

#	Place in the draft scope document	Suggestions/Questions
1	Page 1, Second Paragraph	<ul style="list-style-type: none"> • Could ICER clarify the basis for describing the Novavax spike protein vaccine as ‘highly effective’ in this section?
2	Heading – Scope of Clinical Evidence Review, Page 2, Third Paragraph – Second line (<i>Evidence will be...vaccine effectiveness</i>)	<ul style="list-style-type: none"> • Given that brand-specific vaccine effectiveness, waning, and safety in the current highly immune US population will primarily be informed by real-world evidence rather than RCTs or cohort studies, we suggest that the review include the substantial body of updated vaccine-effectiveness research derived from test-negative case-control studies. • We recommend that self-controlled study designs (e.g., SCCS/SCRI) be considered for evaluating safety outcomes. • It may be helpful to pre-specify minimum methodological standards for real-world evidence, particularly elements that materially influence results (e.g., test-negative designs with time-varying adjustment, robust adjustment for prior infection and relevant risk factors)
3	Heading – Scope of Clinical Evidence Review, Page 2, Third Paragraph – Third line (<i>Our evidence review...ICER standards</i>)	<ul style="list-style-type: none"> • Could ICER clarify why peer-reviewed literature, including MMWR publications, is not included? The CDC has generated extensive vaccine-effectiveness research over the past five years that may be valuable for the assessment.
4	Heading – Populations, Page 3, First Paragraph – First line (<i>The population...in 2026</i>)	<ul style="list-style-type: none"> • Given that the scope focuses on the US population, could ICER clarify whether scenario analyses will account for regional heterogeneity within the United States? • Could ICER also elaborate on how US-specific population data will be identified and extracted from studies that report global or multinational results?
5	Heading – Populations, Page 3, First Paragraph – Second line (<i>Data permitting...subpopulations defined by</i>)	<ul style="list-style-type: none"> • We suggest considering additional high-risk subgroups, such as: <ul style="list-style-type: none"> ○ <i>Residents of long-term care facilities and other institutionalised settings</i> ○ <i>Health care workers and individuals in other high-exposure occupations</i> • In the introduction section, the scope notes that the population is “no longer immunologically naïve,” but no segmentation is proposed based on: <ul style="list-style-type: none"> ○ <i>Prior infection history (e.g., none, single, or multiple infections; timing of infection)</i> ○ <i>Prior vaccination history and number of doses received</i>

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6	Heading – Interventions, Page 3, Second Paragraph	<ul style="list-style-type: none"> • Will ICER consider combined respiratory immunisation strategies during the season (e.g., co-administration logistics for COVID-19, influenza, and RSV vaccines), given their potential impact on costs and uptake? • Could ICER clarify whether and how the vaccine technology platform (e.g., mRNA vs protein-based) will be taken into account when assessing factors that influence coverage rates?
7	Heading – Comparators, Page 3, Third Paragraph	<ul style="list-style-type: none"> • Real-world vaccination patterns now include multiple prior doses, mixed platforms, varying intervals between doses, and repeated annual or semi-annual boosting. The draft scope does not appear to address heterologous schedules (e.g., mRNA → protein, protein → mRNA, switching brands) or the combined effect of multiple prior doses and prior infections, which is likely to be the prevailing context by 2026. • We recommend considering a broader set of comparative scenarios beyond “Vaccine A vs none” or “Vaccine A vs Vaccine B,” and potentially evaluating vaccination strategies such as: <ul style="list-style-type: none"> ○ <i>Effectiveness by number of prior doses</i> ○ <i>Effectiveness by time since last infection or last vaccination</i> ○ <i>Performance of heterologous versus homologous boosting approaches</i>
8	Heading – Outcomes, Page 3, Fourth Paragraph, <i>Bullet - Patient-Important Outcomes</i>	<ul style="list-style-type: none"> • While the listed outcomes are important, we suggest also considering medically attended non-hospital events, such as: <ul style="list-style-type: none"> ○ <i>Emergency department visits</i> ○ <i>Urgent care visits</i> ○ <i>Outpatient visits</i> • These outcomes are central in real-world evidence and represent a substantial component of healthcare system burden and cost.
9	Heading – Outcomes, Page 4, First Paragraph, <i>Bullet - Long Covid and permanent harms from Covid-19</i>	<ul style="list-style-type: none"> • We recommend further differentiation of post-infection outcomes, including: <ul style="list-style-type: none"> ○ <i>Cardiac, neurologic, and metabolic sequelae (e.g., myocardial infarction, stroke, arrhythmias, new-onset diabetes)</i> ○ <i>Exacerbations of underlying conditions (e.g., COPD, heart failure, autoimmune flares)</i>
10	Heading – Outcomes, Page 4, Second	<ul style="list-style-type: none"> • One potential outcome of interest is whether the introduction of new RSV vaccines may shift vaccination patterns in the 75+ population,

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	Paragraph, <i>Bullet – Other outcomes</i>	potentially replacing uptake previously covered by COVID-19 vaccines.
11	Page 4, Table 1.1. Benefits Beyond Health and Special Ethical Priorities	<ul style="list-style-type: none"> • While current COVID-19 vaccines have been crucial in controlling the pandemic, their limited duration of protection necessitates frequent re-vaccination. This presents ongoing challenges for procurement, logistics, and healthcare resource allocation. Vaccines requiring fewer doses and providing longer-lasting immunity could simplify supply planning, reduce administrative burden, and lower costs for health systems and payers. • As new vaccine technologies (e.g., next-generation or sa-mRNA vaccines) are developed, it is important to prioritise both longer duration and broader protection. This approach would not only enhance public health outcomes but also support more sustainable and efficient vaccination programmes in the future.
12	Heading - Scope of Comparative Value Analyses, Page 5, Second Paragraph, <i>Line – Societal impacts... perspective analysis</i>	<ul style="list-style-type: none"> • We recommend including additional outcomes such as: <ul style="list-style-type: none"> ○ <i>Days of work or school missed</i> ○ <i>Impact on essential workers and healthcare personnel</i> ○ <i>Caregiver burden, including time off work and role-related strain</i>
13	Heading - Scope of Comparative Value Analyses, Page 5, Second Paragraph, <i>Line - This will... evLY gained.</i>	<ul style="list-style-type: none"> • The ICER range of \$100,000–\$150,000 per QALY appears relatively high for vaccines and preventive interventions. Could ICER provide clarification on the rationale for this range?
14	Heading - Scope of Comparative Value Analyses, Page 5, Third Paragraph, <i>Line - We anticipate... shorter time horizons.</i>	<ul style="list-style-type: none"> • We recommend considering a dynamic Markov model that incorporates both herd immunity effects and waning of vaccine-induced protection.
15	Heading - Scope of Comparative Value Analyses, Page 5, Fourth Paragraph, <i>Line - The health outcome...life years gained.</i>	<ul style="list-style-type: none"> • Could ICER clarify the source of QALY estimates? Will these be literature-based, given that not all real-world evidence studies report QALYs? • We would also appreciate additional transparency regarding the methods used to calculate costs.



December 2, 2025

Institute for Clinical and Economic Review (ICER)
14 Beacon Street, Suite 800
Boston, MA 02108
Submitted electronically via: publiccomments@icer.org

RE: Draft Scoping Document – Vaccines for Covid-19

Dear ICER Review Team,

GSK supports evidence-based policymaking and is encouraged by ICER's initiative to evaluate Covid-19 vaccines. While no GSK products fall within the scope of the current assessment, as a global leader in vaccine development we appreciate the opportunity to share our insights and perspectives.

Immunization programs are widely acknowledged as among the most cost-effective public health interventions in the US.^{1,2} However, vaccine cost effectiveness analyses are subject to outsized impact of input sensitivity, externalities, and overall uncertainty relative to treatment modalities, making scoping and analysis choices critically important.

Below, we suggest several key areas where refining the proposed model scope can better capture the full value of vaccines for infectious diseases like Covid-19 to inform a wide range of decisionmakers. These suggestions will better align ICER's planned approach with best practices established by the Second Panel on Cost-Effectiveness in Health and Medicine and guidance published by the U.S. Advisory Committee on Immunization Practices (ACIP).^{3,4}

Model Structure and Sensitivity: Relative to medical treatments, cost effectiveness models of preventive vaccines are much more sensitive to epidemiological parameters. Infection dynamics fundamentally underpin the probability, severity, and associated costs of acute illness in different populations, alongside their immunological history and relevant comorbidities. Even the burden of seasonal influenza is subject to significant data limitations and varies over time; these sources of uncertainty are greatly magnified in the case of a novel pathogen like SARS-CoV-2, for which the equilibrium rate of viral evolution is not firmly established.

As such, a Covid-19 vaccine model structure should allow for variable attack rates, vaccine effectiveness, and clinical outcomes (e.g., seasonal peaks in transmission, periodic emergence of more pathogenic variants, and the need for updated vaccines or additional doses over time). Incorporating explicit temporal parameters is essential for correct extrapolation of retrospective data from early in the pandemic to an endemic state, as well as application to future scenarios. These also have major ramifications for selecting an appropriate time horizon and cycle length, as does duration of protection due to waning immunity.

Especially in years with a lower relative probability of severe disease, the results may be quite sensitive to minute technical differences in how reactogenicity parameters are specified (e.g., all systemic reactions vs. just Grade 3 vs. only serious adverse events) and extrapolated from clinical data for different products when estimating the corresponding costs as well as

associated disutility. These may also vary by subpopulation and immunological history, so the existing literature should be interpreted carefully when selecting input values appropriate to the comparator.

To that end, we encourage ICER to more clearly define “updated vaccine” and delineate potential comparators vis-à-vis immunological history against a rapidly shifting epidemiological backdrop. Indeed, a University of Michigan Covid-19 modeling team supported by the Centers for Disease Control and Prevention (CDC) has published vastly different results from the same model structure for the initial vaccine series, 2023/2024 dose in the general population, and a simulated risk-based 2025/2026 cohort.^{5,6,7}

Societal vs. Healthcare System Perspective: GSK strongly recommends that ICER explicitly adopt a societal perspective as the default base case when evaluating vaccines. Vaccination programs have wide-ranging benefits and costs beyond the healthcare sector, and excluding these can significantly understate value. The ACIP typically considers the societal perspective as the primary base case for its economic reviews of vaccines.³ This is in accordance with the Second Panel on Cost-Effectiveness in Health and Medicine’s guidance for using the societal perspective for “decisions about the broad allocation of resources across the entire population,” whereas a healthcare sector perspective is only appropriate for the narrow remit of commercial payers.⁴

Assuming ICER’s intended audience includes governments, the public health community, the broader health care system, patients and caregivers, and/or employers, then the primary base case should include productivity losses due to morbidity and mortality. This should account for both market and non-market activities, with the latter predominating in older adults.⁸ Productivity loss is particularly crucial to capture the impact of mild and moderate illness on patients who did not require medical care – and their caregivers – as well as more severe cases in patients who faced barriers to accessing it (and input parameters drawn from real-world evidence studies based on electronic medical records or claims data should be adjusted for observation bias accordingly). Excluding these indirect costs would significantly undervalue vaccines’ benefits in preventing illness.

Post-Acute Outcomes: We applaud ICER for recognizing that the consequences of Covid-19 extend beyond acute infection. The societal perspective is particularly important for capturing the impact of Long Covid and other sequelae, for which estimated productivity loss has been estimated to comprise over 90% of the total economic burden.⁹

For Long Covid, there are unique data limitations above and beyond those described above that must be considered. Many people with Long Covid symptoms may not be formally diagnosed or coded as such in claims data, especially early in the pandemic when diagnostic criteria were vague. If ICER relies on health system data to estimate Long Covid rates or costs, it could severely undercount actual cases. Similarly, the lack of a consensus definition for Long Covid and inconsistent use of ICD-10 codes at the provider level means that different studies report a wide range of incidence. Transparent modeling of this – perhaps incorporating a “broad definition” vs. “narrow definition” of Long Covid – would be helpful.

ICER might also consider elevated risks of acute cardiopulmonary outcomes (e.g., COPD exacerbations, myocardial infarction, heart failure), which have been observed following a range of respiratory viruses, including Covid-19.^{10,11}

Program Implementation: Vaccines are often administered in convenient pharmacies and community sites, which impacts both data capture and cost estimates. Delivery in these settings is associated with lower administration costs and reduced time and travel costs than those delivered in a physician’s office.^{12,13} These efficiencies should be considered in the assessment. However, electronic health records may exclude vaccines received in pharmacies and even claims data will miss free worksite clinics or other non-traditional settings; potential bias from misclassification warrants close attention during the literature review with respect to both cost estimation and real world vaccine effectiveness. (Decreased diagnostic testing trends may similarly underestimate disease burden.)

Covid-19 vaccines are often given alongside other vaccines, which further reduces incremental costs. Notably, combined influenza/Covid-19 formulations are actively in development. To “future-proof” the model, ICER might add a co-administration scenario for ease of adaptation. While specific co-administered or combined products are beyond this scope, the model’s structure should be flexible enough to explore such developments in sensitivity analyses.

Indirect Effects: Finally, by not accounting for reduced onward transmission, static models may underestimate averted cases and outcomes. Although a full dynamic model may not be feasible for respiratory illnesses like Covid-19, ICER might incorporate scenario analyses or transmission multipliers (e.g., reduced secondary attack rates in households) to approximate these effects. This approach aligns with best practices in immunization cost-effectiveness analysis and would ensure robust policy relevance as evidence continues to emerge.¹⁴

* * *

Thank you again for the opportunity to provide feedback on the draft scoping document. GSK is committed to supporting ICER in this important assessment and believes that these suggestions will facilitate a comprehensive model that more fully captures the value of Covid-19 vaccination. We welcome further engagement to discuss data sources, assumptions, or any other aspect of the scope where our expertise might be helpful. Please feel free to contact Russ Montgomery, PhD, Head of Value Assessment Strategy and Policy, (russ.w.montgomery@gsk.com) with any questions.

Sincerely,



Temí Folaranmi, MD, MPH
Vice President, U.S. Medical and Clinical Affairs, Vaccines
GSK

References

- ¹ Leidner AJ, Murthy N, Chesson HW, et al. Cost-effectiveness of adult vaccinations: A systematic review. *Vaccine*. 2019;37(2):226-234. doi:10.1016/j.vaccine.2018.11.056.
- ² Zhou F, Jatlaoui TC, Leidner AJ, et al. Health and Economic Benefits of Routine Childhood Immunizations in the Era of the Vaccines for Children Program — United States, 1994–2023. *MMWR*. 2024 ;73(31);682–685
- ³ Lieu et al 2007. Guidance for Health Economics Studies Presented to the Advisory Committee on Immunization Practices (ACIP). <https://www.cdc.gov/acip/downloads/economics-studies-guidance.pdf>
- ⁴ Sanders GD, Neumann PJ, Basu A, et al. Recommendations for Conduct, Methodological Practices, and Reporting of Cost-effectiveness Analyses: Second Panel on Cost-Effectiveness in Health and Medicine. *JAMA*. 2016;316(10):1093-1103. doi:10.1001/jama.2016.12195.
- ⁵ Prosser LA, Hutton DW, Gurley AE, et al. The cost-effectiveness of vaccination against COVID-19 illness during the initial year of vaccination in the United States. *Vaccine*. 2025; (published online Apr 2025). doi:10.1016/j.vaccine.2025.126725.
- ⁶ Prosser LA, Wallace M, Rose AM, et al. Cost-Effectiveness of 2023–2024 COVID-19 Vaccination in US Adults. *JAMA Netw Open*. 2025;8(8):e2523688. doi:10.1001/jamanetworkopen.2025.23688.
- ⁷ Srinivasan A (on behalf of the University of Michigan). “Economic analysis of COVID-19 vaccination.” Presentation to ACIP, September 19, 2025. <https://www.cdc.gov/acip/downloads/slides-2025-09-18-19/08-Srinivasan-covid-508.pdf>
- ⁸ Grosse SD, Krueger KV, Pike J. Estimated annual and lifetime labor productivity in the United States, 2016: implications for economic evaluations. *J Med Econ*. 2019 Jun;22(6):501-508. doi: 10.1080/13696998.2018.1542520.
- ⁹ Bartsch SM, Chin KL, Strych U, et al. The Current and Future Burden of Long COVID in the United States. *J Infect Dis*. 2025;231(6):1581-1590. doi:10.1093/infdis/jiaf030.
- ¹⁰ Kwong JC, Schwartz KL, Campitelli MA, et al. Acute Myocardial Infarction after Laboratory-Confirmed Influenza Infection. *N Engl J Med* 2018;378:345-353. doi:10.1056/NEJMoa1702090
- ¹¹ Xie Y, Xu E, Bowe B, and Al-Aly Z. Long-term cardiovascular outcomes of COVID-19. *Nat Med* 28, 583–590 (2022). doi.org/10.1038/s41591-022-01689-3
- ¹² La, EM, Sweeney C, Davenport E, Bunniran S. Pharmacy and healthcare provider offices as convenient adult vaccination settings in the US: Patient experiences from a survey of recently-vaccinated adults. *Vaccine*. 2025;54:127057. <https://doi.org/10.1016/j.vaccine.2025.127057>
- ¹³ Tsai Y, Zhou F, Lindley MC. Insurance Reimbursements for Routinely Recommended Adult Vaccines in the Private Sector. *Am J Prev Med*. 2019;57(2):180–190. doi: 10.1016/j.amepre.2019.03.011
- ¹⁴ Pike, J., Leidner, A.J., Chesson, H. *et al*. Data-Related Challenges in Cost-Effectiveness Analyses of Vaccines. *Appl Health Econ Health Policy* **20**, 457–465 (2022). <https://doi.org/10.1007/s40258-022-00718-z>



December 01, 2025

Sarah K. Emond, MPP
President and Chief Executive Officer
Institute for Clinical and Economic Review

Dear Ms. Emond:

On behalf of the nearly 40,000 individuals living with cystic fibrosis (CF) in the United States, we write to provide public comment on the Institute for Clinical and Economic Review's (ICER's) assessment of Covid-19 vaccines. We appreciate the opportunity to help incorporate the perspectives of the CF community and CF clinicians into this process.

Background on cystic fibrosis and Covid-19

The Cystic Fibrosis Foundation is a national organization actively engaged in the research and development of new therapies for cystic fibrosis – a rare, life-threatening genetic disease. The buildup of thick, sticky mucus in the lungs characteristic of the disease makes people with CF particularly prone to intractable bacterial infections. These chronic airway infections are punctuated by pulmonary exacerbations, events that are a risk factor for irreversible decline of lung function and associated with increased morbidity and mortality. A significant proportion of pulmonary exacerbations are triggered by respiratory viral infections as well, making CF a risk factor for complications following infection from Covid-19.ⁱ

The absent or malfunctioning protein that causes CF is also associated with a wide range of disease manifestations beyond the lungs, including pancreatic insufficiency that can lead to malnutrition, gastrointestinal issues and diabetes mellitus, with the latter also resulting in a higher risk of adverse outcomes post-infection.^{ii,iii}

Comments on ICER's draft scoping document

Clarification on inclusion of immuno-compromising conditions

We appreciate ICER's inclusion of a variety of sociodemographic factors and comorbid conditions, including pulmonary conditions and diabetes mellitus. Regarding the inclusion of immunocompromising conditions as a population of interest, we request clarification on the specific conditions encompassed within this category. Specifically, we recommend including individuals who have undergone organ transplantation. The most common transplant within the CF community is a lung transplant, which is often pursued when the disease progression results in advanced lung disease so severe that a transplant may be the only life extending option. Following this procedure, people with CF require immunosuppressing drugs, which may increase their risk of developing pneumonia and other complications following a Covid-19

infection.

Importance of cocooning to protect high-risk populations

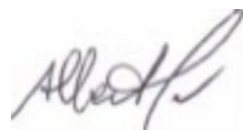
We appreciate ICER's including the risk of transmitting Covid-19 within the list of patient-important outcomes. We would like to expand upon that outcome to emphasize the importance of vaccinations to serve as a protection barrier for those who may be more vulnerable. Infants are often ineligible for certain immunizations due to age-related contraindications, and people with CF who have undergone lung or liver transplantation typically receive immunosuppressive therapy, which impairs their ability to generate an adequate immune response to vaccines. Consequently, the strategy of "cocooning" can be used to reduce the risk of vaccine-preventable infections in these high-risk populations. Cocooning involves ensuring that all individuals in close contact with the vulnerable person with CF, including parents, siblings, household members, caregivers, and their CF care team, are fully immunized.^{iv,v,vi,vii} This approach establishes a protective barrier of herd immunity around the immunocompromised individual, thereby minimizing their exposure to infectious pathogens.

Indirect costs are an important part of a holistic review

ICER currently states that "patient and caregiver productivity changes and other indirect costs will be included in a separate analysis, as available data allow." The Foundation urges ICER to more completely incorporate indirect costs, such as costs of time away from work and school due to Covid-19, into the primary economic assessment as these expenses can notably impact people with CF and caregivers. Without including these costs, there is a risk that this report will not be inclusive of the true impact of the vaccines.

Thank you again for the opportunity to bring the CF clinical and patient community perspective forward during this review process and the chance to provide comment on the "vaccines for Covid-19 draft background and scope." Please contact Olivia Dieni, Healthcare Access Manager, with any questions.

Sincerely,



Albert Faro, MD
Senior Vice President
Chief Medical Officer
Cystic Fibrosis Foundation



Mary Dwight
Senior Vice President
Chief Policy and Advocacy Officer
Cystic Fibrosis Foundation

ⁱ Somayaji R, Goss CH, Khan U, Neradilek M, Neuzil KM, Ortiz JR. Cystic Fibrosis Pulmonary Exacerbations Attributable to Respiratory Syncytial Virus and Influenza: A Population-Based Study. Clin Infect Dis. 2017 Jun 15;64(12):1760-1767. doi: 10.1093/cid/cix203. PMID: 28329304; PMCID: PMC5848232.

ⁱⁱ Cystic Fibrosis Foundation Patient Registry 2024 Annual Data Report Bethesda, Maryland ©2025 Cystic Fibrosis Foundation

ⁱⁱⁱ Apicella M, Campopiano MC, Mantuano M, Mazoni L, Coppelli A, Del Prato S. COVID-19 in people with diabetes: understanding the reasons for worse outcomes. *Lancet Diabetes Endocrinol.* 2020 Sep;8(9):782-792. doi: 10.1016/S2213-8587(20)30238-2. Epub 2020 Jul 17. Erratum in: *Lancet Diabetes Endocrinol.* 2020 Oct;8(10):e5. doi: 10.1016/S2213-8587(20)30317-X. Erratum in: *Lancet Diabetes Endocrinol.* 2020 Nov;8(11):e6. doi: 10.1016/S2213-8587(20)30348-X. PMID: 32687793; PMCID: PMC7367664.

^{iv} Oguz MM, Senel S. Effectiveness of cocoon strategy vaccination on prevention of influenza-like illness in young infants. *Hum Vaccin Immunother.* 2024 Dec 31;20(1):2350090. doi: 10.1080/21645515.2024.2350090. Epub 2024 May 13. PMID: 38738691; PMCID: PMC11093031.

^v Nitsch-Osuch, A. (2017). Cocoon Strategy of Vaccinations: Benefits and Limitations. InTech. doi: 10.5772/intechopen.68890

^{vi} Government of Ireland, Department of Health. (n.d.). *Guidance on cocooning to protect people over 70 years and those extremely medically vulnerable from COVID-19: Updated guidance from 29 June.* Retrieved August 13, 2025, from <https://www.gov.ie/en/department-of-health/publications/guidance-on-cocooning-to-protect-people-over-70-years-and-those-extremely-medically-vulnerable-from-covid-19-updated-guidance-from-29-june/>

^{vii} Burgel PR, Goss C. COVID-19 outcomes in people with cystic fibrosis. *Curr Opin Pulm Med.* 2021 Nov 1;27(6):538-543. doi: 10.1097/MCP.0000000000000823. PMID: 34620788; PMCID: PMC8575136.

To: publiccomments@icer.org

From: Mitchell Berger, (comments made in personal capacity), mazruia@hotmail.com. 11.12.25

Re: Institute for Clinical and Economic Review Releases Draft Scope on Vaccines for Covid-19, <https://icer.org/news-insights/press-releases/institute-for-clinical-and-economic-review-releases-draft-scope-on-vaccines-for-covid-19/>; <https://icer.org/assessment/covid-19-2025/>

To whom it may concern: In response to the above Draft Background and Scope for the Vaccines for Covid-19 review, I write to make the following suggestions. Please note that the views expressed are mine alone and should not be imputed to other individuals nor to any agency or organization.

- **Define age range for ‘young children’:** The review should be clear and precise about exactly what age ranges are being addressed for its comments and recommendations. For instance, FDA for drug development purposes considers age ranges to include neonates (birth-27 days), infants (28 days to 23 months), children (2-11 years old) and adolescents (12-17 years old).¹ The Centers for Disease Control and Prevention (CDC) in the Child & Adolescent Immunization Schedule by Age breaks down age ranges into subcategories such as birth to 15 months and 18 months to 18 years with recommendations within these groups (e.g., 7-10 years, 17-18 years).²
- **Be more specific about what is meant by ‘immunocompromising conditions’:** In its draft scoping review, ICER lists several comorbidities for which it plans to include data such as “Immunocompromising conditions” and diabetes. Immunocompromising conditions may include some cancers, HIV/AIDS, some intellectual and developmental disorders (e.g., Down syndrome) and autoimmune diseases (which may include type 1 diabetes)³ CDC indeed has noted a wide range of risk factors and comorbidities.⁴
- Sociodemographic factors considered by ICER in its review also could include income, household size and occupation (e.g., health care worker, first responder).⁵
- **For comorbid conditions include mental health:** During COVID-19, persons with psychiatric conditions faced increased risk of COVID-19 complications.⁶ Persons with

¹Pediatric Drug Development: Regulatory Considerations — Complying With the Pediatric Research Equity Act and Qualifying for Pediatric Exclusivity Under the Best Pharmaceuticals for Children Act, <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/pediatric-drug-development-regulatory-considerations-complying-pediatric-research-equity-act-and>; <https://www.precisionformedicine.com/blog/fda-guidance-on-pediatric-drug-development/>

² Child and Adolescent Immunization Schedule by Age (Addendum updated August 7, 2025), <https://www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-age.html>

³ Breaking down common terms in the immune deficiency space, Jan. 2022, Immune Deficiency Foundation, <https://primaryimmune.org/resources/news-articles/breaking-down-common-terms-immune-deficiency-space>; Antinori A, Bausch-Jurken M. The Burden of COVID-19 in the Immunocompromised Patient: Implications for Vaccination and Needs for the Future. *J Infect Dis.* 2023 Aug 4;228(Suppl 1):S4-S12. doi: 10.1093/infdis/jiad181

⁴ People with Certain Medical Conditions and COVID-19 Risk Factors, CDC, <https://www.cdc.gov/covid/risk-factors/index.html>

⁵ Sociodemographic Factors Associated with Receipt of COVID-19 Vaccination and Intent to Definitely Get Vaccinated, Adults aged ≥18 Years — Household Pulse Survey, United States, April 28–May 10, 2021, CDC, July 2024, <https://www.cdc.gov/adultvaxview/publications-resources/sociodemographic-factors-covid19-vaccination.html>

⁶ New Research Details Links Between COVID and Mental Health, November 2020, American Psychiatric Association, <https://www.psychiatry.org/news-room/apa-blogs/new-research-links-covid-and-mental-health>;

psychiatric conditions also may be more likely to develop Long COVID.⁷ Accordingly, I recommend including mental health or, if this category must be narrowed, such serious mental illnesses as schizophrenia, major depression and bipolar disorder among comorbid conditions considered by ICER in its review.

- **Note that many Americans may have received vaccines other than those currently available/approved for use in the United States:** While the scoping review appears to accurately summarize the four vaccines currently available in the US, many Americans (immigrants, other Americans residing abroad during or after COVID-19) may have received other vaccines as well depending on where they reside or have resided during or following the COVID-19 public health emergency. The COVID-19 Vaccine Tracker as of December 2022 listed 12 World Health Organization-approved vaccines, for example.⁸ ICER may wish to include an ‘other’ category for those receiving vaccines besides the four approved US vaccines currently listed in the draft scope. Likewise for comparators, ICER could compare “vaccines to each other and to not receiving an updated vaccine for Covid-19” as described but also to outcomes for ‘other’ vaccines, though this ‘other’ category may not be able to be further disaggregated.
- **For outcomes, include COVID reinfections and development of neuropsychiatric conditions:** ICER lists several outcomes it plans to consider in the review such as Long COVID and mortality. Reinfection with COVID also could be included. For instance, to what extent do those vaccinated, if they have had COVID, experience reinfection compared to those who have not been vaccinated? It also may be possible to differentiate between severe/serious vs. moderate reinfections in vaccinated and unvaccinated populations. The ‘Serious illness from Covid-19’ category could include development of mental illnesses and substance use disorders following infection.⁹ As COVID-19 has been shown to increase risk of substance use and those using substances may be at increased risk of COVID-19 infections and post-infection sequelae, substance use disorders, including alcohol use, also should be considered by ICER in its review.¹⁰ Tobacco use also would be interesting to include given studies generally found potential

Vai B, et al. Mental disorders and risk of COVID-19-related mortality, hospitalisation, and intensive care unit admission: a systematic review and meta-analysis. *Lancet Psychiatry*. 2021 Sep;8(9):797-812. doi: 10.1016/S2215-0366(21)00232-7

⁷ Münte C, et al. Long COVID in people with mental health disorders: a scoping review. *BMC Psychiatry*. 2025 Jul 1;25(1):669. doi: 10.1186/s12888-025-06935-9; Study finds link between poor mental health and long Covid, Sept. 7, 2022, <https://www.theguardian.com/society/2022/sep/07/study-finds-link-between-poor-mental-health-and-long-covid>

⁸ <https://covid19.trackvaccines.org/agency/who/>

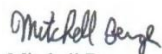
⁹ Badenoch JB, et al. Persistent neuropsychiatric symptoms after COVID-19: a systematic review and meta-analysis. *Brain Commun*. 2021 Dec 17;4(1):fcab297. doi: 10.1093/braincomms/fcab297; Lu Y, Tong J, Zhang D, Chen J, Li L, et al. Risk of neuropsychiatric and related conditions associated with SARS-CoV-2 infection: a difference-in-differences analysis. *Nat Commun*. 2025 Jul 24;16(1):6829. doi: 10.1038/s41467-025-61961-1; Molero P, Reina G, Blom JD, et al. COVID-19 risk, course and outcome in people with mental disorders: a systematic review and meta-analyses. *Epidemiol Psychiatr Sci*. 2023 Oct 20;32:e61. doi: 10.1017/S2045796023000719

¹⁰ Wang QQ, et al. COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. *Mol Psychiatry*. 2021 Jan;26(1):30-39. doi: 10.1038/s41380-020-00880-7. Epub 2020 Sep 14. Erratum in: *Mol Psychiatry*. 2021 Jan;26(1):40. doi: 10.1038/s41380-020-00895-0; Baillargeon J, et al. The Impact of Substance Use Disorder on COVID-19 Outcomes. *Psychiatr Serv*. 2021 May 1;72(5):578-581. doi: 10.1176/appi.ps.202000534; Dodge KA, et al. Impact of the COVID-19 pandemic on substance use among adults without children, parents, and adolescents. *Addict Behav Rep*. 2021 Oct 21;14:100388. doi: 10.1016/j.abrep.2021.100388; Friske MM, Spanagel R. Chronic alcohol consumption and COVID-19 infection risk: A narrative review. *Alcohol Clin Exp Res* (Hoboken). 2023 Apr;47(4):629-639. doi: 10.1111/acer.15041; Håkansson A. Post-COVID syndrome: Need to include risk of addiction in research and multi-disciplinary clinical work. *Psychiatry Res*. 2021 Jul;301:113961. doi: 10.1016/j.psychres.2021

increased risk for COVID-19 morbidity and mortality and Long COVID among those using tobacco products.¹¹

- **Benefits Beyond Health and Special Ethical Priorities:** With respect to COVID vaccination, one group or groups to consider are institutionalized persons including those incarcerated in correctional settings, long-term care facility patients and those in psychiatric institutions.¹² Potential benefits for those in congregate and institutional settings may differ from those of the general population. ICER should also note in its review that questions about the availability of vaccines and whether or not vaccination should be mandatory for the general population or in certain specific settings or for certain groups such as health care workers are separate issues from those ICER appears to be addressing in its review (as described by the scoping document).
- **Additional stakeholders to seek input from:** ICER lists several associations and organizations from which it hopes to obtain input from during this project (in addition to the public comment period). I recommend also including the COVID 19 Longhailer Advocacy Project (Longhailer-advocacy.org), the MAHA Institute (mahainstitute.us), MAHA Action (mahaaction.com), the National Association of County and City Health Officials, Association of State and Territorial Health Officials, Council of State and Territorial Epidemiologists, American Public Health Association, American Psychiatric Association, American Psychological Association, American Health Care Association/National Center for Assisted Living (nursing home trade association), Academy of Correctional Health Professionals and American Medical Association. These groups may have insights about the benefits and drawbacks of COVID vaccination and consequences of COVID infection. As noted on ICER's project Web site, some groups may not seek to participate even if offered a chance to provide input and ICER may have staff or other bandwidth limitations on how many and what types of organizations it can directly engage in this process. That said, input from these organizations may ICER obtain a wide range of perspectives about the review's scope and content.

Sincerely,



Mitchell Berger

¹¹ <https://www.who.int/news/item/11-05-2020-who-statement-tobacco-use-and-covid-19>; Griffith NB, Baker TB, Heiden BT, et al. Cannabis, Tobacco Use, and COVID-19 Outcomes. *JAMA Netw Open*. 2024;7(6):e2417977. doi:10.1001/jamanetworkopen.2024.17977; Paleiron N, et al. Impact of Tobacco Smoking on the Risk of COVID-19: A Large Scale Retrospective Cohort Study. *Nicotine Tob Res*. 2021 Aug 4;23(8):1398-1404; Trofor AC, et al. Looking at the Data on Smoking and Post-COVID-19 Syndrome-A Literature Review. *J Pers Med*. 2024 Jan 16;14(1):97. doi: 10.3390/jpm14010097; Gupta AK, Nethan ST, Mehrotra R. Tobacco use as a well-recognized cause of severe COVID-19 manifestations. *Respir Med*. 2021 Jan;176:106233. doi: 10.1016/j.rmed.2020.106233

¹² Waddell C, et al. Lessons Learned from COVID-19 Response in Correctional and Detention Facilities. *Emerg Infect Dis*. 2024 Apr;30(13):S5-S12. doi: 10.3201/eid3013.230776; Smith TE, et al. COVID-19 Case Rates After Surveillance and Vaccinations in a Statewide Psychiatric Hospital System. *Am J Public Health*. 2021 Oct;111(10):1780-1783. doi: 10.2105/AJPH.2021.306444. America's Psychiatric Facilities Are 'Incubators' for COVID-19, April 2020, <https://www.madinamerica.com/2020/04/americas-psychiatric-facilities-incubators-covid-19/>; Reporting the COVID Crisis at Psychiatric Hospitals: A Missed Opportunity, July 2020, <https://www.madinamerica.com/2020/07/covid-crisis-psych-hospitals/>; Konetzka RT, et al. Four Years And More Than 200,000 Deaths Later: Lessons Learned From The COVID-19 Pandemic In US Nursing Homes. *Health Aff (Millwood)*. 2024 Jul;43(7):985-993