We empower leaders to make better decisions by simulating the human impact of the choices they face.



Part 1: Introduction to Epistemix and FRED Platform

- Introduction to the FRED software
- Background with event industry

Part 2: What the data says for the Erie County Fair

- Scenarios & Projections
- Implications & Using the data

Epistemix History

2004	MIDAS Program Launched
	Cooperative agreements wi
2007	Johns Hopkins program tra
2009	Center of Excellence award
	FRED platform developmer
2015	MIDAS Steering Committee
2018	Epistemix, Inc. founded by
	Licenses rights to FRED fro
2020	Epistemix begins modeling
2021	Working with government a

- through NIGMS
- ith Johns Hopkins, Emory, Los Alamos
- Insferred to University of Pittsburgh
- ed to University of Pittsburgh
- nt led by John Grefenstette
- e discussions of software translation / productization
- Pitt MIDAS PI Don Burke, John Grefenstette, and John Cordier
- m the University of Pittsburgh
- COVID-19 pandemic
- and industry to safely return to pre-pandemic activities



Informed by decades of work with groups like



World Health Organization



With funding from

BILL&MELINDA GATES foundation











Actionable insights for decision makers

Explore policies in combination to identify **how to safely open** as immunity increases to support planning for all stakeholders.





Return to Office

Return to School



Return to Events

We can hope for the best, or we can plot a path through.

Anticipate the range of possible scenarios of pandemic intensity and vaccination rollout in the US





CASE STUDY

FREEMAN



CONFERENC

Regulators, venues, and event organizers are using our data as currency to bring back the industry. We simulate the impact of having events on COVID-19 infections.

Exhibitions & Conferences



CASE STUDY

Orlando Convention Center

91-98% accurate
41 / 45 Infections
17 / 18 Infections
3818 / 3898 Total Tests





FREEMAN



EXHIBITI CONFERENCES ALLIANCE

We simulated the Iowa State, Washington State, and Erie County (NY) fairs to give fair organizers, health officials, and elected officials data on how to safely open events

CASE STUDY

State & County Fairs

How we modeled the Erie County Fair

- Calibrated the epidemic for Erie County and the surrounding counties within a 100 mile radius
- Assumed 100K people in attendance each day over Aug 11-22
- Applied distribution of how many days people attend the fair
- Ran the model across 240 scenarios of how the epidemic and vaccination roll-out might change leading up to the fair
- The level of immunity is based on the scenario-specific forecast of immunity of the population of Erie County and counties within a 100 mile radius

How to interpret the projections

- The projections in the following forecasts are scenario driven
- Each epidemic curve is associated with a single scenario
- The projections are stochastic simulations of the probable outcome of a given scenario
- Infections, hospitalizations, deaths, and recovered cases are tracked through the simulation
- Immunity is achieved through vaccinations and recovering from a previous infections
- All of the scenarios are shown some of the scenarios are already impossible events due to the number of vaccinated individuals to date in Erie County

COVID-19 Projections

PROJECTIONS CALIBRATION

Vaccine Efficacy Against New Strain:

☑ 50% ☑ 94%

Vaccine Immunity Timeline (years):

2 2 4

Susceptibility to Reinfection:

☑ 0% ☑ 5% ☑ 10%

Vaccine Hesitancy:

- Baseline
- ✓ 10% Increase
- ✓ 20% Increase
- 10% Decrease
- 20% Decrease

Distancing Protocols:

🗹 Current 🗹 Masks 🗹 Masks+ 🗹 Fully Open



Erie County, NY



COVID-19 Projections

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Erie County, NY

lte





What does this say about the safety of the fair?

- 80 of the possible scenarios showed 0 infections
- 175 of the possible scenarios showed less than 20 exposures
- 191 of the possible scenarios showed less than 20 exposures with masks on
 - Only 50% of exposures result in a symptomatic case
- The immunity of the population ranged from 40-96%
 - Only in scenarios with high vaccine hesitancy is immunity less than 70%

How is this information being used?

- Supporting how to open safely
- Communications with public health and elected officials
- Providing assurance to attendees and exhibitors
- Guidance on when to lessen restrictions
- Risk management for organizers



Please get in touch with additional questions.

Thank you