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WELCOA*

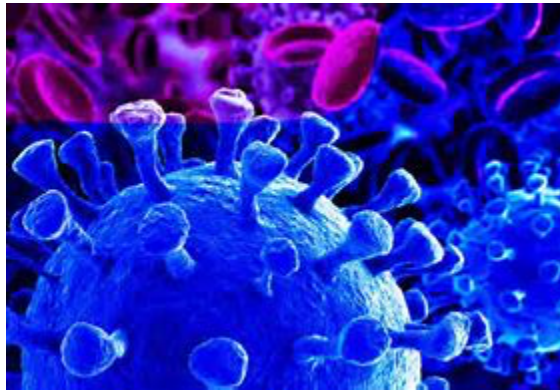
SPECIAL RESOURCE



**POP-UP PULSE SERIES:
COVID-19**

WELCOA.ORG/COVID

COVID-19 Update for Employers ***Understanding the Epidemic*** ***& Practical Recommendations***

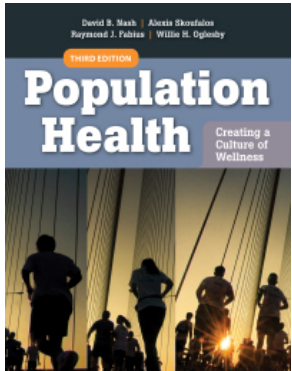


March 2020

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Ray Fabius MD

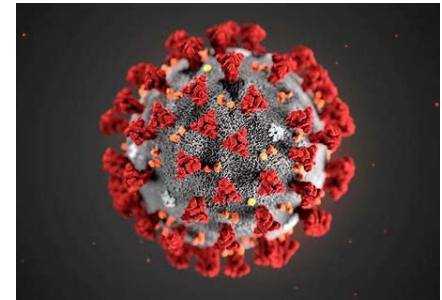
Medical Adviser to the GPBGH



- Over 25 years of medical management experience with Thomson Reuters, GE, Walgreens, Aetna, Cigna and others
- Served as front line primary care physician for over a decade
- Published articles, book chapters and five books
- Adjunct Faculty – Harvard, Jefferson, ACOEM
- Distinguished Fellow & Faculty Member of American Association of Physician Leadership
- Co-founder of HealthNEXT
 - Emerging Leader in building organizational cultures of health

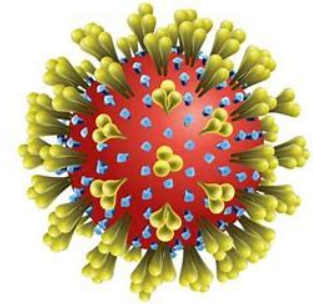


COVID-19 Emergence



- Identified in Wuhan China – December 2019
- Caused by the virus SARS-CoV-2
- Early on many patients were reported to have link to large seafood and live animal market
- Later patients had no exposure to animal markets indicating person to person transmission
- Travel-related cases reported – 1st US case 1/21/2020
- CDC is reporting confirmed COVID-19 cases in the US online at www.cdc.gov/coronavirus/2019-ncov/cases-in-us.html

COVID-19 How It Spreads



- Person to person contact
 - Sneeze or cough;
 - respiratory droplets can travel a few feet
 - Touch infected person / Hand-shake
 - Then touching mouth, eyes, or nose thereafter
- Touch surface with live virus
 - Then touching mouth, eyes, or nose thereafter

COVID-19 Symptoms

Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed coronavirus disease 2019 (COVID-19) cases.

The following symptoms may appear 2-14 days after exposure.*

- Fever
- Cough
- Shortness of breath



CDC Recommendation *COVID-19 Treatment*

- Similar to common flu
 - Get flu vaccine annually
 - Supportive – **rest, analgesics, fluids**
 - Contact PCP if illness worsens – short of breathe
- Hospitalization
 - Those with respiratory distress
- Antivirals
 - Under research protocols
- Vaccines
 - Under research protocols
- Serologic Testing
 - Under research protocols
- Antibody Production
 - Under research protocols



How to Treat COVID 19?

Evolving with global collaboration

A Seattle Intensivist's One-pager on COVID-19



Nick Mark, MD
@nickmark

Nomenclature

Infection: Coronavirus Disease 2019 a.k.a. COVID-19
Virus: SARS-CoV-2, 2019 Novel Coronavirus
NOT "Wuhan Virus" NOT "China Virus"

Biology

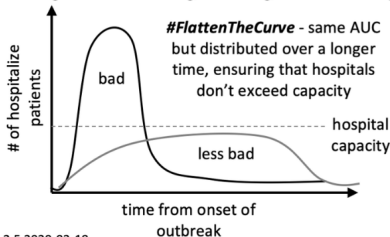
- **30 kbp, +ssRNA**, enveloped coronavirus
- **Likely zoonotic infection**; source/reservoir unclear (Bats? / Pangolins? → people)
- Now spread primarily **person to person**;
 - **Can be spread by asymptomatic carriers!**
- Viral particles **enter into lungs via droplet nuclei**
 - CDC/WHO recommend AIRBORNE isolation
- **Viral S spike binds to ACE2** on type two pneumocytes
- **Effect of ACE/ARB is unclear; not recommended** to change medications at this time.
- Other routes of infection (contact, enteric) possible but unclear if these are significant means of spread

Epidemiology

- Attack rate = **30-40%** (China)
- $R_0 = 2-4$
- Case fatality rate (CFR) = 2.3% (China)
- Incubation time = **3-14 days (up to 15 days)**
- Viral shedding – **median 20 days** (max 37 days)
- Breakdown of disease severity
 - **80%** Non-severe (mild pneumonia)
 - **15%** Severe (hypoxia, respiratory distress)
 - **5%** Critical (respiratory failure)

Disease clusters: SNFs, Conferences, other

Strategies: contact tracing, screening, social distancing



v2.5 2020-03-19

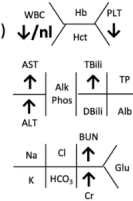
Diagnosis/Presentation

Symptoms

- 65-80% **cough**
- 45% **febrile** on presentation (85% febrile during illness)
- 20-40% dyspnea
- 15% URI symptoms
- 10% GI symptoms

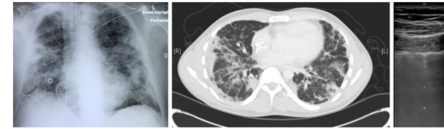
Labs

- CBC: **Leukopenia** & **lymphopenia** (80%+)
- BMP: **↑BUN/Cr**
- LFTs: **↑AST/ALT/Tbili**
- **↑ D-dimer, ↑ CRP, ↑ LDH**
- **↑ IL-6, ↑ Ferritin**
- **↓ Procalcitonin**
- *PCT may be high w/ superinfxn (rare)*



Imaging – (imaging is NOT diagnostic)

- **CXR:** hazy **bilateral, peripheral** opacities
- **CT:** **ground glass opacities** (GGO), crazy paving, consolidation, *rarely may be unilateral*
- **POCUS:** numerous B-lines, pleural line thickening, consolidations w/ air bronchograms



Isolation

- Phone call is the best isolation (e.g. move to telemed)
- Place patient in mask, single room, limit/restrict visitors

Precautions

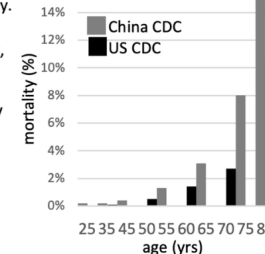
- **In correct sequence: STANDARD + CONTACT** (double glove) + either **AIRBORNE** (for aerosolizing procedures: intubation, extubation, NIPPV, suctioning, etc) or **DROPLET** (for everything else; **ideally** airborne)
- N95 masks must be fit tested; wear eye protection
- PPE should be donned/doffed with trained observer
- Hand hygiene: 20+ seconds w/ soap/water or alcohol containing hand gel

Treatment

- Isolate & send PCR test early (may take **days** to result)
- GOC discussion / triage
- Notify DOH, CDC, etc
- **Fluid sparing** resuscitation
- Avoid NSAIDs; use acetaminophen/paracetamol for fever
- ± empiric antibiotics
- Intubate early under controlled conditions: **RSI**, no bagging, **VL**, have suction & capnography connected to avoid circuit breaks.
- Avoid HFNC or NIPPV (aerosolizes virus) unless **individualized** reasons exist (e.g. COPD, DNI status, etc); consider **helmet mask** interface (if available) if using NIPPV; avoid nebulizers
- Mechanical ventilation for ARDS
 - **LPV** per ARDSnet protocol
 - 7 P's for good care of ARDS patients: e.g. **PEEP/Paralytics/Proning/inhaled Prostacyclins**, etc
 - ? High PEEP ladder may be better
 - ? ECMO in select cases (unclear who)
- Consider using POCUS to monitor/evaluate lungs
- Investigational therapies: consider **clinical trial enrollment**
 - **Remdesivir** - not approved; **used investigationally**
 - Hydroxychloroquine (HCQ) – available; limited evidence
 - Chloroquine (CQ) – available; limited evidence
 - Tocilizumab – available; investigational for pt in **shock**
 - **Lopinavir/ritonavir** – available; **recent negative RCT**
 - Oseltamivir - **not** recommended (no evidence of efficacy)
 - **Corticosteroids** – **not** recommended (? harmful)

Prognosis

- **Age** and **comorbidities (DM, COPD, CVD)** are significant predictors of poor clinical outcome; admission **SOFA** score also predicts mortality.
- Lab findings predict mortality (↑ d-dimer, ferritin, troponin, cardiac myoglobin)
- Expect prolonged MV (median)
- Watch for complications: Secondary infection (VAP), **Cardiomyopathy**



CDC Recommendation

COVID-19 Suspected Patients

Symptoms & Testing

Call your doctor: If you think you have been exposed to COVID-19 and develop a fever and symptoms, such as cough or difficulty breathing, call your healthcare provider for medical advice.



Symptoms



Testing



Coronavirus Self-Checker



Reducing Stigma

If you develop **emergency warning signs** for COVID-19 get **medical attention immediately**. Emergency warning signs include*:

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

*This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

CDC Recommendation *COVID-19 Prevention*

- Wash hands for 20 seconds with soap & water
- Use alcohol based hand sanitizer with at least 60% alcohol if soap & water are not available
- Avoid touching eyes, nose, mouth with unwashed hands
 - *Average person touches face 15/hour*
- Avoid contact with people who are sick
- Stay home if you are sick
- Cover your cough or sneeze with a tissue and then rapidly dispose of it
- Clean & disinfect commonly touched objects or surfaces

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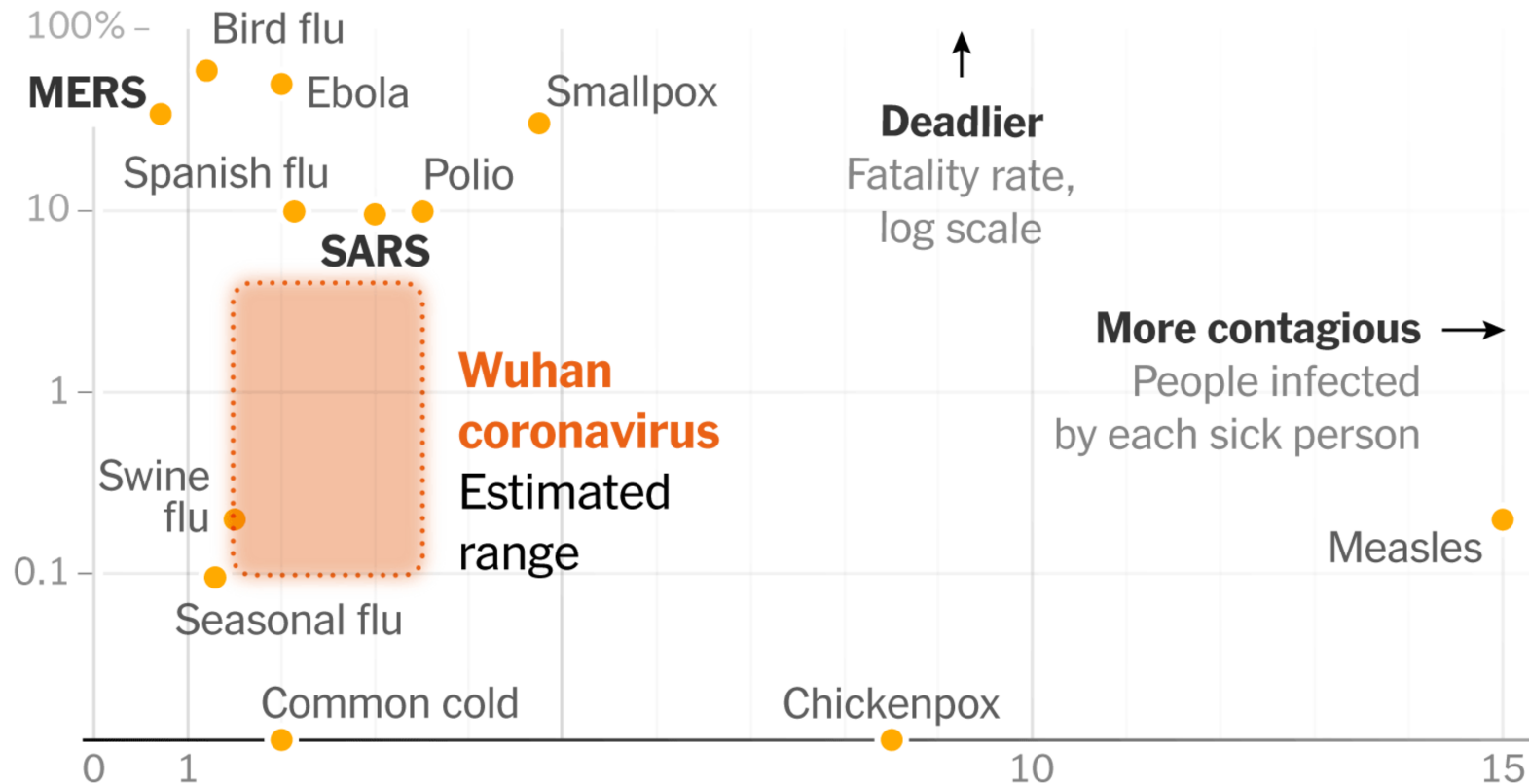
CDC Recommendation ***COVID-19 Travel Restrictions***

- **Destinations with Risk of Community Spread of Coronavirus:**
- **Level 3 – Much of the World**
 - China
 - Iran
 - Europe (Schengen Area): Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Monaco, San Marino, Vatican City
 - United Kingdom and Ireland: England, Scotland, Wales, Northern Ireland, Republic of Ireland



COVID 19

Compared to Other Epidemic Viruses



COVID-19 versus Influenza

COVID-19

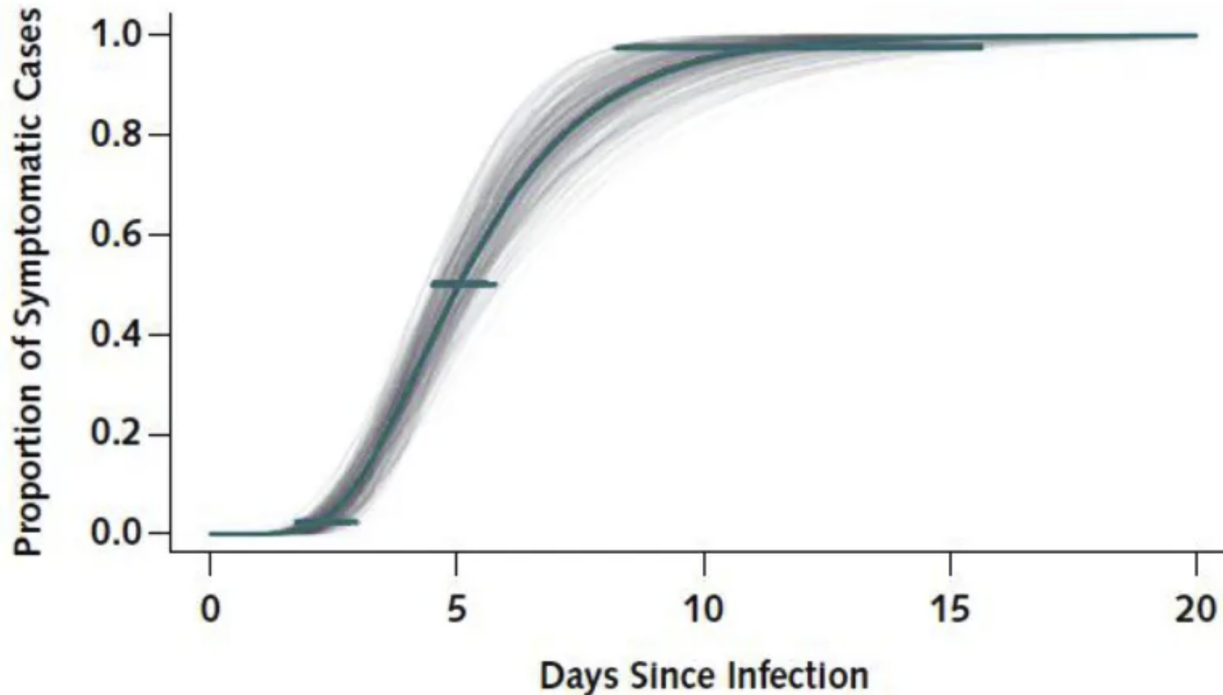
- Approaching 375,000 cases globally
- 250,000 currently infected
- 12,000 serious or critical
- 101,500 recovered
- 16,000+ deaths globally
- Death rate globally – WHO says 3.4%
- Causing significant illness in 10-20%
- US confirmed cases more than 43000+
 - in all 50 states
- 500+ US confirmed cases who died
- Death rate in US 1.2% thus far
- Many cases person to person spread
- Incubation period 1-14 days
- At greatest risk: people 65 years and older, people of any age with certain chronic medical conditions (such as asthma, diabetes, or heart disease),

INFLUENZA

- 3-5 Million with severe illness annually
- 300,000 – 650,000 global deaths
- 9-45 Million infected in US annually
- 140,000-800,000 hospitalized in US yearly
- 144 children died this year in US
- 12,000-60,000 respiratory related deaths each year in the US
- Death rate 0.1 to 0.3% globally
- Causes illness in 3-11% of American population annually
- Infects 5-20% of American population
- Incubation period 1-4 days
- At greatest risk: people 65 years and older, people of any age with certain chronic medical conditions (such as asthma, diabetes, or heart disease), pregnant women, and children less than 5

Incubation Period

Average Around 4-6 days



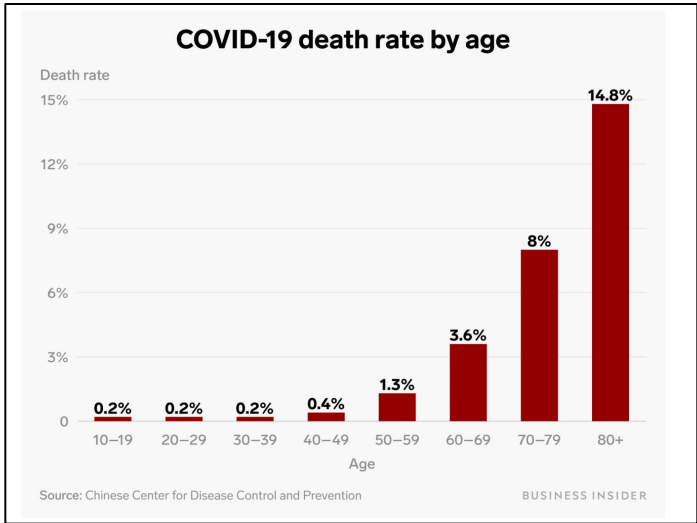
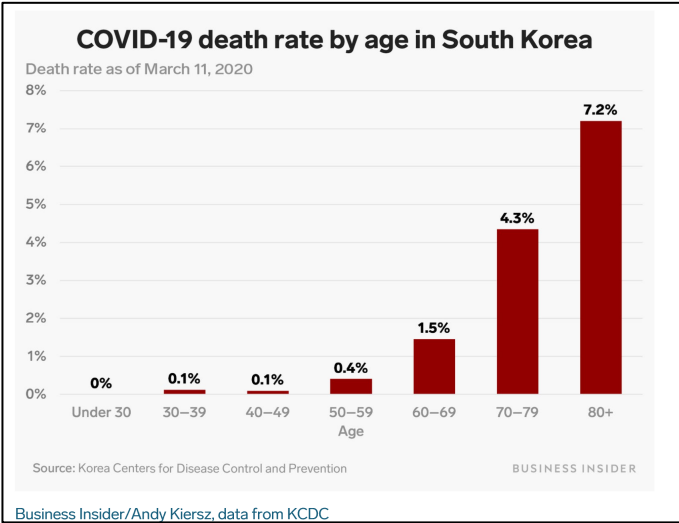
The Incubation Period of COVID-19 from Publicly Reported Confirmed Cases

Like the Flu

COVID 19 Impacts Older People More Seriously

Table 1: Current estimates of the severity of cases. The IFR estimates from Verity et al.¹² have been adjusted to account for a non-uniform attack rate giving an overall IFR of 0.9% (95% credible interval 0.4%-1.4%). Hospitalisation estimates from Verity et al.¹² were also adjusted in this way and scaled to match expected rates in the oldest age-group (80+ years) in a GB/US context. These estimates will be updated as more data accrue.

| Age-group (years) | % symptomatic cases requiring hospitalisation | % hospitalised cases requiring critical care | Infection Fatality Ratio |
|-------------------|---|--|--------------------------|
| 0 to 9 | 0.1% | 5.0% | 0.002% |
| 10 to 19 | 0.3% | 5.0% | 0.006% |
| 20 to 29 | 1.2% | 5.0% | 0.03% |
| 30 to 39 | 3.2% | 5.0% | 0.08% |
| 40 to 49 | 4.9% | 6.3% | 0.15% |
| 50 to 59 | 10.2% | 12.2% | 0.60% |
| 60 to 69 | 16.6% | 27.4% | 2.2% |
| 70 to 79 | 24.3% | 43.2% | 5.1% |
| 80+ | 27.3% | 70.9% | 9.3% |



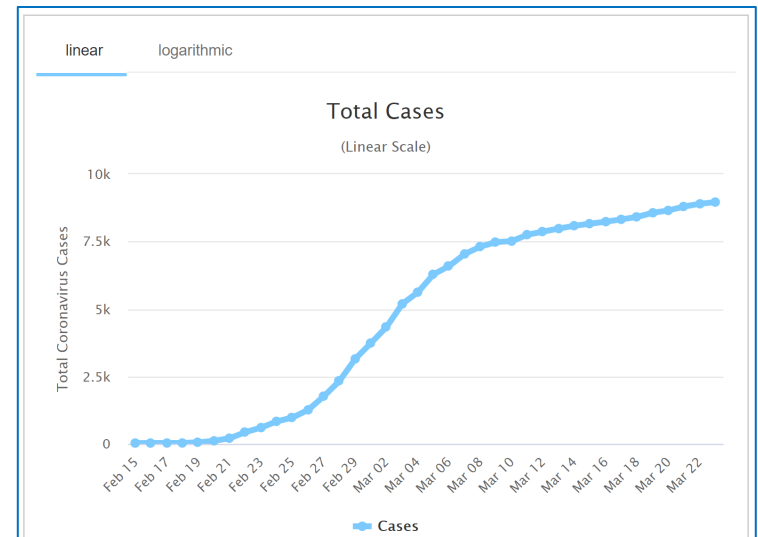
US Modeling tool

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What we learned from South Korea

A Case Study

- Early massive testing
 - Now producing 100,000 / day
 - 40 times more testing than US
 - Drive by screening (600 centers)
 - Active contact tracing of all positive cases
 - No cost for testing
- Directed communications
 - Cellphone alerts at community level
 - Websites / apps reported on whereabouts of + cases
 - Self-quarantine with oversight
- Public response
 - Confidence high, panic low, hoarding rare
- 9000 cases
- 120 deaths
- Fatality rate = 1.3%



What we learned from the Diamond Princess

A Case Study

- Infection Rate roughly 20%
 - 800 of 3700 tested positive
- Many asymptomatic carriers
 - 46.5% of infected were asymptomatic when tested
- Fatality rate = 1.25%
 - 10 people died from the outbreak = 1% fatality rate
 - At least 4 times greater than influenza



An opportunity

Reinforce Health & Wellbeing

Your baseline health determines your outcome with COVID 19

- Do you have risk factors that you are not working on?
 - **Smoking** – 3 reasons for greater risk
 - Easier to become infected
 - Can contribute to the impact on lungs
 - Increases likelihood of COPD / Heart Disease
 - **High Cholesterol**
 - Heart disease makes it harder to respond to COVID 19
- Do you have a chronic disease that is not under control?
 - **Hypertension**
 - **Diabetes**

Providing Practical Guidance

What Employers Should Have Done Already

- ❑ **Appoint a leader and team** within your organization for a Coronavirus response and to ensure a coordinated and consistent plan across enterprise
- ❑ Provide updated information to employees about the symptoms of COVID-19, affected areas and what they can do to prevent illness (**Information Therapy**)
- ❑ **Eliminate financial barriers for COVID-19 testing**
- ❑ Consider closing all non-essential worksites
- ❑ Begin to disinfect common workplace areas – cafeterias, rest rooms, elevators, stairwells – at least twice daily in remaining sites
- ❑ Prop doors open to prevent need to use door knobs
- ❑ Liberally place tissues and hand sanitizers throughout workplace
- ❑ Consider dispensing pocket sized hand sanitizers to employees on a frequent basis where and when available
- ❑ Place signage in all bathrooms directing correct hand washing
- ❑ Review business-related travel itineraries for employees, and in particular consider whether any travel is necessary especially for those who are older and / or with chronic conditions
- ❑ Encourage that all covered lives have an established relationship with a **primary care practitioner** and **get an annual flu vaccine**

Providing Practical Guidance

What Employers Should Do Now

- ❑ Maximize resources for **telework** where viable
- ❑ Eliminate co-pay for **Tele-medicine** visits
- ❑ **Cross train** personnel on essential functions and review business continuity plans
- ❑ Create an **infectious disease outbreak plan**.
- ❑ Create guidance for the **screening of all workplace contractors and guests**
- ❑ Review and adjust as appropriate sick leave or accommodation requests from employees – inform employees of any revisions
- ❑ Establish approach to employees who are not allowed in the office due to exposure or symptoms, communicate whether he or she will be paid or, rather, whether he or she can use sick, vacation, or any other type of paid leave.
- ❑ Work with employees facing travel restrictions and visa renewal issues
- ❑ Determine if additional obligations are imposed on your workplace by HIPAA's Privacy Rule.
- ❑ Assure that your policies and practices meet pertinent OSHA (and CDC) standards, especially for health care employees when blood-borne pathogens may be present.
- ❑ Consider whether there are any issues that need to be addressed with the employees' bargaining representatives and whether there are any provisions in the company's collective bargaining agreements that may require amendments

Providing Practical Guidance

What Employers Should Do Next

- ❑ Consider merits of having a **Chief Medical Officer / Clinical Adviser**
 - ❑ Even small companies should have someone on retainer
- ❑ Establish process to **contact public health** if necessary
- ❑ Understand the distribution of the **age bands** of your workforce
- ❑ **Establish plan for re-opening closed offices** – serologic positive when available; perhaps under 40 in the next few weeks after curve flattens
- ❑ Determine on-going payment status of workforce with sensitivity to employee financial health
- ❑ Educate leaders, managers and employees about Coronavirus-19 and on the company's planned response. (**Consider required module**)
- ❑ Provide continuous information updates to the workforce regarding the pandemic & your company's response (**Information Therapy**)
- ❑ **Track the incidence rate in the counties** where your workplaces & workforces reside
- ❑ Establish a pathway to **stay current** on the latest clinical recommendations on testing & treatments for COVID 19

