

**2023 Harvard/University of Global Health Equity
Mathematical Modeling for Infectious Disease Planning**

Evaluating models – sanity checks

Time: 1 hour

At the end of the activity, you would have:

- i) applied the sanity checks introduced in the lecture to your models,
- ii) identified sources of error, if any, in your models.

1. Complete the table below based on the *current* state of your model. For each statement in the “Check” column, tick “True” if the statement is true of your model, “True-ish” if the statement is partly true and “False” if the statement is not true.

Check	True/False	Explain any “False” or “True-ish” determinations and clarify if steps are needed to resolve outstanding issues.
1. State variables have positive (or zero) and realistic values.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	
2. Time step and rate parameters have equal units.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	
3. Compartmental diagram reflects natural history and modeling assumptions.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	<i>In addition to your explanation, state the assumptions needed for the compartmental model to reflect natural history.</i>
4. Equations reflect compartmental diagram.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	

Commented [HB1]: Will need to be updated based on my feedback for slides.

5. Length of analysis period is realistic in relation to demographic rates.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	
6. Rates and parameter values are realistic.	<input type="checkbox"/> True <input type="checkbox"/> True-ish <input type="checkbox"/> False	<i>In addition to your explanation, identify a plausible range for your parameter values. (You may create another table below for the parameter ranges.)</i>