

# Pandemic Preparedness: Enhancing Readiness to Respond to and Manage Infectious Disease Outbreaks

Workshop: Addressing Pandemics through Population Health-based Approaches

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# Overview

- Framework for decision making, policy and intervention as part of a pandemic response
- Example of Connecticut during its COVID-19 surge
- Workshop questions, breakout session and discussion

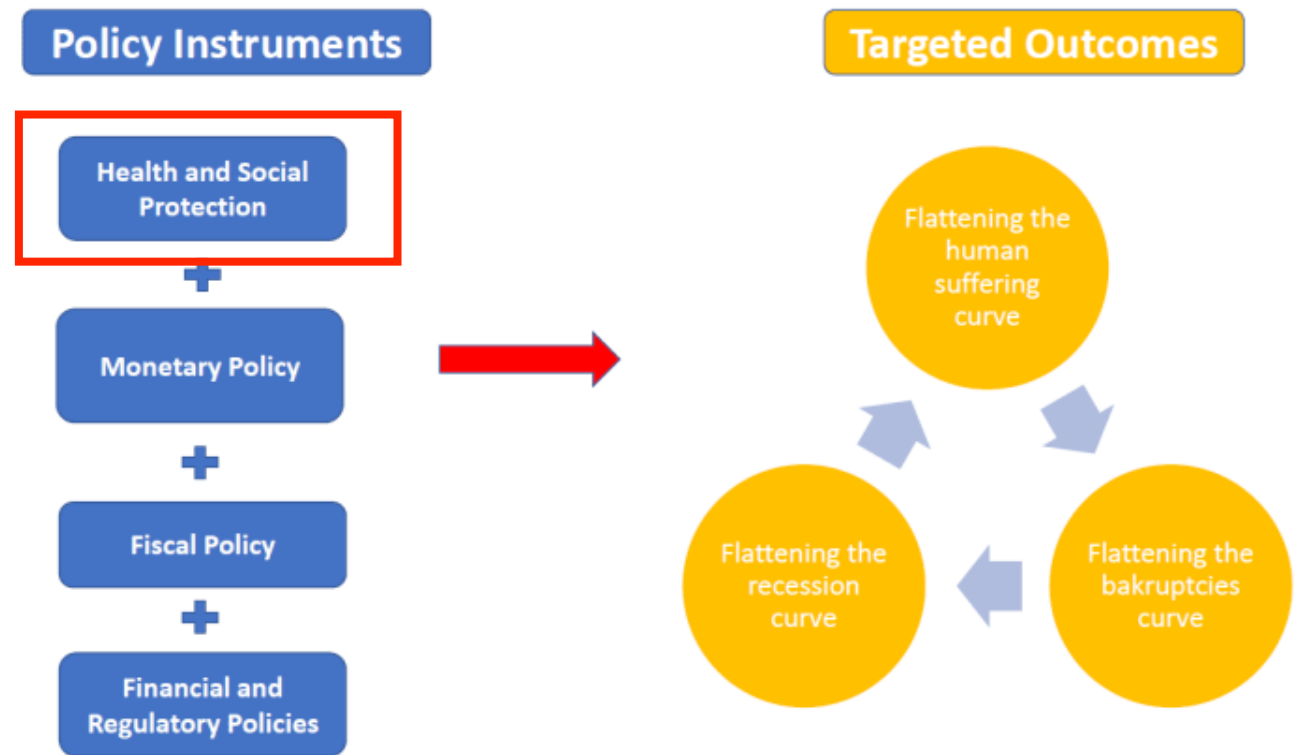
## Key steps for decision making and intervention during a pandemic response

- Framework for governance and policy making
- Guiding principles and clear goals
- Generation of timely and effective evidence (actionable data) to inform policy
- Policy implementation
- Generation of timely and effective evidence (metrics and thresholds) to monitor policy implementation and effectiveness

# What policy framework do you inform with data and evidence?

- *Lack of timely, compelling evidence has led to worse decisions, Marc Lipsitch*
- A policy framework for mitigating the economic impact of COVID-19, Brookings Institute, 20/4/20
  - *Pandemics depress the economy, public health interventions do not: Evidence from 1918 Flu.*
  - “While pandemics have large short-term costs, NPI can lead to both better economic outcomes and lower mortality rates”
- Four sets of policy instruments
  - Do not be bound by convention
  - Pay special attention to sequencing
  - Distinguish between the terms of the trade-offs.
- Challenges to translating evidence to policy
  - Governance
  - Integration of evidence across disparate fields
  - Complex interactions
  - Validity as the pandemic evolved

## A Policy Framework for Mitigating the Impact of the COVID-19 Crisis



<https://www.brookings.edu/blog/future-development/2020/04/20/a-policy-framework-for-mitigating-the-economic-impact-of-covid-19/>

[https://papers.ssrn.com/sol3/Papers.cfm?abstract\\_id=3561560](https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3561560)

# Processes for policy during the COVID-19 pandemic

- Criteria for policy analysis
  - Public health impact
  - Feasibility
  - Economic and budgetary impacts
- Constraints to translating evidence to policy
  - Initial thinking is often resource or experience constrained
  - Convening the right people
  - Identifying the right question that is amenable to being informed by evidence (actionable data)
  - Time scale of decision making
  - Knowledge gaps and uncertainty, especially on feasibility and ability to enforce
  - Communicating risk and uncertainty



# Public Health Interventions for COVID-19

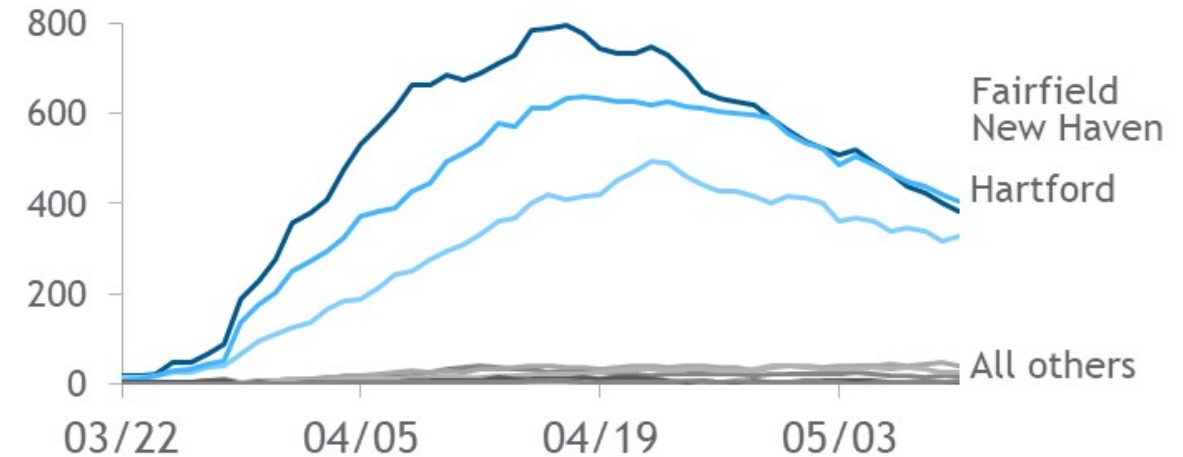
## Non-Pharmaceutical Interventions

- Decreasing contact rates (physical and social distancing)
  - Travel restrictions
  - Decreasing gathering size
  - School and work closure
  - Lockdown
- Barrier approaches
  - Facemasks
- Source reduction (individual level)
  - Hand hygiene, disinfection
  - Ventilation and outdoors
- Source reduction (population level)
  - Testing symptomatic individuals and isolation
  - Contact tracing of index cases and quarantine
  - Screening of high risk asymptomatic populations
- Medical Countermeasures
  - Therapeutics (steroids, remdesivir, supportive care)
  - Vaccines

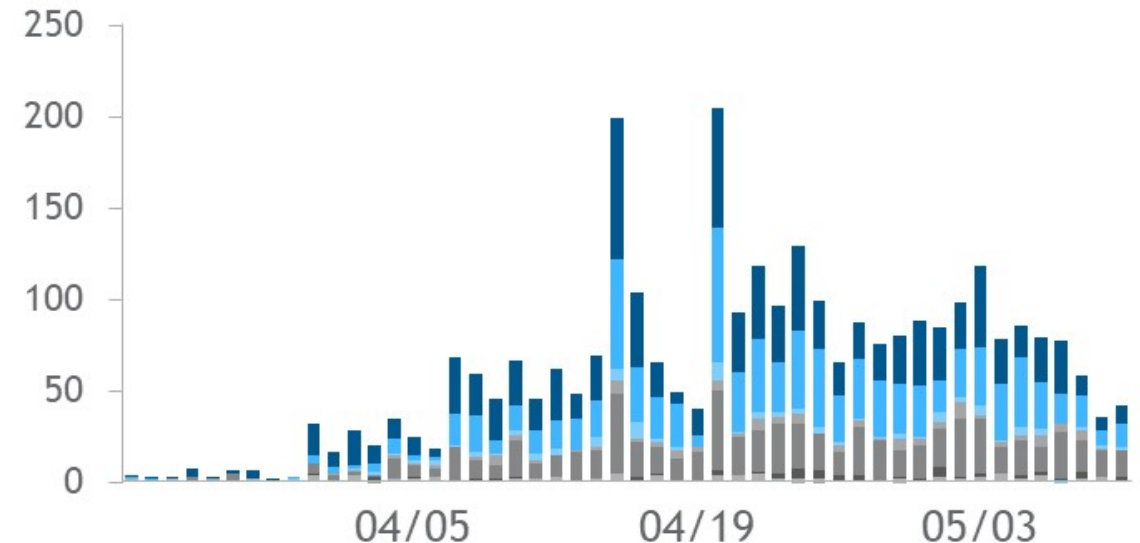
# COVID-19 in Connecticut, 03/2020

- CT: 3.6m inhabitants
- March 8: 1<sup>st</sup> confirmed case in CT
- March 10: PH emergency
- March 13-18: Stay home, stay safe
  - Restriction on NH visits
  - Travel and meeting restrictions
  - Schools closure
- April 13: Governor convenes the Reopen Connecticut Advisory Group
  - 13,381 cases
  - 602 deaths

Confirmed COVID-19 hospital census by county (daily)



Confirmed new COVID-19 deaths by county (daily)



Note: Data as of 5/10/2020

Source: CT Department of Public Health COVID-19 Updates

# Guiding principles in the Connecticut's COVID-19 response and plan to reopen the economy

- Science-driven to ensure safety while reopening
- Protect our citizens who are at the highest risk
- Ensure our healthcare system is ready to handle the needs of patients (both with and without COVID-19)
- Minimize the harm to our economy, speed up recovery and restore Connecticut's quality of life, while protecting public health
- We will be fully equipped to respond to future crises, as infection rates may rebound



# Initial priorities for phase 1 reopening

Disease conditions	1	COVID-19 related hospitalizations have a sustained decline during a 14 day period
	2	Execute widespread and streamlined testing of our people
Virus management (testing & tracing)	3	Establish sufficient capacity for contact tracing and isolation
	4	Implement a high touch program to protect persons and populations that are at higher risk for severe illness and death from COVID-19
Healthcare capacity & supplies	5	Ensure our hospitals are able to provide optimal standard of care to all patients, including those without COVID-19, as prior to the surge
	6	Guarantee appropriate PPE is available to everyone who needs it
"New Normal"	7	Implement protocols to ensure appropriate safeguards are in place for safe opening of each sector of our economy

# The State will support phased reopening with progressively increased and widespread testing



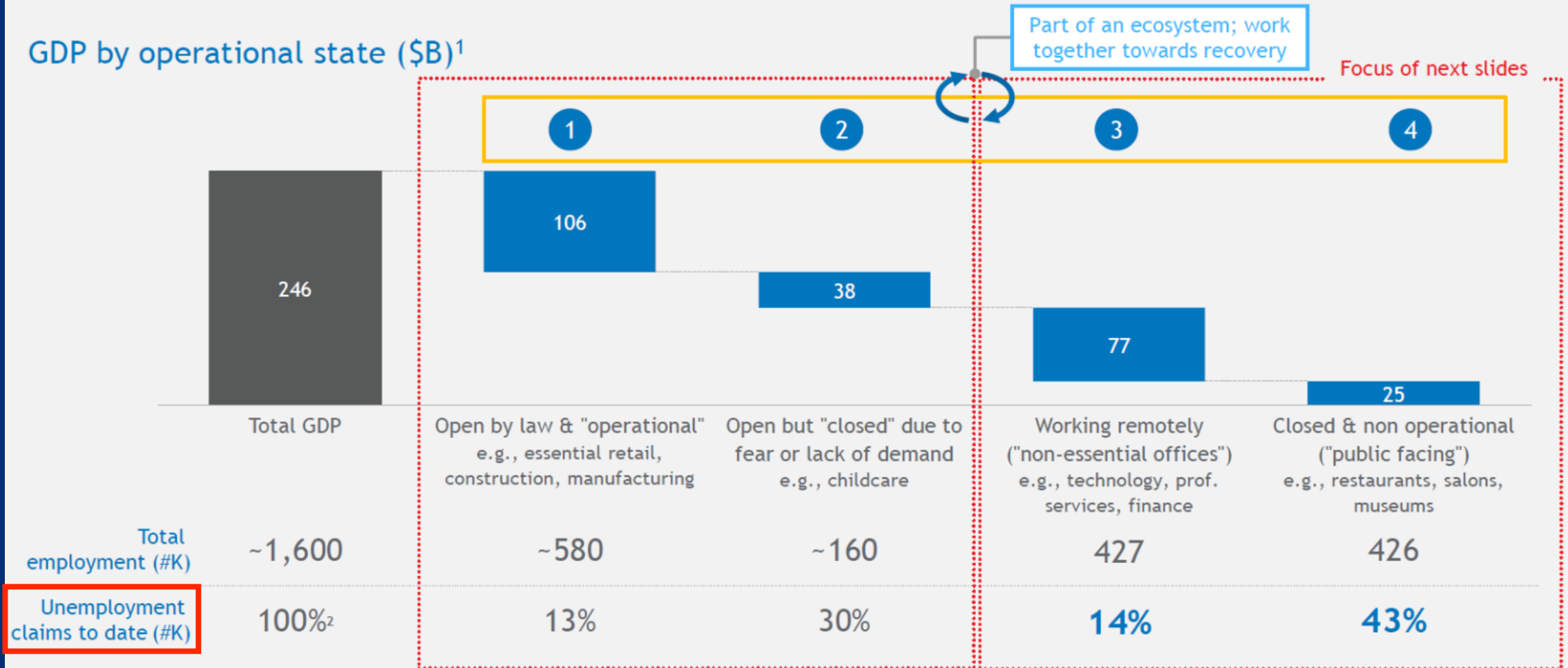
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# Selecting economic sectors for reopening

## Prioritizing social protection and unemployment claims as the metric

GDP by operational state (\$B)<sup>1</sup>



1. Based on 2018 GDP from BEA; 2. Based on unemployment claims processed by May 18, 2020  
Source: BEA, DOL, US Census Bureau

# Each sector received a health risk score based on 2 dimensions

Adapted based on guidance from JHU School of Public Health



\* Where possible; not available for all categories

Source: Johns Hopkins Bloomberg School of Public Health, St. Louis Fed

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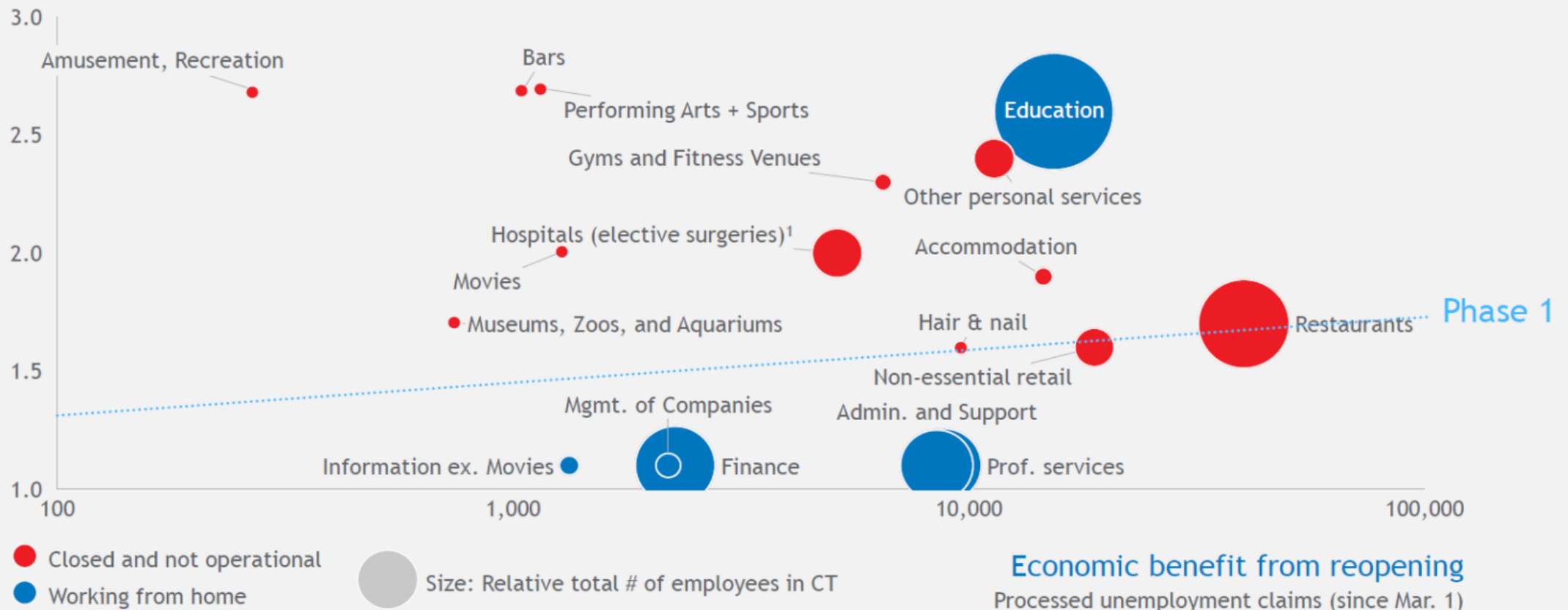


# Public health risk and economic benefit vary significantly by sector

Framework to think about what we will open and when

## Public health risk from reopening

Based on contact intensity and modification protocol



1. Includes all unemployment claims & employees for hospitals across CT (does not account for current operations as mostly related to COVID-19)  
Source: CT DOL, St. Louis Fed, JHU School of Public Health


# Reopening criteria for Phase 1 (May 20) have been satisfied

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**1. Sustained decline of hospitalizations**  
Decline over a 14 day period without evidence of a regional outbreak  
Decline since 4/22/20  
55% below peak
- 

**2. Widespread PCR testing**  
42K tests administered per week with <48 hours turnaround time  
45k tests in last 7 days
- 

**3. Sufficient contact tracing capacity**  
Contact tracing system (ContaCT) operational  
ContaCT is live and operational  
LHDs are piloting ContaCT
- 

**4. Protections for the most at risk**  
Testing and screening of key workers and high-risk populations initiated  
Over 10,000 tests distributed to target populations
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**5. Healthcare capacity to provide optimal care**  
<20% of beds occupied by COVID-19 amongst total bed capacity at peak  
~15% of beds with COVID related patients
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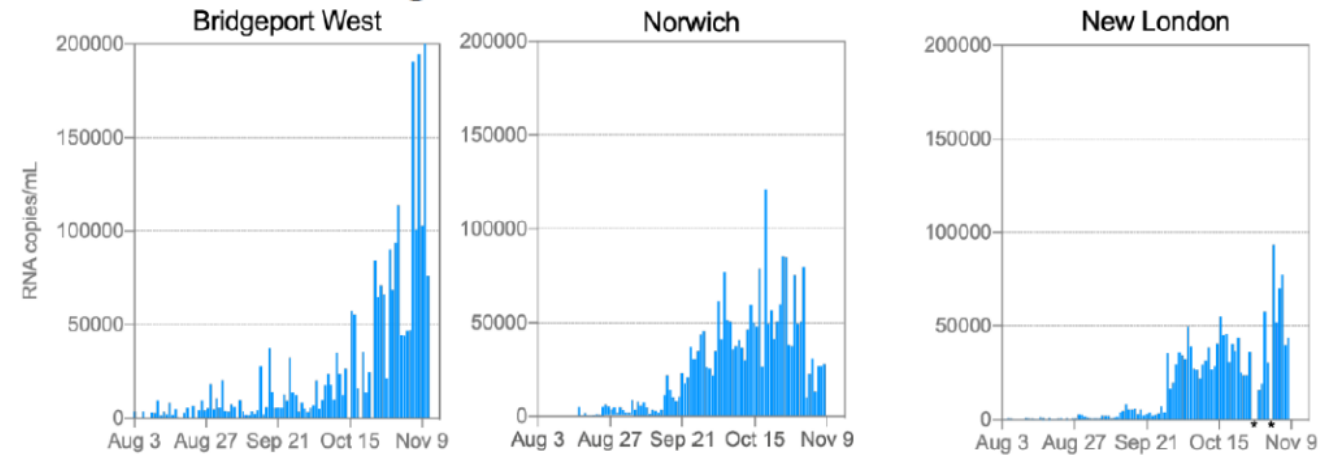
**6. Adequate supply of PPE**  
30 days of PPE supplies in major healthcare systems  
State stockpile in warehouse for ~60 days of supply
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**7. Safeguards to protect the workplace**  
Rules and regulations disseminated and adopted prior to Phase 1 reopening  
Detailed guidelines published for each business sector

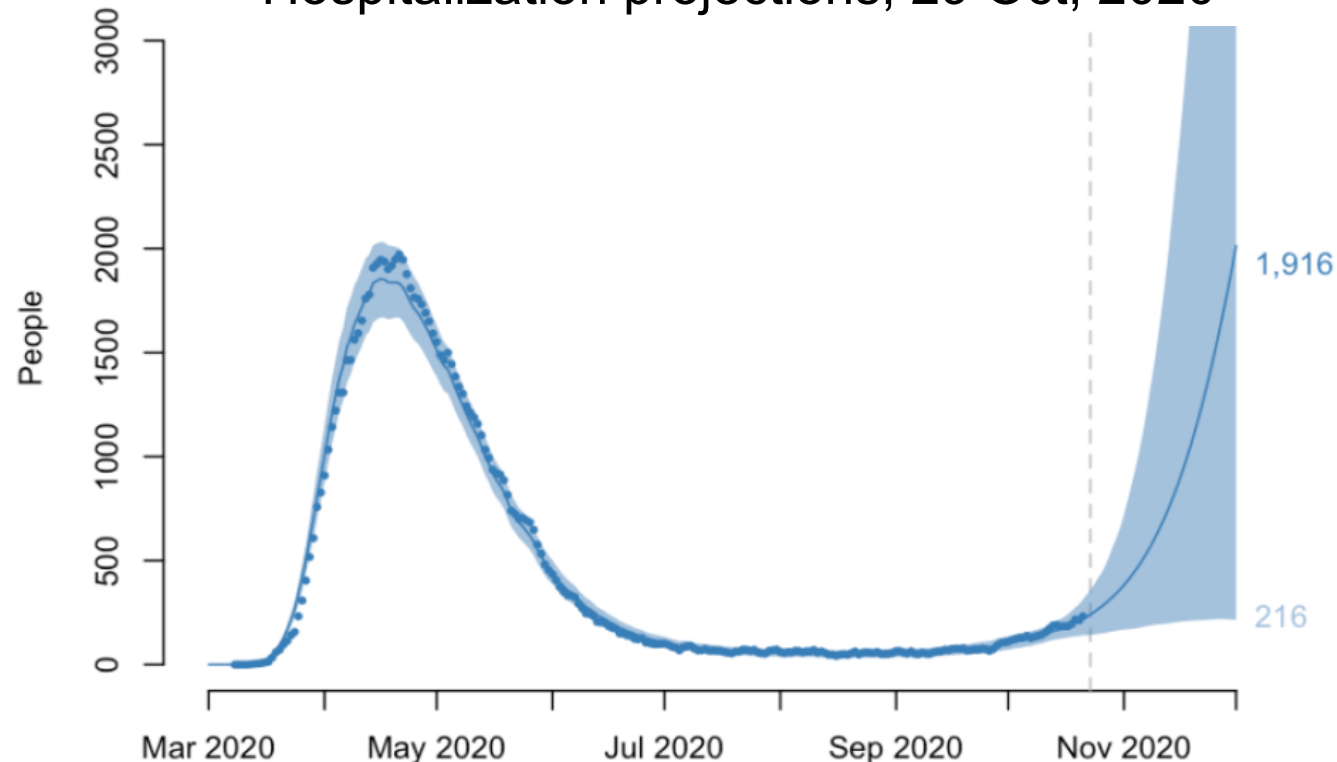
# Mitigating a 2<sup>nd</sup> COVID-19 Surge in Connecticut

- Surveillance established with leading indicators as metrics
- Increased testing capacity from 1.6k to 600k per month between 04/20-09/20
- Implemented sentinel wastewater surveillance at 8 sites
- Established thresholds (15 per 100k pop) linked with recommendations for municipal level implementation of NPIs

Wastewater surveillance, 13 Nov, 2020

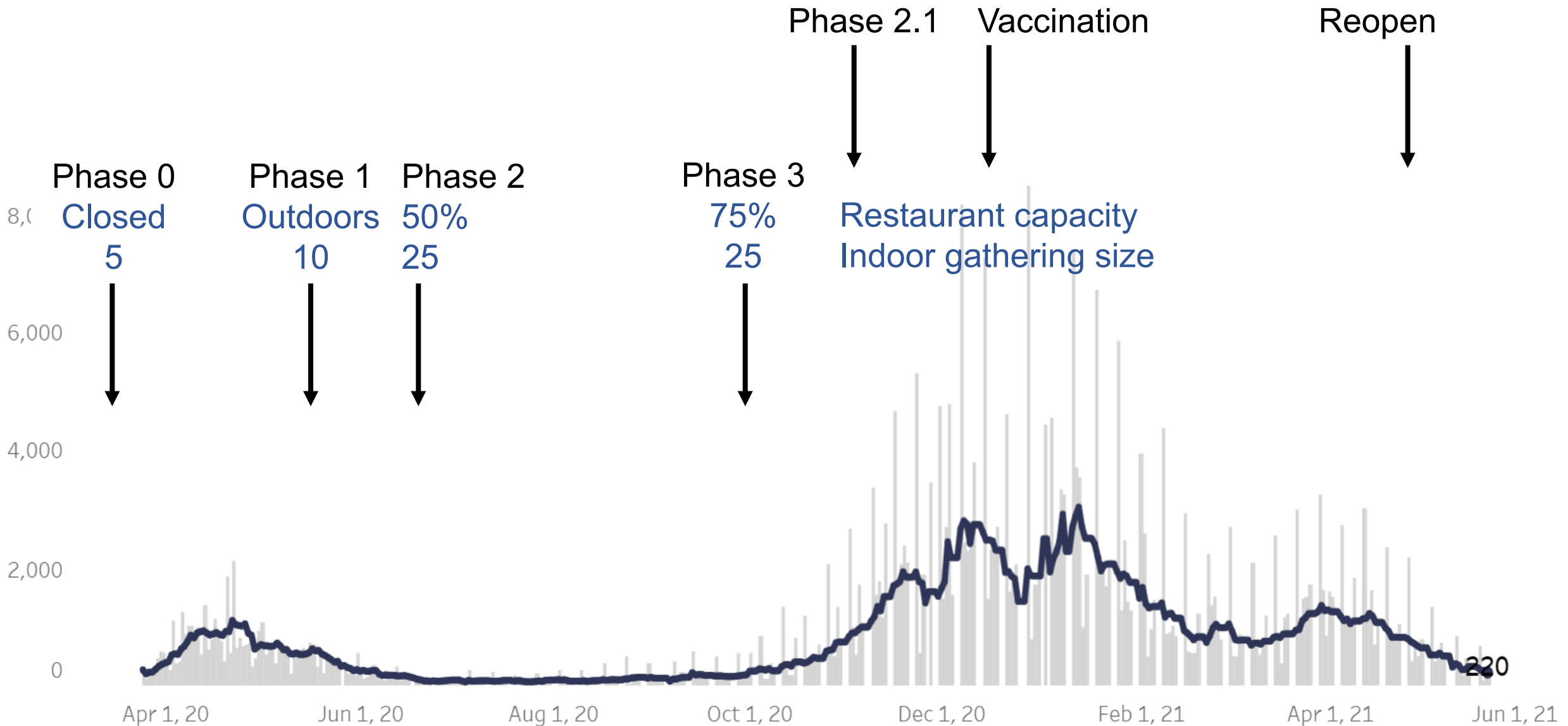


Hospitalization projections, 29 Oct, 2020





# Calibrating Policy with COVID-19 Transmission



# Summary: Translating evidence to policy during CT COVID-19 response

- Evidence can lead to effective policy when provided in timeframes and scales for decision making and implementation
- Perfection is often the enemy of the good in the process. But the lack of translating evidence is a lost opportunity to learn and respond effectively (eg health inequities).
- Requires multi-disciplinary expertise from difference sectors and leadership
- There are continued critical evidence gaps in implementation, including feasibility, acceptability and public health communication
- Assertion: Governance is the key determinant for effective translation of evidence by establishing the policy framework and identifying priorities.

# Small Group Discussion Questions

- What metrics do your countries use to drive policy decision making for COVID-19 response in your country, why were these metrics chosen, and how is surveillance designed to measure these metrics during pandemic
- What are public health interventions that comprise the COVID-19 response policy in your country and what triggers or thresholds are used to phase in or phases out these interventions during the evolution of the pandemic.