

# COVID-19

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*\*Please Note: Information presented is changing rapidly.*

# The Virus

- SARS-CoV-2- Betacoronavirus (RNA)- closest to a bat coronavirus
- No mutations between end of Dec 2019 and mid Feb 2020
  - 104 strains tested



Total Confirmed

214,894

Confirmed Cases by Country/Region/Sovereignty

81,102 China

35,713 Italy

17,361 Iran

13,910 Spain

12,327 Germany

9,052 France

8,413 Korea, South

7,769 US

3,028 Switzerland

2,642 United Kingdom

2,056 Netherlands

1,646 Austria

1,550 Norway

Country/Region/Sovereignty

Last Updated at (M/D/YYYY)

3/18/2020, 3:33:03 PM



Cumulative Confirmed Cases

Active Cases

156

countries/regions

Lancet Inf Dis Article: Here. Mobile Version: Here. Visualization: JHU CSSE. Automation Support: Esri Living Atlas team and JHU APL. Data sources: WHO, CDC, ECDC, NHC and DXY and local media reports. Read more in this blog. Contact US. FAQ.

Total Deaths

8,732

3,122 deaths Hubei China

2,978 deaths Italy

1,135 deaths Iran

623 deaths Spain

148 deaths France

84 deaths Korea, South

71 deaths United Kingdom

Total Recovered

83,313

56,927 recovered Hubei China

5,389 recovered Iran

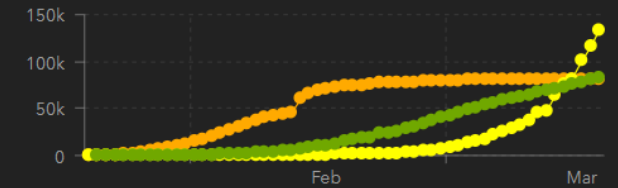
4,025 recovered Italy

1,540 recovered Korea, South

1,313 recovered Guangdong China

1,250 recovered Henan China

1,216 recovered Zhejiang China



Mainland China, Other Locations, Total Recovered

Actual

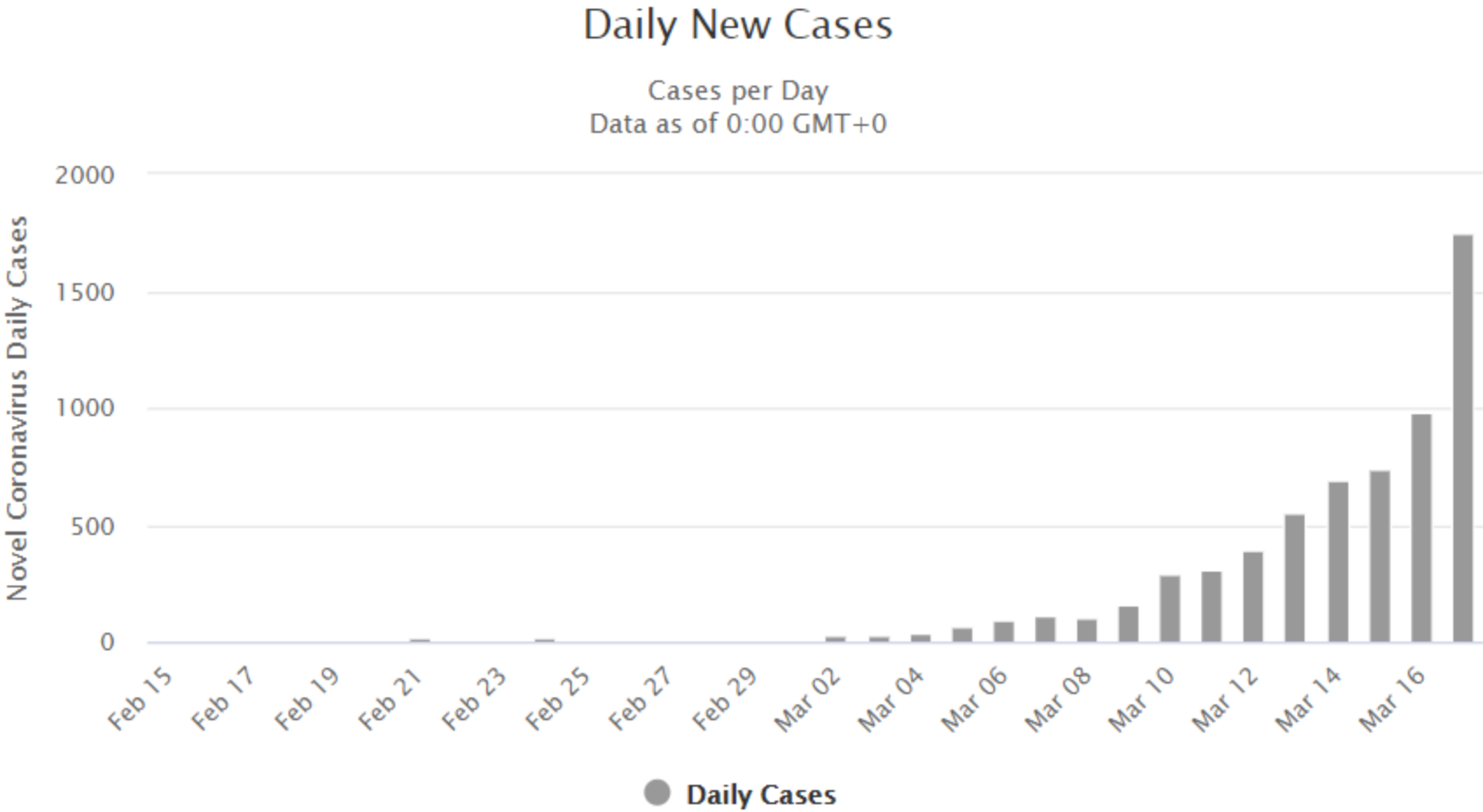
Logarithmic

Daily Cases

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop
<a href="#">China</a>	80,894	+13	3,237	+11	69,614	8,043	2,622	56
<a href="#">Italy</a>	35,713	+4,207	2,978	+475	4,025	28,710	2,257	591
<a href="#">Iran</a>	17,361	+1,192	1,135	+147	5,710	10,516		207
<a href="#">Spain</a>	14,769	+2,943	638	+105	1,081	13,050	563	316
<a href="#">Germany</a>	12,327	+2,960	28	+2	105	12,194	2	147
<a href="#">France</a>	9,134	+1,404	264	+89	602	8,268	931	140
<a href="#">S. Korea</a>	8,413	+93	84	+3	1,540	6,789	59	164
<a href="#">USA</a>	8,055	+1,644	127	+18	106	7,822	12	24

USA State	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases
New York	2,499	+793	20	+7	1	2,478
Washington	1,014	+2	55		89	870
California	831	+124	16	+4	6	809
New Jersey	427	+160	5	+2		422
Florida	314	+97	7	+1		307
Illinois	288	+127	1		2	285
Louisiana	257	+57	7	+3		250
Massachusetts	242	+24			1	241
Georgia	197	+47	3	+2		194
Colorado	189	+6	2			187
Texas	181	+71	3	+2		178
Pennsylvania	153	+41	1			152
Wisconsin	108	+35			1	107
Tennessee	98	+24				98
Ohio	89	+22				89
Oregon	88	+22	3	+2		85
Maryland	85	+25			4	81
Michigan	83	+18	1	+1		82

# Daily New Cases in the United States



# Demographics

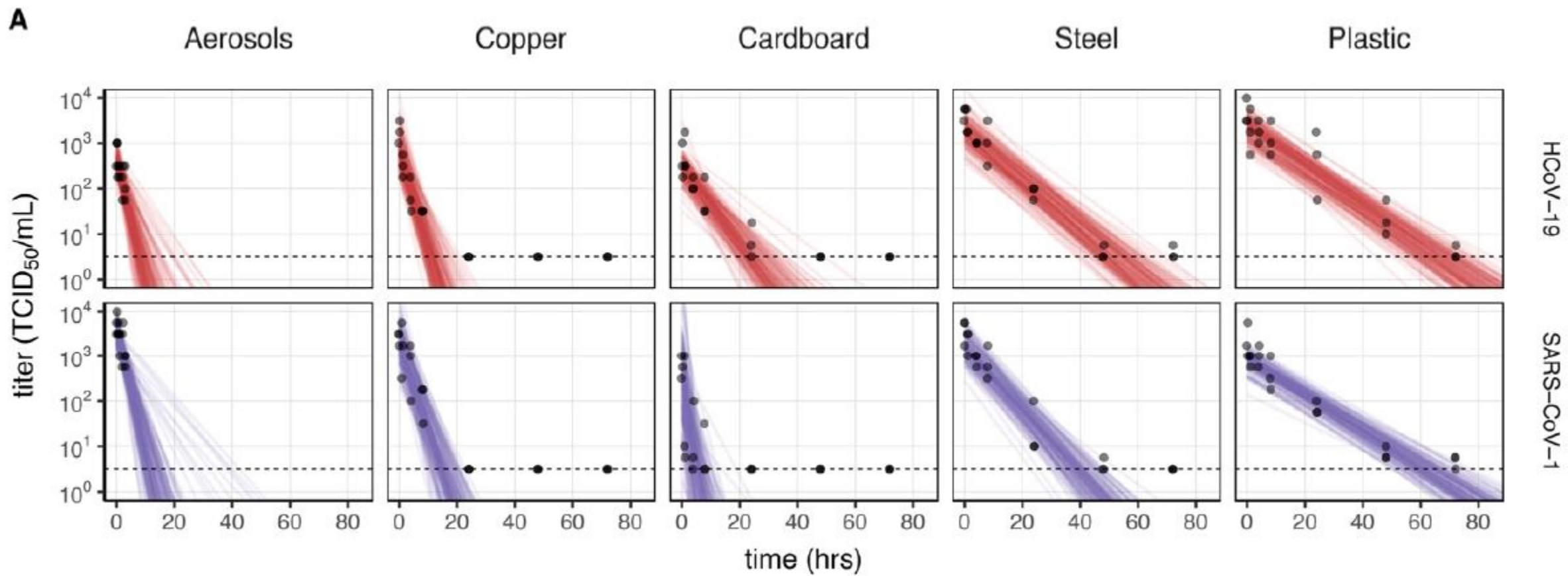
- 55,924 lab confirmed
- Median age-51
- 2.4% of all cases <18 yrs old
- 78% cases between 30-69

- Symptoms/Signs
  - fever(87.9%),
  - dry cough (67.7%),
  - fatigue (38.1%),
  - sputum production (33.4%),
  - shortness of breath(18.6%),
  - sore throat (13.9%),
  - headache (13.6%),
  - myalgia or arthralgia (14.8%),
  - chills (11.4%),
  - nausea or vomiting (5.0%),
  - nasal congestion (4.8%),
  - diarrhea (3.7%),
  - hemoptysis (0.9%),
  - conjunctival congestion (0.8%).
- Incubation: Mean 5 d (1-14)
- Onset of symptoms to severe disease- 1 week



# Transmission

- Droplet (6 feet) and fomite most common
  - Lives on plastic and stainless steel for up to 72 hours (?infectivity)
- Little fecal-oral transmission
- Aerosol transmission not significant
  - Aerosol generating procedures
- Household transmission most common (75-80%)
  - Secondary attack rates 10%
  - Japanese cruise ship attack rate 14-15%
  - $R_0$ -2-2.5



Munster VJ, NEJM, Mch 2020

# Transmission

- HCWs
  - 40,000 HCW deployed to Wuhan
  - Most HCW infection occurred outside the healthcare system

# Outcome of infection

- 80% mild/moderate disease
- 14% severe disease (dyspnea, respiratory frequency  $\geq 30$ /minute, blood oxygen saturation  $\leq 93\%$ , PaO<sub>2</sub>/FiO<sub>2</sub> ratio  $< 300$ , and/or lung infiltrates  $> 50\%$  of the lung field within 24-48 hours)
- 6.1% are critical (respiratory failure, septic shock, and/or multiple organ dysfunction/failure)
- 0.7-6% mortality

# Outcome of infection

- Asymptomatic disease is rare
- <19 yrs of age- 2.5% severe disease; 0.2% critical disease
- Mortality
  - Severe cases- 13%
  - >80 yrs of age- 22%
  - Male>female 4.7% vs 2.8%
  - No comorbidities- 1.4%
  - CV dz 13%; Diabetes 9.2%; Hypertension 8.6%; Cancer 7.6%

# Outcome of Infection

- Recovery
  - Mild disease- 2weeks
  - Severe disease- 3-6 weeks

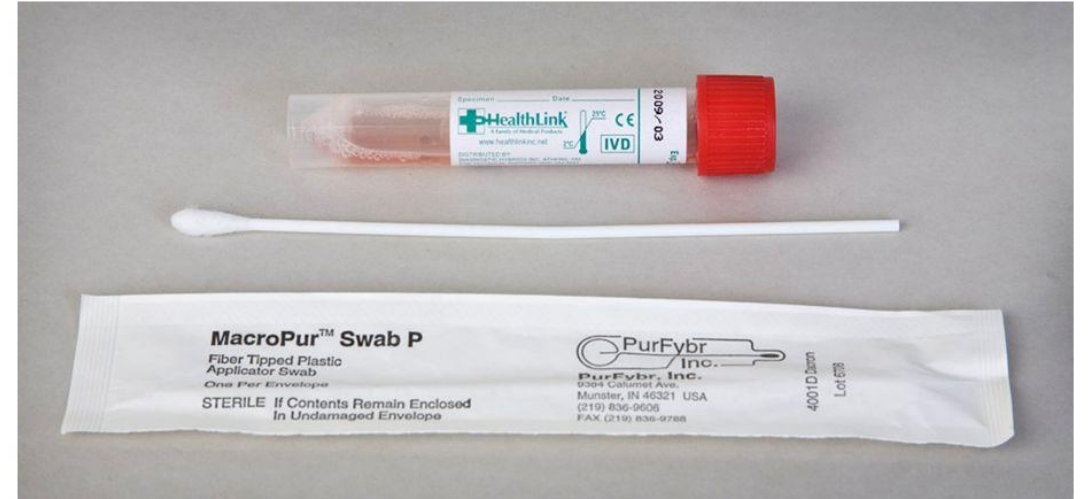
# Prevention in the healthcare setting

- HANDWASHING!!!!
- PPE
  - General care-PUI or Confirmed
    - WHO- Droplet and Contact Precautions-Medical masks, eye shields/goggles, gown, gloves
    - CDC- Respirator (N95/PAPR), when available, otherwise facemask, eye shield/goggles, gown, gloves
  - Procedures generating aerosols- N95/PAPR, eyeshield/goggles, gown, gloves
- Patient Placement
  - Cohort PUIs (until testing is more available) and confirmed cases

## Testing

- PCR
- Nasopharyngeal swab
- Lower respiratory tract-  
BAL/tracheal aspirate

## M4/UTM Media Culture Swab





# Treatment

- No FDA approved treatment
- Remdesivir- Investigational New Drug (Gilead)
  - Interrupts polymerase activity
- Hydroxychloroquine/Chloroquine
- Lopinavir/ritonavir
- Nitazoxanide
- IL-6 inhibitors-Tocilizumab, Kevzara