lower respiratory tract disease in adults aged 60 years and older.6 The vaccine also reduced the risk of severe RSV-associated lower respiratory tract disease by 94.1% (95% CI, 62.4-99.9%). This vaccine works by presenting a stabilised prefusion form of the RSV fusion protein, which is the primary target for neutralising antibodies. The immune response generated is robust and durable, offering protection for at least one full RSV season. The availability of these vaccines marks a significant advancement, as RSV has long been a pathogen without specific preventive measures beyond infection control. The Ministry of Health now includes RSV vaccination for specific high-risk groups, such as adults aged 60 years and older with certain comorbidities and all adults aged 75 years and older, reflecting the growing understanding of RSV's impact beyond paediatrics.

The target populations for these vaccinations in New Zealand are carefully delineated by the Ministry of Health,

reflecting both the epidemiology of each virus and the efficacy and safety profiles of the available vaccines. For influenza, annual vaccination is recommended for all individuals aged 6 months and older, with particular emphasis on pregnant individuals, those aged 65 years and older, Mori and Pacific peoples, and individuals with chronic medical conditions such as cardiovascular disease, chronic respiratory disease, diabetes, and immunocompromising conditions. These groups consistently experience higher rates of severe outcomes from influenza infection. The vaccine is typically offered free of charge to these priority groups, aiming to maximise coverage and reduce health inequities.

COVID-19 vaccination recommendations are dynamic, adapting to evolving viral variants and population immunity levels. Currently, primary vaccination courses are recommended for all individuals aged 6 months and older. Booster doses are advised for those at higher risk of severe illness, including older adults, immunocompromised individuals, and residents of aged care facilities. The interval between doses or infection and subsequent vaccination is typically 6 months to ensure an optimal immune response. The rationale for ongoing COVID-19 vaccination, even with milder circulating variants, is to prevent the cumulative burden of hospitalisations and long-term complications, including Long COVID. The vaccines have undergone rigorous safety monitoring, and serious adverse events remain rare, far outweighed by the benefits of preventing severe disease.

RSV vaccination guidelines in New Zealand are more targeted due to the newer nature of these interventions and the specific populations at highest risk. Maternal RSV vaccination is recommended for pregnant individuals during specific gestational windows (typically 24-36 weeks) to protect their infants. For older adults, the RSV vaccine is recommended for those aged 60 years and older with specific underlying medical conditions, such as chronic lung disease, chronic heart failure, or immunocompromise, and for all adults aged 75 years and older. These recommendations align with the evidence demonstrating significant reductions in severe RSV disease in these vulnerable groups. The cost and accessibility of these newer vaccines are considerations for broader implementation, but the clinical benefit for high-risk individuals is clear. The open-label design of some early RSV trials is an obvious caveat, but the efficacy signals were strong enough to warrant regulatory approval.

The co-administration of these vaccines is a practical consideration for clinicians. Influenza and COVID-19 vaccines can generally be administered at the same visit, simplifying the vaccination schedule and potentially improving uptake. Data on co-administration of RSV vaccines with other adult vaccines are emerging, but current guidance suggests that it is generally safe and effective, though specific recommendations may vary. The key is to ensure that eligible individuals receive all recommended vaccinations without unnecessary delays. The logistical challenges of administering multiple vaccines during a busy winter season require careful planning and patient education to maximise compliance. The trial was not powered to detect differences in very specific immunocompromised subgroups, and that gap matters for some clinicians.

Still, the evidence base for each of these vaccines is substantial, demonstrating clear benefits in reducing severe disease, hospitalisation, and mortality across various age groups and risk profiles. The challenge for clinicians is to effectively communicate these benefits to patients, address vaccine hesitancy, and ensure equitable access to immunisation services. The integration of these vaccination programs into routine primary care is essential for optimising public health outcomes during the winter respiratory season. The next trial needs to show long-term durability of RSV protection beyond a single season.

CLINICAL IMPLICATIONS

The arrival of RSV vaccines fundamentally alters the winter respiratory season calculus for New Zealand clinicians. No longer is the focus solely on influenza and COVID-19; RSV now demands equal consideration, particularly for pregnant patients and older adults with comorbidities. This means a more complex, but ultimately more protective, conversation at the point of care.

For general practitioners, this translates to an expanded checklist during routine consultations, especially in the lead-up to winter. Identifying eligible patients for all three vaccinations requires a thorough understanding of the latest Ministry of Health guidelines, which are dynamic. The logistical challenge of co-administering multiple vaccines, while generally safe, will necessitate efficient clinic workflows and clear patient communication to avoid missed opportunities.

The industry's rapid development of RSV vaccines is commendable, but the cost and accessibility of these newer interventions will be a practical barrier for some patients and healthcare systems. Ensuring equitable access, particularly for M ori and Pacific populations who often bear a disproportionate burden of respiratory disease, must be a priority for policymakers and public health officials. Without clear funding pathways, the clinical benefits will not translate into population-level health improvements.

Ultimately, the goal is to reduce the overall burden on hospitals during winter. Each vaccination administered, whether for influenza, COVID-19, or RSV, contributes to this collective effort. Clinicians must confidently advocate for these proven preventive measures, armed with the data, to protect their most vulnerable patients.

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