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BACKGROUND

What are State Transition Models (STMs)?

A decision analytic modeling approach that allows the conceptualization of a problem based on distinct health states. These distinct health states represent unique events related to the problem and assist costs and health-related evaluation pertaining to those specific events.

What are Transition probabilities (TPs)?

TPs are central to the STMs which determine the movement of patients between the health states.

Evidence Gap

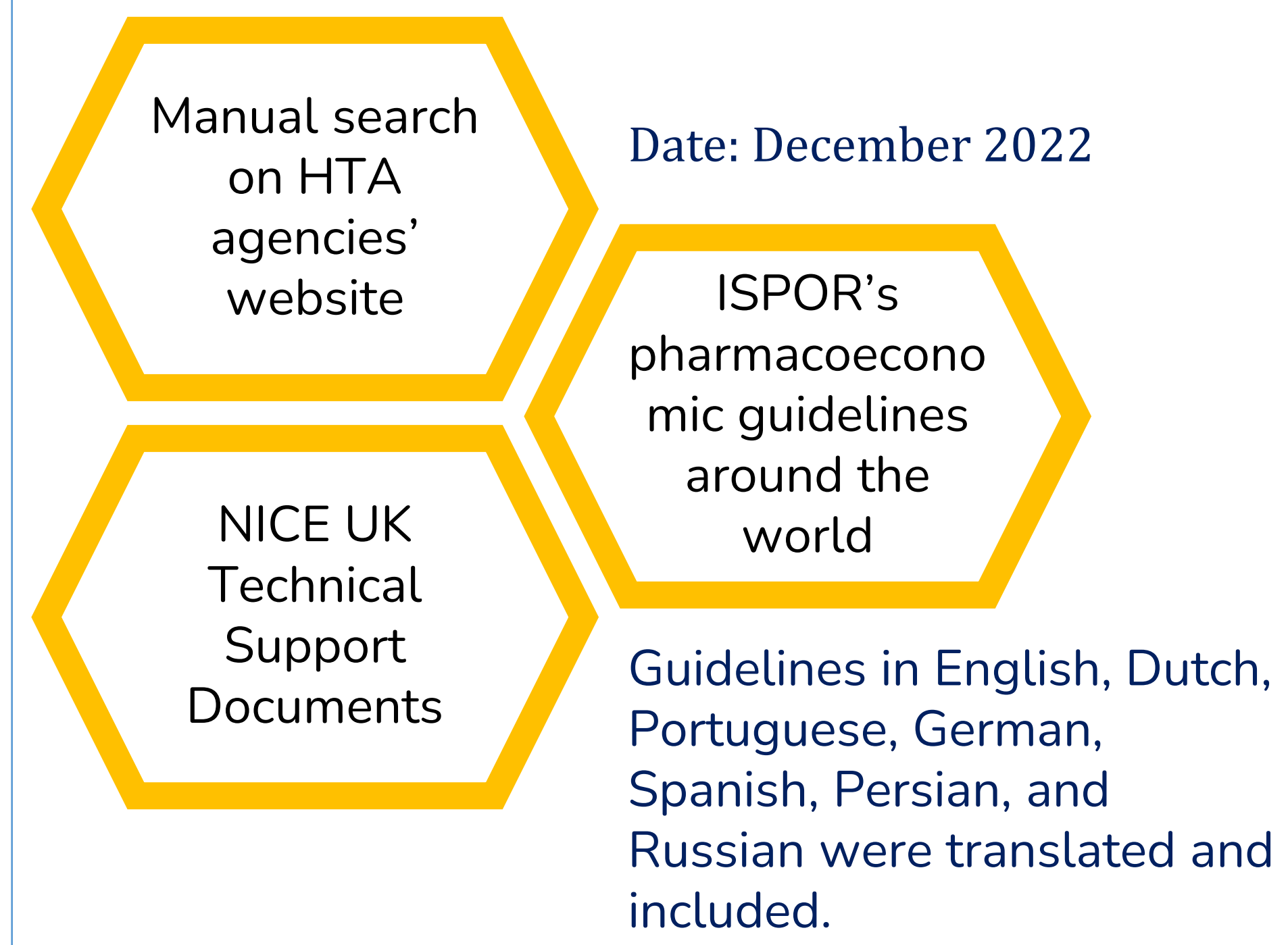
The strength of STM depends on the conceptualization of the health states and TPs. Thus, understanding the guidelines for estimating TPs globally are vital.

Study Aim

To identify and summarize the existing national Health Technology Assessment (HTA) guidelines around estimating TPs.

METHODS

A **targeted literature review** was conducted to study the national HTA guideline around TP estimation across the world:



National HTA guidelines around estimating TPs are currently **limited**, according to a review of 45 pharmacoeconomic guidelines across the world.

Most of the guidelines focus on the presentation and nature of TPs, with **little attention given to TP estimation methods in STMs**.

This study highlights **need for more detailed guidelines on TP estimation** in STMs to enhance economic evaluations and inform healthcare decision-making.

RESULTS

45 Pharmacoeconomic guidelines were identified

- TP estimation method recommendations:**
- TP should be presented e.g. in matrix form and described in detail
 - Should provide detail if TPs are constant or time-varying
 - Uncertainty around TPs should be presented
 - TPs and rates should not be confused and should be used appropriately
 - TPs should be derived from the most relevant data sources representative for the decision problem

20 TSDs from NICE Decision Support Unit were identified

- Challenges in TP estimation occurs:**
- when transitions come from multiple source of data
 - when it requires adjustment in cycle length as per the model requirement
 - when only partially observed data is present in the presence of "Markovian" assumption
 - in the presence non-RCT data
 - in the presence of aggregate data only
 - in the presence of selection bias in post-randomization health states
 - in time-dependent TP estimation

No formal detailed guidelines are provided by HTA agencies around the globe on TP estimation. There is a need for detailed consistent guidelines on TP estimation in STMs.

References:

1. Siebert U, Alagoz O, Bayoumi AM, et al. Value in Health. 2012;15(6):812-20.
2. Olariu E, Cadwell K, Hancock E, et al. ClinicoEconomics and Outcomes Research. 2017;537-46.
3. Srivastava T, Latimer NR, Tappenden P. Pharmacoeconomics. 2021;39(8):869-78.

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