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 Clinical Severity

Adaptive Response

**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
- Contact tracing

**Non-Pharmaceutical Interventions (NPIs)**
- Health care infection prevention and control
- Appropriate clinical care including staff surge when needed
- 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)

**Supporting society**
- 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)

**Pharmaceutical interventions**
- 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

**Containment**
- Mitigation
- Suppression
- Prevention

**Cases over time**
- Version 3, 30 March 2020
<table>
<thead>
<tr>
<th>Surveillance</th>
<th>Who</th>
<th>Trace and test contacts</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Monitor linked and unlinked chains of transmission</td>
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<td></td>
<td></td>
<td>Test SARI cases and cases from influenza sentinel surveillance system</td>
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<td>Monitor influenza-like illness in syndromic surveillance</td>
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<td>Monitor healthcare worker infections</td>
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<td>Monitor for exposure at mass gatherings and long-term care facilities</td>
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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
   - 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

U.S. IS HERE

Cases Over Time

Italy, NYC

Singapore, China outside of Hubei

Cases Over Time

CONTAINMENT  MITIGATION  SUPPRESSION
THREE Considerations for when it’s Safe to Come Out Again

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

#KnowCOVID
#PreventEpidemics
THREE Considerations for How 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 Close Again

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

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<thead>
<tr>
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<th>Performance Target</th>
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<tbody>
<tr>
<td>6</td>
<td>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</td>
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<td>7</td>
<td>System in place to resume targeted or general social distancing measures rapidly if needed</td>
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<td>8</td>
<td>Capacity to support nutrition, learning, physical and mental wellbeing, and social needs during sheltering-in-place</td>
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<td>9</td>
<td>Community engagement with assessment of community perceptions and behaviors and effectiveness of messaging</td>
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<td>10</td>
<td>Rapid and smooth coordination with state, federal, and county governments and health departments</td>
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</table>
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
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