

## Universal COVID-19 vaccination cost saving unless anaphylaxis rate high

Universal COVID-19 vaccination appears to be cost saving compared with risk-stratified vaccination unless the vaccine-related anaphylaxis rate exceeds 0.8%, according to findings of a study published in the *Journal of Allergy and Clinical Immunology*.

A decision-tree model comparing the risks of COVID-19 infection and COVID-19 vaccine-related anaphylaxis was used to evaluate the cost effectiveness of universal vaccination (with the Pfizer-BioNTech COVID-19 vaccine [tozinameran] or Moderna COVID-19 vaccine [mRNA-1273]) versus risk-stratified vaccination (vaccine deferred in people with a self-reported history of any anaphylaxis). The primary outcomes were total hospitalisations and total deaths due to COVID-19 infection or anaphylaxis. Cost effectiveness was assessed in a population of 300 million people from a US healthcare perspective over a one-year time horizon, based on a willingness-to-pay threshold of \$10 million\* per death prevented. It was also assessed from a societal perspective.

It was assumed that 60% of patients with COVID-19 infections were symptomatic, the hospitalisation rate in symptomatic patients was 279 per 100 000, the symptomatic case fatality rate was 2%, the risk of anaphylaxis was 0.1%, and risk stratification was 95% protective against anaphylaxis.

In the base-case analysis, universal vaccination was estimated to achieve cost savings of \$503 596 316 and prevent 7607 deaths compared with risk-stratification, and was therefore dominant (more effective and less costly). From a societal perspective, the estimated incremental net monetary benefit of universal vaccination was \$76 569 million.

Cost savings were found to be sensitive to the anaphylaxis rate. Universal vaccination dominated risk-stratified vaccination at higher COVID-19 infection rates and low rates of anaphylaxis, from both healthcare and societal perspectives. However, risk-stratification became the most cost-effective strategy when the risk of anaphylaxis was greater than 0.8%.

"The decision to limit routine contraindications . . . to individuals with prior anaphylaxis to a known vaccine component seems a cost-effective approach, and there is limited value present only under very particular contexts for wider exclusions," said the authors.

\* 2020 US dollars

Shaker M, et al. A Cost-Effectiveness Evaluation of Hospitalizations, Fatalities, and Economic Outcomes Associated With Universal Versus Anaphylaxis Risk-Stratified COVID-19 Vaccination Strategies. *Journal of Allergy and Clinical Immunology: In Practice* : 9 Mar 2021. Available from: URL: <https://doi.org/10.1016/j.jaip.2021.02.054>

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