COVID-19: CONSIDERATIONS FOR GAME DESIGN

DIGITAL INTEGRATED LIBERAL ARTS CENTER (DILAC)

CREATING THE NEXT®

Bottom Line Up Front

- Health risk communication can save lives, hardship by supporting people's actions to prevent disease and promote health. The key is to increase their knowledge about disease risks, motivate attitudes, and change behaviors.
- Games can educate and motivate people to stay healthy in a pandemic by engaging people to increase their knowledge about:
  - Symptoms and who is at risk
  - How to protect self and others
  - How to keep environments safer (what is the community doing?)
  - How to prevent and recognize mental health problems
  - How to support others by fighting stigma, providing social support
  - What sources of information are available (health media literacy)

Considerations for Game Design

- Be on the lookout for anything that is algorithmic or can be represented as variables!
  - Incubation period
  - Risk factors
    - Distance & time around infected persons
    - Settings
    - Individual characteristics
  - Contact tracing: potential case found or not?
- Getting your game model right in terms of causation is key
  - Later you can tweak the model in terms of disease acceleration/deceleration, risk factors (individual, etc.)

Coronavirus-2019 (COVID-19): Overview

- Caused by a virus first identified in Wuhan, Hubei Province, China
  - Is a pandemic, meaning worldwide spread
- Respiratory disease caused by the virus SARS-CoV-2
  - Symptoms include fever, cough, and shortness of breath
  - Incubation period: 2-14 days after exposure to the virus (median 4-5 days)
- Risk depends on exposure level
  - Spread mainly from person to person through respiratory (droplets?)
  - Virus can land in mouths or noses of nearby people, possibly inhaled
  - Spread is more likely when people within 6 feet of each other
  - Spread on surfaces (science emerging – considered less critical 5/28/20)
    - https://www.nejm.org/doi/full/10.1056/NEJMc2004973?query=recirc_mostViewed_railB_article

Symptoms

- **Common**
  - Fever, cough
  - Shortness of breath
  - Or at least two of these symptoms:
    - Fever, chills, muscle pain, headache, sore throat, new loss of taste or smell
- **What to Do**
  - Stay at home, call your doctor

- **Serious**
  - Trouble breathing
  - Pain or pressure in chest
  - Confusion (new)
  - Inability to wake or stay awake
  - Bluish lips or face
- **What to Do**
  - Seek emergency medical care immediately

Symptom Checkers!

- CDC Clara Bot
  - https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html
- Apple COVID-19 Screening Tool
  - https://www.apple.com/covid19

People at higher risk for severe COVID-19 disease

- People aged 65 years and older
- People who live in a nursing home or long-term care facility
- People of all ages with underlying medical conditions, particularly if not well controlled, including people with:
  - Chronic lung disease or moderate to severe asthma
  - Serious heart conditions
  - Immunocompromised health
  - Severe obesity (body mass index [BMI] ≥40)
  - Diabetes
  - Chronic kidney disease undergoing dialysis
  - Liver disease

Clinical Information Source

- https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

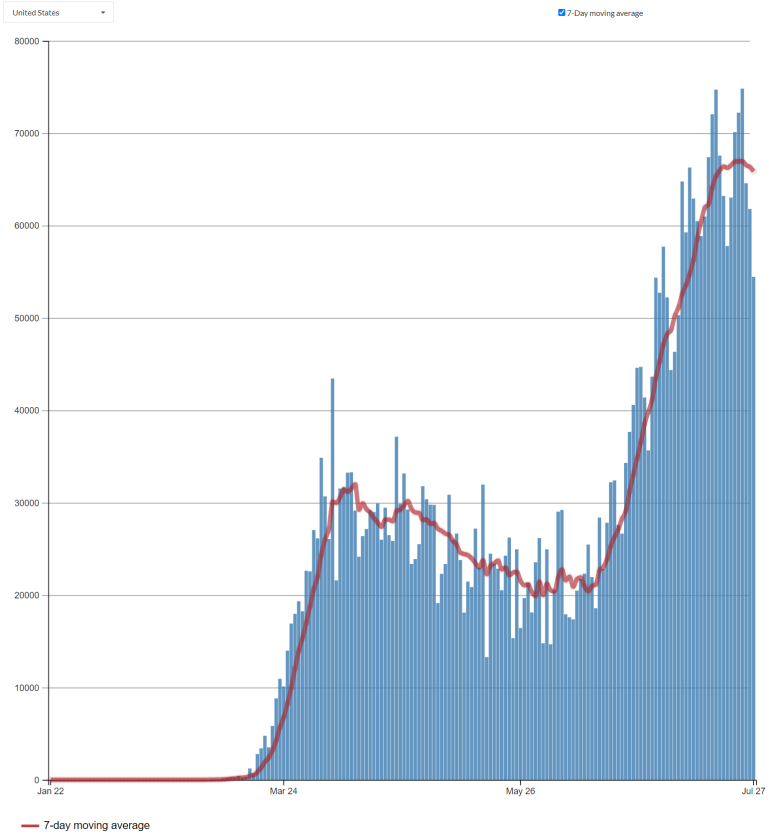
Presentation

The signs and symptoms of COVID-19 present at illness onset vary, but over the course of the disease, most persons with COVID-19 will experience the following[1,4-9]:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

Cases & Curves – United States

- Cases in the U.S. with Demographics
  - https://www.cdc.gov/covid-data-tracker/index.html#trends

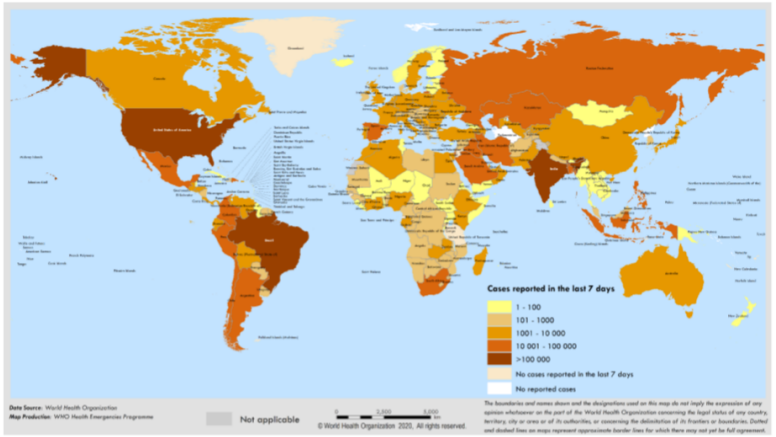


Cases - Worldwide

- World Health Organization (WHO) Situation Reports
  - https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/

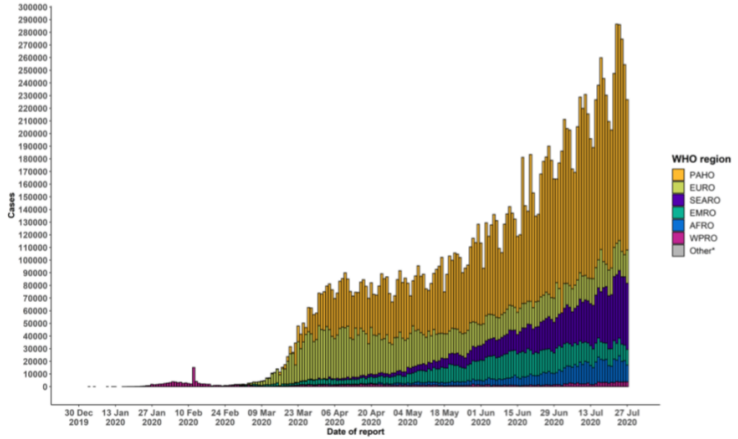
Surveillance

Figure 1. Number of confirmed* COVID-19 cases reported in the last seven days by country, territory or area, 22 July to 28 July **



**See Annex 1 for data, table and figure notes.

Figure 2. Number of confirmed* COVID-19 cases, by date of report and WHO region, 30 December through 28 July**

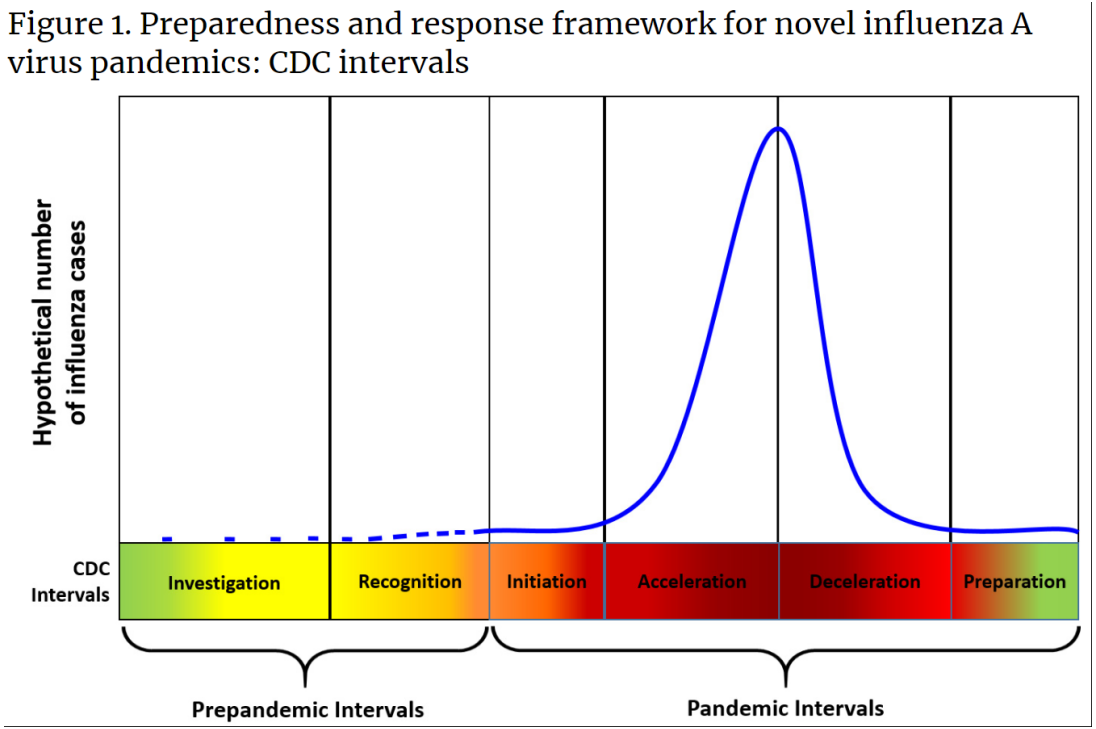


**See Annex 1 for data, table and figure notes.

Pandemic Wave & Intervals: “Flatten the Curve”

- https://www.cdc.gov/flu/pandemic-resources/national-strategy/intervals-framework.html

Figure 1. Preparedness and response framework for novel influenza A virus pandemics: CDC intervals



“Acceleration” Interval

- The acceleration (or “speeding up”) is the upward epidemiological curve as the new virus infects susceptible people. Public health actions at this time may focus on the use of appropriate:
  - non-pharmaceutical interventions in the community (e.g. school and child-care facility closures, social distancing
  - Use of medications and vaccines, **if available**.
  - Duration and severity of each pandemic interval depends on:
    - Virus characteristics (transmission factors – noted previously)
    - Public health response – see next slide

What Individuals Can Do to Slow Acceleration

- **Higher Risk Individuals**
  - Stock up on supplies
  - Take everyday precautions to keep space between self and others
  - In public, keep away from others who are sick
  - Limit close contact and wash hands often
  - Avoid crowds, cruise travel, and non-essential travel
  - If outbreak in community, stay at home
- **Everyone**
  - Wash hands often
    - Use hand sanitizer @ least 60% alcohol
    - Avoid touching eyes, nose, and mouth
  - Avoid close contact
  - Wear a cloth face cover
  - Cover coughs & sneezes
  - Clean and disinfect surfaces
  - Monitor your health

Prevention is a Social Thing

- How COVID-19 Can Spread in a Community
  - https://www.youtube.com/watch?v=9pVy8sRC440&feature=youtu.be
  - Recommends avoiding large gatherings
- Community Mitigation Strategies
  - https://www.cdc.gov/coronavirus/2019-ncov/downloads/php/CDC-Activities-Initiatives-for-COVID-19-Response.pdf
- What Businesses Can Do
  - https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/workplace-decision-tool.html

Knowledge, Attitudes, Behaviors (KAB's) = Protective Actions

- Health Behavior & Health Promotion – Theories
  - https://cancercontrol.cancer.gov/brp/research/theories_project/theory.pdf

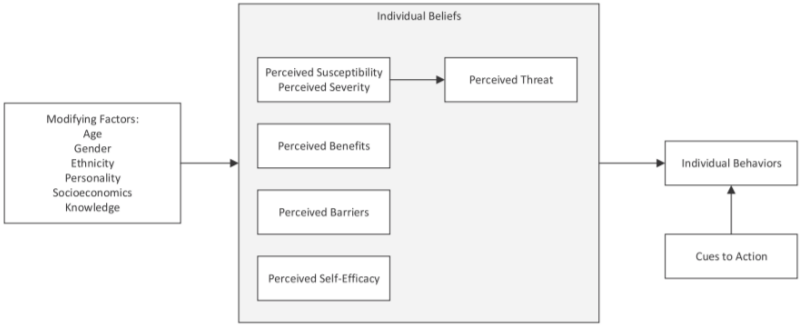


Fig. 1. The Health Belief Model.7.

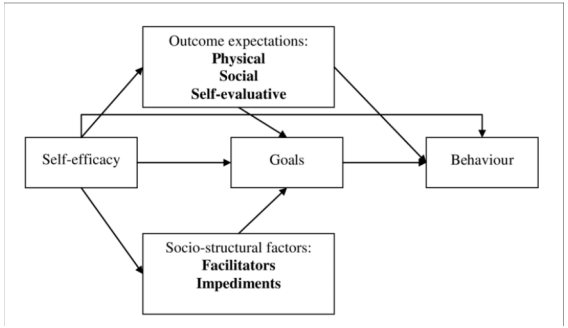


Illustration of Social Cognitive Theory 3 An illustration of Social Cognitive Theory

- Look for reliable sources of information on current KAB's.
  - https://www.rti.org/focus-area/coronavirus-united-states-survey

The Importance of Mental Health

- Coping with Stress
  - https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html
- Stress during an outbreak can include
  - Fear and worry about your own health and the health of your loved ones.
  - Changes in sleep or eating patterns.
  - Difficulty sleeping or concentrating.
  - Worsening of chronic health problems.
  - Worsening of mental health conditions.
  - Increased use of alcohol, tobacco, or other drugs.
- Seeking and giving support is an important strategy for coping.

Stigma: Social Effects of an Outbreak

- Stigma affects the emotional or ***mental health***[(2)] of stigmatized groups and the communities they live in. Stopping stigma is important to making communities and community members ***resilient***[(3)].
  - https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/reducing-stigma.html
- **Stigma** occurs when people associate a risk with a specific people, place, or thing – like a minority population group – and there is no evidence that the risk is greater in that group than in the general population. Stigmatization is especially common in disease outbreaks.
  - https://emergency.cdc.gov/cerc/cerccorner/article_123016.asp
- **Resilience** is the ability to withstand and recover from stress.
  - https://blogs.cdc.gov/publichealthmatters/2017/08/predicting-community-resilience-and-recovery-after-a-disaster/

Media Health Literacy

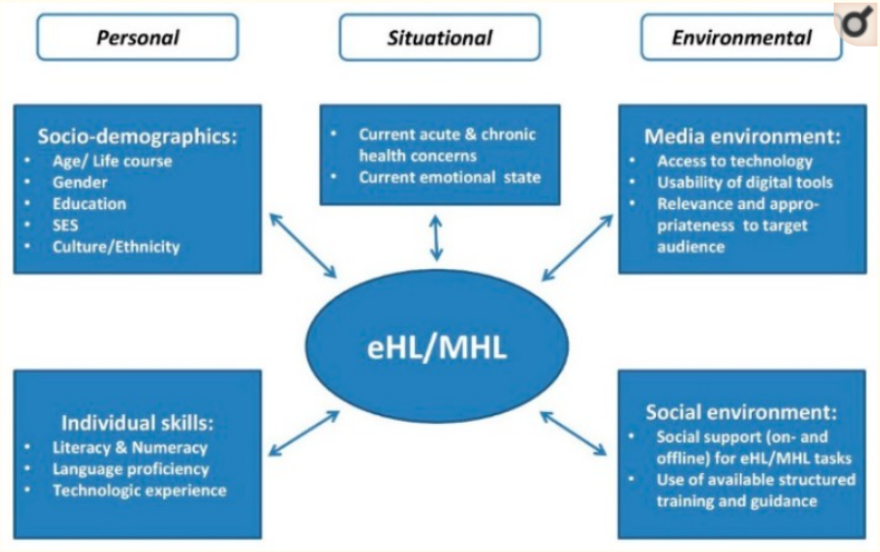


Figure 1

The complexity of eHealth Literacy (eHL) and Media Health Literacy (MHL) in context.

Media Health Literacy, eHealth Literacy, and the Role of the Social Environment in Context
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6121358/

Data Visualizations

- CDC
  - https://www.cdc.gov/coronavirus/2019-ncov/covid-data/data-visualization.htm
- John Hopkins
  - https://coronavirus.jhu.edu/map.html

Q & A