**Plan to validate COVID19 models for Mexico to Wuhan, China**

Plan suggested by: SC-COSMO team.

We suggest following existing literature for model validation.1–3

**Data needs with their corresponding sources:**

* We need date of first case (ideally, symptoms) and age of first case
* List of NPIs, date when they started these NPIs and some measures of effectiveness
* China demographics, population density
  + Urban population density
  + Rural population density
  + Or Urban area and rural area, fraction of population urban
* China population life tables
* Case series
* Death series
* Hospitalization series
* Testing series
* Positivity rate

**Implementation of external validation**

* Adapt models to Wuhan’s context
* Calibrate model to early epidemic (i.e., right before NPIs got implemented). Similar to Mexico, calibrate to right before March 20th
* External validation is to determine how close the model predicts the observed epidemic after NPIs got implemented (i.e., whether model uncertainty bounds including extrapolation uncertainty include the observed series and their uncertainties)

**Within Mexico validation**

* Predict hospitalizations and deaths, to evaluate uncertainty and transferability of using evidence from other sources not Mexican-specific

**References for model validation**

1. Eddy, D. M. *et al.* Model transparency and validation: A report of the ISPOR-SMDM modeling good research practices task force-7. *Med. Decis. Mak.* **32**, 733–743 (2012).

2. Goldhaber-Fiebert, J. D., Stout, N. K. & Goldie, S. J. Empirically evaluating decision-analytic models. *Value Heal.* **13**, 667–674 (2010).

3. Alarid-Escudero, F., Gulati, R. & Rutter, C. M. Validation of Microsimulation Models Used for Population Health Policy. in *Complex Systems and Population Health: A Primer* (eds. Apostolopoulos, Y., Lich, K. H. & Lemke, M. K.) 1–13 (Oxford University Press, 2019).