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The MEMVIE Public Involvement Framework for Mathematical And Economic Modelling

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JUNIPER

UNIVERSITY OF OXFORD

MEMVIE: Mathematical and Economic Modelling for Vaccination and Immunisation Evaluation

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- **Infectious disease** and **health economic models** can be used to assess whether any change in an immunisation programme is cost-effective.
- Provide a complementary **second opinion** on the work presented to the Joint Committee of Vaccination and Immunisation (JCVI).
- Investigate use of **public involvement** in this area of modelling

https://tinyurl.com/MEMVIE

Public involvement in research?

- Research being carried out **'with'** or **'by'** member of the public **rather than** 'to', 'about' or 'for' them.

- The **impact** of public involvement in NIHR health and social care research is defined as:

"The changes, benefits and learning gained from the insights and experiences of patients, carers and the public when working in partnership with researchers and others involved in NIHR initiatives"

(NIHR INVOLVE 2019)

Why involve the public in research?

- Focus research on questions of importance to the public
- Enhances quality of research (for example, ensuring a trial measures the right outcomes)
- A moral/ethical imperative: “Nothing about me without me”
- Democratic accountability to taxpayers
- Fairness, accountability and transparency

Benefits of co-production

- Including all perspectives and skills
- Build and maintain relationships
- Joint understanding
- Consensus and clarity over roles and responsibilities

Reference
Hickey, G., Brearley, S.,Coldham, T., Denegri, S., Green, G., Staniszewska, S., Tembo, D., Torok, K., and Turner, K. (2018)
Guidance on co-producing a research project. Southampton: INVOLVE.

Co-production in action

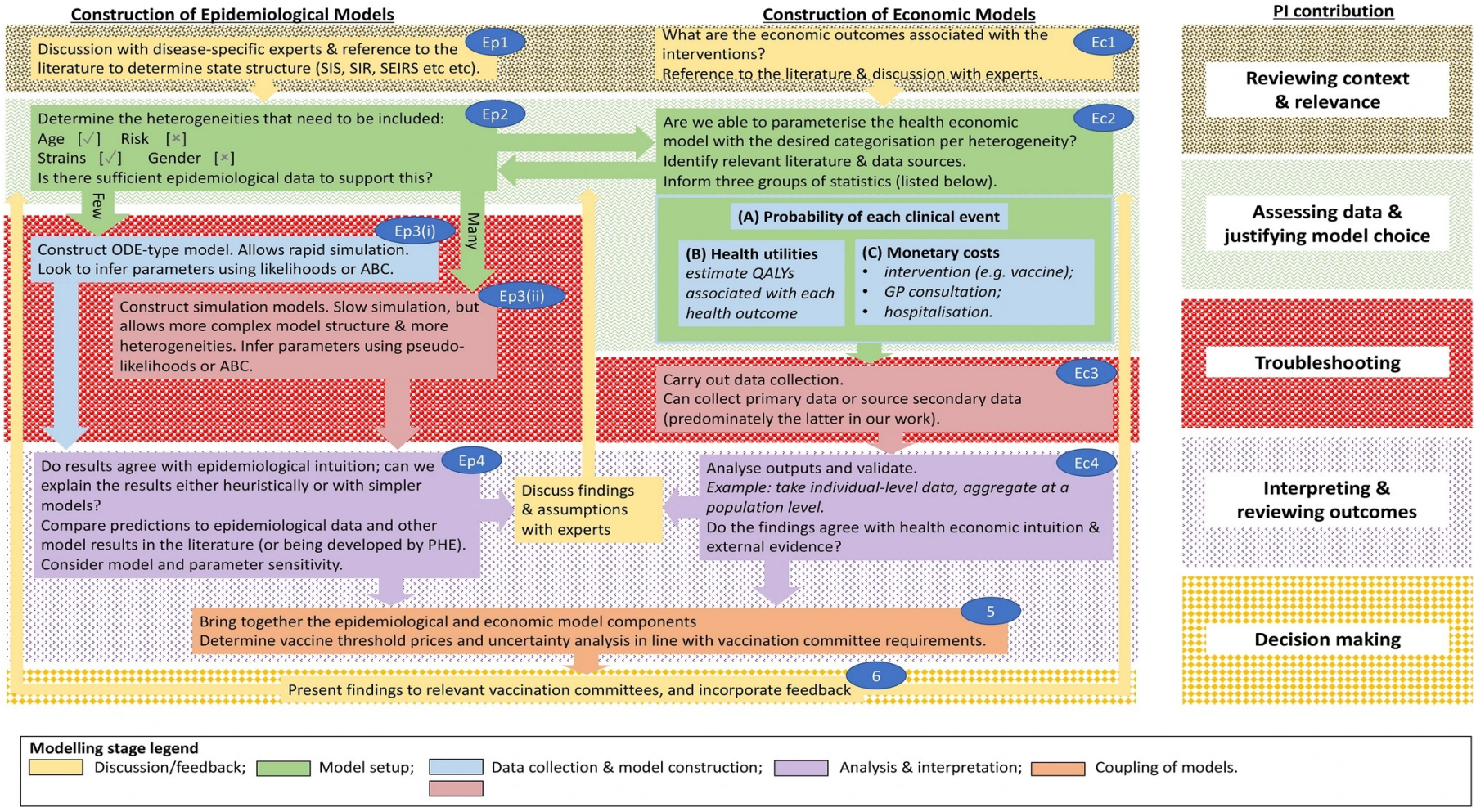
MEMVIE study – example of the potential of co-production in a complex area

- Modelling is important: provides decision makers with evidence to help them reach an informed decision
- Involving public – enhance models, improve public confidence and add robustness to decision making
- Goal: Develop a framework to identify the nature and type of public involvement to guide future models

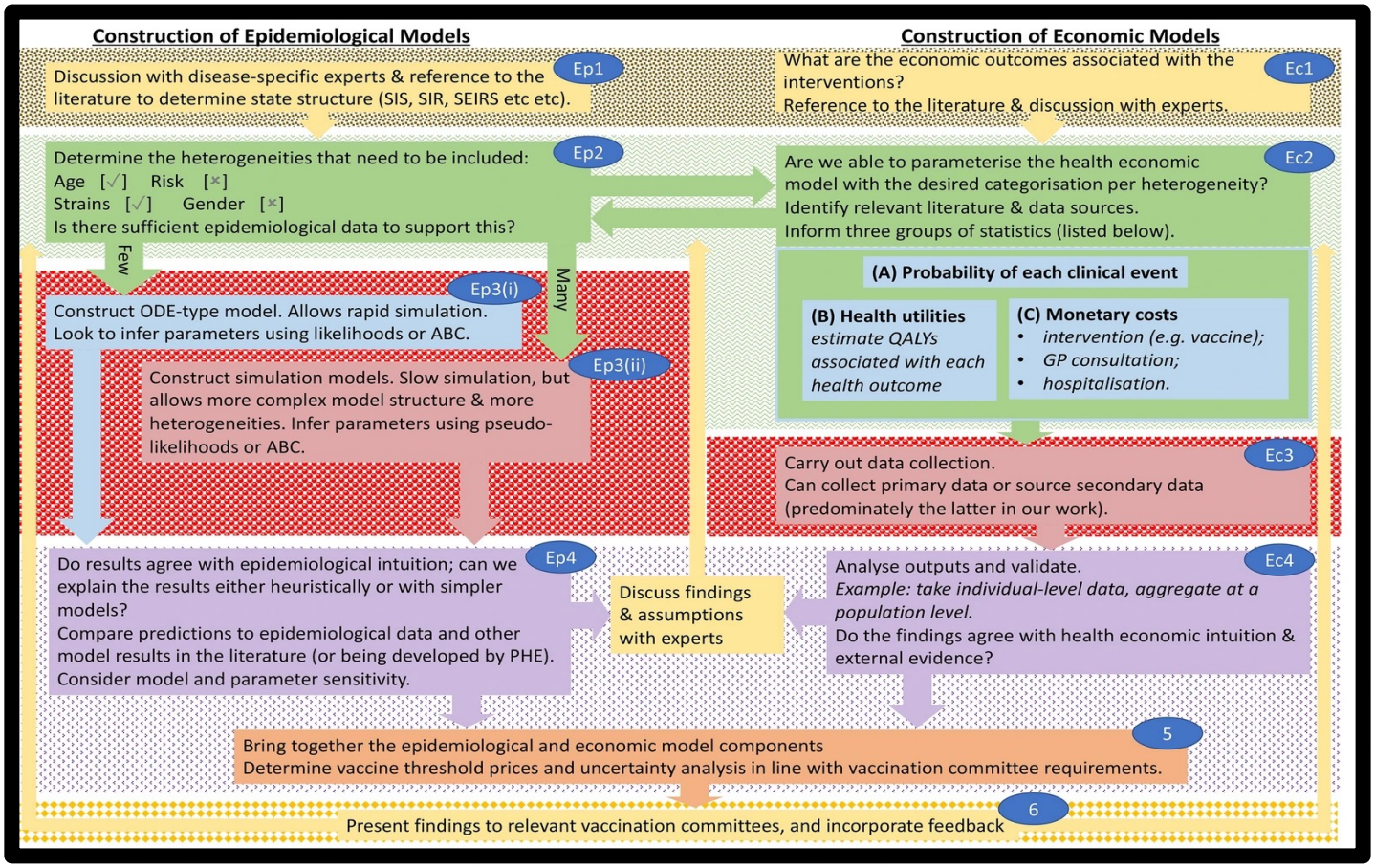
How did we involve the public?

- 21 meetings during 2015-2020, with public involvement group size of 5 to 8.
- Each meetings lasted 2-3 hours.
- Email contact in-between with the group commenting on documents
- Public contributors were able to challenge the data, the basis for the collection of data and the interpretation of that data
- Continuous collective iterations of the emerging framework

MEMVIE public involvement framework



MEMVIE public involvement framework



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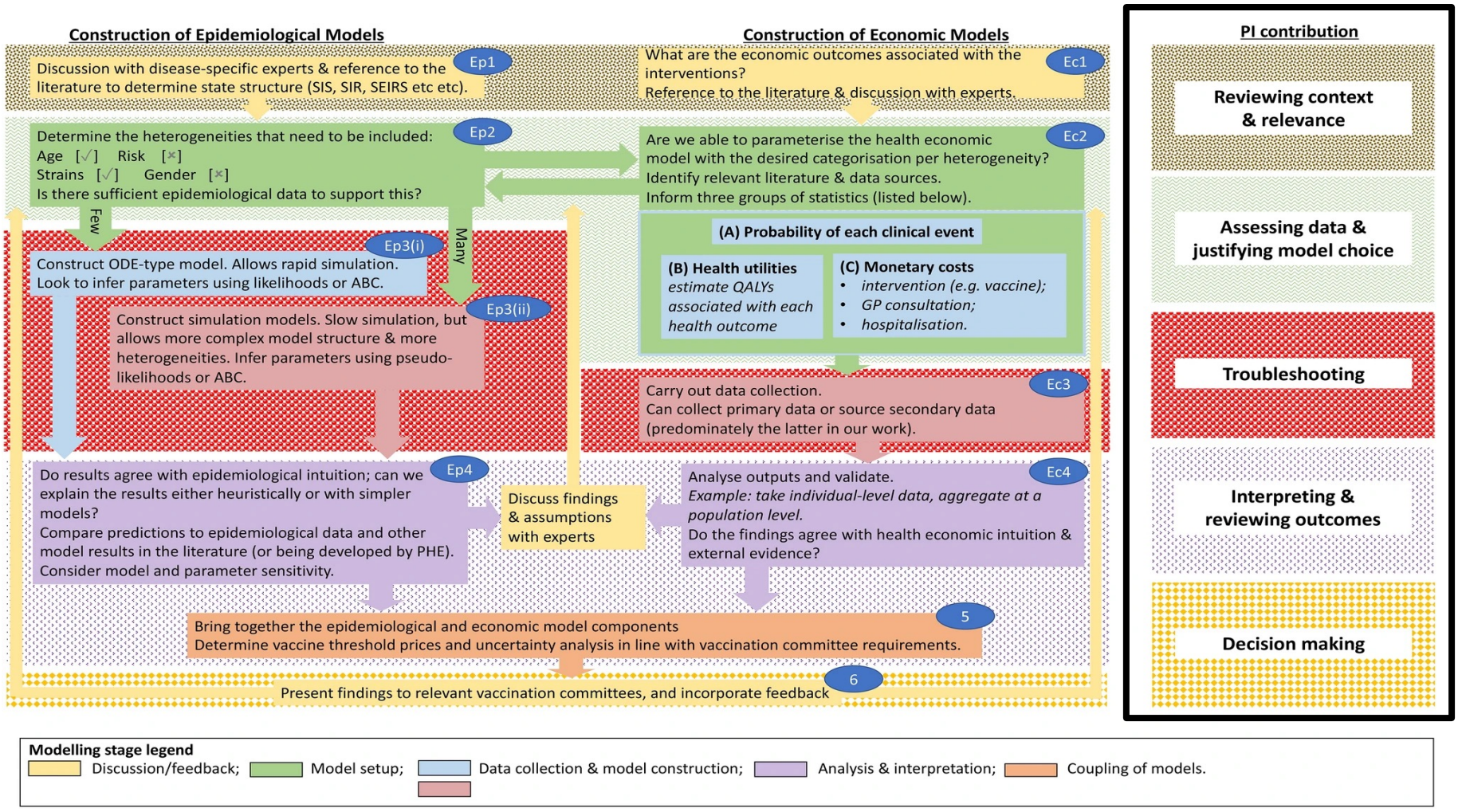
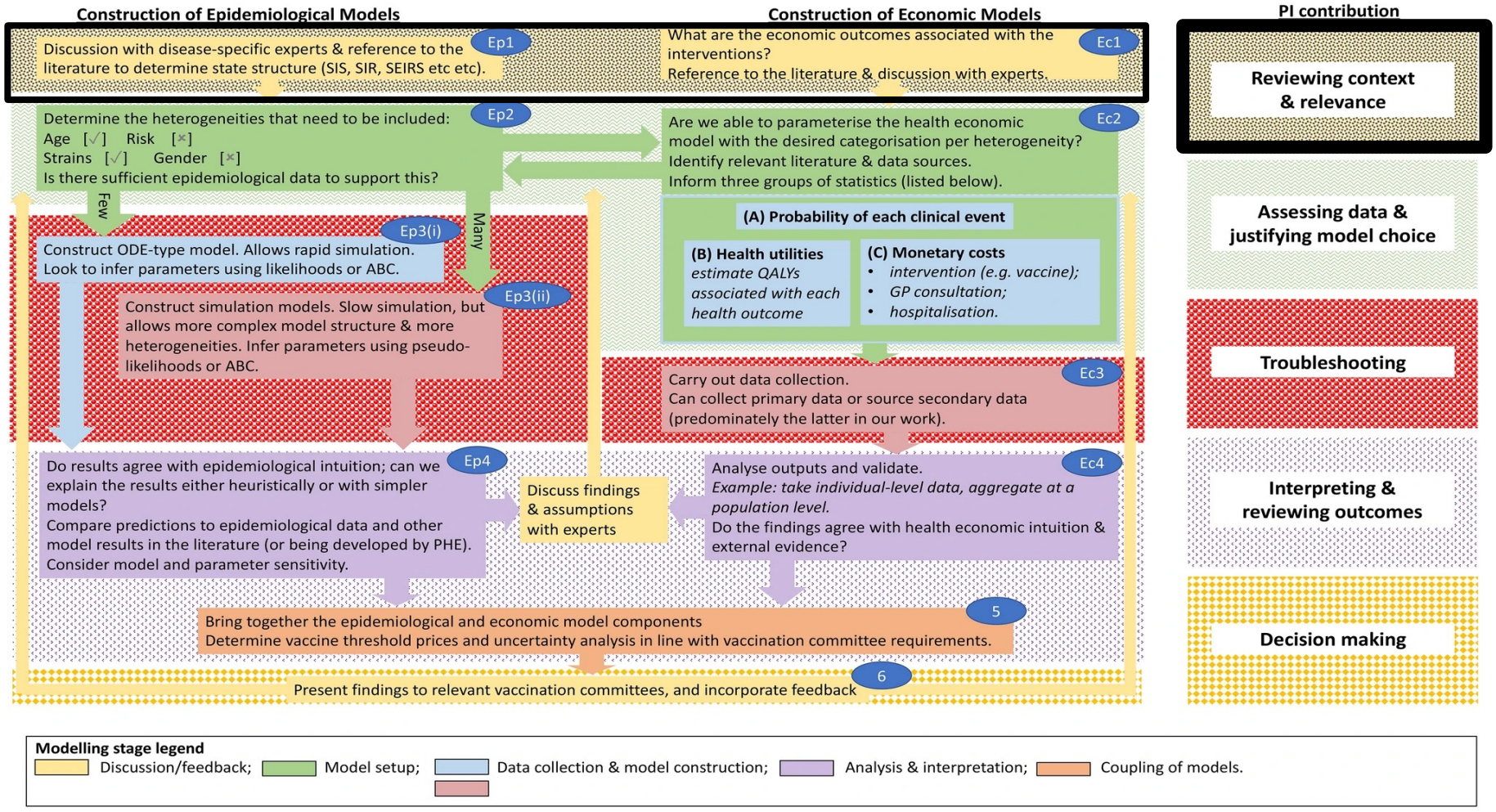
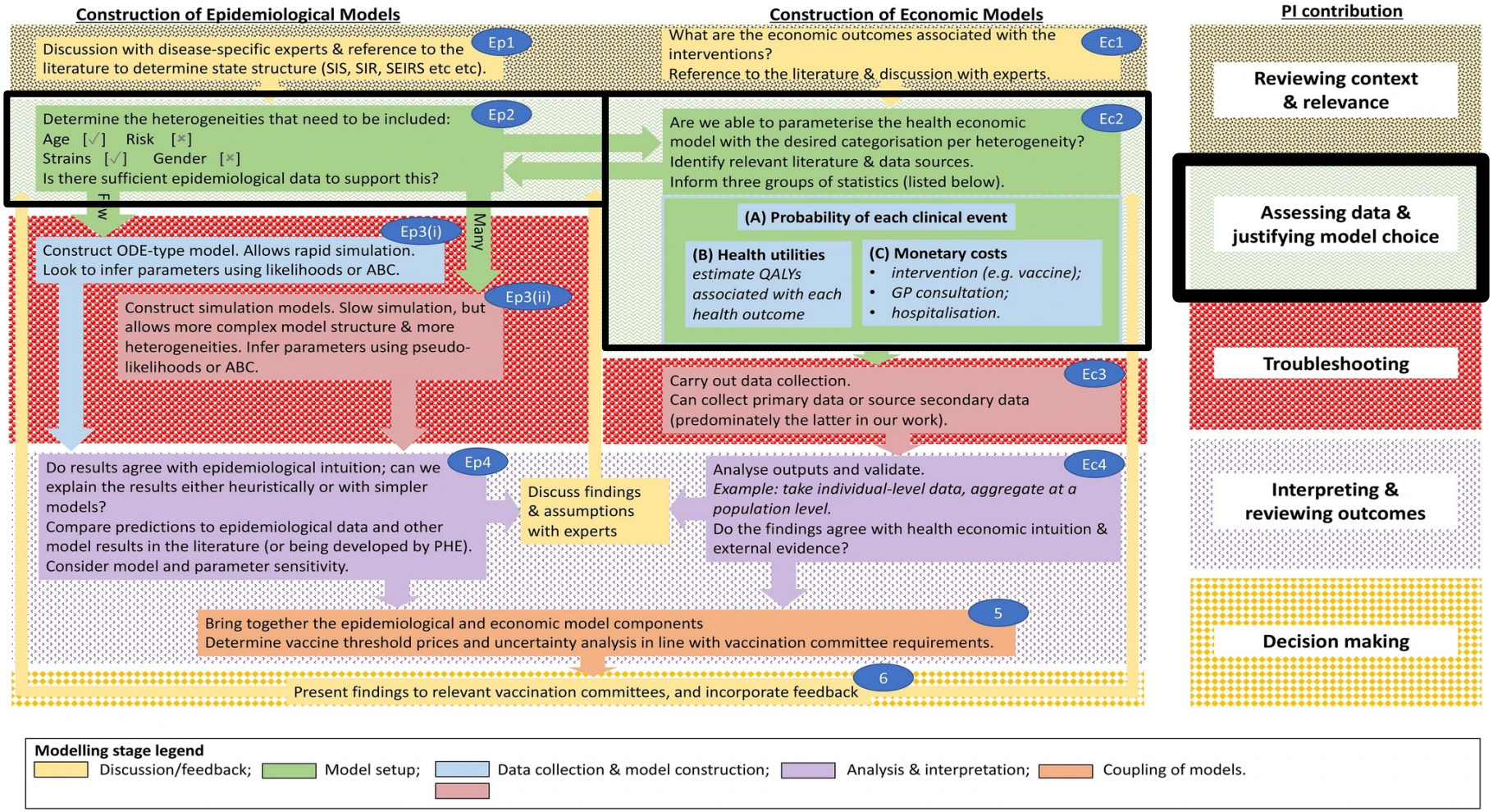


MEMVIE public involvement framework



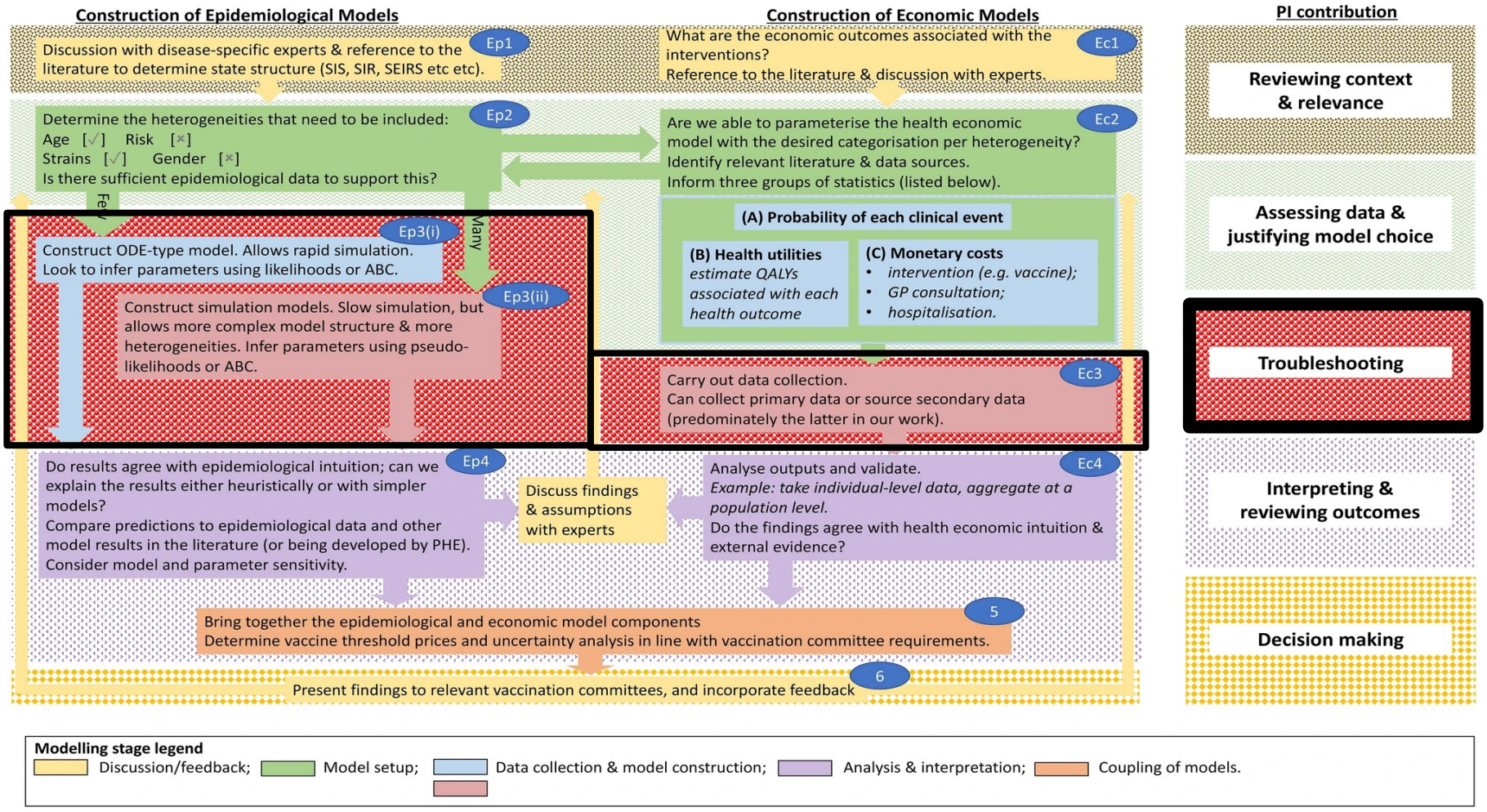
- Determining what should go into the model, with inputs from disease-specific experts and through reference to relevant literature.

MEMVIE public involvement framework



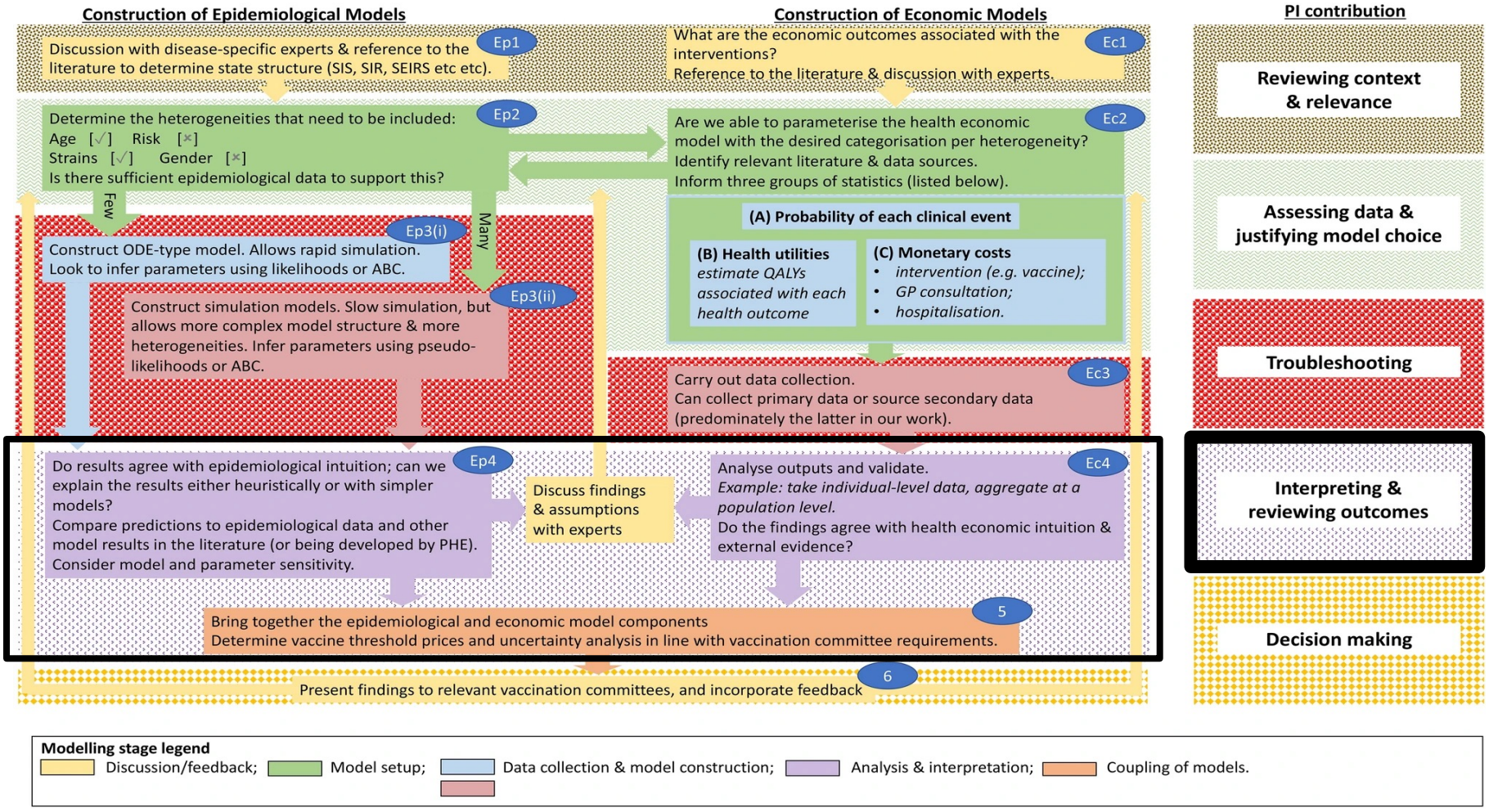
- Farther-reaching benefit of PI through querying the robustness of a tool or questionnaires that have been used to collect data.

MEMVIE public involvement framework



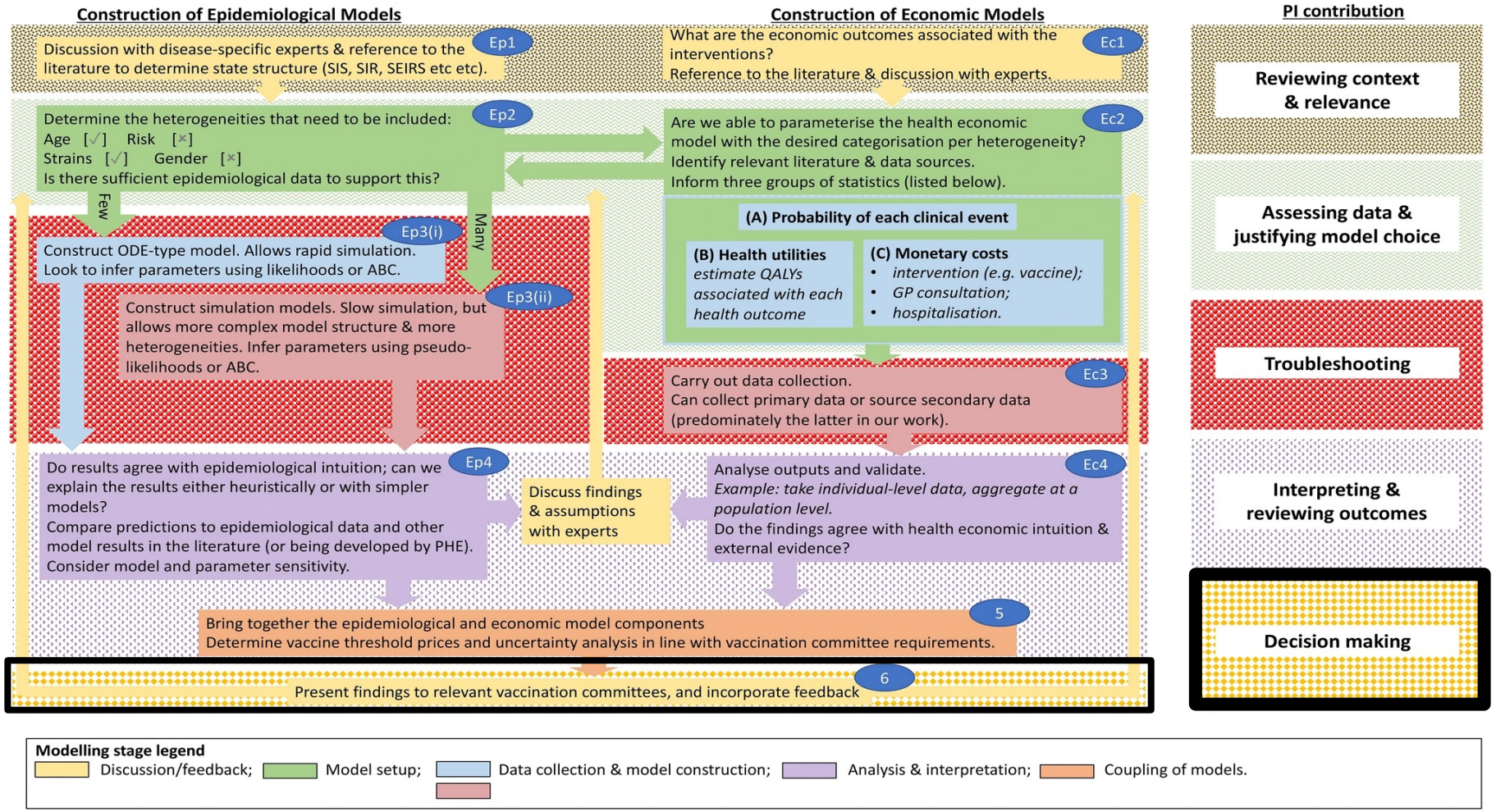
- Preliminary findings from the models can be presented to the PI group and the influence of some of the factors thought to be contributing to uncertainty discussed.

MEMVIE public involvement framework



- Opportunity for the PI group to review the models and consider the sensitivity of the results in relation to the parameters used, and to critique the model assumptions.

MEMVIE public involvement framework



- PI contribution could be in the form of a report detailing group findings, considered alongside the model or presented by public representation on relevant committees.

What else is in the framework?

The MEMVIE public involvement framework includes:

- The context for implementation: what needs to be in place
- The values that underpin PPI in modelling
- Short Form MEMVIE Framework
- Long Form MEMVIE Framework

Comments from group members

Public contributors

“We had no picture of what public involvement would look like, and no road map to guide our journey. We also had no idea of the constraints we might need to work within ... The first year really felt like we were working in the dark, not even sure what we were trying to achieve.”

“A key breakthrough was the pictorial representation of the Epidemiological and Economic Model. For the first time we understood modelling as a process and provided a framework through which we could start to organise and structure our contributions”

Comments from group members

Academic contributor

“When I joined midway through the duration of the MEMVIE project, I had not had any previous exposure to public involvement as part of the research process … being given the opportunity to convey the work to public members through reasoned discourse, ensured justification of modelling aspects, aiding model integrity and validity”

“public involvement generated broader discussion surrounding data curation and data collection (such as questionnaire content), producing recommendations that can be used to inform future developments.”

Conclusions

- Public involvement in a methodologically complex area such as modelling is feasible
- MEMVIE public involvement framework ready to apply and refine
- Funding for public involvement in methodological work is rare

Developing a Framework for Public Involvement in Mathematical and Economic Modelling: Bringing New Dynamism to Vaccination Policy Recommendations
S Staniszewska, EM Hill, R Grant, P Grove, J Porter, T Shiri, S Tulip, J Whitehurst, C Wright, S Datta, S Petrou, M Keeling. (2021)
Patient. **14**, 435–445. doi:10.1007/s40271-020-00476-x

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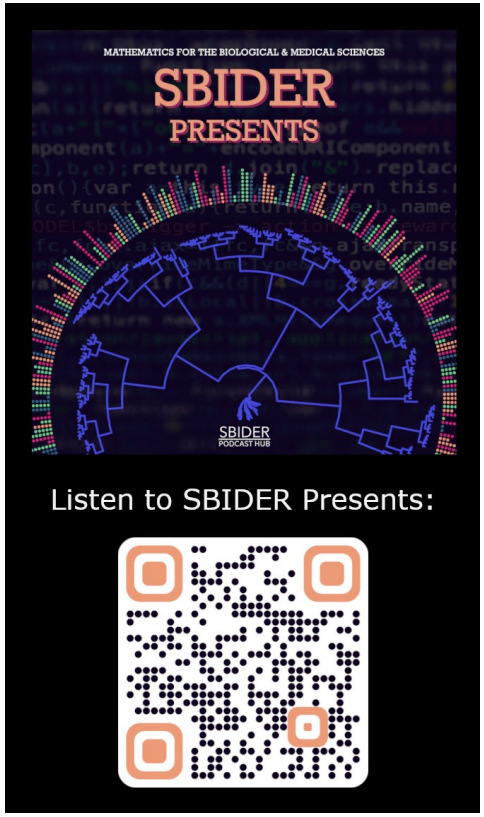

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