Response to Fullarton et al

To the Editor—Thank you for the opportunity to address the suggestions raised in the letter by Fullarton et al [1] in response to our study. We also thank them for their interest in our research [2], and we are happy to provide our perspective on their comments.

We agree with Fullarton et al on the importance of a thorough economic assessment of nirsevimab to guide policy decision making, using a broad societal perspective to reflect the full value of nirsevimab. However, the objective of our research was to emphasize the burden of disease in the US birth cohort based on current epidemiological data and, considering individual risks and the age of infants when exposed to respiratory syncytial virus (RSV) circulation, to measure the potential impact of nirsevimab on direct health outcomes and costs compared with the current standard of care to address this substantial medical need in all infants during their first RSV season. A complete cost-effectiveness evaluation will soon be reported to better inform policy decision making.

We also thank Fullarton et al [1] for finding incorrect references in our article [2], and we are grateful for the opportunity to provide the following clarifications. First, the "clinical severity factor," a multiplier applied to health events to define the proportion attributable to lower respiratory tract infections (RTIs), was incorrectly referenced and should refer to the report by Rainisch et al [3]. The multiplier is shown in our publication under model inputs [2, table 1]. In the article by Rainisch et al [3], 100% of hospitalizations were considered due to lower RTIs, whereas a fraction of emergency room and primary care visits were related to upper RTIs (an outcome for which there are no clinical data concerning nirsevimab) [3].This assumption by Rainisch et al was based on unpublished data from the Centers for Disease Control and Prevention, and we made similar assumptions to maintain consistency.

The proportion of palivizumab-eligible infants refers to data from reports by Rainisch et al [3] and Pavilack et al [4], and the coverage rate for palivizumab was derived from the publicly available financial reports from the Swedish Orphan Biovitrum (Sobi) [5], using current sales data to reflect the uptake of palivizumab in the United States.

With respect to the RSV season, that was defined as October to March, based on the model by Rainisch et al [3]. The period from October to February related, instead, to the window of immunization during which infants born during the RSV season would be immunized at birth. We did not consider March within this immunization window, given the low RSV circulation during this month, and the absence of RSV circulation from April to September. We instead considered infants born in March to be eligible for immunization in the following RSV season, as immunization at birth would have meant a dose for just 1 month of protection at the tail end of the season, with protection from nirsevimab for 4 months when RSV is generally not circulating.

Finally, we thank Fullarton et al for the opportunity to highlight the robustness of our model through the recent publication of a model comparison study [6]. As an active partner of the REspiratory Syncytial virus Consortium in EUrope (RESCEU) network over the past 5 years, Sanofi and AstraZeneca participated in a formal model comparison to ensure cross-validity, in accordance with guidelines for multimodel comparisons. This study aimed to compare the outcomes of different model-based analytical approaches to estimate the cost-effectiveness of RSV prevention in infancy and pregnancy using a standardized set of input parameters. Three static and 2 dynamic models were compared (static models: University of Antwerp, Sanofi, and Novavax; dynamic models: Sanofi and London School of Hygiene & Tropical Medicine) [6]. The research provided insights on the strengths and limitations of different model types and structures, particularly comparing static and dynamic approaches. Notably, Sanofi's static modeling results were identical to those from the University of Antwerp, both for the overall population and by age group.

In conclusion, our study synthesized current RSV disease data to characterize the burden of RSV disease in all infants in the United States and evaluate the health and economic impact of immunizing all infants in the United States with nirsevimab compared with the current standard of care. While a comprehensive economic analysis of nirsevimab that accounts for both direct and indirect health and cost outcomes would be important in guiding policy decision making, we believe that the responding authors' various comments and suggestions would not affect our study's overall conclusion—that an all-infant immunization strategy with nirsevimab could substantially reduce the health and economic burden for US infants during their first RSV season.

Notes

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Potential conflicts of interest. A. K., M. B., and J. K. H. L. are employees of Sanofi and may hold shares and/or stock options in the company. A. S, R. M., and S. M. are salaried employees of Evidera and are not allowed to accept remuneration from any clients for their services.

All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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