Delphi Survey for Health Co-Benefits Modeling - Round 3

Goals of this process

This is the third and last survey round of the Delphi process leading up to the March workshop on estimating mitigation health co-benefits. As a reminder, the Delphi process has three goals:

1. To scope and focus the group's efforts prior to the meeting;
2. To evaluate the degree of agreement on central methodological issues; and
3. To move toward consensus regarding these issues where possible through iterative, online, anonymous discussion.

This round of the survey builds on findings from the first two round. You have access to all of the raw, anonymized data to review as you would like. We have also created a summary of the findings to help focus your reflections for this round.

Delphi Survey for Health Co-Benefits Modeling - Round 3

Process overview

Thank you for your engagement with the process thus far. We have had a very rich exchange and considerable clarity has emerged around many issues.

As in the first two rounds, this survey has two elements - a set of scoping questions, mostly aimed at guiding the overall inquiry and providing input for the workshop agenda - and a set of statements framed as guidance questions for the mitigation health co-benefits modeling community. In some cases, based on prior input, we have refined and clarified the statements or provided additional material to review. We have indicated which questions are new or modified with notes after the questions. We have also indicated response statistics from Round 2 (median, interquartile range, and % agreement, i.e. % responding 7-9).

You will again be asked to rate the extent to which you agree with the statements, on a scale of 1-9, with 1 being “complete disagreement” and 9 being “complete agreement”. Supporting materials for the Delphi, including data from Rounds 1 and 2, are here. We will pass along your responses to R2 and

encourage you to review your responses as well as the group findings for R2, a summary of which you can find here. Please note that only the survey administrators will have access your identified information, and results are deidentified before analysis and reporting.

We again encourage you to comment liberally, and to address your comments to the group to clarify your position and, as appropriate, recruit others to your perspective by presenting rationales, highlighting relevant examples, etc. In addition, for items with which you do not agree, please note what modifications to the statement would we ask that if you do not agree with the statement, in the comment you suggest modifications or alternate phrasing that would result in a statement that you could endorse.

Delphi Survey for Health Co-Benefits Modeling - Round 3

Mitigation health co-benefits modeling - Round 3 - Scoping and direction

The questions on this page are generally meant to help scope and focus our discussion.

* 1. It is important that the findings from multiple health co-benefits studies, particularly those done at a national level, can be combined and synthesized for policymakers. Note: This is a new question.

Complete disagreement								Complete agreement
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2. Please provide any comments you may have related to the question above.

* 3. Deciding upon a common approach to conceptualizing mitigation policy scenarios across major areas (e.g., emissions reductions of a certain percent from a defined baseline in a given sector) should be the first step in harmonizing methods. Stats: 7 (5.75-7), 56%.

Complete disagreement								Complete agreement
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4. Please provide any comments you may have related to the question above.

* 5. There should be at least one health metric that all health co-benefits modeling studies estimate. Note: This is a new question.

Complete disagreement								Complete agreement
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6. Please provide any comments you may have related to the question above.

* 7. Going forward, health co-benefits studies should be encouraged to use a common baseline year from which projections are made. Note: This is a new question.

Complete disagreement								Complete agreement
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8. Please provide any comments you may have related to the question above.

* 9. Going forward, health co-benefits studies should be encouraged to harmonize their major temporal parameters (e.g. baseline years, time horizons, time intervals) with those of the Global Burden of Disease (GBD) study and associated products (e.g. GBD forecasts). Note: This is a new question.

Complete disagreement								Complete agreement
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10. Please provide any comments you may have related to the question above.

* 11. Going forward, health co-benefits studies should be encouraged to harmonize their major temporal parameters (e.g. baseline years, time horizons, time intervals) with the Sustainable Development Goals timeline. Note: This is a new question.

Complete disagreement								Complete agreement
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12. Please provide any comments you may have related to the question above.

13. Are there any other major assessments with which health co-benefits studies should be encouraged to harmonize their temporal parameters?

14. Comments on prior rounds have suggested that dynamic modeling frameworks that account for feedbacks, interactions, and other such processes are important to develop. Can you suggest examples of such studies to share with your colleagues? Note: This is a new question.

15. Comments on prior rounds have suggested that it is important to incorporate various scenarios of policy uptake in mitigation health co-benefits studies. Can you suggest examples of studies that have done this to share with your colleagues? Note: This is a new question.

16. Comments on prior rounds have suggested that it is important to include population and demographic projections in health co-benefits studies. Do you have suggestions regarding how these data should be developed or sourced?

17. Please provide any comments you may have related to the question above.

Mitigation health co-benefits modeling - Round 3 - Practice guidance

The questions on this page are potential consensus statements that are phrased as guidelines to be applied to mitigation health co-benefits modeling efforts. They are subdivided to focus on (1) policymaker engagement, (2) model structure, (3) parameterization and uncertainty, and (4) synthesis and applicable guidelines.

(1) The following questions refer to engagement with policymakers and stakeholders.

* 18. Guidelines should acknowledge that modelers may choose to provide additional estimates in response to stakeholder interest and other considerations. Stats: 9 (9-9), 96%.

Complete disagreement								Complete agreement
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19. Please provide any comments you may have related to the question above.

* 20. Health co-benefits modeling studies are a form of health impact assessment (HIA) and, as such, the HIA professional practice standards pertain to mitigation health health co-benefits estimation. (N.B.: These guidelines can be used in conjunction with others that may be relevant.) Stats: 6 (5-7), 34%.

Complete disagreement								Complete agreement
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21. Please provide any comments you may have related to the question above.

(2) The following questions refer to model structure and approach.

* 22. To facilitate intercomparison of estimates, mitigation health co-benefits studies should adopt a recommended set of practices for model structure, parameterization, metrics, sensitivity testing, and results reporting. Stats: 8 (7-8), 83%.

Complete disagreement									Complete agreement
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23. Please provide any comments you may have related to the question above.

* 24. Mitigation health co-benefits estimation studies should use methods that allow for comparison of changes in population health over time resulting from shifts in population exposure to specified risks, of which comparative risk assessment (CRA) is one widely used example. Note 1: This question was modified from Round 1. Note 2: For the purpose of this discussion, CRA refers to the methods developed and promulgated by the World Health Organization and referred to in Campbell-Lendrum and Woodruff 2006. Stats: 7 (6.5-8), 75%.

Complete disagreement									Complete agreement
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25. Please provide any comments you have related to the question above.

* 26. Based on the total forcing resulting from the combination of global warming potential, residence time in the atmosphere, and current atmospheric concentration, modeling efforts should primarily focus on activities with substantial carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), black carbon (BC), ozone (O_3) precursors, or hydrofluorocarbon (HFC) emissions. Note: This question was revised based on feedback from Round 2. Stats: 7 (6-8), 68%.

Complete disagreement									Complete agreement
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27. Please provide any comments you have related to the question above.

* 28. Mitigation health co-benefits studies should be encouraged to utilize a standard counterfactual scenario. Note: This is a new question.

Complete disagreement								Complete agreement
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29. Please provide any comments you may have related to the question above.

* 30. If studies are encouraged to use a standard counterfactual, the standard should be location- and population-specific emissions associated with the RCP 8.5 pathway or an analogous expression of business as usual for the study setting. Note: This is a new question.

Complete disagreement								Complete agreement
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31. Please provide any comments you may have related to the question above.

* 32. The default health metric for modeling studies should be Disability Adjusted Life Years (DALYs). Stats: 5 (5-6.5), 25%.

Complete disagreement								Complete agreement
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33. Please provide any comments you may have related to the question above.

* 34. The default geopolitical metric for modeling studies should be the country. Stats: 6 (4-7), 38%.

Complete disagreement								Complete agreement
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35. Please provide any comments you may have related to the question above.

* 36. The default time metric for modeling studies should be the year. Stats: 7 (6-8), 70%

Complete disagreement								Complete agreement
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37. Please provide any comments you may have related to the question above.

* 38. The default metric of mitigation potential for modeling studies should be tons of CO_2 equivalent (tons of CO_2e). Stats: 8 (7-9), 79%.

Complete disagreement								Complete agreement
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39. Please provide any comments you may have related to the question above.

* 40. The default financial metric for modeling studies should be the US dollar. Stats: 7 (5.5-8), 62%.

Complete disagreement								Complete agreement
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41. Please provide any comments you may have related to the question above.

* 42. Causal pathways for each mitigation pathway being examined, principal linkages with health, and the criteria for identifying relevant risk-outcome pairs should all be explicitly stated. Stats: 9 (8-9), 98%.

Complete disagreement								Complete agreement
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43. Please provide any comments you may have related to the question above.

* 44. Assumptions regarding mitigation policy uptake should be explicitly stated and alternatives to full uptake should be incorporated into sensitivity testing. Stats: 8 (8-9), 94%.

Complete disagreement								Complete agreement
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45. Please provide any comments you may have related to the question above.

* 46. Mitigation policies resulting in chronic disease reductions should be discounted to net present value using standardized, accepted approaches (as outlined in the WHO Guide to Cost Effectiveness Analysis). Stats: 7 (6-8), 66%.

Complete disagreement								Complete agreement
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47. Please provide any comments you may have related to the question above.

* 48. There should be core scenarios for each major area of mitigation policy (transport, energy production, land use, buildings, and food production in our present, sector-oriented formulation) stipulating emissions pathways expressed as proportional reductions from standardized baselines. Stats: 7 (6-8), 66%.

Complete disagreement								Complete agreement
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49. Please provide any comments you may have related to the question above.

* 50. There should be standardized estimates of the linkages between specific mitigation activities and associated emissions reductions. Stats: 7 (5-8), 62%.

Complete disagreement								Complete agreement
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51. Please provide any comments you may have related to the question above.

* 52. Models should allow for phasing in of mitigation policies and accrual of health benefits, and assumptions regarding rates of policy phase-in and health benefit accrual should be explicitly stated and alternatives included in sensitivity testing. Stats 8 (7-8), 98%.

Complete disagreement								Complete agreement
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53. Please provide any comments you may have related to the question above.

* 54. Population and demographic projections should be incorporated into modeling studies. Stats: 8 (8-9), 89%.

Complete disagreement								Complete agreement
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55. Please provide any comments you may have related to the question above.

(3) The following questions refer to model parameterization and uncertainty.

* 56. Health impacts should be valued at a rate of twice the local gross domestic income per capita per DALY. Stats: 4 (3-5), 4%.

Complete disagreement								Complete agreement
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57. Please provide any comments you may have related to the question above.

* 58. Risk-outcome pair associations (e.g., associations between physical activity from active transport and associated health impacts) should, whenever possible, be taken from meta-analyses of peer-reviewed literature. Stats: 8 (7-8), 89%.

Complete disagreement								Complete agreement
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59. Please provide any comments you may have related to the question above.

* 60. Standard time horizons for modeling studies should be in 15 year increments including 2035, 2050, 2065, and 2080. Stats: 5 (4.5-6), 23%.

Complete disagreement								Complete agreement
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61. Please provide any comments you may have related to the question above.

* 62. Baselines for emissions and population health status should be set at calendar year 2015. Stats: 5 (5-7), 32%.

Complete disagreement								Complete agreement
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63. Please provide any comments you may have related to the question above.

* 64. Health co-benefits studies with time horizons of ten years or more should be encouraged to discount valuation estimates. Note: This is a new question.

Complete disagreement								Complete agreement
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65. Please provide any comments you may have related to the question above.

* 66. Valuation estimates, if discounted, should be discounted at 3%, with sensitivity testing of other rates including 0%. Note: This is a new question.

Complete disagreement								Complete agreement
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67. Please provide any comments you may have related to the question above.

* 68. Health effect estimates, if discounted, should be discounted at 2%, with sensitivity testing of other rates including 0%. Note: This is a new question.

Complete disagreement								Complete agreement
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69. Please provide any comments you may have related to the question above.

* 70. Health co-benefits studies with time horizons of ten years or more should be encouraged to discount health effect estimates. Note: This is a new question.

Complete disagreement								Complete agreement
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71. Please provide any comments you may have related to the question above.

(4) The questions in this section refer to synthesis of mitigation health co-benefits studies and applicable reporting and other guidelines.

* 72. Health co-benefits modeling studies generate health estimates and, as such, the GATHER (Guidelines for Accurate and Transparent Health Estimates Reporting) statement and checklist pertain to mitigation health co-benefit estimation. Note: These guidelines can be used in conjunction with others that may be relevant. Stats: 7 (6-7), 64%.

Complete disagreement								Complete agreement
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73. Please provide any comments you may have related to the question above.

* 74. Meta-analyses of health co-benefits studies should conform to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines and checklist and the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) guidelines and checklist. Stats: 6 (5-7), 30%.

Complete disagreement								Complete agreement
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75. Please provide any comments you may have related to the question above.

* 76. Meta-analysis of mitigation health co-benefits modeling analyses should use random effects. Note: This question was revised based on input from Round 1. Stats: 6 (5-6), 21%.

Complete disagreement								Complete agreement
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77. Please provide any comments you may have related to the question above.

* 78. Authors should use the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach when making recommendations regarding mitigation health co-benefits. Stats: 5 (4.5-6), 11%.

Complete disagreement								Complete agreement
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79. Please provide any comments you may have related to the question above.

* 80. Authors should use the Rooney et al. 2014 guidance on systematic review for environmental health science assessments when making recommendations regarding mitigation health co-benefits. Stats: 6 (5-7), 34%.

Complete disagreement								Complete agreement
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81. Please provide any comments you may have related to the question above.

82. Please provide any suggestions you may have for additional topics or issues to consider or resources to review in preparation for the workshop.

Thanks very much for your participation and engagement with this process. We are looking forward to seeing you at the workshop to continue the conversation!