

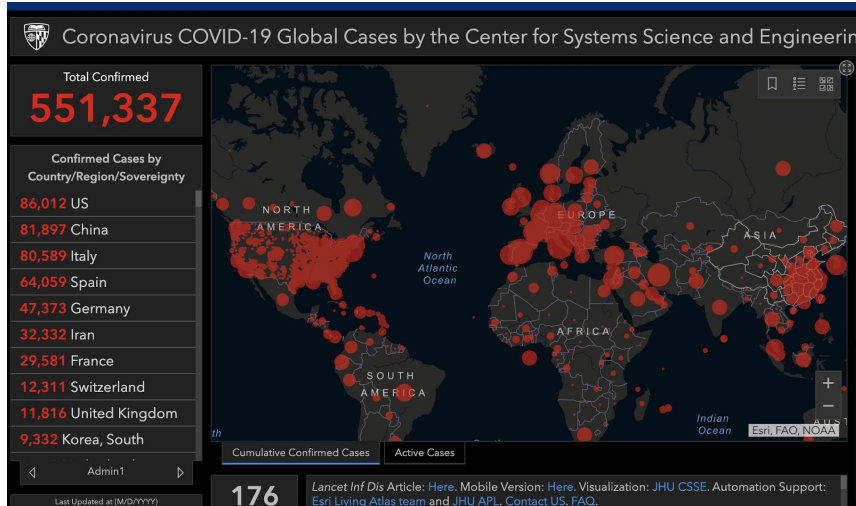
# *covid-19 situation report*

*march 27, 2020*



# covid-19 situation report

map



resources

Background

Epidemiology

Countries' Response

Health System Impact

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Economic Impact

Positive Impact

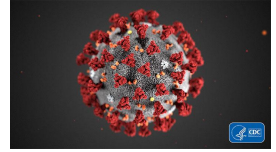
## Organizations

- [BBC: Economic Impact](#)
- [Business Insider - Fatality Ratio](#)
- [CDC: Coronavirus](#)
- [CDC: Physical Activity](#)
- [CNN - Stimulus Bill](#)
- [European Centre for Disease Prevention and Control](#)
- [NPR - School Closings](#)
- [New York Times - Timeline of Coronavirus](#)
- [Virginia.gov - COVID-19 in Virginia](#)
- [Virginia Pilot - Updates](#)
- [Washington Post - Testing](#)
- [WHO - COVID-19 Infection Map](#)

## Academic Resources

- [Johns Hopkins Coronavirus Resource Center](#)
- [University of Minnesota CIDRAP](#)

# Background: COVID-19 Basic Information



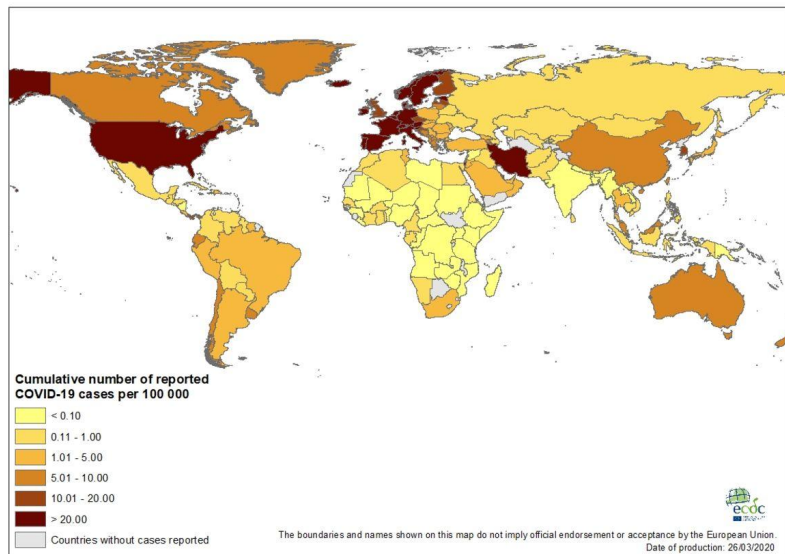
- **Origin:** Wuhan, Hubei Province, China
- **Source:** animal coronavirus that infects animals emerged to infect people
- **Classification:** SARS-CoV-2; characterized as a novel virus, a virus that has not been previously identified before; leads to COVID-19
- **Transmission:** coughing or sneezing; close personal contact (includes touching and shaking hands); touching nose, mouth, or eyes before washing your hands
- **Symptoms:** fever, cough, shortness of breath
- **Prevention:** social distancing; washing hands; cleaning/disinfecting surfaces
- **At Risk Individuals:** older adults, people with pre-existing health conditions
- **Cases (United States):** 81,000+ approx.
- **Deaths (United States):** 1000+ approx.
- **Treatment:** no treatment specifically approved for the virus

Center for Disease Control and Prevention  
(CDC)

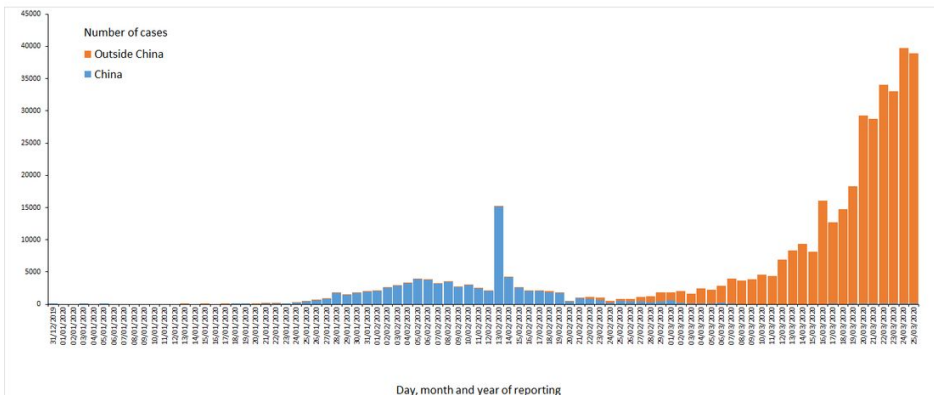
Brigham and Women's Hospital

# Epidemiology: Spread of COVID-19

Geographic distribution of cumulative number of reported COVID-19 cases per 100 000 population, worldwide, as of 26 March 2020



Distribution of COVID-19 cases worldwide, as of 26 March 2020



- Cases around the world are increasing at fast rate
- This trend will only continue if our govt does not act

- The US has over 20 cases per 100,000 people

European Centre for Disease Prevention and Control




# Current Hot Spots of COVID-19

Total Confirmed Cases: (3/27)  
553,244

## Current Top 10 Countries:

US, Italy China, Spain, Germany, Iran,  
France, Switzerland, South Korea, UK

## Legend

Current Top 10 Countries:   
Initial Spread (Dec '19 - Jan '20):   
Current Highest Mortality Rates: 

**Europe (red):**  
UK, Switzerland,  
France, Spain,  
Germany, Italy



Princess Cruise  
Ship: ~218 cases

## Current Surge of Cases (March '20):

Ireland	Norway	Pakistan
Portugal	Sweden	Israel
Belgium	Netherlands	Canada
Austria	Luxembourg	Ecuador
Czechia	Turkey	Malaysia

All Countries Currently Containing  
COVID-19 (CDC)  
Johns Hopkins COVID-19 Map  
WHO Situation Report  
Business Insider Article  
New York Times' Timeline

# Main Takeaways from the Map

Highest Prevalence of Coronavirus (3/27):

1. **USA** - 86,012 (1,301 deaths)
2. China - 81,897 (3,296 deaths)
3. Italy- 80,589 (8,215 deaths)
4. Spain - 64,059 (4,858 deaths)
5. Germany - 47,373 (285 deaths)

These numbers are **NOT** 100% accurate. Due to the United States' meager use of testing, there are definitely **more cases** around our country that public health officials are not aware about.

Johns Hopkins

CDC

## Impact and Importance of Testing

1. People generally seem much more likely to **isolate** themselves if they are confirmed as a virus carrier.
2. Public health officials need to know where the virus is and who has been exposed to it.
3. Local authorities need to **predict** how many people will be arriving in intensive care units in the coming days.
4. Certain parts of a country can become **hot spots** with a high number of cases.
5. Many organizations produce daily reports noting the number of confirmed cases to track the **evolution of the outbreak**, but the accuracy of these numbers is reliant on actually doing tests.

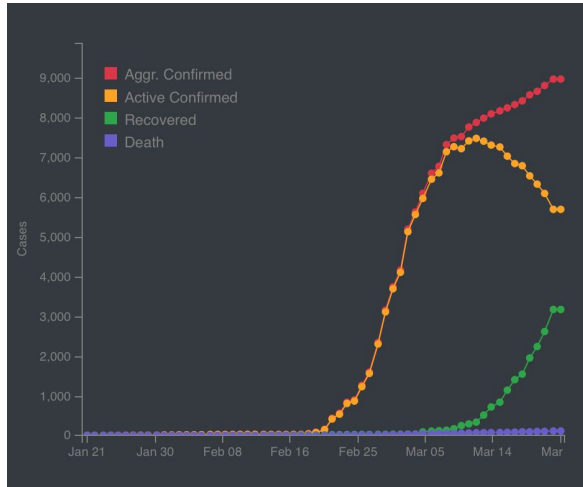
Foreign Policy

## Why do Statistics Differ between Sources?

- Coronavirus spreads very fast and different reports update at varying times
- Some places do not give out tests freely so it is hard to know the exact number of cases
- Private and public companies are testing so the information is coming from different places
- Places release information and report findings differently than others

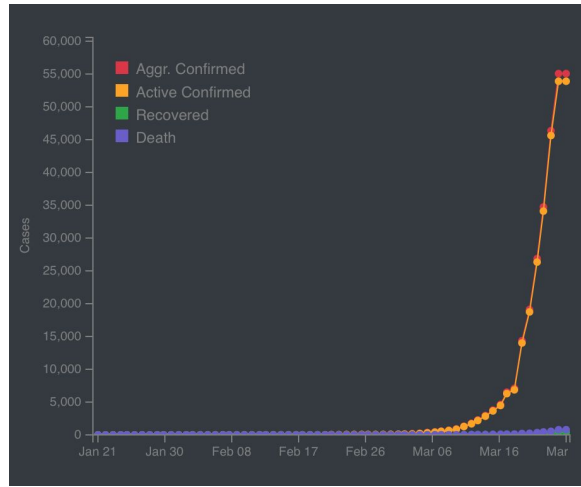
Washington Post

# Countries' Responses



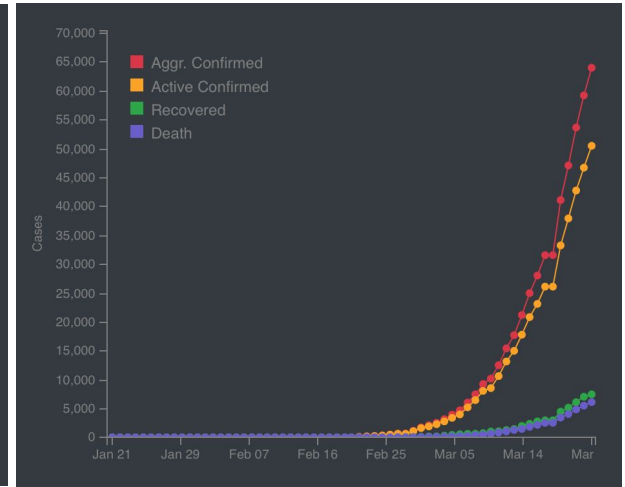
Downward trend of new cases in **South Korea**

- Flattened the curve after explosive outbreak
- Aggressive testing
- Quarantines and social distancing



Upward trend of new cases in the **US**

- Delayed response
- Testing is still not widely available to all citizens
- Social distancing has been recommended to all citizens; not mandated



Upward trend of new cases in **Italy**

- Delayed response
- Still experiencing increase in new cases daily



# Proactive Responses

"There's clearly an indication that a **systematic, government-led approach** using all tactics and all elements available seems to be able to turn this disease around." - Mike Ryan, WHO head of emergencies

"[Hong Kong, South Korea, and Singapore] are coupling aggressive testing strategies to identify cases, with isolation, contact tracing, and sometimes quarantine of at-risk people... **It's important to layer these strategies** to try to accommodate both of them." - Caitlin Rivers, EPI professor Johns Hopkins

## South Korea:

- Explosive outbreak (8,400 cases, 91 deaths) but **flattened the curve**
- Shut down kindergartens, nursing homes, community centers, and political rallies
- Aggressive **testing**
  - More than quarter million
  - Drive-through testing
- **909** new cases Feb 29 ->  
**74** new cases Mar 16

## Hong Kong:

- Leaders were prepared for another outbreak after SARS
- Doctors reported anyone with influenza-like symptoms who had traveled to Wuhan
- Schools and universities closed end of Jan
- **12,000** people in quarantine since February
- Aggressive **testing**

## Singapore:

- Quickly banned incoming travel from Wuhan
- Everyone traveling from affected country put in **mandatory quarantine**
- Authorities monitoring those who were in contact with a case
- Developed **serology test** to help determine who has had the virus and recovered

## Russia:

- Russia, with a population of 146 million people had only 253 cases on March 21st
- Russia quickly **shut down** its border with China.
- Before the virus had reached them, they set up **quarantine sites**
- Moscow converted seven hospital buildings into treatment centers chiefly for the virus



# Delayed Responses

"We have it totally under control. It's one person coming in from China, and we have it under control. It's going to be just fine." - President Trump, January 22

"**China** is unique in that it has a political system that can gain public compliance with extreme measures... But its use of social control and intrusive surveillance are not a good model for other countries." - Laurence Gostin, global health law scholar at Georgetown University

## China:

- Publicly admitted to weaknesses of its initial response
- Jan 23: Wuhan province lockdown
- Feb 17: Draft of legislation to curb wildlife eating practices
- Social distancing practiced, shutting down schools, businesses, other gatherings
- Use of AliPay and WeChat apps for places like train stations
- March 19: First time since December with no new domestic cases. Still must worry about new strain of virus re-entering.

## United States:

- Leaders in the United States underplayed the seriousness of the virus at first
- Schools across the country only began closing after there was a rapid increase in number of cases instead of closing as a way to inhibit the spread
- Mar 22: President Trump places a travel ban on 26 European countries for 30 days
- Tests for the virus have not been readily available to the public. Only those who are showing symptoms are being tested whereas in other countries in Asia have been testing as many people as they can

## Italy:

- Feb 20: first person in Italy tests positive with the virus
- In January, Italy banned all flights to and from China, but that only encouraged people to take connecting flights and not disclose their previous destination
- Mar 5: Orders all schools and universities to close
- Mar 9: A lockdown is instituted

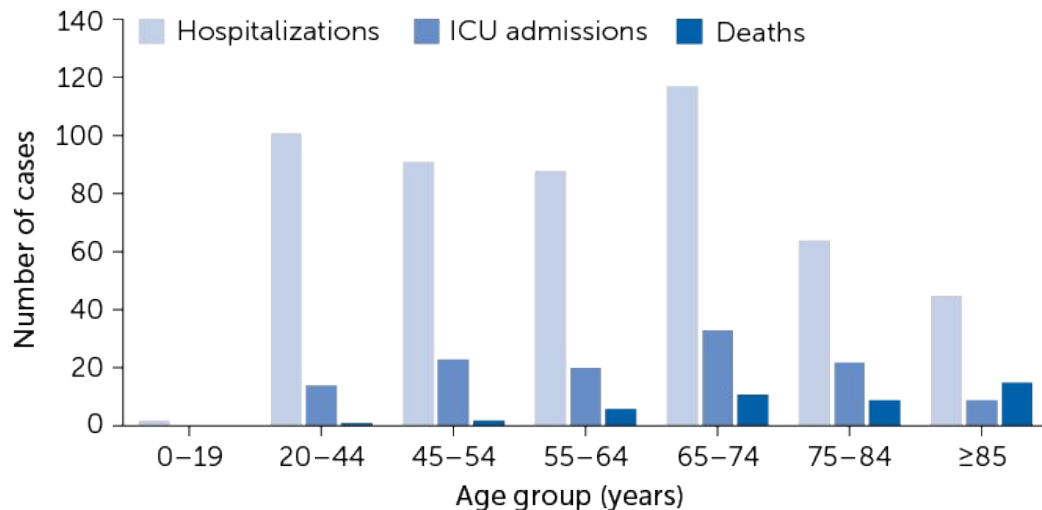
## Iran:

- Feb 19 – COVID-19 is reported in Iran.
- Feb 20 – Local govts **ignore** Ministry of Health's request to limit number of visitors at religious sites.
- Feb 22 – Govt closes all schools and universities in select areas.
- Mar 2 - Govt indicates that it may use force to limit travel between cities.
- Mar 5 – Govt suspends parliament indefinitely.

# Current Situation of Health System

- Lack of resources and ICU space
  - ~**100,000** ventilators nationwide
  - 38% of hospitalized cases: people aged 20 to 54
- Nonessential care closed
- **38 hospitalized** cases in Virginia
  - Drive-thru testing
- Health expenses for uninsured patients
  - Are a deterrent for hospital visits
  - May lead to further spread of COVID-19

Hospitalizations, ICU Admissions, and Deaths in the US (March 16)



[CDC Image 18 March 2020](#)

[US News 19 March 2020](#)

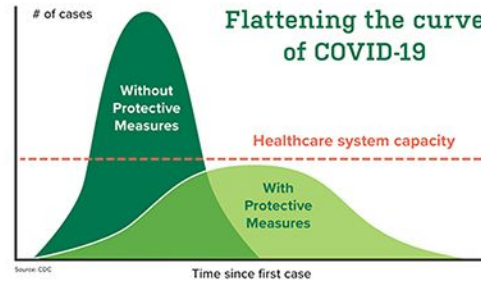
[Virginian Pilot 22 March 2020](#)

# Multiple Trajectories

## Trajectory #1 (With Protective Measures)

Outcomes:

- 1) Cut transmission rates to a manageable level
- 2) Contain the virus locally to limit the spread
- 3) Delay cases so physicians can adequately prepare for incoming patients
- 4) Proper Resource Allocation of PPEs (Personal Protective Equipment)



[Johns Hopkins -- Coronavirus Resource Center](#)  
[University of Alabama Birmingham](#)  
[World Health Organization](#)

## Trajectory #2 (Without Protective Measures)

Outcomes:

- 1) Limited ICU for COVID-19 Patients (even with converted surgical suits and trauma bays)
- 2) Limited Ventilators (need for private sector contribution)
- 3) Not enough physicians to support infected patients
- 4) Increased Rate of Preventable Deaths

Prevention: Collective action through washing hands frequently, self isolation, and social distancing

# Solutions within the Healthcare System

Looking to other countries' response: ie successes in South Korea/Singapore

Antiviral medicines: Chloroquine, ARV treatments, vaccine

Mass mobilization of Resources: 366,000 ICU Bed shortage, medical supply scarcity

Long term investment in public health measures to match our investment in clinical medicine.

[Nicholas Kristoff, NYT](#)  
[Danielle Ofri, NYT](#)  
[Li Ruoran, Harvard Library](#)

# Local/Community Response

What we know:

- Confirmed number of cases in VA: [604](#) (as of March 27, 2020)
  - 9 in Norfolk, 26 in VA Beach, 4 in Chesapeake (most cases in central/northern VA)
    - Tested: 7,337
    - Deaths: 15
- All public and private schools in VA have mandatory closure for the remainder of the academic year.
- All public gatherings of 10 or more people have been banned statewide.
  - No dine-in services at restaurants, only delivery available
- All non-essential businesses were issued to close by March 24, 2020.

# Local/Community Response cont.



## Local Drive-Thru Testing and Screening

Sentara Healthcare will keep two drive-thru locations open on a day-to-day basis as supplies allows, usually from 10:00am to 2:00pm.

**Sentara CarePlex in Hampton**

**Military Circle in Norfolk**

**Sentara Princess Anne Hospital in Virginia Beach**

Must present at least 2 of these symptoms:

- Fever (100.4 degrees or higher)
- Cough
- Shortness of breath

AND been in contact with someone who was confirmed/suspected to have COVID-19 or travelling to a country with a known COVID-19 outbreak.

\* All info subject to change

## Testing Process:

- Drive to location and stay in vehicle.
- Drive up to the screening tent.
- A nurse will ask you a series of questions.
- Based on your answers, you will be sent home or continue.
- You will be screened by a provider.
- Based on your screening, you will be sent home or continue.
- You will be tested using a nasal swab sample.
- If you receive a nasal swab, you will be considered presumptive positive until final results.
- It can take up to five days to receive test results.
- 14-day self-quarantine is key, if showing any symptoms or sick at all. <https://sentaraupdates.com>

# Impact on U.S. Economy

Summary of how coronavirus affects the world economy: “it’s a **double whammy**: a halt in production in affected countries, hitting supply chains across the world, and a steep drop in consumption together with a collapse in confidence” - Written in an op-ed by **Angel Gurría**, Secretary-General of the Organization for Economic Co-operation and Development

- Congress passed a **\$2 trillion stimulus package** to try and save the economy
- Highlights of the bill:
  - Direct payments to some people: \$1200- adults, \$500-children
  - Additional unemployment benefits
  - \$500 billion lending program for loans
  - Money allocated for airlines, hospitals, contract workers
  - Protection against foreclosures and evictions if unable to pay mortgage/rent
  - Funding for food assistance

Forecasts for the **U.S. economy** in 2nd quarter (April to June):

- **Drop** of between **12-24%**

Debate between experts of whether there will be a V-shaped economic recovery or if these are long term issues

- **Control virus or restart economy first?**

Sources: [The Hill](#), [NPR](#), [CNN](#), [ABC](#)



# Impact on U.S. Economy

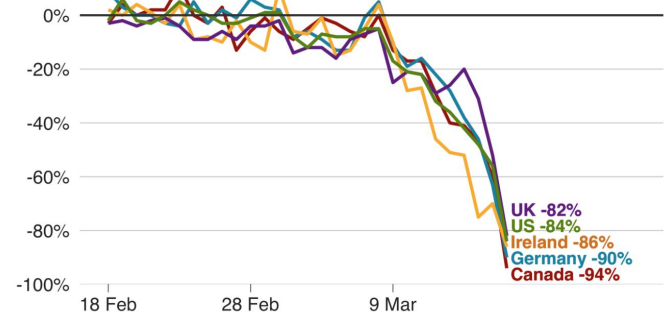
- **3.3 million unemployment claims** in the U.S. in the last week (record amount)
  - 3 weeks ago, it was a historically low number with barely 200,000 people filing for unemployment before COVID-19
- **Oil prices** dropped below **\$20** a barrel last week
- **Stock market** on steep **decline** in past weeks
  - Most recently there's a spike with belief government might intervene to save economy
- Businesses only able to close doors for so long before **unable to survive**
- Airline industry predicted to lose **\$250 billion** from COVID-19 outbreak

**China** is currently trying to **restart** their economy while preventing a second wave of the virus

- Potential example for U.S. and other countries of how long returning to normal will take

## Restaurant bookings in several countries have almost completely collapsed

Reservations compared with the same day last year



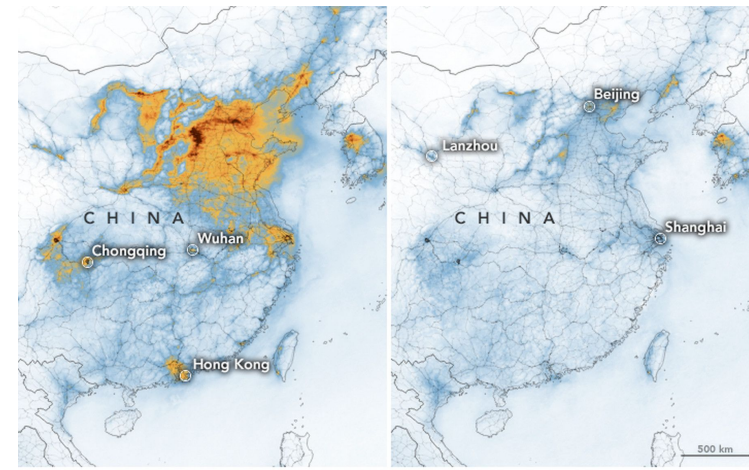
Source: OpenTable

BBC

Sources: [BBC](#), [SBA](#)

# Positive Impact - Climate

- China's "Good Quality Air Days" **increased** by 21.5% in February
  - Level of nitrogen dioxide **dropped 30%** in only 2 weeks (Figure 1)
    - Similar NO2 cloud over Italy cleared (Figure 3)
  - Carbon emissions dropped by a quarter
- Chinese ban on all **wildlife trade and consumption**
- **Ecosystems** have **returned** to Venice's canals (Figure 2)



Mean Tropospheric NO<sub>2</sub> Density ( $\mu\text{mol}/\text{m}^3$ )

Figure 1: China's level of NO2 in the month of February

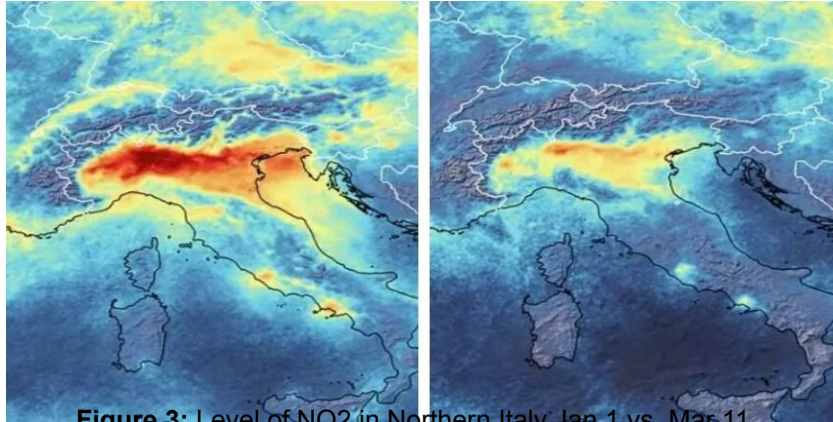


Figure 3: Level of NO2 in Northern Italy Jan 1 vs. Mar 11

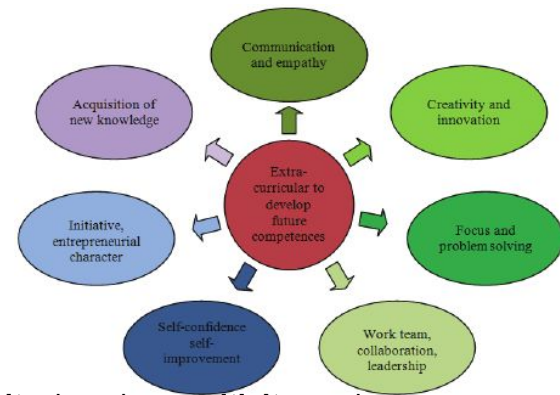


Figure 2: Venice's canals in 2013 vs. March 2020

Sources: [NPR Chinese Air Pollution](#) ; [Washington Post Italian Pollution](#) ; [NY Times Chinese Wildlife Ban](#)

# Positive Impact - Recommendations for How We Can Grow

- NA's **Ability to Grow**: Both Individually and Together
  - As we know, Norfolk Academy has done an outstanding job converting into a **digital platform** for students to continue pursuing academics, and with this shift, a large part of our daily lives changed
- The Importance of Extracurriculars and **Love of Learning**
  - Extracurriculars have been proven to **reduce** levels of **stress**, depression, anxiety, and **loneliness** by allowing kids of all ages to explore their interests outside of school
  - Fitness & Arts
    - The CDC recommends **daily moderate exercise** for at least 30 minutes
    - Schools that incorporate art on a day to day basis show **increased** student **creativity**, learning **positivity**, and engagement
      - Online dance classes w/ Mr. Watson: **video tutorials** of hip hop, salsa, etc.
      - Continuation of #NAFitnessChallenge - featuring a different coach every week with optional **Zoom workouts**
      - At home **art project** recommendations by Mr. Garvin: video tutorials of drawing, painting, etc.
  - Service
    - Creating a passion for service will help **connect us** with our community and family and will **increase** self-confidence, **empathy**, and compassion
      - **Penpal program** with our partner exchange schools
      - Upper and Lower School Zoom **reading program** - an extension of Senior Buddy program
  - Keeping everyone up to date through **social media** - important coronavirus facts, activity ideas, positive messages - creates a stronger sense of community
  - "H Bell": **faculty sponsored activities** - karaoke, cooking, puzzling etc - something for peers to take interest in together



Sources: [Developing Strong Behavioral Health](#) ; [CDC Physical Activity](#) ; [Benefits of the Arts](#) ; [Benefits of Service](#)