

Are open-source models *really* for  
HTA and policy?

# Why open source?

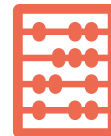
Good science



Efficiency savings



Improved methods

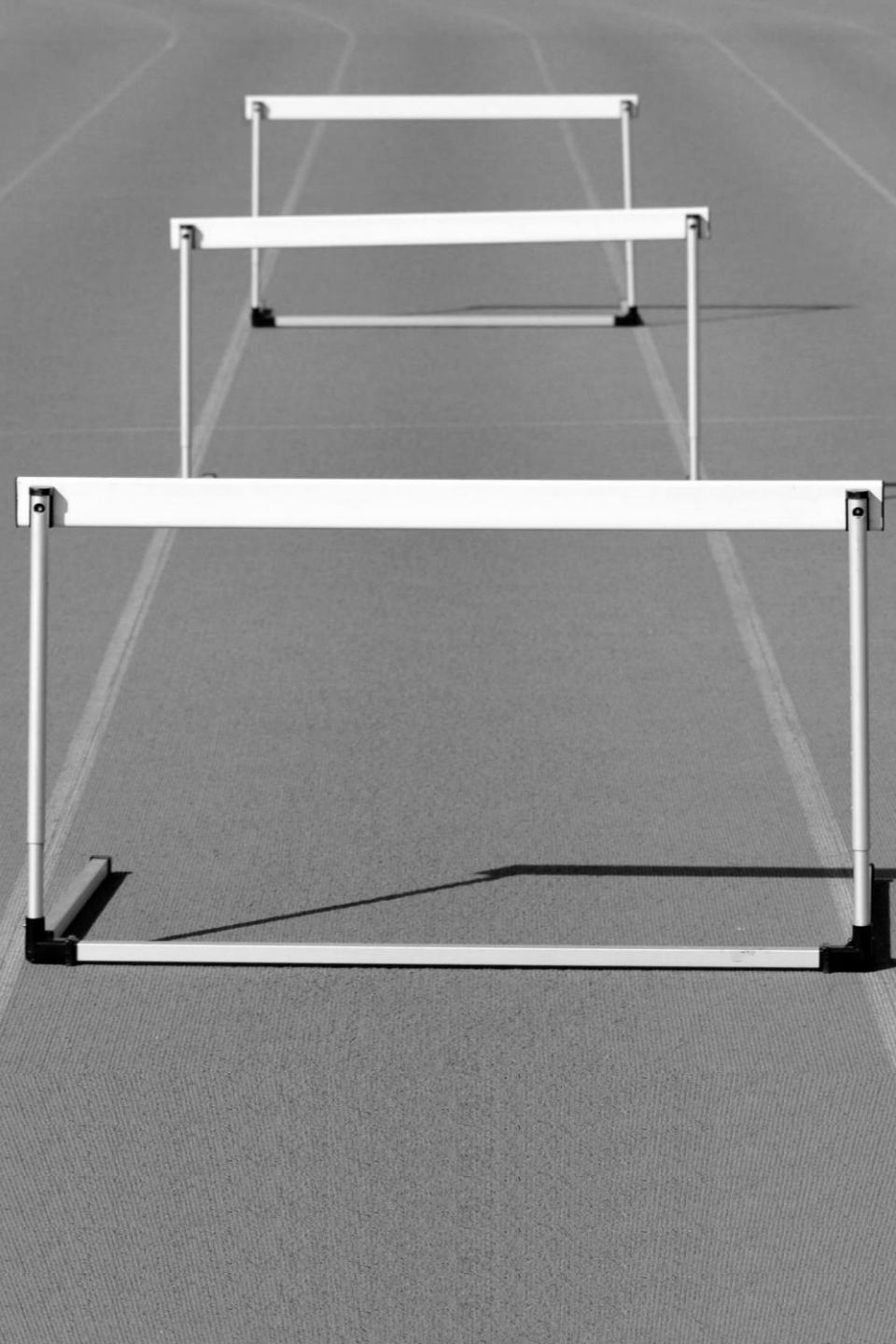


Better decisions



Learning





# Transparent modelling initiatives come in different flavours

## **OPEN DEVELOPMENT (E.G. IVI)**

- ✓ Stakeholder buy-in
- ✓ Reporting standards

## **MODEL SHARING (E.G. PEER MODELS NETWORK)**

- ✓ Open access
- ✓ Interoperability

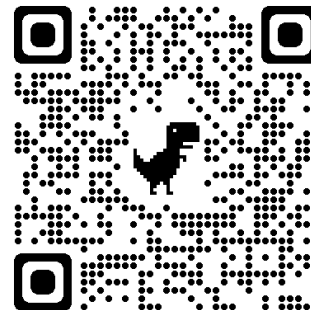
## **COLLABORATION (E.G. MOUNT HOOD)**

- ✓ Experts only
- ✓ Methods development



## SIG survey findings

- Use by HTA agencies is a very important signal
- Lack of interest from decision-makers perceived as a key barrier
- Concerns about commercial barriers and difficulties with data sharing



ISPOR Report

### Opportunities and Barriers to the Development and Use of Open Source Health Economic Models: A Survey

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Open Source Models Special Interest Group

# Today's speakers

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# Are open-source models really for HTA and policy?

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# Disclaimer

- No conflicts of Interest to Declare
- Views expressed are my own and not those of NICE
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# Why not?

- Confidentiality
- Ownership
- Maintenance and updating
- Complexity
- Experience and skills
- Resistance to change
- Industry's resistance

**NICE**



# Why?

- Transparency
- Collaboration
- Efficiency
- Peer reviewing
- Functionality
- Innovation



# COVID-19 Best Practice Guidance



## Best-practice guidance for the health technology assessment of diagnostics and treatments for COVID-19

### Authors

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On behalf of the COVID-19 HTA best-practice guidance development group\*

October 2021

### Assessing effectiveness

- ◆ Adaptive RCTs preferred for efficacy
- ◆ Promote high-quality RWE to fill evidence gaps
- ◆ Use "living" evidence reviews
- ◆ Carefully consider generalisability to the relevant setting
- ◆ Prespecify subgroup analyses
- ◆ Refer to the list of suggested core outcomes and core outcomes sets

### Assessing value for money

- ◆ Use cost—utility analysis, if usually preferred, with supportive cost-effectiveness and cost-consequence analyses where useful
- ◆ Consider both a healthcare and a broad societal perspective
- ◆ Use robust data from related conditions where necessary
- ◆ Use usual threshold values, but engage in research about preferences during a pandemic

### Handling uncertainty

- ◆ Transparently report evidence gaps, assumptions made and the pandemic context
- ◆ Extensive subgroup, extreme value and threshold analyses
- ◆ Use probabilistic analysis
- ◆ Consider using value of information analysis to inform research priorities
- ◆ Mitigate uncertainty by implementing a "living" HTA approach
- ◆ Responsively update decisions (including reinvestment and disinvestment) based on new information

### Economic modelling

- ◆ Ideally, use simulation models to account for patient heterogeneity
- ◆ Include long-term outcomes, disease transmission and system capacity
- ◆ Calibrate uncertain inputs to ensure plausible outputs, e.g. using RWE
- ◆ Develop a whole-disease model for COVID-19, as an epidemiological (SEIR) model with nested diagnosis and treatment components
- ◆ Allow simpler analyses where they may be acceptable for decision-making
- ◆ Regularly update the model to support "living" HTA

### Stakeholder engagement

- ◆ Ensure a broad range of stakeholders can contribute to HTA process
- ◆ Including citizens, patients, carers and proxies, and organisations that represent specific groups who are at higher risk or underrepresented
- ◆ Prioritise based on a tiered approach
- ◆ Consider novel approaches to engagement, such as digital and online tools

### Other important factors

- ◆ Affordability should be assessed using budget impact analysis
- ◆ Affordability concerns should trigger commercial discussions
- ◆ A "living" HTA approach would facilitate managed access agreements
- ◆ Consider other potentially relevant elements of value, including equity, reduced fear of contagion, and scientific advancement
- ◆ Try to capture them quantitatively (e.g. in utility values), otherwise narratively

## HTA of diagnostics and treatments for COVID-19

# “Living” HTA

- Mitigate uncertainty by implementing a responsive approach
- Review decisions in response to new information
  - Including disinvestment
  - Health Technology **Management**
- Develop a COVID-19 whole-disease pathway simulation model
  - Flexible, modular, transparent
  - Responsive & ongoing updates
  - Facilitate rapid decision making & prioritisation

## **Practical considerations**

- Commissioning & ownership
- Data access & transfer
- Ongoing management
- Review & critique
- Barriers to use

# Are open-source models really for health technology assessment and health policy?



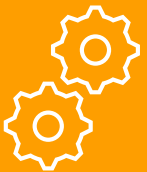
## Objectives for making models publicly available:

- Transparency external verification and validation
- Consistency reusing *trusted* models in specific settings
- Efficiency leveraging code from previous work
- Innovation disseminating examples for new methodologies



## Conceptual / policy considerations:

- (Corporate) transparency and thought leadership
- False sense of transparency and quality:
  - The model does not detail the modelling process
  - Open-source models are not necessarily good models
- Framework for claiming open-source in this context:
  - Value of publishing models vs. data
  - External peer-review process
  - Mandatory use of models



## Technical / practical considerations:

- Data sharing and the (potential) role for synthetic data
- Resources and expertise for reviewing OSM outside of HTA process
- Timing / triggers, responsibility and funding for model updating
- Documentation and certification of updated model versions

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# Are open-source models really for health technology assessment and health policy?

November 7, 2022

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WWHEOR Markets - RoW

# Disclaimer

The view and opinions expressed as part of this presentation are those of the author and do not necessarily reflect the official policy or position of Bristol Myers Squibb.

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## What are the stakeholder's consideration about OSMs

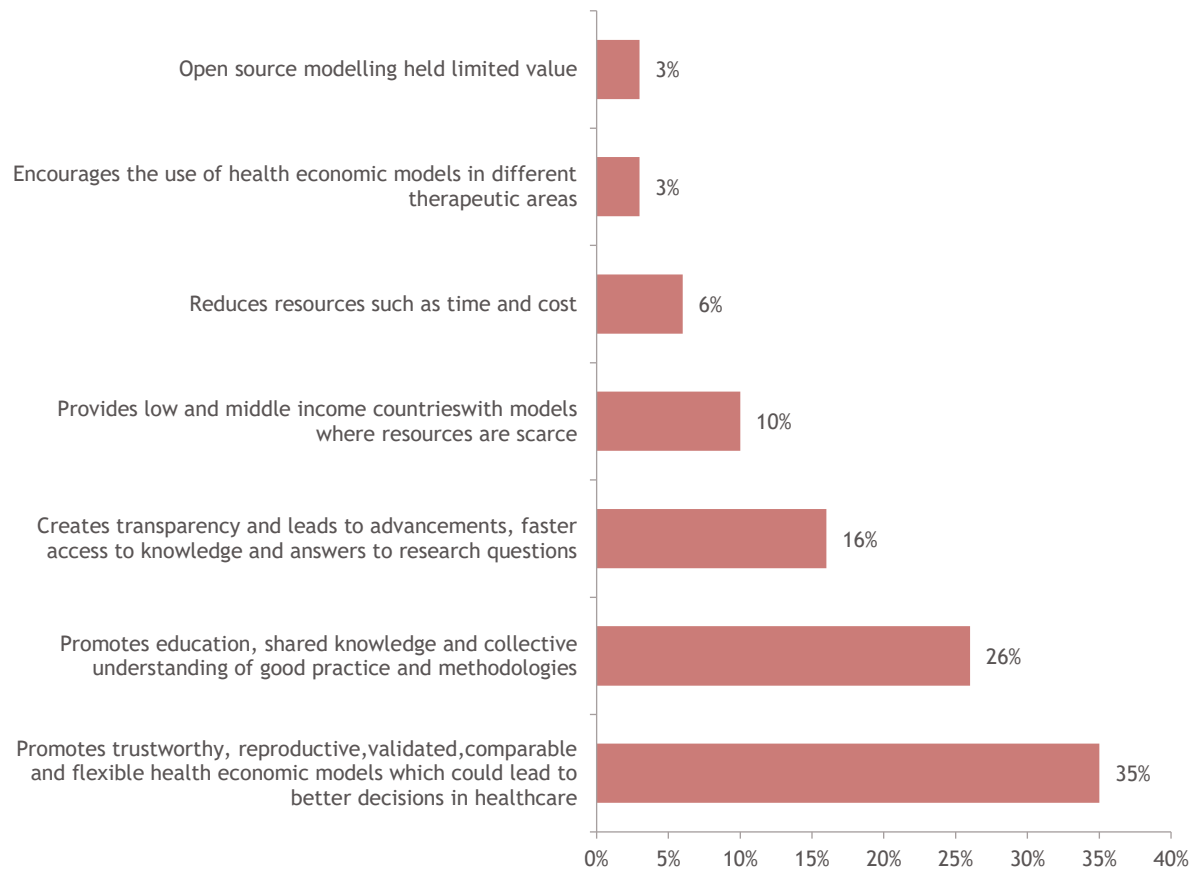
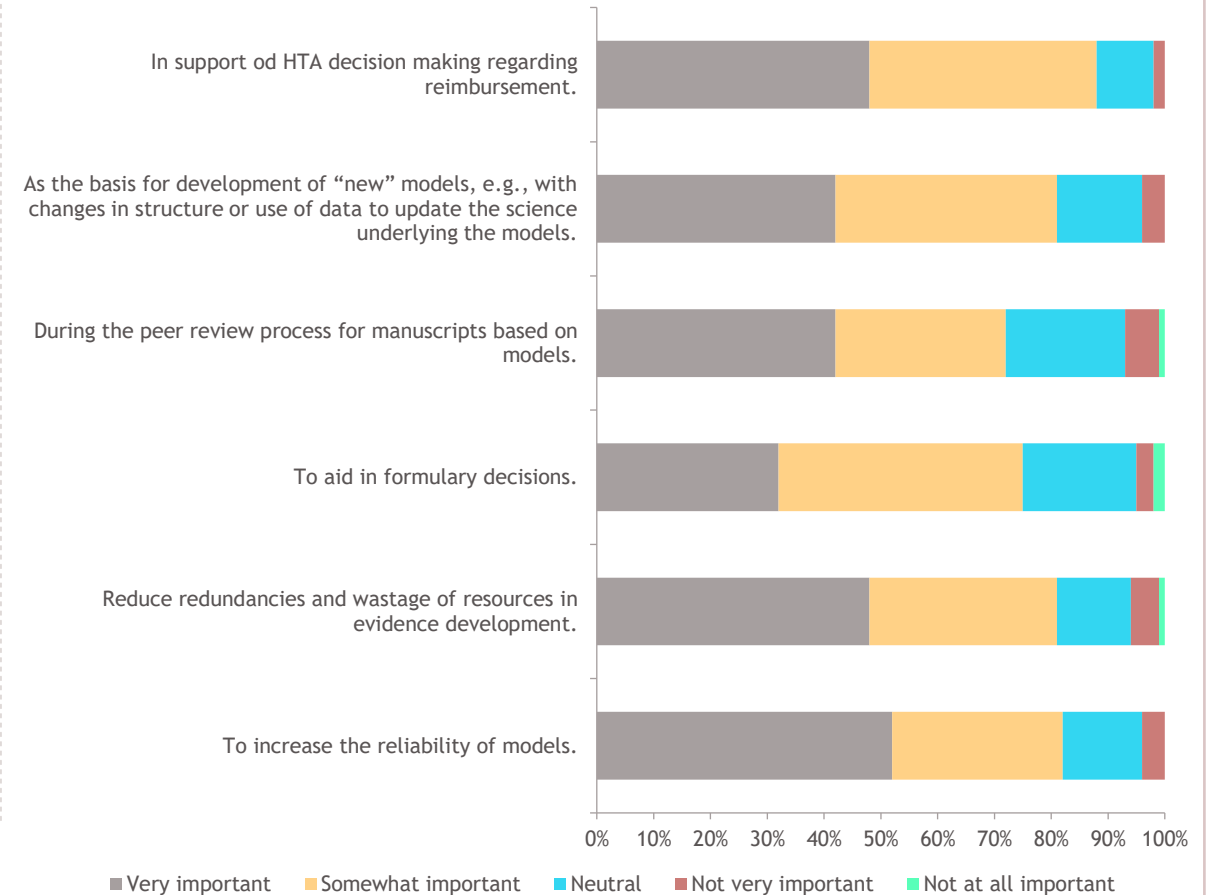


Fig. 2 Frequently mentioned benefits of open-source health economic models



Making health economic models available in an open format was considered beneficial by the different stakeholders independently of their purpose

## How important do you consider each of the following potential uses of OSMs?



# Are open-source models really for health technology assessment and health policy?



## Objectives for making models publicly available:

- **Efficiency:** Reduce redundancy in evidence development
- **Innovation:** Disseminating examples for new methodologies
- **Consistency:** Reusing *trusted* models in specific settings
- **Transparency:** External verification and Validation
  - Will decision makers / HTA go open-source as well?



## Conceptual/policy considerations:

- Corporate transparency and commercial sensitivity
- Documentation and certification of updated model versions
- Timing/triggers, responsibility and funding for model updating



## Technical/practical considerations:

- Languages employed in OSM are not the usually required by HTA
- Internal / External Capabilities
- Fit for purpose