

Appendix A

We will extract the following information from all eligible article. Each data item and a short explanation are given in a separate paragraph. We will also store information which identifies the study, which is: year of publication, authors, title, abstract, and publishing journal.

Modelling approach

We will extract the general approach the modellers used. This can be for example “Discrete Event Simulation” or “Markov Microsimulation”. This approach will be described in more detailed by the following items.

Entity level

This item will be used to describe whether an individual-based or a compartment-based approach is used, which means whether the model simulates each simulated patient individually or whether they are put into subgroups of the population, for example “infected” and “non-infected”.

Open cohort vs closed cohort

We will extract information on whether new individual can enter the cohort (open cohort) so that the simulated cohort stay at the same size or whether simulated patients who leave the cohort are not going to be replaced (closed cohort).

Interacting vs. non interacting population

We will extract information on whether the individuals in a model can interact in some form with each other or whether they are mostly independent from each other.

If they can interact with each other we will look whether a sexual contact network is used to describe this model and how this network is described.

Time handling

We will look at how time is simulated in a model. Does it proceed in slices of fixed length or does the model jump from one event to the next.

Data origin

We will look at the inputted cohort of the model. Is it based on a real life cohort or is generated hypothetical data used. If hypothetical data is used we will look at the origin for the authors’ assumptions.

Cohort Size

We will look at which part of the population is simulated in the model. Whether the model looks at the whole population or whether only a sub-group is regarded.

Time horizon

We will extract data on the time horizon of the model which can be useful to understand the purpose of the model.

Modelling software

We will extract the data on the modelling software which was used to set up the model. This could be either specialised modelling software or more general tools like spreadsheet tools.

List of included STIs

We will list all STIs which were examined in this model.

Interaction

We will extract data on whether the simulated STIs are modelled in parallel or whether they interact in some form. If possible we will describe how the interaction affects the STIs.

List of sequelae of STIs

Additionally to the STIs, we will look at (long-term and short-term) sequelae which are included in the model.

Interventions

We will look at the intervention which were simulated by the model and whether the model recommends the implementation of this intervention.

Economic component

We will extract information on the economic component of the model, if there is any. We will extract the type (or types) of analysis this model is able to perform.

Year in which the study has been conducted

As there might be some time difference between conducting a study and publishing it it is relevant to store the year in which the study actually has been conducted. If this year is not reported in the article we will assume that the study has been conducted in the year of the publication.

Input

We will collect all parameters which can be inputted by a user.

Country

We will extract information on the country (or countries) of the modelling study. The Region will be mapped to a high-, middle- or low-income region based on the World Bank definition of July 2017 [1], see also Table 1.

Average gross national income per capita	Group
<= \$ 1005	Low income
<= \$ 3995 AND > \$ 1006	Lower middle income
< \$ 12235 AND > \$ 3956	Upper middle income
>= \$ 12236	High income

Table 1 Mapping of average gross national income per capita to income group by World Bank definition

Output

We will collect all output parameters which can be calculated by a model.

Customisability

Based on the possibility to generalise a model we will try to extract information on the generalisability. This means whether the model can be used by other researcher for other research questions.

References

1. World Bank, *World Bank list of economies*, World Bank, Editor. 2017: Washington, D.C., United States.