COVID-19 Modeling 101

Protecting Against COVID-19

Ohio Department of Health Director Amy Acton, M.D., MPH wants to ensure Ohioans are aware of modeling for COVID-19.

Why do We Model?

Models are never intended to serve as a crystal ball for exact disease progression. They are intended to analyze data and predict potential outcomes based on available information, similar to weather forecasts.

Epidemiologic models typically predict illness peak and an estimated date for that peak. They also consider the potential effect of non-pharmaceutical interventions like staying at home when sick, limiting mass gatherings, social distancing, and closures of schools and businesses.

Ideally, once a model is created, a community or government will take actions to flatten the epidemic curve—decreasing and stretching out the peak to not overwhelm the healthcare system and to afford time to better prepare for the impact of the disease. Sustained attention to these non-pharmaceutical interventions will prevent a second peak—where we appear to be recovering and then observe a secondary spike in cases and/or hospitalizations.

In Ohio, we have been closely evaluating a suite of models including those from The Ohio State University (OSU), Cleveland Clinic, MetroHealth, and the IHME national model. It's common to use multiple models—just like weather forecasting—to improve predictions. Different models take varying approaches using different assumptions and data parameters, but they can be helpful in examining disease progression from different angles.

An important note: When a model is acted upon, it may end up looking false because every action causes the model to shift. Models illustrate a range of possibilities and those shift with every action.

Why are Models Important?

Models show us the ***possible*** progression of a disease. They allow us to prepare a response. We plan for the worst and hope for the best. These predictions help us prepare for a surge in cases and ensure that our healthcare system isn't inundated when the number of cases increases rapidly. The more we flatten the modeled curve, the more likely we are to prevent hospitals from being overrun and ensure all Ohioans

are able to receive medical care whether it's for COVID-19 or any other emergency need. We know that if we lifted our orders now, loosened or stopped social distancing, and resumed a pre-pandemic life, we would see a surge in cases and hospitalizations. Already we see rapid spread in certain clusters that are popping up around the state.

Why are the Numbers so Variable from Model to Model?

Each model uses different assumptions and parameters to model.

The danger of relying on one model or one that is overly optimistic is that we don't want to be unprepared. As more data is entered, the model learns, becomes smarter and changes predictions to hopefully present a more refined projection.

What are We Doing to Make a Difference?

Again, models are designed to be a guide. They change based on how people act. Every action that we take impacts the trajectory of the curve. We need to focus on the parameters we can influence and do everything in our power to influence them.

For example, social distancing slows the spread of the disease. Contact tracing gives us the opportunity to identify carriers and known close contacts and quarantine as appropriate which also can slow the spread. If we can spread out infections, we can prevent hospitals from being flooded which will ensure that there are enough resources and the staff to care for the most critically ill.

Ohio has implemented many changes designed to flatten the pandemic curve. Some of the steps Ohio has taken include:

- Instituting aggressive infection control practices among healthcare providers.
- Encouraging contact tracing.
- Promoting telehealth services.
- Implementing restrictions on mass gatherings.
- Closing schools early including preK-12 and colleges and universities.
- Closing of non-essential businesses.
- Implementing social distancing measures.
- Directing PPE to those in critical need.
- Working closely with local health departments to identify and monitor cases and clusters when needed.

- Leveraging technology in creative ways to support small businesses while social distancing.
- Promoting appropriate hand hygiene and cough etiquette.

For additional information, visit coronavirus.ohio.gov.

For answers to your COVID-19 questions, call 1-833-4-ASK-ODH (1-833-427-5634).

If you or a loved one are experiencing anxiety related to the coronavirus pandemic, help is available. Call the Disaster Distress Helpline at 1-800-985-5990 (1-800-846-8517 TTY); connect with a trained counselor through the Ohio Crisis Text Line by texting the keyword "4HOPE" to 741 741; or call the Ohio Department of Mental Health and Addiction Services help line at 1-877-275-6364 to find resources in your community.

CORONAVIRUS DISEASE 2019 Ohio | Department of Health

Protect yourself and others from COVID-19 by taking these precautions.

PREVENTION

For additional information call **1-833-4-ASK-ODH** or visit **coronavirus.ohio.gov.**

STAY HOME

PRACTICE SOCIAL DISTANCING

GET ADEQUATE SLEEP AND EAT WELL-BALANCED MEALS

WASH HANDS OFTEN WITH WATER AND SOAP (20 SECONDS OR LONGER)

DRY HANDS WITH A CLEAN TOWEL ORAIR DRY YOUR HANDS

COVER YOUR MOUTH WITH A TISSUE OR SLEEVE WHEN COUGHING OR SNEEZING

AVOID TOUCHING YOUR EYES, NOSE, OR MOUTH WITH UNWASHED HANDS OR AFTER TOUCHING SURFACES

CLEAN AND DISINFECT "HIGH-TOUCH" SURFACES OFTEN

CALL BEFORE VISITING YOUR DOCTOR

PRACTICE GOOD HYGIENE HABITS

For more information, visit: coronavirus.ohio.gov