

The logo for Carnegie Mellon University, featuring the text "Carnegie Mellon University" in a white serif font. The text is positioned on a dark blue background with a grid of colorful lines (red, green, yellow, and blue) that create a sense of depth and movement.

**Carnegie
Mellon
University**

Risk-Based Decision Support Tools April 1, 2021

Recap: Project Goals

Create **data-driven decision support tools** to provide an **additional input** into the decisions being made to safely reopen the PA economy and achieve the following policy goals:

- **Minimize the diffusion** of COVID-19
- **Maximize return to work** and revitalize the economy
- **Limit long-term economic impact** of COVID-19 & the shut down
- **Achieve equitable outcomes** for vulnerable residents

Our Vision: Suite of Data-driven Decision Support Tools

Inputs: Data & Priorities

Current version primarily relies on Public Data from Census, BLS, BEA, and DOH

(Future Versions will hopefully use data from) State Agencies: UI Claims, Wage Records, Revenue, SNAP, TANF, Medicaid, Revenue, DCED, Health

Health and Human Services Forecasts/Models from Partners (Pitt, Penn, and other partners)

State Priorities & Policy Goals

Decisions we plan to inform

Which industries can safely open, in which counties, and under what conditions?

What will be the health risks and economic impact associated with opening an industry?

Which industries can re-engineer workflows?

What impact will this have on vulnerable workers & businesses?

Outputs we seek

Health and Economic Monitoring Dashboard

Health Risks

Economic Impact

Impact on Equity

Evaluating the Impact of policy interventions

Risk-Based Approach

We take a wide variety of risks associated with re-opening a set of industries in a county or region. In addition to what we show in this presentation using public data, we are exploring and developing additional ones including:

- Face-to-Face Contact Risk (in workplaces)
- Nursing Home Spread Risk
- Customer Contact risk
- Supply Chain Risk
- Business Resilience risk
- Unemployment Risk
- Social Service Benefits Risk
- Equity Risk

How we intend the current risk indices to be used

- The current version primarily relies on public data sources to generate risk indices along a variety of dimensions
- The scores and risk indices do not correspond to “open” or “not open” recommendations
- These indices are provided to the State as one of many inputs they consider in making decisions affecting the “Process to Reopen Pennsylvania”

Risk Indices

COVID Case Risk: # of reported COVID-19 cases / population of area

Commute Risk: Additional # of infected workers commuting from neighboring counties / Total # of workers in the county

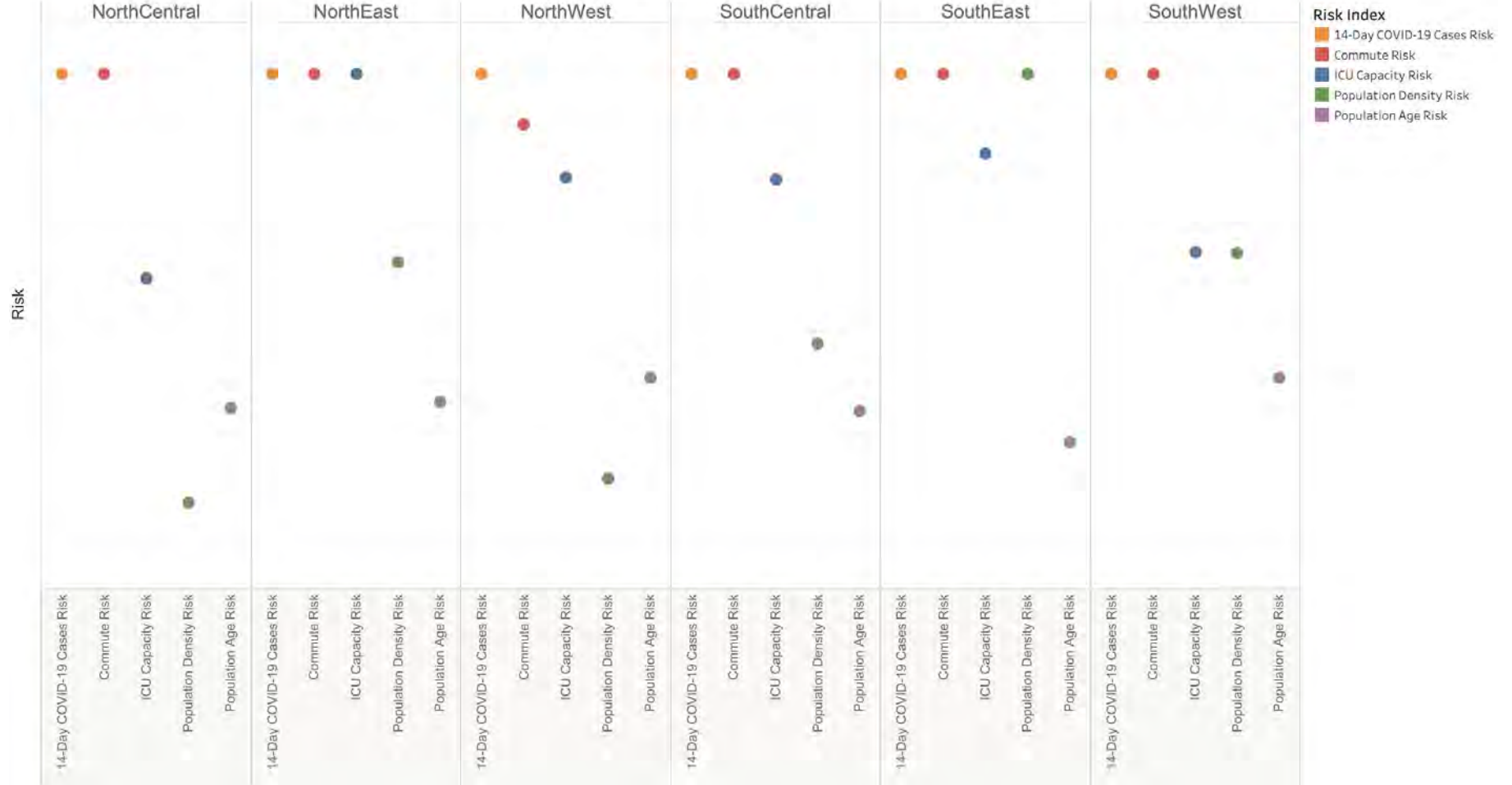
ICU Capacity Risk: # of 60+ year olds in area / # of unoccupied ICU Beds

Population Density Risk: Population of Region / Area of Region

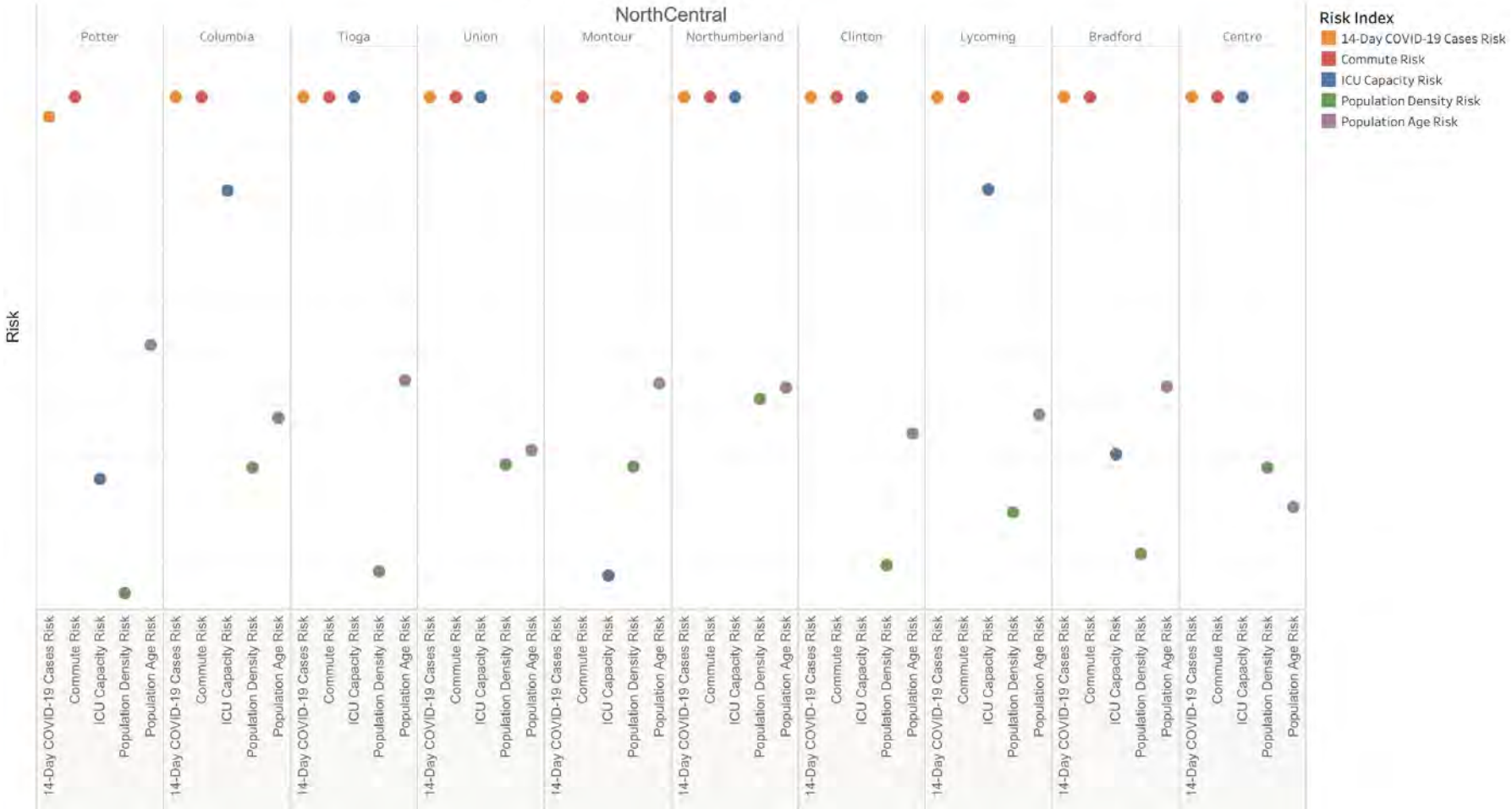
Population Age Risk: % of population in area > 60 yr old

Re-Opening Contact Risk: % of workers in an area employed in currently “physically closed” industry sectors

Region Risk Indices



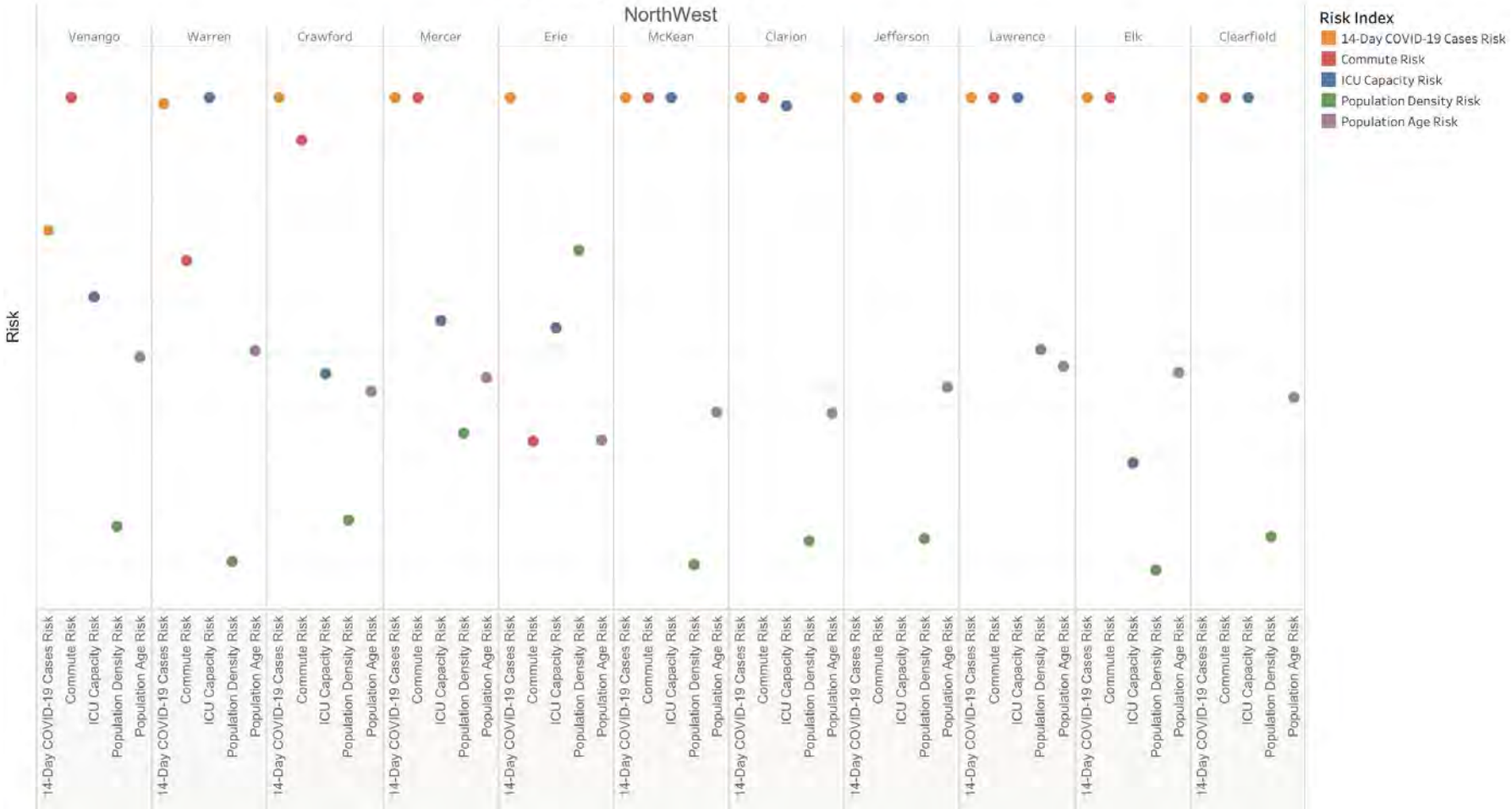
County Risk Indices



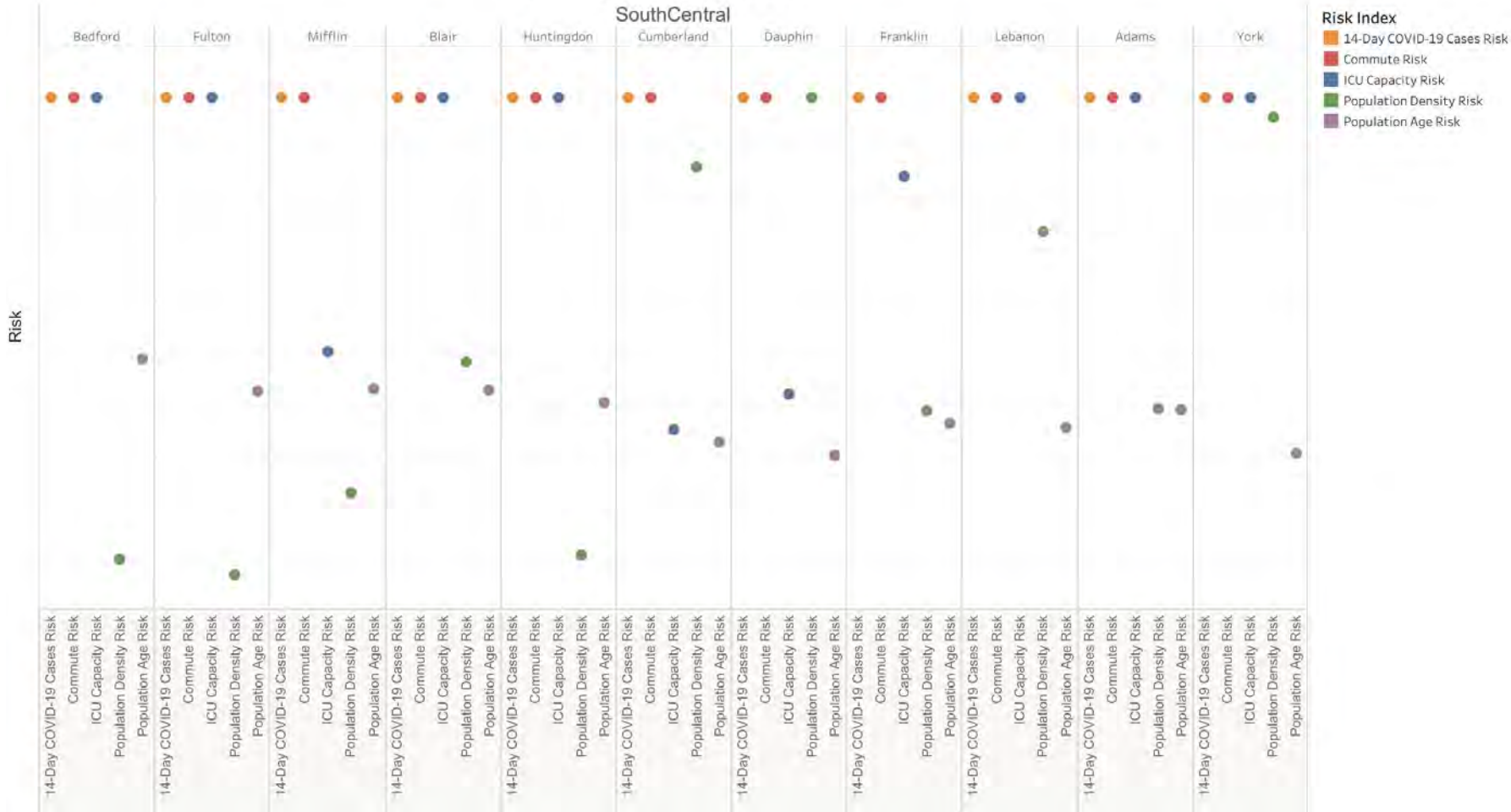
County Risk Indices



County Risk Indices



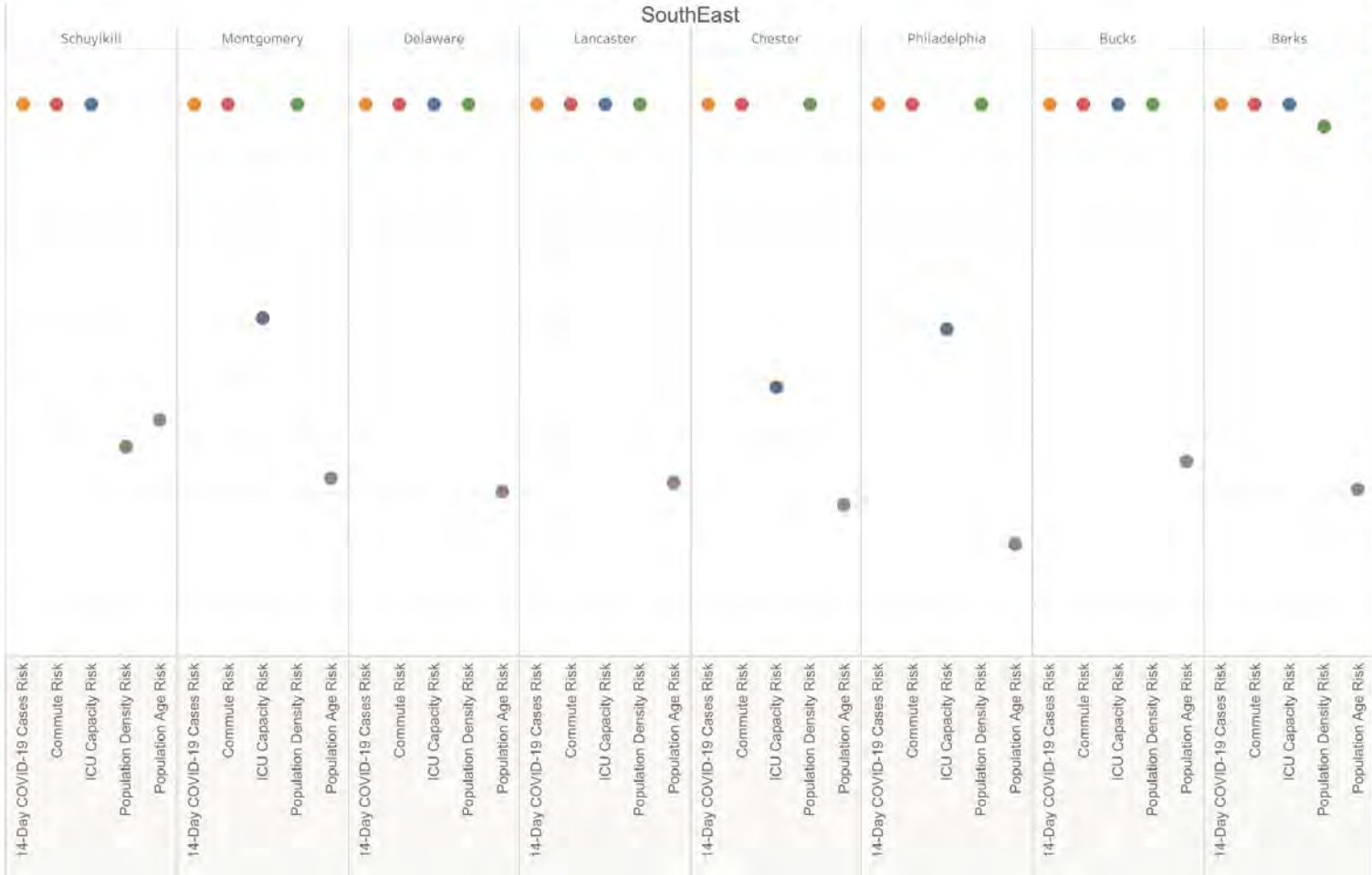
County Risk Indices



County Risk Indices

SouthEast

Risk



Risk Index

- 14-Day COVID-19 Cases Risk
- Commute Risk
- ICU Capacity Risk
- Population Density Risk
- Population Age Risk

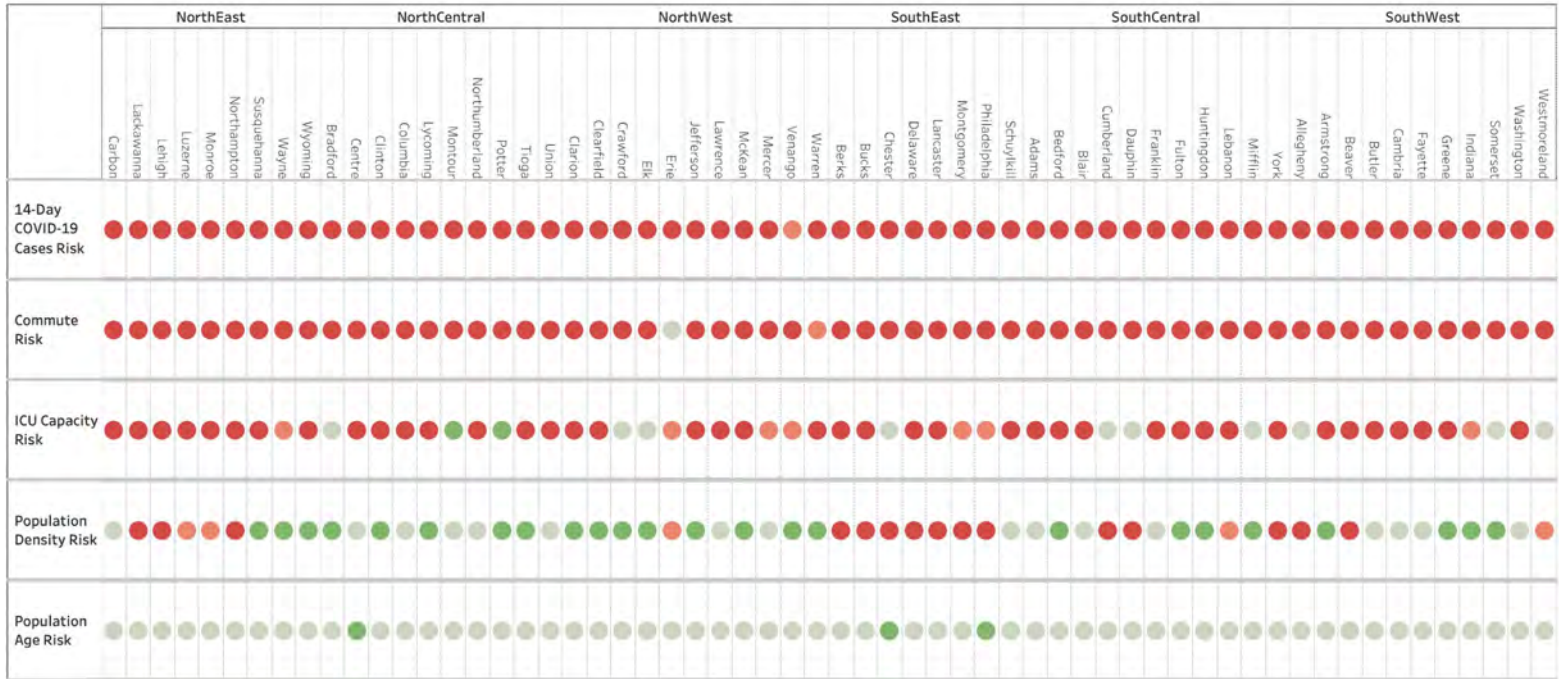
County Risk Indices

SouthWest

Risk



County Scorecard



How we intend these risk indices to be used

- The risk indices and colors are relative risks and do not correspond to “open” or “not open” recommendations
- These indices are provided to the State as one of many inputs they consider in making decisions affecting the “Process to Reopen Pennsylvania”