COVID-19
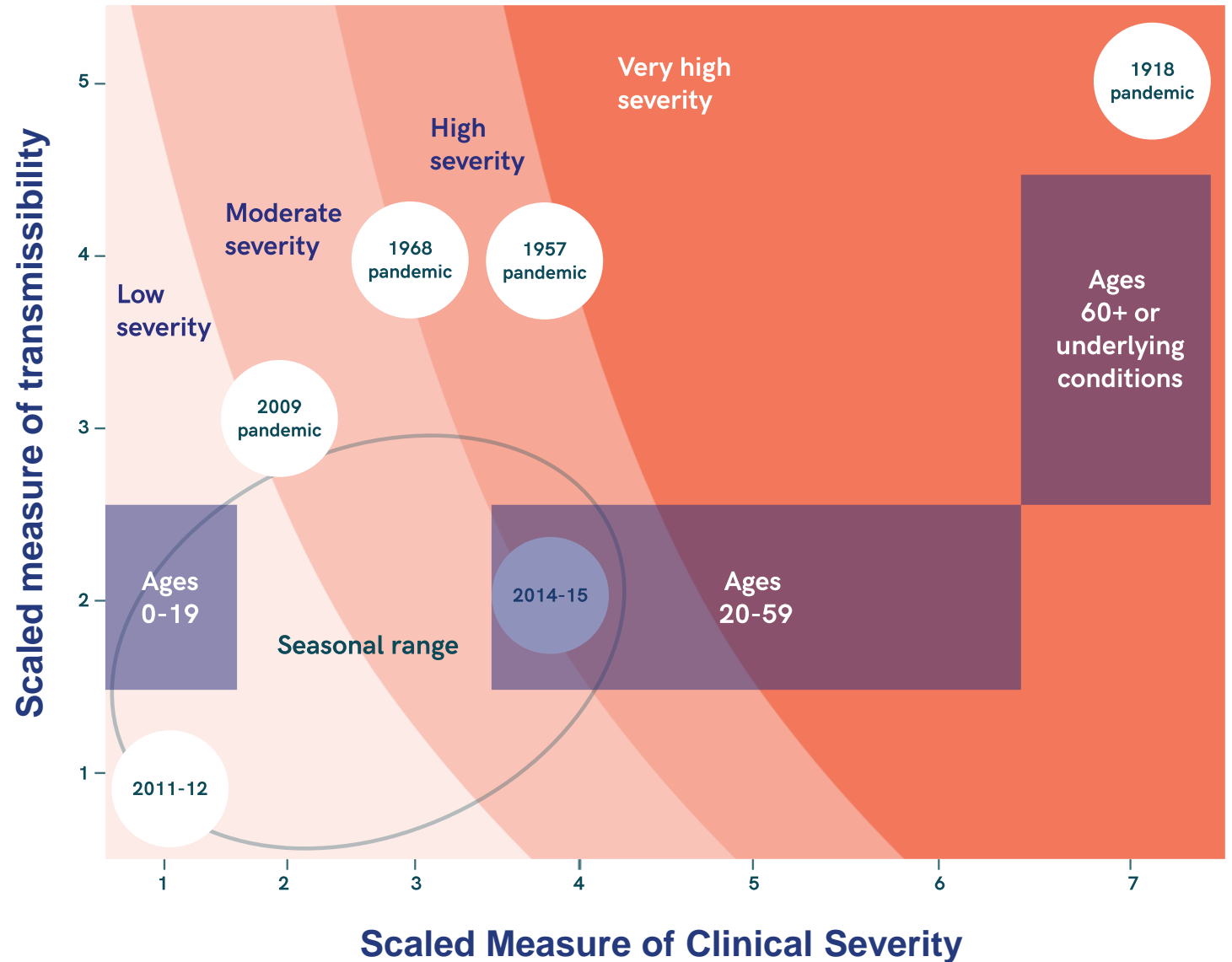
DR. TOM FRIEDEN | APRIL 3, 2020

COVID-19 is more severe for older people and those with underlying health conditions

Likely severity of COVID-19, based on what is known about spread and severity compared to historic seasonal and pandemic influenza

COVID-Pandemic Severity Assessment Framework by Age

Scaled measure of transmissibility

Low severity

Moderate severity

High severity

Very high severity

1918 pandemic

1968 pandemic

1957 pandemic

2009 pandemic

Ages 60+ or underlying conditions

2014-15

Ages 0-19

Seasonal range

Ages 20-59

2011-12

Scaled Measure of Clinical Severity

Adapted from Reed et al. Emerg Infect Dis. 2013;19:85-91. Data as of March 9, 2020.

Adaptive Response

Cases over time

Coordinated Response
- Emergency management system with empowered incident managers
- Daily briefings with accurate and timely information from credible spokespeople
- Data-driven response with clear objectives and ongoing monitoring of performance

Disease control
- Early detection (lab testing, alert clinical systems) and case isolation (home, hospital, other facilities)
- Aggressive testing | Aggressive testing
- Contact tracing | Contact tracing
- Health care infection prevention and control
- Appropriate clinical care including staff surge when needed

Non-Pharmaceutical Interventions (NPIs)
- Ongoing monitoring of triggers to tighten and loosen NPI implementation
- Community engagement with clear communication, assessment of community acceptance leading to adjustment of approach
- Everyday personal NPIs (wash hands, cover coughs, stay home if ill)
- Environmental NPIs (clean surfaces, increase ventilation)
- Personal NPIs (household quarantine, mask in community if ill)
- Community NPIs (high-risk group social distancing and closing schools)
- Community NPIs (general social distancing (SD) and closing schools (CS))
- Community NPIs (general SD and CS)
- Community NPIs (general SD and CS)

Supporting society
- Address ongoing health care needs including supply chain management and increased telemedicine
- Support continued social and economic activity including learning, emergency services, essential activities
- Protect vulnerable populations

Pharmaceutical interventions
- Treatments
- Vaccines

Version 3, 30 March 2020

Containment   Mitigation   Suppression   **Prevention**
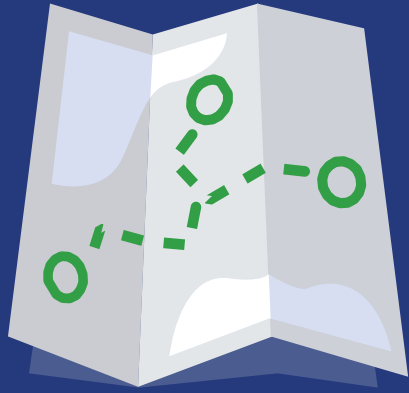
Surveillance

Who
Where
When?

Identify and test suspected cases

Trace and test contacts

Monitor linked and unlinked chains of transmission

Test SARI cases and cases from influenza sentinel surveillance system

Monitor influenza-like illness in syndromic surveillance

Monitor healthcare worker infections

Monitor for exposure at mass gatherings and long-term care facilities

TWO Reasons for Sheltering-in-Place

1

Flatten the Curve

So health care facilities
are not overwhelmed,
especially with patients
who need intensive care
for viral pneumonia

2

Strengthen health care and public health

Health care

Safer surge: 1. Many mildly ill patients,
2. Intensive care capacity, 3. Continuity of care
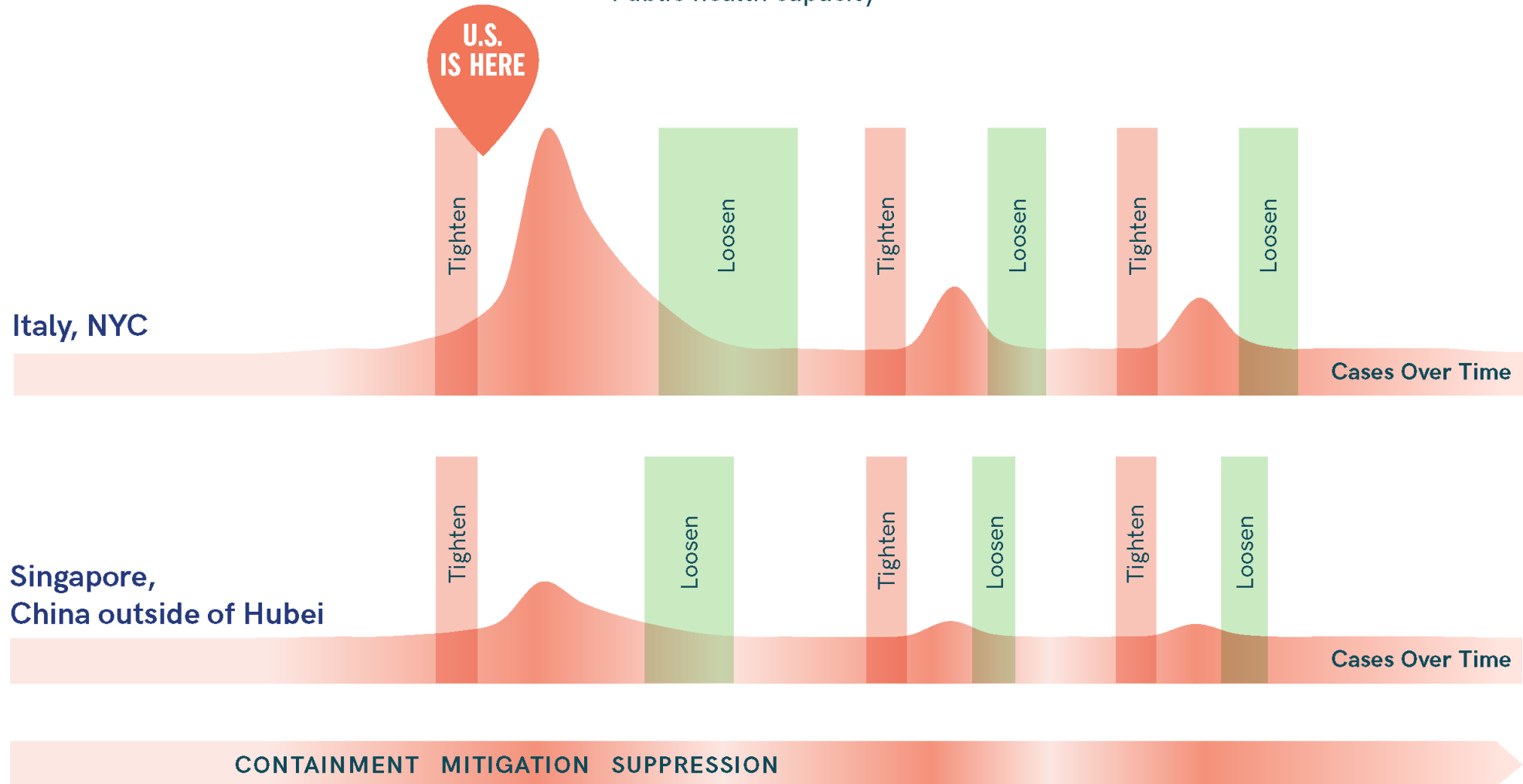for people with non-coronavirus-related conditions

Public health

Capacity for testing, contact tracing, isolation
of ill people, quarantine of contacts

Adaptive Response

Loosen or Tighten Physical Distancing according to levels of:

- Virus transmission
- Healthcare preparedness
- Public health capacity

COVID-19

RESOLVE TO SAVE LIVES   Vital Strategies

U.S. IS HERE

Italy, NYC

Tighten Loosen Tighten Loosen Tighten Loosen

Cases Over Time

Singapore, China outside of Hubei

Tighten Loosen Tighten Loosen Tighten Loosen

Cases Over Time

CONTAINMENT   MITIGATION   SUPPRESSION

THREE

Considerations for when it's Safe to Come Out Again

COVID-19

RESOLVE TO SAVE LIVES | Vital Strategies

#KnowCOVID
#PreventEpidemics

1 **Cases no longer spreading widely**

Fewer unlinked cases, falling case rates, keeping up with case reports
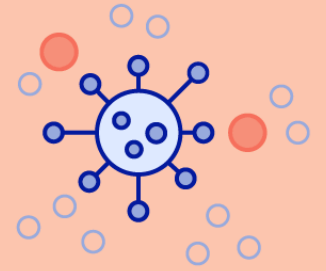
2 **Stronger health care system**

Able to withstand rise in cases without risking health care workers and patient lives

3 **Public health capacity**

Test patients and trace contacts immediately, isolate the ill, quarantine contacts
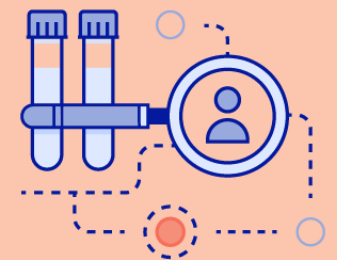
THREE Considerations for <u>How</u> to Safely Loosen the Faucet on Sheltering-in-Place

1

Medically vulnerable continue to shelter

Potentially, those with prior illness will be protected – but we don't know this yet

2

Prioritize societal benefit

Day care, maybe schools (protecting the vulnerable), infrastructure, partial safe re-opening, sanitizer/temp checks

3

Prepare to tighten the faucet if cases spike

Test patients and trace contacts immediately, isolate the ill, and quarantine contacts effectively

THREE Considerations for
When We Have to <u>Close Again</u>

1

Cases start spreading

Increasing infection rate, unlinked cases, rising healthcare worker infections

2

Unprepared health care system

A rise in cases would risk health care worker and patient lives

3

Insufficient public health capacity

Cannot identify and isolate cases and their contacts

DRAFT CRITICAL PERFORMANCE TARGETS

✓ **1** Empowered incident manager aligned with political leaders

✓ **2** Can test every patient with pneumonia, every symptomatic person, capacity for drive-through (or equivalent) testing

✓ **3** Can start contact tracing within hours of case identification, obtain contacts for >95% of cases, track >95% of contacts, test 100% of symptomatic contacts, monitor >95% of quarantined contacts for 14 days

✓ **4** Daily briefing with accurate numbers on infected, ill, deaths, and updated guidance by credible spokesperson

✓ **5** Health care workers adequately protected with policies, training, and sufficient personal protective equipment

DRAFT CRITICAL PERFORMANCE TARGETS

✓ **6** Health care systems able surge safely to care for large numbers of mildly ill patients, a large increase in patients needing intensive care, and for patients needing ongoing, non-coronavirus-related care

✓ **7** System in place to resume targeted or general social distancing measures rapidly if needed

✓ **8** Capacity to support nutrition, learning, physical and mental wellbeing, and social needs during sheltering-in-place

✓ **9** Community engagement with assessment of community perceptions and behaviors and effectiveness of messaging

✓ **10** Rapid and smooth coordination with state, federal, and county governments and health departments

Role of testing depends on phase of outbreak in an area

All phases

- Determine how widespread infection is

- Identify risk groups, transmission patterns

- Anticipate next steps and guide strategy planning/development

- Every patient requiring mechanical ventilation or with pneumonia anywhere in the country to detect spread
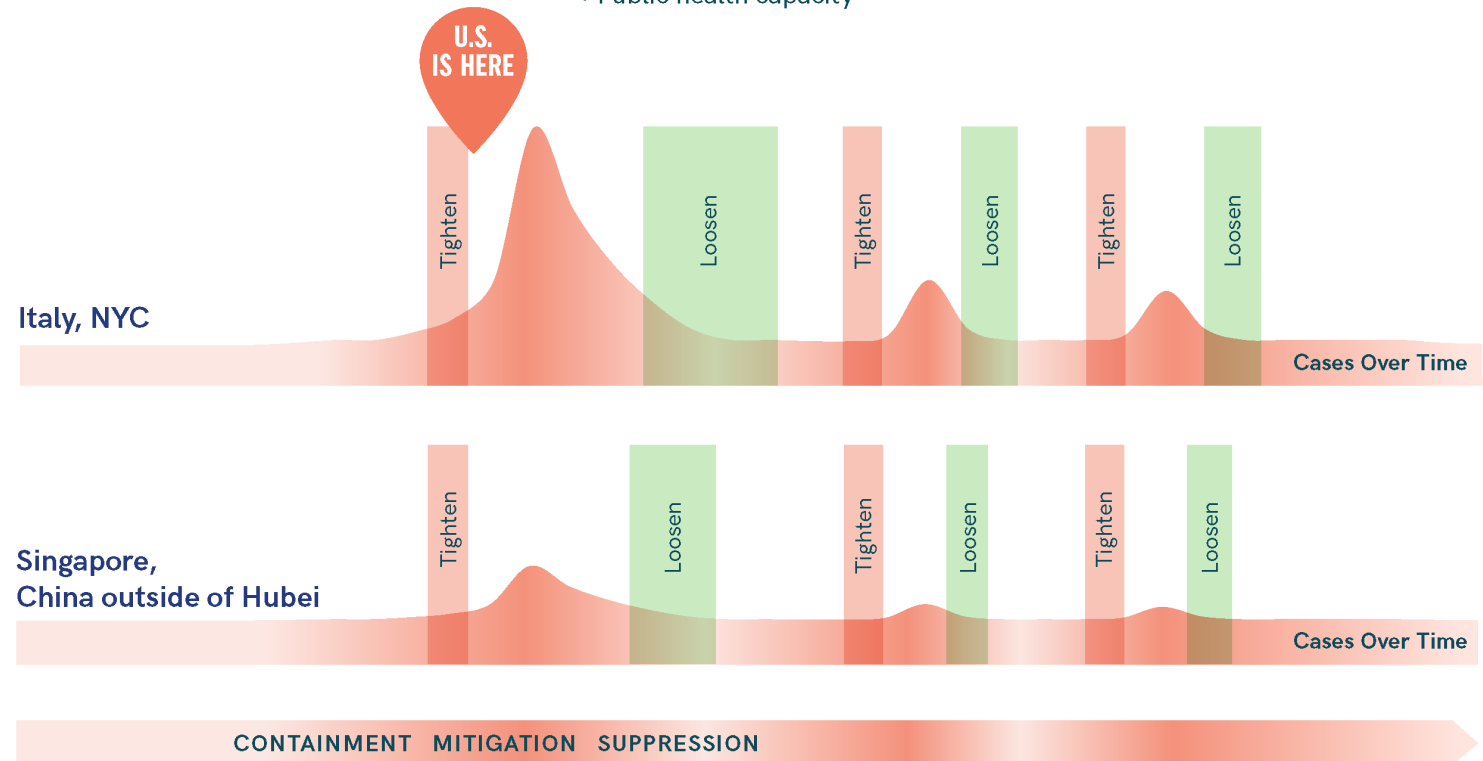

Adaptive Response

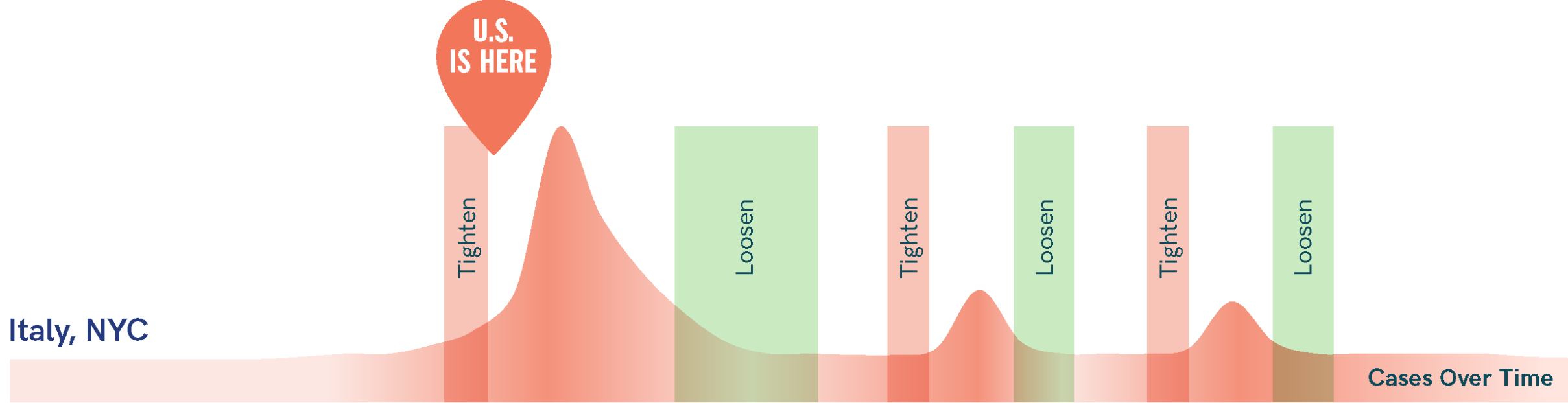Loosen or Tighten Physical Distancing according to levels of:
- Virus transmission
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COVID-19

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Italy, NYC

Tighten   Loosen   Tighten   Loosen   Tighten   Loosen

Cases Over Time

Singapore, China outside of Hubei

Tighten   Loosen   Tighten   Loosen   Tighten   Loosen

Cases Over Time

CONTAINMENT   MITIGATION   SUPPRESSION

Role of testing depends on phase of outbreak in an area

Few or no cases
- Inform containment strategies and facilitate contact tracing
- Safe, rapid isolation of people with symptoms to prevent further spread

Widespread transmission
- Find outbreaks in hospitals, nursing homes, homeless shelters and prisons
- For people who don't need to be hospitalized, a test won't change recommendation: Stay home, isolate

Suppression phase
- Extensive testing for current and past infection to identify, stop emerging clusters and facilitate reopening society
- Respond rapidly to new clusters until we have a vaccine
- Drive-thru testing could be important

SARS-CoV-2 Treatment

- *No proven therapies with established efficacy*

- **In vitro and limited clinical data**
  - Chloroquine
  - Hydroxychloroquine

- **Preclinical data suggest possible benefit**
  - Lopinavir, Ritonavir (clinical trial negative)

- **Investigational**
  - Remdesivir
  - Convalescent plasma/antibody therapy

- **Theoretical**
  - Tocilizumab
  - Azithromycin